AND BER 185 SON 0 727 8101 COCOBER 2005 S7.95 Read Processor COCOBER 2005

Australia's Magazine of Industrial & Narrow Gauge Railways

Sight Railway Research Society of Australia Inc

LIGHT RAILWAYS

Australia's Magazine of Industrial and Narrow Gauge Railways

No 185 October 2005 ISSN 0 727 8101 PP 342588/00002

Editor: Bruce Belbin, PO Box 674 St Ives NSW 2075.

Research, Heritage & Tourist Editor: Bob McKillop, c/o PO Box 674 St Ives NSW 2075.

Industrial Railway News Editor:

John Browning, PO Box 5646 CQ Mail Centre QLD 4702. Distributor:

GORDON AND GOTCH LIMITED. Printed by Courtney Colour Graphics.



Light Railway Research Society of Australia Inc. A14384U PO Box 21 Surrey Hills Vic 3127

COUNCIL

President: Bill Hanks (03) 5944 3839 Secretary: Phil Rickard (03) 9870 2285

New South Wales Division PO Box 279, Moorebank NSW 1875 President: Jeff Moonie (02) 4753 6302 Secretary: Peter Charrett 0418 223 270

South Australian Group 6 Dunedin St, Dover Gardens, SA 5048 Secretary: Arnold Lockyer (08) 8296 9488

South-east Queensland Group 54 Aberdare St, Darra, QLD 4076 Secretary: Frank Savery (07) 3209 3497

Tasmanian Representative

11 Ruthwell St, Montrose, Tasmania 7010 Ken Milbourne (03) 6272 2823

MEETINGS

Regular meetings are held in Adelaide, Brisbane, Hobart, Melbourne and Sydney. For dates, times and locations of future meetings, see LRRSA NEWS, page 22.

Subscriptions: \$47.00 for year ending 30 June 2006, providing six issues of Light Railways magazine, information on Society activities, 25% discount on LRRSA publications, etc. Overseas \$A69.30 economy airmail. Payment by cheque, money order, Bankcard, Mastercard, or Visa. Contact the Membership Officer, PO Box 21, Surrey Hills, Vic. 3127. Fax (03) 5968 2484. Email: Irrsa@Irrsa.org.au

Sales: Back issues of Light Railways and other publications available from LRRSA Sales, PO Box 21, Surrey Hills, Vic 3127.

LRRSA Web Page:

http://www.lrrsa.org.au

-							=				
	~	-	.,	0		-		~			
			v			-					
v	u		-	~	-	-		v	ы	-	

ounrerenene.	
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 super foot	0.00236 cubic metre
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

Contents

The Jewel in the Crown - Part 1	3
The Lake Macquarie Light Railway - Part 1	15
Industrial Railway News	18
Letters	24
Heritage & Tourist News	26

Comment

It's always nice when some good news arrives unexpectedly, and what you see below is, from my perspective, very good news indeed. The former South Maitland Railways' number 10 (Beyer Peacock 5520 of 1911), class leader of the SMR's fourteen-strong 2-8-2T 10-class, is back in action after a lengthy restoration.

This image, showing number 10 during its first run on 15 September, traversing the level crossing near the workshop at East Greta Junction, arrived in my e-mail just as this issue was about to go to press.

Further information will follow in the December issue of Light Railways but, in the meantime, here's a preview. Bruce Belbin



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 the forests.

Light Railways is the official publication of the Society. All articles and illustrations in this publication remain the copyright of the author and publisher. 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 provision that the Society has the right to reprint, with acknowledgement, any material published in *Light Railways*, or include this material in other Society publications.

Front Cover: Puffing Billy Railway locomotives 12A and G42 are double-heading for the very first time, as they storm the 1 in 30 Emerald Bank at Pinnock's Cutting on the scheduled 10.30am passenger train ex-Belgrave, on 20 August 2005. These locomotives were stablemates at Moe until the closure of the Moe-Erica section of the former Walhalla line, on 26 June 1954, although by then 12A was in storage at Moe. Photo: Peter Ralph **Upper Back Cover:** The same train seen crossing the historic Monbulk Creek trestle bridge, near Belgrave. The difference is size between the two locos is apparent. Photo: Peter Ralph **Lower Back Cover:** On the evening of Thursday 21 July, the Puffing Billy Railway ran a special 'Olde Gembrook Passenger' train, hauled by locomotive 14A and comprising early compartment and end-platform coaches. The train is seen preparing to depart Belgrave. Photo: Stefan Rebgetz (http://puffingbillyphotos.fotopic.net)

For reproduction, please contact the Society



Watercolour illustration of a Mancha five-ton AX battery locomotive at 8 Level adit.

Print courtesy Mr David Hopkins, Taswegia

The Jewel in the Crown Pasminco Rosebery mine railway

by Ross Mainwaring

Part 1. Operations 1928-1970

Setting

Rugged beauty, this is the West Coast of Tasmania, a wilderness of pristine forest and majestic mountains. One prominent peak is Mount Murchison, beneath which nestles the town of Rosebery, interjacent to the famous old mining fields of Mount Bischoff and Mount Lyell, renowned respectively for their tin and copper wealth.

Rosebery is named after Lord Rosebery, Archibald Philip Primrose, the 5th earl, a former British prime minister, statesman and author. The town of 1800 people is situated on the Murchison Highway, 125km south of Burnie. In this part of the island state where dense forest clings to the mountain slopes, nature has generously deposited massive sulphide mineralisation in which gold, silver, copper, lead and zinc are found in economic quantities.

Tom McDonald, a long time prospector, registered the first mineral lease on 13 November 1893 after discovering gold in the alluvials of a creek, a tributary of the Stitt River, flowing beneath Mount Black. Tracing the source of this precious metal, McDonald dug a trench high up on the western flank of the mountain which revealed a copper-lead-zinc ore body.

This discovery was no mean achievement considering the inhospitable terrain and a climate with an average annual rainfall of 85 inches. By 1896 the Tasmanian Copper Company, the North Tasmanian Copper Company and the Primrose Mining Company were working the ore body by tunnels driven into the mountainside. When the narrow gauge North East Dundas Tramway reached Williamsford from the silver mining town of Zeehan in 1898, Rosebery ore was railed 20 miles to the Tasmanian Smelting Co. works near Zeehan for processing.

The ore was extremely refractory so mineral separation by means of ordinary wet concentration was not feasible except by flotation. Consequently "the owners were therefore practically restricted to the sale of their argentiferous galena ores, and the penalties imposed upon the zinc contents were detrimental to the securing of a satisfactory profit."¹ Mining virtually ceased in 1913 when the Zeehan lead smelters, founded in 1897 by the Metallgesellschaft of Frankfurt and the Deutsche Bank of Berlin, closed.

The Mt Lyell Mining & Railway Company acquired the moribund mines in 1916, and began a campaign of exploration and development of the properties. Mr Robert Carl Sticht, renowned metallurgist of the company travelled to the USA to investigate first hand the promising new electrolytic method of zinc extraction.

Zinc, a hard bluish-white metallic element, and one of the constituents, as sphalerite, of the complex Rosebery ore body was perplexing the metallurgists of Mt Lyell and the silver, lead and zinc miners of Broken Hill, NSW. Pecuniary success was dependant on developing some inexpensive method of extracting the metal from the lead-zinc concentrates. During 1910 the first of ten zinc distillation furnaces was commissioned by the Broken Hill Proprietary Co at Port Pirie, South Australia, to produce zinc spelter from concentrates produced by that company's mine at Broken Hill. A large proportion of the zinc was used in the galvanizing process for the protection of iron sheets and wire, alloys, pigments, medicines and timber preservative. In 1916 zinc concentrates, extracted by the flotation process from Rosebery and Hercules lead-zinc ore

were, as a trial, shipped to California for testing by the new electrolytic process. This went "unprecendently well, and ... the material is remarkably tractable to work upon."²

The first commercial production of electrolytic zinc was achieved by the Anaconda Copper Company of Butte, Montana, USA and simultaneously by the Consolidated Mining and Smelting Company of Trail, British Columbia in 1915. These plants were built to satisfy the urgent demand for pure zinc required for brass in munitions manufacture.

Meanwhile, on 2 June, 1916, Amalgamated Zinc (De Bavay's) Ltd, Zinc Corporation Ltd, North Broken Hill Ltd and Broken Hill South Ltd formed the Electrolytic Zinc Company of Australasia Pty Ltd, (EZ), when they were unable to export their concentrates to the Belgium smelters because of the German occupation. Mr Auguste Joseph De Bavay, born in Belgium and educated as a surveyor, brewer and chemist, had, during 1904, experimented with a "skin flotation" process to separate zinc from lead at Broken Hill. In 1905 he established a successful pilot plant (de Bavay's Treatment Co. Ltd) at the North mine to treat the extensive dumps. Zinc-blende had always been considered an impurity in the lead mining industry and the cost of its separation from the associated ore, which was required, together with the loss of the lead unavoidably left behind, was considered to exceed the value of the zinc concentrate.

The EZ Company was registered in Victoria. Its head office was Collins House, Melbourne. Risdon, Tasmania, was selected as a suitable site for an electrolytic plant dependent on a cheap and plentiful supply of electricity and adequate shipping facilities, situated as it was beside the Derwent River near Hobart. In 1917 a miniature electrolytic plant produced a few pounds of zinc a day. WL Baillieu wrote: "Operations at the Risdon plant to date completely justified the confidence of the board in the metallurgical efficiency of the electrolytic method of treatment."³

At the onset of war, Australia found itself in the position that, while possessing one of the largest silver-lead-zinc deposits in the world at Broken Hill, and to a lesser extent Rosebery, its current metallurgical plant could only produce 2500 tons of zinc per annum. An increase in output was difficult as the cost of production at the zinc distillation plant at Port Pirie, was, under Australian conditions, excessive.

To ensure a reliable supply of local concentrate an agreement was reached in July 1920, with Mt. Read and Rosebery Mines Ltd., a subsidiary of Mt Lyell Mining & Railway Co. to acquire the Rosebery mine for 350,000 fully paid up \pounds 1 EZ shares. The acquisition included the Hercules mine which comprised the South Hercules and Mt Read lead-zinc mines and the lead smelter at Zeehan. A public company was created on 5 October, 1920, with an authorized capital of \pounds 3 million. The Mt Lyell Co. was the single largest shareholder. Mr Herbert W Gepp was appointed General Manager and the Hon. William L Baillieu, Chairman.⁴

The EZ Company worked the Rosebery and Hercules mine, which was high up in the clouds of neighbouring Mt Hamilton. On 26 November, 1956, EZ Industries was registered in Melbourne to take over the shares of the Electrolytic Zinc Co. In 1984 North Broken Hill bought the company, but in 1988 the base metal operations of North Broken Hill and CRA were merged to form a company called Pasminco.

The product of the Rosebery flotation plant, copper-lead-zinc concentrate, is railed away over the former Emu Bay Railway to Burnie and Risdon. Side by side sit the mine and town, in close proximity to the magnificent Cradle Mountain World Heritage Area, which lies away to the east.

Mine Development

The ore body is fault bound – on the west (footwall) by the Rosebery fault and on the east (hanging wall) by the Mount Black fault. Irregular veins or lenses of ore outcrop on the western foothills then dip east at 45 degrees, deep into the heart of Mt Black. These lodes can be up to 600 feet long and average 15 feet in width. The old upper levels, with the exception of 7 Level, were accessed by adits and an opencut on the outcrop while today's stopes plunge down 1.3km, making Rosebery one of the deepest mines in Australia.

May 1928 saw work commence on a mill with a capacity to treat 3000 tons of ore a week from the Rosebery and Hercules mines. It was only the most recent developments in preferential flotation and fine grinding that allowed the reopening to be economically possible. The site was hacked out of the dank forest on the lower slopes of Mt Black in a place where relatively little excavation was necessary. 8 Level, 540 feet above sea level, would provide direct rail access from the underground workings to the concentrating mill yard. Mr Harry Hey, Chief Metallurgist was responsible for the design of the new plant which would supersede the company's experimental mill at Zeehan, sealing the fate of TGR's picturesque 2ft gauge North East Dundas Tramway, which closed in 1929.

An aerial ropeway, just over 4 miles in length was strung across the hills to the bottom of the Hercules mine incline haulageway at Williamsford, which was upgraded in 1931. The 2ft 10in gauge double track rail incline was 4818 feet in length and used two 4-ton (tare) bogie ore trucks to carry down the ore from the mine high up on Mt Hamilton. Its capacity was 40 tons per hour.⁵

Progress was retarded by the onset of the Great Depression with most construction ceasing at the end of 1931. While the prewar price of zinc was $\pounds 21$ a ton, it now dropped to $\pounds 18$ a ton. The gross value of metals per ton of average grade Rosebery ore declined by $\pounds 2.15s$. A statement said: "production operations will not be commenced until metal prices improve sufficiently and until there is adequate adjustment of the factors governing the costs of mining, milling and transport." Only caretaker work was done in the mine. Electricity was brought in from Tarraleah hydro-electric power station, replacing the supply from Mt Lyell's hydro scheme at Lake Margaret

With an improved economic outlook, the grinding section of the mill began working on 17 February 1936. The process was to mix three parts of Rosebery ore to two parts of Hercules ore which was rich fine grained intimately associated sulphides. The composite ore was crushed and ground: mill feed assayed 24% zinc and 6.5% lead with some silver and gold values. After the flotation circuit the concentrates were screened and dried.

The Emu Bay Railway was contracted to rail the concentrates to Burnie using 3ft 6in gauge wagons that held three 8½-ton containers. At the port of Burnie the lead concentrates were shipped overseas. Some of the zinc concentrates were shipped to roasting plants in South Australia and Newcastle, NSW, where the sulphur dioxide gas produced during the roasting process was converted into sulphuric acid, used chiefly in the manufacture of superphosphate fertilizer. The calcined, or roasted material from these plants was then shipped back to Risdon's electrolytic plant. The remaining portion of the zinc concentrates were railed to Zeehan by the Emu Bay Railway for roasting at the smelters, and then railed back to Burnie for shipping to Risdon.⁶

At Risdon, "After being given a further roasting treatment the calcine is agitated with an acid solution which dissolves the zinc. This solution passes through purification steps..... The purified zinc



sulphate solution is passed through electrolytic cells, where the zinc is deposited under the influence of the electric current..... The zinc is stripped from the cells at 72 hour intervals, and is then melted and cast into half-hundredweight slabs." The remaining calcine residue was shipped to the Broken Hill Associated smelters at Port Pirie, where it was smelted for its silver and lead. The zinc produced was of extreme purity, 99.983%, making possible many uses of the metal for which ordinary spelter was unsuitable.⁷

Rosebery's development got off to an auspicious start with EZ's profit for the 1936 financial year being $\pounds 322,863$. During the following year, 86,250 tons of ore were treated and the workforce at the mine increased to 341. Reserves were estimated at 1,500,000 tons, which proved over time to be very conservative. Preparations began for the sinking of an internal underlay shaft to tap the lower levels of the ore body.

All the upper levels of the mine were served by a surface haulage connecting 4 Level adit with 8 Level and a secondary haulage connected 2 Level with 4 Level. 50hp electric winches pulled up trolleys of timber, supplies, and later on, battery locomotives. Ore from these upper levels gravitated down through three ore passes to 8 Level. An underground general service rise extended from 4 to 8 Level, served by a single drum 15hp winch. 8 Level cross-cut, extending 1350 feet in a north-east direction to intersect the ore body was the principal transport roadway out to the mill. It was widened out to 10ft and driven on a grade of 1 in 150 from the ore bin. Two 2ft gauge tracks of 22lb rail were laid. (See Figure 1)

Horses were the original motive power, pulling ten 1.66 ton capacity Granby cars, obtained in 1931 from Findlaysons of Devonport, back into the mine. These cars were described as "a welcome departure from honored Australian practice", which was either ordinary side tipping skips or the plain square non-tipping design. Either type was labour intensive compared with a Granby car. Taper roller bearings were fitted to the axles to reduce friction.⁸

The Granby mine car derives its name from the Granby Consolidated Mining, Smelting and Power Company of Phoenix, British Columbia. This company successfully developed the car for underground use in their copper mines.⁹ The body of the car consists of a strong steel box hinged on one side of the undercarriage and lying loose on the other side. On this side a stout cantilever arm, having a running sheave at its end, is attached to the bottom of the truck body. At the breaker bin the running sheave, which is only six inches above the rail, engages a steel ramp whereby



the truck body is tipped at 45 degrees. A side door is fixed to two lever arms which have centre fulcrums in the end of the truck body set at the centre line. The rear end of the arms` are chained, at a fixed distance, to the undercarriage. The displacement of the door is magnified by the lever ratio giving a discharge opening of 1ft 6ins. When the now empty truck body automatically returns to its horizontal position on the far side of the unloading ramp, the door is locked closed by two teeth which fit into slots in the body.



Builder's photo of a Mancha Titan B, lettered for EZ. The photo is dated 1938.

EZ originally intended to use an English Electric type 1A, 4½-ton storage battery locomotive at Rosebery. Following an application in 1926, a dispute arose with the Tariff Board over import duty of £359. EZ appealed to the Board stating: "that success in the development of the Zinc Lead Ores on the West Coast of Tasmania depends on the cost of mining and treating such ores and that it is of first importance that the capital cost of all plant to be used in the mines shall be kept to the lowest possible figure." It is easy to understand why the company was displeased: the locomotive's purchase price was £1010 CIF Melbourne. The Tariff Board reversed its decision but EZ delayed buying locomotives for a further ten years.¹⁰

To the gratitude of the horses, two Mancha storage battery locomotives arrived to replace them in 1937. These were known as Model 'Titan B' of 9hp and carried builder's numbers 1805 and 1806 (Mancha order No.C29553). A further identical locomotive was ordered in 1938, number 1903 (C30874), followed in 1941 by yet another, 2118 (C35514).

These four-wheeled electric locomotives were built by the Mancha Storage Battery Locomotive Co. of Chicago, USA. They weighed three tons and with a wheelbase of only 25½ in were able to negotiate a minimum radius curve of eight feet. One axle was powered by an M-54 type traction motor with chain drive to the other axle. A Q215 controller was supplied with the necessary amps by at Exide 20 c ell Kathanode type KB25 lead-acid traction bittery. It was said of these locomotives they vould replace "eight to t welve of the strongest men that ever pushel a mine car."

Battery charging sets were manufactured in Victoria by the Page Engineering Co. of Melbourne. This company was, along with John Carruthers & Co. of Sydney, the Mancha representative in Australia. The locos on 4 and 6 Levels were lowered down the surface haulage at the end of each shift to the charging station at the far end of 8 Level yard while the one on 9 Level remained in a charging station underground.

Mining Techniques

As the Rosebery mine was developed variations of the overhand cut and fill method of ore winning were tried. In areas of weak hanging wall square set timbering was erected. "Normal practice in the horizontal or rill cut and fill stoping is to sill out from the development drive to the ore limits as defined by diamond drilling, care being taken not to disturb the hanging wall. The back is concurrently broken to 12ft high and the level gangway is erected. A horizontal slice or leading stope is taken over the timber after which a rise is put up to the mullock pass on the level above. Ore chutes and ladder ways are then arranged and the stope is filled. Ore breaking after this is commenced at a ladder and the cut advanced towards the rise at an incline to suit the prevailing circumstances. Except where steep rills are in use, ore is transported to chutes by air or electric powered scraper winches.....Boring is done with jackhammer and airleg combinations....." Slot and pillar mining was developed at a later date.

Filling for the stope was glacial wash, composed of clay, gravel and boulders found on the surface which was dragged into the 12 open rises by an electric scraper, or in later years, by a bulldozer. The consistency of the mullock was controlled by a 'water-boy' with a hose. Close co-operation between the scraper operator and the men underground in the stope was essential.¹¹

After blasting, which was done at the end of the shift, the incoming shift would clean up the stope and the broken ore was dragged by the scrapers into the ore passes. At one time, 10in by 10in King William pine logs were used for these passes. When a set of skips arrived beneath the ore pass, hand operated guillotine type steel doors, 23in long, were opened to allow the ore to drop into the one-ton skip which on some levels could be the side tipping variety. When loaded, rakes of ten were pulled by a Mancha locomotive to the main ore passes on 4 and 6 Levels for tipping. After falling through grizzlies to sort out oversize rock, the ore gravitated down these passes to 8 Level.

On this Level the ore was dumped into Granby cars through arc-type chute doors with an opening of 28in. These were operated by compressed air. The full set was hauled to the surface by a Mancha where the Granbys passed through the tipping ramp at 3mph. This was situated inside the breaker station and a tally-man was employed here for car tally purposes and also to blow out, with compressed air, mud sticking to the bottom of the cars. The wet ore was a nuisance in this regard. Ore from the Hercules mine aerial ropeway also arrived on the opposite side of the station. Beneath the breaker station ore bin was a 'Ruwolt' rock breaker; a conveyor moved the rock in a tunnel under the yard then up to the tertiary crusher in the mill.

The railway was rearranged over the years following the introduction of battery locomotives. After passing through the breaker station a balloon loop, passing over an ore slide and beneath the Williamsford aerial ropeway, returned the empty rake underground. The bottom of the surface haulage was also connected by sidings. The haulage operator was unable to see down the incline from his winding room so a special telescopic arrangement, using mirrors, was housed in a chimney like structure to afford him an unobstructed view all the way to 8 Level. A bell code was used for signalling. This haulage was in use until the late 1960s. During construction of the Murchison Highway in the early 1960s, any mullock tipped at the ore slide was taken away by truck for road-making. Sidings served a sawmill, which cut timber for the mine until 1971. The battery charging station, which in 1959 housed three 5-ton and two 3-ton loco battery chargers, was served by a long siding a little to the east of the sawmill.



A Mancha AX tipping ore at 8 Level breaker station. LIGHT RAILWAYS 185 OCTOBER 2005

Photo: L Johnson Collection



A Mancha AX underground on 8 Level.

War Years and further developments at Rosebery

With the outbreak of the Second World War a contract was signed by EZ for the supply of zinc to the British Government. This called for "the sale of 3,000 tons of refined zinc per calendar month f.o.b. Risdon at £18 15 shillings (Australian currency) per ton plus the usual premium which refined zinc carries over and above good ordinary brand of spelter."

"The period of the arrangement extends for the period of the war and three months afterwards-subject to the right of the British government to terminate the contract after 36,000 tons has been delivered." ¹² This contract was advantageous to both the British and EZ in that the price of the metal would be stabilized and the company had an assured market. 'Empire' zinc, produced in British Commonwealth countries, was admitted free of duty into the UK. Authorities were anxious to avoid a repetition of the previous war when the zinc price rapidly rose from £21 per ton in 1914 to £71 18 shillings per ton by 1916. To further aid the war effort, the production of copper concentrates began in 1943.

The ore body at Rosebery was still plunging down into the earth so with an assured market for munitions metals an internal incline shaft, No.1 shaft, was sunk to follow the ore below 8 Level. This shaft, 20ft by 8ft outside timbers, had three compartments, two for winding plus a man-way. Locally cut Celery Top pine was used for timbering. Skip tracks were 3ft 6in gauge, using 60lb rail dogged to the wooden sills of the shaft. 10 Level was reached by 1949 with the shaft eventually extending down to the future 17 Level. Below 12 Level the shaft section was increased to 22ft by 8ft to include a sinking compartment.

An ore bin of 150 tons capacity was formed below 10 Level from which the 2.5 ton capacity shaft skips were filled. Ore from 9 Level gravitated down ore passes to 10 level. Here rock first entered a measuring hopper from which it was then

Photo: L Johnson Collection

discharged through pneumatic sliding doors into the shaft skip waiting below. A skipman operated the discharge controls as well as the push buttons for the bell signals to the winding engine driver. 100 tons an hour was the maximum handling capability of the shaft at this time.

Increasing tonnages of ore hauled along 8 Level required the services of an additional locomotive so in 1944 a five-ton Mancha was purchased. This was a Model AX of 20hp and carried builder's number 2418 (Mancha order No.C40816). In contrast to its smaller cousins using lead-acid batteries, the newcomer was fitted with a Nickel Iron 91 cell type A.7 Edison Alkaline battery, single M-307 traction motor and 61-6 controller. A feature of the loco was the attractive brass warning bell mounted within easy reach of the driver.

Two further AXs were obtained: No.2983 of 1948 (C1113) and 3058 of 1949 (C1210). These larger locos were long overdue as the smaller 'Titan Bs' were often oveloaded and traction motor burnouts occurred, particularly on 9 Level. In an attempt to overcome this problem, force draught motor cooling was tried unsuccessfully. Eventually, the answer was "a form of induced draught cooling where the traction motors were re-wound with woven glass, insulated conductors. High melting point soft solder was used for commutator connections...."¹³ This alteration did the trick and motor burn-outs ceased, although temperatures of up to 90 degrees centigrade were recorded in the motor frames.

Both Exide and Edison type batteries gave good service but with the wartime shortage of skilled labour the "robustness and minimum servicing requirements of the nickel-iron type are decided advantages." Lead-acid batteries had lives of about three years while Edisons lasted considerably longer, often up to ten years, which was the guarantee on their cell plates.

Motor generator sets charged the batteries. In earlier years a mercury arc rectifier was used for a time but the glass bulb proved too fragile for a mining environment. Charging was for seven hours. It was fully automatic under the control of the amp-hour meter fitted to the locomotive's battery box.¹⁴

The five-ton Manchas were able to haul rakes of 25 Granby cars out to the crusher bin. The smaller Granbys were replaced by 2½-ton cars (27cu. ft), built in the Emu Bay Railway workshops, bringing the total number in use to 59. 15 cubic feet side-tip trucks were still used on the older levels. All up, 135 skips were in use underground for ore transport. The original Granbys were 'beefed up' by the welding of stiffening plates in the corners and the replacement of the original doors by a rigid attachment to the door arms.

45lb rails were becoming standard, replacing the light 30lb and 20lb sections which were unable to withstand the increased traffic and heavier locomotives which the war years spawned. The distance to the most northerly ore-pass was 4100 feet so derailment free haulage was necessary to keep the mill supplied with ore. Underground communication was by telephone. Unusually, these were fitted with 60 watt heaters to combat moisture.

An unusual feature of 8 Level was the ventilation arrangement. At this time the mine was naturally ventilated but each day, during the half hour interval between day and afternoon shift, a 100,000 cubic feet/minute pressure fan forced air through the workings to clear the smoke and dust left by blasting. A ventilation door was closed at 8 Level portal, forcing the air to return to the surface through the mullock passes.¹⁵

In 1954 three more Titan B locomotives of 9hp were ordered: Nos 3692, 3693 and 3694 (Mancha order No.C1922) at £2729 each. Lead acid batteries, made in Australia, cost about £300 each. According to Mancha records these locos were supplied in kit form. A possible reason for this was that the electrical engineer, in the past, had complained



A Mancha Titan B locomotive as later modified with protection shields for the driver. Photo from EZ Review

about the "extortionate prices of spare parts from the USA". Parts delivered disassembled could be measured up as a future source of locally built spares to minimize replacement costs. The Superintendent commented that several alterations to the locos were needed to suit Rosebery's requirements, including protective shrouds for the driver.

These additional locomotives were required for 10, 11 and 12 Levels to handle an increased mill tonnage of 30 tons per hour. Double shifting would be necessary to achieve this objective, necessitating the purchase of three battery charging rectifiers at \pounds 1377 for the underground charging stations. Trucking of mullock against the grade on 9 Level required the changing of batteries half way through the shift.



The surface haulage connection at 8 Level in 1955. A full rake of cars is standing on the mainline.

Photo: Pasminco



Post war developments

In 1948 a two-man contract crew worked the 8 Level haulage and they could move over 300 cars during their shift. On the upper levels, the crew consisted of the loco driver, who, under a new system introduced in mid-1948, was a weekly paid Company man. He acted as a tally clerk and was responsible to the shift boss on that level. The second man was a trucking contractor, who loaded and tipped each skip. He received a fixed contract price per skip. Stoping contractors were paid on the loco driver's tally of the number of skips moved. Contractors on development work used car loaders to fill the skips. One Gardner Denver and two Eimco Finlay compressed air loaders were used, loading 12 cubic feet per minute (cfin) and 30 cfin respectively.

Plans were in hand to increase mill capacity by 50 per cent but this was somewhat retarded by post war shortages in both labour and materials. $\pounds 14,000$ was spent on new plant during 1948. Zinc was sold to domestic consumers at a fixed price of $\pounds 22$ per ton free on board at Risdon, but as a result of an acute world shortage after the war many Australian producers exported their concentrates almost entirely to the British Ministry of Supply for $\pounds 78$ per ton, the war contract having expired on 9 August 1945. This placed EZ in the position of receiving insufficient concentrates to maintain economic capacity so the domestic zinc price was raised to $\pounds 40$ per ton in 1948, with producers to contribute a quota, based on output, of the equivalent concentrate required to produce sufficient zinc for domestic needs.¹⁶ A record profit of \pounds ,1,068,600 was posted for the year.

Employees' welfare was not neglected by EZ. Indeed the isolated location of the town, connected to the north only by the Emu Bay Railway, made the provision of amenities imperative. Company housing and single men's quarters were rented out at very reasonable rates. A Community Council ran community stores, dental clinic, recreation clubs, recreation grounds, an annual picnic, scholarships and holiday homes at West Ulverstone.¹⁷ It was not until 1963 that direct road access to the North West Coast was available.

In 1958, Mr NS Kirby, general Superintendent of EZ said that although zinc prices (£65 18s per ton) were falling because of global oversupply, the development of die-cast alloy had brought increased uses for zinc in the manufacture of automobiles, in fact "die-casting was the most important development in the zinc industry during the past 100 years."¹⁸ From February 1936, in excess of 3,300,000 tons of ore had been treated, producing over 1,009,000 tons of zinc concentrate. During September 1958 a United Nations conference was held in London with the aim of alleviating the world surplus of lead and zinc by regulating their flow onto the market.

As of May, 1959 the locomotive distribution in the mine was: 10 Level: 1 x 3-ton Mancha.

- 9 Level: 1 x 3-ton Mancha.
- 8 Level: 2 x 3-ton Mancha and 1 x 5-ton Mancha.
- 6 Level: 1 x 3-ton Mancha.
- 4 Level: 1 x 5-ton Mancha.

One 5-ton and two 3-ton locomotives were spare.

No.1 Shaft development

The lower levels of the mine were serviced by No.1 shaft which had its winding room on 8 Level. This shaft was inclined to follow the ore body, referred to as D lens, at between 33 to 55 degrees from the horizontal. Prior to 1958 the shaft bottomed at 12 Level to service the top portion of G lens at a depth of 864 feet. (See Figure 2)

Diamond drilling proved ore reserves to at least 2500 feet so it was decided to continue sinking to the future 17 Level. However the shaft winding engine, of 85hp, was at the limit of its capacity as only 50 tons an hour could be hoisted in the 2.5 ton shaft skips from the loading station under 12 Level. Continuous hoisting on three shifts was necessary to handle men, materials and ore. The man skip had a capacity of 20 miners.

The mill required 1008 tons per mine day, operating at a capacity of 30 tons per hour. Management realized that all future ore would be won from below 8 Level. Calculations centred upon a hoisting capacity of 115 tons/hour from an arbitrary depth of 2460 feet which was the lowest point for which knowledge of the ore body justified planning. Also mill capacity could be increased to 40 tons/hour.

The English Electric Co. Ltd won the tender for a new AC winder while mechanical parts were supplied by M B Wild and Co. Ltd also of the UK. So as not to disrupt winding from 9, 10, 11, and 12 Levels the new engine room chamber was excavated further to the west of the existing engine room. This permitted a new 300 ton ore bin excavation, replacing the original 60 ton bin. A new ore loading roadway held up to 25 Granby cars, which were pushed in below the pneumatically activated bin doors for loading.

During construction, concreting materials were brought in by side tipping skips. To position the sheave wheels and adjunct steelwork at the top of the 115 feet rope raise, a temporary 2ft gauge rail track was laid in the raise which was operated by an air winch. Some of the larger machinery could not, because of clearance parameters (7ft by 5ft), be carried on rail trolleys so a flat steel plate sledge was used instead. A Mancha locomotive pulled the sledge which slid along the top of the rails.

The electric winding engine was a double drum unit with 10ft dia. clutched drums. Onto these was wound 1950 feet of 1% in diameter. Langs Lay Flattened Strand steel rope, with a breaking strain of 72 tons. The rope carried shaft skips of 9 tons gross weight at a winding speed of 1170 ft/minute with a loading-unloading cycle of 156 seconds. A 415 volt, 570hp AC motor spun the drums via single reduction gearing. Dynamic braking was used for slowing during normal braking.

When the new shaft arrangements were complete the original ore bin was used for mullock. A bridge was built over the disused original rope rise so the shaft skips could continue on up to the new tipping ramp.19 To move battery locomotives between levels a special four-wheel jinker was used. This was attached to the shaft skip by a 'strop' and shackle, one each side. At the required level, the jinker was run out onto the plat, above which a monorail was fixed into the roof. The battery box was lifted from the loco chassis by a block and tackle which could slide along the monorail, then lowered onto the jinker. Away went the skip, jinker and battery box to the required level. Here the procedure was reversed, with the battery box left suspended from the monorail while the jinker was sent away to collect the chassis. The chassis followed by the same method, once more reunited with its battery at the appointed place of work. On 8 Level a drawbridge affair was built so the jinker could roll straight out onto the level from the shaft.

The 1960's: going down

With an urgent need for additional locomotives, George Moss Pty.Ltd. of Leederville, Western Australia was invited to quote for a three-ton Gemco 'Hauler' battery-electric locomotive. Manchas were now out of favour because of their high price, \pounds 11,000 for three units. George Moss quoted \pounds 1614 free on rail Perth or Freemantle, for a single loco with delivery to be within 8 to 10 weeks. The quotation was accepted and an order was placed (EZ Order No.W/7859) for three locomotives. The first arrived in late 1960. The locomotives had two 5hp series wound motors developing a maximum draw bar pull of 1400lbs with a gear ratio of 12:1 at a normal speed of 4-5mph. Wheelbase was 30 inches with 15½in diameter wheels. The lead-acid battery was an Exide 30xKA19/2 cells, 60 volts with 324 amp/hour capacity.



The 3-ton Gemco 'Hauler', as depicted in the Gemco catalogue of the period. Courtesy Keith McDonald

EZ enquired of the manufacturers about tandem operation of the locos and it was decided to modify the second Gemco as a 'slave' unit. An additional charge of \pounds 245 and major reconstruction, such as the fitting of a double controller, was necessary to produce a 'master' loco. Such tandem units had already been built for Central Norseman Gold Corporation in Western Australia. Rosebery's Engineering Department let the idea temporarily lie as they were dissatisfied with the cumbersome electrical connections and braking ability of the 'master' and 'slave'. In effect, the 'tandemising' produced a six-ton locomotive handicapped by the braking ability of a three-ton loco. Any loco driver with a penchant for maths knew that 50 feet was the stopping distance of a five-ton loco from 5mph.

During the decade a campaign of deep hole diamond drilling was undertaken from cross-cuts developed east of the ore body on 14 Level. On 24 December 1963 the General Manager approved the purchase of a 1½-ton Gemco 'Trammer' battery



The 1½-ton Gemco 'Trammer', as depicted in the Gemco catalogue of the period. Courtesy Keith McDonald

LIGHT RAILWAYS 185 OCTOBER 2005



Trevor Murfet and Mario Majolo with a Gemco Trammer at the face on 14 Level, December 1965. Photo from EZ Review

locomotive for £2,450 (EZ Order No. W/9021). This had one 5hp motor developing a maximum drawbar pull of 700lbs. Wheel diameter was 14 inches with a 24 inch wheelbase and the battery output was 48 volts. It was necessary to mechanise the hand-trucking on 14/D-5N drive south, as the face was over 1600ft from the shaft with a further 550ft to the ultimate drilling location. At this distance the miners would have to hand-truck each round of mullock (some 20 tons) about 12 miles. Two men worked in the drive. While one was loading three one-ton skips with a bogger, his mate was tramming the full skips out to the mullock pass. Switching at the face was by shunt and car shuttle.²⁰ Drilling revealed further ore bodies at depth so a decision was reached to sink a new vertical shaft. No.2 shaft, from 4 Level to intersect the ore body at the future 21 Level. It was planned to double output to 600,000 tons a year (See Figure 2).

A further $1\frac{1}{2}$ -ton Gemco 'Trammer' was ordered in April 1966, (EZ Order No.L/R083) through the Tasmanian agents LF Masters & Co Pty Ltd of Hobart, at an estimated cost, including battery charger, of \$4400. The underground manager, Mr WG Lee wrote "Loco trucking would be a great help in the shaft stripping work as the mullock will have to be trucked uphill to the 5N winze. Hand trucking would require two men per truck and haulage with a tugger is slow as the course is not straight."

Development and stoping on 13 and 14 Levels had reached the stage where further locomotives were necessary. Another three-ton Gemco Hauler was ordered in 1965 (EZ Order No.LR6386), followed by three more in 1966. These cost \$21,000 including batteries and battery chargers and tandem modifications. In December 1966 the Underground Manager recommended the purchase of 15 Granby cars at \$700 each and a three-ton locomotive, battery and charging set for \$6400. This loco was to be a spare to replace two Manchas which had gone across to the Hercules mine to retire the horses -Clyde, Nugget, Prince, Duke and Robin and their hostler, Mr Billy Doe, who was in his 70s. The horses pulled the empty side tipping skips back underground, where once loaded, they gravitated down hill out of the mine under the control of a trucker riding on a brake truck at the rear of the rake. An order was placed with George Moss for a Gemco 'Hauler' (EZ Order No.LR/3277) in March 1967. No controller was requested as Rosebery wanted to try their own design, in lieu of drum control, for tandem operation. The final order (EZ Order No.LR/8085) for a Gemco Hauler, less controller, was placed in 1968, bringing the total to nine three-ton Gemcos at work in the mine in 1970. The numbering system was simple: each type and weight of locomotive, Mancha or Gemco, was numbered in separate series from 1 upwards.

Tandem Operations

During May, 1966, the Underground Superintendent wrote: "Increased mining activity at the north ends of 11 and 12 levels would be possible if the Mancha loco was replaced by a Gemco and if both Gemcos were available for tandem operation whenever requiredCertificated drivers are difficult to obtain and drivers are currently working a considerable amount of overtime to meet production requirements." The Manchas could only handle five cars whereas tandem Gemcos would handle 14 with the same crew.

In a memo, the Electrical Engineer, George Chadwick wrote about George Moss' 'tandemising': "This system, however, has some disadvantages. The equipment is bulky, the electrical connections are cumbersome and, more importantly, braking is confined to one mechanical set: viz- the set carrying the driver.

Thus the maker's method leaves little, if any, margin for error when in effect we would have a 6 ton loco and corresponding train with only 3 ton braking equipment.

To overcome these disadvantages it was considered that contactor type control in lieu of drum type control would form the only satisfactory basis.....Moreover, it would allow dynamic braking to be introduced to operate simultaneously on both locos, providing a powerful supplement to the single loco mechanical braking.



On Thursday morning, 3 December 1959, a Mancha AX had the honour of pulling a Vice Regal Party, including Lord and Lady Rowallan, on an underground visit to Rosebery. Note the special transport trolley fitted with seats for the visitors. Photo: L Johnson Collection

After prolonged searching for suitable equipment we have borrowed a set of contactors and have fitted them to one of our Gemco locos...."

He went on: "The cost of equipping each loco with contactor control is about $f_{,500}$ or about three times the cost of conventional equipment. However, it will allow us to safely adopt a method of hauling which will show a substantial saving in haulage costs and will more than pay for itself." Two modified locos were fitted with new controllers built in the workshop incorporating Albright DC contactors. Electrical connection was by a multicore control cable with Cannon plugs. Each plug was wired differently so changing the cable end for end reversed the 'master and slave' relationship between each loco. The leading plug (master), when plugged in, determined in which loco the driver sat. A 'master/slave' switch was also fitted along with a field polarity switch for the motors. If another loco was coupled up, this switch ensured that all traction motors were of the same polarity, otherwise each loco might want to go in the opposite direction! The dynamic brake was very effective, slowing a rake from full speed to a crawl in just over its own length. All control gear was built into a bulkhead, separating the driver from the battery box, which was reduced in size for safety.21

Following extensive trials with a single locomotive, successful tandem operations began in 1966 on 12 Level North end, when haulage distance was 3500 feet on a grade of 1 in 150 in favour of the load. Sixty cars were to be moved per shift, effectively in six hours. Going inbye, a single Gemco with seven empties (14 cwts tare each) drew an average of 108 amps on its 8 minute trip. Coming outbye with 17.5 tons it drew 57 amps on a 10 minute trip. Six Gemcos were converted for tandem operation.

The heartbeat of Rosebery's locomotive fleet was the traction battery, either nickel iron or lead acid. Chadwick, the electrical engineer, writing in January, 1965 said: "Comparison between lead acid and nickel iron shows in favour of lead acid on maintenance cost and, judging by the performance of the later Britannia batteries, cost per unit of life is also a little in favour of lead acid. Therefore, as a matter of policy we should phase out the nickel iron type in favour of lead acid batteries." He added that to meet future increases in mine production targets, battery capacity would have to be increased by 50 per cent: "Such an increase is only possible with lead acid batteries and has only recently been a proposition with the development of our own battery trays." A lead-acid cell was 2 volts as against nickel iron of 1.2 volts, therefore, three lead-acid cells equalled five nickel iron cells; overall size then became an important consideration.

The object of this correspondence was the reliable old Manchas on 8 Level. Their present batteries were nearing the end of their lives. Chadwick further observed: "A battery of the size envisaged would have a potential capacity equivalent to 13 t.p.h. [tons per hour] of Rosebery ore through the mill. This could be increased by at least 20% if the track was reconstituted.

With the track in its present condition and using three separate batteries in one trucking day, we can provide for 39 t.p.h. through the mill in 11.5 hours of actual trucking time. On the other hand with improved track and 13.5 hours of actual hauling the equivalent mill throughput could be 44 t.p.h." By replacing the nickel iron Britannias, a saving of \pounds 400 annually was possible.

New battery chargers were necessary as the present ones were of insufficient capacity to cope with the heavier charging rate of lead-acid. To safeguard 8 Level haulage, the General Manager approved the purchase of four lead-acid batteries at $\pounds 1000$ each and four battery chargers at $\pounds 500$ each.



Filming a movie for EZ House Journal Rosebery Ramblings. This unusual use of "musical" Granby cars was photographed on 8 Level in 1968. Photo: L Johnson Collection

A memo from the Mining Superintendent to the Chief Engineer on the last day of June 1970, drew attention to "the precarious situation that exists in the Rosebery Mine with regard to locos and loco batteries.

Every loco is being used to capacity throughout the week in an attempt to attain tight production and development targets. There is no margin for delay."

The distribution of the locomotive fleet was as follows:-17 Level: 1 x 1½-ton Gemco (development)
16 Level: 1 x 3-ton Mancha
15 Level: 1 x 3-ton Mancha and 1 x 3-ton Gemco
14 Level: 1 x 3-ton Mancha and 1 x 3-ton Gemco and 1 x 1½-ton Gemco (development)
13 Level: 2 x 3-ton Gemco
12 Level: 2 x 3-ton Gemco (Tandem for north end) and 1 x 3-ton Gemco (south end)
11 Level: 1 x 3-ton Gemco (OK for Tandem operation)
10 Level: 3 x 5-ton Mancha
4 Level: 1 x 3-ton Mancha
5 & 6 level Hercules Mine: 2 x 3-ton Mancha

The Superintendent added: "threats to production and development targets exist because there are no spare locos, either idle or on light duties, which could be swung into full time production or development should mechanical failure effect any of the 18 locos.

I recommend, therefore, that this razor's edge situation be remedied immediately." Every three or four weeks a traction motor was removed for major repairs and as there was only one spare, a second was obtained for \$750. Maintenance inspections were carried out at the noon crib break, down one level per week, to tie in with the winder servicing day. Inspections were performed by a fitter at the underground charging station; battery boxes were removed for a thorough examination. His report ended up with the Assistant Mechanical Engineer who was in charge of planning preventative maintenance work on the locomotive fleet. New locomotives were considered to alleviate the "precarious situation".

References

- 1. Chemical Engineering and Mining Review. 5 December 1917, p85
- 2. Chemical Engineering and Mining Review. 5 February 1932, p164
- 3. Chemical Engineering and Mining Review. 5 November 1919, p52 4. The EZ Review. "1916 -1966. 50 Years of Progress."
- 5. Proceedings Australian Institute of Mining & Metallurgy. No.152-153, 1949
- 6. The Advocate (Burnie). 20 February 1936, p8
- 7. Chemical Engineering and Mining Review. 5 January 1924, p129
- 8. Chemical Engineering and Mining Review. 5 August 1930, p393 9. "Practical Mine Development and Equipment." By Lucien Eaton, 1934
- 10. Dept. of Import Procurement, Minute Paper, 26/F/4583, Series
- A425/122. Item 1939/8305. National Archives of Australia, Canberra.

11. Fifth Empire Mining & Metallurgical Congress. Mining Methods in Australia, Vol.2, 1953

- 12. Chemical Engineering and Mining Review. 10 November 1939, p89
- 13. Proceedings Australian Institute of Mining & Metallurgy. No.152-153, 1949
- 14. Proceedings Australian Institute of Mining & Metallurgy. No.152-153, 1949
- 15. Fifth Empire Mining & Metallurgical Congress. Mining Methods in Australia Vol 2, 1953
- 16. Report: Electrolytic Zinc Co. of Australia Ltd. January, 1950.
- 17. Booklet- "Operations of Electrolytic Zinc Co.of Australia. Rosebery & Hercules mine. 1957"
- 18. Chemical Engineering and Mining Review. 15 April 1958, p71
- 19. Proceedings Australian Institute of Mining & Metallurgy. No186, 1958. By L R Murphy
- 20. EZ Review. December, 1965. Volume 3 No.10, p2
- 21. EZ Review. December, 1966. Volume 3 No.14, p14

Glossary

Adit: A nearly horizontal passage from the surface by which a mine is entered

Argentiferous: Yielding silver

Backs: The height of ore available above a given working level Calcine: Ores exposed to heat to remove sulphur

Flotation: An ore concentration process that takes advantage of the principles of surface tension and colloid chemistry

Footwall: The wall under the ore body

Galena: Common lead sulphide

Grizzly: A grating of steel bars for the screening of ore or stone

Hanging wall: The upper wall of an inclined ore body

Koepe: A system of hoisting without using drums, the rope being

endless and passing over pulleys instead of around a drum Lang Lay rope: A steel rope in which the wires in each strand are

twisted in the same direction as the strands in the rope

Lens: A body of ore, thick in the middle and thin at the edges

Level: A horizontal passage in a mine Mullock: Waste or refuse rock

Ore body: Generally a solid and fairly continuous mass of ore Plat: The floor of a level near its intersection with a shaft

Rill stoping: Ore is cut back from the winzes in such a way that an inverted pyramid-shaped room is created, with its apex in a winze and its base at the level

Sill: The floor of a gallery in a mine

Skip: A large hoisting container used in an inclined or vertical shaft Spelter: The zinc of commerce, more or less impure, cast in slabs from molten metal

Sphalerite: A sulphide of zinc, containing 67% zinc

Stope: An excavation from which ore is extracted

Strop: A band of metal

Sub-level: An intermediate level opened a short distance below a main level

Sulphide: A compound of a metal and sulphur

Underlay shaft: A shaft sunk in the footwall and following the dip of the ore body

Winze: An inclined shaft down from a level Zinc-blende: Sphalerite



A Mancha 3-ton locomotive in 8 level surface charging room. Note the ramps either side of the chassis to raise the battery box clear of the loco's frame. The chassis could then be rolled out if necessary. 15 April 1960. Photo: Peter Charrett



Running Trials: The restored locomotive (Perry 6634.52.1 of 1952) crosses the newly constructed No 2 Bridge. Photo: John Shoebridge

The Lake Macquarie Light Railway Part 1: Track and Structures

by John Shoebridge and Grahame Swanson

Some time ago a short article appeared in *Light Railways* (No.173 Oct 2003) entitled *Mr Moore becomes Miss Twiggy*, describing the reconstruction of a Malcolm Moore chassis into a shunting locomotive for the Lake Macquarie Light Railway. In response to the interest generated by that article, the authors now offer further details (presented in three parts) of the construction of this private railway, commencing with details of permanent way and associated buildings.

The Background

Although pursuing a career in aviation spanning 39 years, Grahame Swanson's predominant interest has always been steam locomotives. He regularly participates in crewing preserved steam locomotives and has over the years, constructed three impressive 7¼ in gauge steam models. Not long ago he felt it was time for something a little larger.

A suitable property was acquired at Toronto, an outer suburb of Newcastle, NSW. It comprises some 5 hectares of easily graded rural land, isolated from suburbia, yet close to everything. On site was a modest farm cottage and there was ample room for a large workshop. With the purchase finalised, pencil was put to paper and a small but interesting rail track route was planned and pegged.

Initial Acquisitions

It was always intended that this railway would primarily be for the operation of steam locomotives. To this end, two 610mm gauge Perry locomotives were acquired from Megalong Valley (west of Sydney NSW). The locomotives were delivered in August 2001 (see LR No.161, Oct 2001) and the restoration of the first of these will be documented in Part 2 of this Series.

The next item purchased was a diesel tractor fitted with a backhoe, but no sooner had it commenced work than the engine seized, requiring a complete rebuild. That done, the machine has proved indispensable to the project for digging, lifting, pushing and hauling. At times pushed to the limit of its capacity, the machine has never again failed.

Structures

On taking possession of the property the first requirement was a residence. It was not considered desirable to be an absentee landlord, and after all how better to enjoy your railway that to have it at your front door. So the existing farm cottage was renovated and a garage added. The front verandah of the residence was reworked to form a railway platform where the owner can sit and observe, or at whim, flag down and board a passing train.

Next to come was the workshop. The trusty backhoe levelled the ground, a concrete slab was poured complete with inground electric wiring, and before long a prefabricated steel building was in place and the essential machine. tools had been installed.

The grand plan envisaged the loco shed adjacent to the workshop, so at the same time, the backhoe dug the inspection pit and it was lined with the same concrete pour. None too soon

LIGHT RAILWAYS 185 OCTOBER 2005



Bending: A study in concentration... The Hydraulic Rail Bender in use. Photo: John Shoebridge

- within days the shed's two occupants had been unloaded and were waiting for a roof over their heads. This came in the form of a steel framed skillion off the main workshop. A side and rear wall were provided with the doors on the final end still awaiting completion.

Not long after all this was finished – in November 2002 – the site was threatened by a massive bushfire. Fortuitously the massive Skycrane helicopter water bomber had been called in to rescue a fire crew trapped on the adjoining property, so whilst in the area it also set about and saved the house, garage and workshop. A barn, storing many historical items including steam relics, and the entire perimeter fencing, however, succumbed to the firestorm.

Trackwork

Sleepers and rail came at great expense. Because the intended location of the track traversed large areas of colloidal clay, the decision was made to lay 60lb rail to aid in spreading the load. Contact was made with the contractor disposing of the rail at that time being replaced between Nyngan and Cobar in western NSW. Two semi-trailer loads, a total of 54 tonnes, arrived on site to be stacked for future use. The sawn sleepers were obtained locally and have been delivered as required.

The front-end loader was used to strip some 600mm of topsoil and clay from the 2-metre wide trackbed and this was replaced with compacted road-base in preparation for track laying. The several small embankments and shallow cuttings were similarly formed and then the sleepers were pre-bored and spread out along the route.

Now we could finally 'bend iron'. The rails were hauled into place with the tractor, barred onto the sleepers and bolted together in lengths of four. A couple of spikes were hammered home then the rails were pulled to form the approximate curve. A hydraulic rail bender was used to even out the curvature to the desired radius. This appliance, made in the new workshop, comprises a 50-tonne ram and hand-pump, and a gauge calibrated to indicate the curvature applied. It runs on small wheels on the rail being bent. Finally an offset gauge (also made for the job) was applied to quickly check the completed curve. The route design is such that the smallest curve had a radius just under 2 chains (40.2m).

After the track was spiked, it was allowed to settle before ballast was applied. A ballast/plough wagon was built for this purpose and it will be more fully described in Part 3. After ballasting, the track was jacked through the ballast, aligned by level, and tamped to the required super-elevation.



Ballasting: Miss Twiggy pushes the spreader hopper and one of the track gang controls the flow of ballast. Somehow the term "Hairylegs" hardly seems appropriate. Photo: John Shoebridge



Bridging: At the No 2 Bridge site, with the trusty backhoe at the ready... the Steel Gang prepare one of the girders before it is lifted in place. Photo: John Shoebridge

Bridges

There is a semi-permanent creek running diagonally across

the property and the track crosses it in two places. Calculations, based on the adjacent main road culverts, indicated the requirements for storm runoff. Working to these figures, substantial steel spans up to 13 metres long were set on mass concrete abutments. On the first bridge, side girders were used, the rails being clipped directly to the longitudinal girders so that the trains generate an impressive rumble as they cross. On the second bridge, also a 13 metre span, an under-girder design was employed and the timber sleepers were bolted to the girders in normal fashion.

The bridges have been designed to recognised rail specification standards and this required the piers to be founded on suitable load bearing material. Unfortunately, at a depth of 2.5 metres, the hired auger found an underground river causing the first setback. The auger truck was dispatched and the driving of a 650mm diameter pipe through the river gravel to solid footings finally allowed the pumping and pouring of the piers. Yes, all six piers found the underground river! The end results however are very satisfying, and these two functional and aesthetic structures add greatly to the character to the line.

Points and Signals

In addition to the lead into the locomotive siding, two more sets of points were constructed and fitted during the track laying to allow for a 'Figure 8' to be installed. This permits the direction of travel to be reversed, adding to the variation of operation and ensuring even flange wear. The considerable time spent in searching for suitable pointwork bore no fruit. In the end new point blades were machined on the milling machine and the crossings were laboriously but accurately fabricated to template, using an oxy cutter, welder and angle grinder. Two NSWGR lever frames have been donated and installed to control the facing points. Similarly an original enamelled steel semaphore signal (with the eight day kerosene lamp) is used as the platform starter. These and the other signalling and interlocking features will be more fully described in Part 3 of the article.

Other Infrastructure

Once the steam locomotive commenced service, there was need for a water supply so a 7500 litre galvanised steel tank has been mounted on braced pipe legs adjacent to the engine shed. It is fed with rain water off the workshop roof, and comes complete with the traditional swivelling spout and hosebag. Close by is a small wooden 'humpy' housing the fettlers' tools and section car.

Testing

Once in service, the works locomotive, *Miss Twiggy*, faultlessly performed all the tasks associated with tracklaying. Thus trains were run over the new line almost as soon as it was laid, not only in connection with the work, but also to accommodate the numerous visitors. But what was really eagerly anticipated was the completion of work on the first locomotive and the sound of a steam whistle.

Whilst all the above work was being done, in the shops the restoration was well under way. This project will be described in detail in Part 2.



LIGHT RAILWAYS 185 OCTOBER 2005



Industrial Railway News Editor : John Browning PO Box 5646, CQ MAIL CENTRE 4702 Phone: (07) 4931 3684 (w); (07) 4926 6356 (h) 0407 069 199 (mob). Fax: (07) 4931 3700 e-mail: ceo8@iinet.net au

Special thanks to contributors to the Locoshed and Cane Trains e-groups http://groups.yahoo.com/group/Locoshed

http://groups.yahoo.com/group/Canetrains

NEW SOUTH WALES

BLUESCOPE STEEL LTD, Port Kembla

(see LR 184 p.16)

1435mm gauge

GEC Australia Bo-Bo DE D36 (A.237 of 1971) was noted in early July at Steelhaven freshly painted following its overhaul.

A new fence has been installed on the north and west boundaries of the Commonwealth Rolling Mills plant, between the plant and railway yards. It looks like a gate is to be installed across the rail line into CRM. Other fencing is also being erected by the company around Port Kembla. Chris Stratton 7/05, 8/05

TRISTAR PACIFIC PTY LTD, Kalaroo Road, Redhead

(see LR 170 p.19) 610mm gauge

Expressions of interest were invited for Hunslet 4wDM 8824 of 1978 offered as part of a disposal sale by Slattery Auctions, with a closing date of 15 August. Ray Graf inspected the locomotive on 11 August and reported it as basically complete but requiring some attention to put it into running order.

The Land Trader 28/7/05 via Ray Graf; http:www.slatteryauctions.com.au/images/ite ms/0264_cta.pdf

WESTFIELD HOLDINGS LTD, Sydney Tower narrow gauge

Many modern tall buildings have rail tracks on the roof associated with service operations. The former Centrepoint Tower in Sydney has a circular railway on the deck that seems to be the anchor point for the 56 steel cables that keep the tower stable. Presumably it is used to service the cable anchors.

Brad Peadon 8/05



Top: 2ft gauge Hunslet 4wDM 8824 of 1978 awaits its fate at Redhead, NSW, on 11 August 2005. Photo : Ray Graf **Centre:** Circular railway used to service the cable anchors on the Sydney Tower, August 2005. The gauge appears to be about 2ft. Photo: Brad Peadon **Above:** Proserpine Mill's Walkers B-B DH 11 (628 of 1969 rebuilt Walkers 1996) heads 55 empty 10-tonne bins away from the mill as it passes an inbound train with bogie brake wagon 1 (built Walkers 1998) at the rear at McCormack Siding, on the Elaroo line, just before sunrise on Sunday 10 July. Photo: Scott Jesser



Top: In spite of being severely damaged in a disastrous fire at Mourilyan in 2003, Clyde 0-6-0DH 18 (56-83 of 1956) will celebrate its fiftieth year with a return to service. Here it is in the final stages of rebuilding at Babinda Mill on 29 July 2005. Photo: Raymond Mewes **Centre:** On a Mackay Sugar load trial train on 13 July 2005, Farleigh Mill's Walkers B-B DH 24 NETHERDALE (699 of 1972 rebuilt Walkers 1997) nears the crest of the Long Mile bank between Ossa Sidings 10 and 9 with a train from the northern terminus at Wagoora. The load is 24 6-tonne and 128 4-tonne bins. Photo: Brett Geraghty **Above:** This interesting evening shot shows Invicta Mill's Walkers B-B DH HODEL (697 of 1972 rebuilt Bundaberg Foundry 1995) at Clare on 30 July 2005. The modern cane locomotive carries its fair share of illumination. Photo: Corey Seatont

LIGHT RAILWAYS 183 JUNE 2005

Industrial NEWS Railway

QUEENSLAND

BUNDABERG SUGAR LTD, Moreton Mill, Nambour

(see LR 184 p.17) 610mm gauge

By early August workmen had completed the demolition of the Perseverance bridge just off the old main line to the east of Nambour. It is understood that all tramline bridge and creek crossings have to be demolished with the exception of the lifting bridge over the North Maroochy River which is heritage listed. Com-Eng 0-6-0DH *JAMAICA* (B1112 of 1956) was still at the old mill site at this time. Zane Hackney 8/05

BUNDABERG SUGAR LTD, Bundaberg

(see LR 184 p.17)

610mm gauge

With the closure of Fairymead Mill, locomotives stationed at Fairymead are hauling cane to the loops at Fairymead with Bingera locomotives picking up the cane for haulage on to Bingera. The steep descent of Pitts Hill, on the Bingera side of the QR drawbridge crossing at Meadowvale, is a limiting factor on these trains as only 40 6-tonne bins can be hauled through this section, requiring longer trains to be split. The loops at each end of the Fairymead-Bingera run, Bush Paddock marshall -ing loops and Sandy Creek marshalling loops were expected to be completed by the end of September. The majority of the ex-Millaguin 5-ton bins that have been purchased by Mackay Sugar were dismantled for transportation at the old Qunaba mill site by loco crews during two weeks of wet weather at the start of the season.

About 200 bins of cane per day are coming from Wallaville to Bingera Mill. Locomotives stationed at Wallaville are Com-Eng 0-6-0DH *INVICTA* (A1207 of 1955) and EM Baldwin 0-6-0DH *RUBYANNA* (3406.1 7.70 of 1970). *INVICTA* works two nine-hour shifts while *RUBYANNA* is spare. Lincoln Driver 7/05, 8/05

BUNDABERG SUGAR LTD, Innisfail

(see LR 184 p.18)

610mm gauge

After the early part of the season saw a number of locomotive movements, the following transfers now seem to have been established:

Com-Eng 0-6-0DH 1 JOSEPHINE and RUSSELL (A1821 of 1957 and A2027 of 1958) from **Mourilyan** to **South Johnstone**. Clyde 0-6-0DH 2 GOONDI and 3 (55-56 of 1955 and 56-90 of 1956) and EM Baldwin B-B DH 26 (7244.1 8.77 of 1977) from **Babinda** to Mourilyan. Clyde 0-6-0DH 12 (55-60) of 1955 from Mourilyan to Babinda. Clyde 0-6-0DH 13 (59-203 of 1959) from Babinda to South Johnstone. EM Baldwin B-B DH 25 (6470.1 1.76 of 1976) from South Johnstone to Babinda.

During August, Clyde 0-6-0DH 18 (56-83 of 1956) was in the final stages of rebuilding at the

Industrial NEWS Railway

Babinda Mill workshops, while Clyde 0-6-0DH 20 (63-289 of 1963) was also in the workshops awaiting ballast weights, air conditioning and rubber suspension blocks.

The new connecting link to South Johnstone Mill at Currajah means that some former Goondi area cane now goes to South Johnstone.

Shane Yore 7/05, 8/05, 9/05; Carl Millington 7/05

CSR LTD, Herbert River Mills

(see LR 184 p.18)

610mm gauge

Wet weather conditions during July and August led to many locomotives and brake wagons at both mills being repainted. Macknade Mill's yellow colour scheme includes a horizontal green line and as a result this was applied to the three Victoria Mill locomotives found at Macknade at the relevant times, Clyde 0-6-0DH INGHAM (64-382 of 1964) and LUCINDA (65-436 of 1965) and EM Baldwin B-B DH BRISBANE (5423.1 9.74 of 1974), INGHAM and LUCINDA had been back and forth between the two mills with LUCINDA more or less allocated to Macknade along with BRISBANE. The most unexpected paint job was done at Victoria Mill where EM Baldwin 0-4-0DH ALBANY (6/1792.1 11.66 of 1966) was turned out in red at the beginning of August with black and yellow headstocks and white running boards.

An interesting development at Victoria Mill in mid August was the appearance of an 8-ton bin produced by welding together two four-ton bins, removing the inner wheelsets and providing additional frame strengthening including truss rods. This vehicle was under trial in traffic by late August. Chris Hart 7/05, 8/05; Steven Allan 7/05, 8/05; Carl Millington 7/05

CSR PLANE CREEK PTY LTD, Sarina

(see LR 182 p.18) 610mm gauge

Little used since the arrival of the Walkers B-B DH conversions, Clyde 0-6-0DH 10 (67-569 of 1967), was transferred to the Burdekin district on 25 July. It was initially delivered to Kalamia Mill for servicing and modification, although apparently intended for Invicta Mill. David Rowe 7/05; Steven Allen 7/05; Jason Lee 7/05

HAUGHTON SUGAR CO PTY LTD, Invicta Mill, Giru

(see LR 184 p.19) 610mm gauge **CSR LTD, Kalamia Mill** (see LR 172 p.21) 610mm & 1067mm gauge **PIONEER SUGAR MILLS PTY LTD, Pioneer Mill, Brandon** (see LR 170 p.21)

1067mm gauge

A delayed start to crushing at Pioneer Mill in late August continued to bring about unusual traffic arrangements, with cane from the Pioneer area



Top: Wet weather at sugar mills means that loco crews get to wield a paintbrush. EM Baldwin 0-4-0DH ALBANY (6/1792.1 11.66 of 1966) repainted in a very different livery at the Victoria Mill locoshed on 4 August 2005. Photo: Chris Hart **Centre:** Isis Mill's Walkers B-B DH ISIS No.4 (656 of 1970 rebuilt Walkers 1994) snakes its rake of empties through the Forestry Reserve near the Elliott River on the New Valley line, 16 August 2005. Photo: Lincoln Driver **Above:** Twelve years after the last similar units finished work at Isis Mill, Mackay Sugar has re-introduced the "cow & calf" concept using the same locomotive type, the Clyde DHI-71. Here HABANA (60-215 of 1960) and the former MARIAN (56-104 of 1956) head empties at Marwood 7 Siding on 14 July 2005. Photo: Carl Millington

being crushed at Invicta and Kalamia mills, as well as at Inkerman. The situation underlined the difficulties caused by having two different track gauges for cane haulage in the district, with Invicta and Kalamia using 2ft gauge and Pioneer 3ft 6ins!

For the 2005 season, the Browns Road section of dual gauge through the Pioneer Mill area has been put under Invicta Mill control, while the Airdale section is under Kalamia. Sleepers were placed across the access from Pioneer Mill to prevent Pioneer locomotives from travelling any further. Three Pioneer Mill loco crews were temporarily allocated to Invicta from early July until Pioneer began crushing. During this period, some Pioneer harvesting groups were to work afternoon shift to deliver cane to the Browns Road area after the Invicta groups had finished for the day.

A total of four new sidings were provided at Invicta Mill for cane delivered directly by road – Mill Yard 3, 4, 5 & 6 – and a loco crew is now rostered onto the mill yard full time.

As noted above, a shortage of locomotive power at Invicta led to Clvde 0-6-0DH 10 (67-569 of 1967) to be transferred from Plane Creek Mill on 25 July. It was delivered to Kalamia Mill for recommissioning and was still there in late August. A surprise observation in late July was Pioneer Mill's Walkers 0-6-0DH 583 of 1968 (generally known as 'Aramac') hauling QR molasses tankers from Kalamia Mill on the dual gauge line to Kalamia Siding at Ayr. The ex-QR tenders that are normally used as match wagons with 2ft gauge locomotives for this traffic were not at Kalamia Siding, their usual location, but in the QR vard at Avr. The Walkers locomotive returned to Pioneer Mill for the start of the crushing there. Kalamia Mill 2ft gauge locomotives fitted with 3ft 6ins gauge drawhooks, buffing plates and brake hoses were noted as EM Baldwin B-B DH NORHAM (5383.1 7.74) and Walkers B-B DH RITA ISLAND (625 of 1969 rebuilt Goninan Mackay, 1996). Some other locomotives have drawgear and buffing plates but no brake hoses.

Kalamia Mill this year is operating a mixture of



Top: Kalamia Mill's EM Baldwin B-B DH NORHAM (5383.1 7.74 of 1974) crosses the Burdekin River Anabranch bridge on its way to Rita Island with 98 empty five tonne bins, 29 July 2005. Photo: Scott Jesser **Above:** The Farleigh Mill north coast slave train. Walkers B-B DH CEDARS (693 of 1972 rebuilt Walkers 1997) with DULVERTON (690 of 1972 rebuilt Walkers 1997) in the rake and the bogie brake wagon in the rear at Howells (Ossa 2) siding, 10 August 2005. Photo: Carl Millington

LIGHT RAILWAYS 183 JUNE 2005

Industrial NEWS Railway

ex-Invicta Mill 6-tonne bins fitted with Willison couplers and its own 5-tonne bins fitted with link and pin couplers. Joining the two different types of couplers requires a transition link to be fitted into the Willison coupler with a ring attached to it. The mill's disused Com-Eng locomotives *IVANHOE* (4wDH GA1042 of 1960) and *KALAMIA* (A1409 of 1955) have reached the stage of dereliction.

Rain stoppages during August meant more interesting workings. Invicta cane from Millaroo and Dalbeg was brought to Browns Road sidings for pick up by Kalamia locomotives. However, one unique run took place on 18 August all the way from Dalbeg, Invicta's southern terminus, to Kalamia, a distance of approximately 135 kilometres, the longest ever cane train haul in Australia.

It is expected that Invicta Mill will have another two RSUs for one-man operation next year, with one of these being the remaining ex 73-class unit not so fitted, Walkers B-B DH PIRALKO (677 of 1971 rebuilt Bundaberg Foundry 1995).

Jason Lee 7/05, 8/05; Carl Millington 7/05; Scott Jesser 7/05; 8/05; David Rowe 7/05; Steven Allan 7/05

MACKAY SUGAR CO-OPERATIVE ASSOCIATION LTD

(see LR 184 p.19)

610mm gauge

The crushing season stared at the end of June with just **Pleystowe** Mill underway. Cane from all four mill areas was hauled to Pleystowe, which hosted many 'foreign' locomotives in the period up to 11 July when crushing got away at the other mills. One unusual working was that of **Marian** Mill's Walkers B-B DH 38 *MICLERE* (684 of 1970, rebuilt Farleigh Mill, 1996) on the **Racecourse** Mill system on 28 June. Having dropped off empties in the Marwood area, it was on its way towards the southern terminus at Munbura when it arrived at Bell's Creek bridge, where it was discovered that this type of locomotive would not fit across!

One interesting part of the preparations for crushing noted on the Marian and Pleystowe systems was the use of a rail cleaner wagon. This is a four-wheel vehicle fitted with a lawn mower engine that drives a shaft fitted with wire brush wheels on each end. It appears that this is used to polish the rails to ensure a good track circuit for automatic level crossing lights.

A welcome sight at Racecourse Mill on 10 July was EM Baldwin 4wDM *ALLANDALE* (4/473.1 3.63 of 1963), which had been stored at the old North Eton mill site for a long period.

Walkers B-B DH locomotives 37 *CALEN* (692 of 1972 rebuilt Bundaberg Foundry 1995) and 38 *MICLERE* have been allocated to Marian Mill to handle slave trains from Pleystowe Mill's Pinevale and Septimus lines. This cane is worked to Marian Mill because the large Blakes Loops (245 4-tonne bins or 164 6-tonne bins) just west of the mill allow the train to be broken

Industrial NEWS Railway

down, whereas Pleystowe has no loops of the necessary capacity.

One slack season project at Mackay Sugar has been to review the load haulage potential of Walkers ex 73-class B-B DH locomotives on the Farleigh north coast line. The original cooling system was identified as a limiting factor and so a new system was designed and has been fitted to 24 NETHERDALE (699 of 1972 rebuilt Walkers 1997), 21 TANNALO (705 of 1972 rebuilt Bundaberg Foundry 1995), 39 CEDARS (693 of 1972 rebuilt Walkers 1997) and 40 DULVERTON (690 of 1972) rebuilt Walkers 1997). The new system removes the oil coolers from the radiator compartment and the obvious difference in appearance is that the vented doors have been moved from the front of the locomotive to the rear of the engine bay. The results of trials so far have been very promising, with loads increased from 640 tonnes to 825 tonnes.

The transfer of Clyde 0-6-0DH 31 *SEAFORTH* (61-233 of 1961) from Farleigh to Marian in exchange for ClydeQ 0-6-0DH 8 *PALMS* (70-708 of 1970) from Marian to Farleigh lasted only a short time in July before being reversed.

The new multiple-unit pairing of Clyde Model DHI-71 0-6-0DHs was in service at Racecourse Mill by mid July. This consists of *HABANA* (60-215 of 1960) and 56-104 of 1956, formerly *MARIAN*, which has lost its cab. Both are repainted in the new yellow livery with black bonnet tops and red underparts.

It is rumoured among loco crews that it is intended to exchange Racecourse Mill's Walkers B-B DH 55 *BALBERRA* (657 of 1970 rebuilt Tulk Goninan 1994) for Tully Mill's EM Baldwin *TULLY No.7* (10684.1 4.83 of 1983) at the end of the crushing season. *BALBERRA* is Mackay Sugar's only DH-class conversion while No.7 is Tully's only bogie Baldwin.

Dismantled 5-ton ex-Millaquin bins have been arriving from Bundaberg and are stored at Marian Mill awaiting modification and reassembly. Carl Millington 7/05, 8/05; Brian Millar 7/05, 8/05; Brett Geraghty 7/05, 8/05

PIONEER SUGAR MILLS PTY LTD, Inkerman Mill

(see LR 184 p.21)

610mm gauge

With the start of crushing at Pioneer Mill delayed, Pioneer cane was being transported to Inkerman Mill in July. Some cane was coming in 610mm gauge cane trucks on roll-on roll-off semitrailers, while other cane was coming on elevator tipper transporters. A new siding for road transport has been built at the mill between the empty yard and main line. Two more have been built between the navvy shed and the mill houses and may suit elevator tippers, although the one nearest the navvy shed is besides a loading bank.

On 26 August, a freshly painted Com-Eng 0-6-0DH

was seen shunting in the Inkerman yard. It was noted that the green horizontal stripe has been replaced by a thinner red one. It remains to be seen whether more than one locomotive has been repainted in this style.

Jason Lee 7/05, 8/05; Carl Millington 7/05

PROSERPINE CO-OPERATIVE SUGAR MILLING ASSOCIATION LTD

(see LRN 184 p.21)

610mm gauge The two 24-tonne EM Baldwin brake wagons (9817.1 12.81 & 9817.2 12.81 of 1981) that have been sold to Mackay Sugar left the mill on 4 August for delivery to Mackay Sugar's North

Eton depot the following day. Tom Badger 8/05

TULLY SUGAR LTD

(see LR 183 p.22)

610mm gauge

EM Baldwin B-B DH *TULLY No.7* (10684.1 4.83 of 1983) was still not back in service in late August due to the late arrival of its new engine. Roy Pease 7/05, 8/05

WESTERN AUSTRALIA

AVKO MINING PTY LTD, Newfield

457mm gauge

This specialised contractor is working in partnership with the owners of the Newfield Central gold mine, 100km north of Southern Cross. Development of the mine is taking place with an Eimco 12B rail bogger on 18 inch gauge track on the haulage level. Hand tramming is used with the single one-ton ore car, with a production of between 2000 and 3000 tons per month. *Underground Equipment & Technology* July 2005 via Ray Graf.

OVERSEAS

FIJI SUGAR CORPORATION

(see LR 184 p.21)

Rail traffic was curtailed in the Rarawai Mill area after locomotive drivers refused to service certain cane cutting gangs in the Navoli area north-east of Ba. It was alleged that a locomotive driver was assaulted while collecting cane trucks on 16 July and that a stoning incident had occurred a few weeks later. A police presence was established on locomotives visiting the area and from 4 August a Union ban prevented any further trips by a locomotive to the area. *Fiji Times Online* 11/8/05 via Chris Hart

CORRECTIONS

In LR 184 p.16, the date of the photograph at Fairymead Mill should be 16 June 2005, not 16 May.

In LR 184 p.13 Shell Harbour (twice) should read Shellharbour.

In LR 183, p.19, the identity of the CSR Herbert River Motor Rail 10232 is given as number 2. It should be 4. This mistake is repeated in LR 184 on p.18.



LRRSA NEWS

MEETINGS

ADELAIDE:

Due to various circumstances arising from the timing of the school holidays, the Adelaide group met during September.

BRISBANE: "Researching Australian Decauvilles"

Steve Malone will be giving a presentation on researching Australian Decauville locomotives, or "What to do with French Letters!".

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: Friday 14 October at 7.30 pm. Entry from 7 pm.

HOBART:

There will be no meeting in October. However, volunteers to present items at future meetings are eagerly sought. Please contact Ken Milbourne on (03) 6272 2823, or email kjmilbourne@iprimus.com.au.

MELBOURNE: "Off the beaten track in China"

Roger Hill will present edited highlights of his recent 30 day trip to China, including mainlines, industrial and narrow-gauge railways, including curiosities in out-ofthe-way places.

Location: Ashburton Uniting Church Hall, Ashburn Grove, Ashburton.

Date: Thursday, 13 October at 8.00 pm

SYDNEY: "Peat railways of Ireland"

A delightful and fascinating video will be shown of the extensive tramway systems serviciing the Irish peat industry. Its operations, loco rosters and trackage are comparable to our Queensland sugar tramways. A real eye opener.

Location: Woodstock Community Centre, Church Street, Burwood, (five minutes walk from Burwood railway station). Date: Wednesday 26 October at 7.30pm.

COMING EVENTS

The 'Rubicon Tour V', the fifth official visit to the Rubicon Forest, will take place on 12 and 13 November 2005. Contact LRRSA Tours C/O Peter Evans 3/22 Princetown Rd, Mount Waverley 3149 for details, enclosing an e-mail address or a stamped, self-addressed envelope.

y 7/05, 8/05 Mills Pty Ltd.

A selection of books from the LRRSA Sales Department ...

The Aramac Tramway

By Peter Bell & John Kerr

The history of the 41 mile long 3 ft 6 in gauge Aramac Tramway, almost in the centre of Queensland. Built in 1913, it operated for 62 years, providing the Shire Council a major challenge to keep it going.

48 pages, A4 size, 49 photos, 5 maps and plans, references, bibliography and index.

\$15.00 Soft cover (LRRSA members \$11.25) Weight 350 am.

Built by Baldwin

The Story of E. M. Baldwin & Sons, Castle

Hill, NSW - by Craig Wilson

The history of Australia's most successful and innovative builder of industrial diesel locomotives. E. M. Baldwin developed the B-B DH locomotive now widely used on Queensland's sugar railways, 160 pages, A4 size, 148 photos, 16 diagrams, construction listing.

\$44.00 Hard cover (LRRSA members \$33.00) Weight 1000 gm.

A Journey by Train to Walhalla

Australia Day Holiday, 31 January 1938 by William G.A. Lewis, published by John Thompson Describes a train trip to Walhalla with 16 cars double-headed with NA class locos - starring 9A, 15A and 17A! 24 pages 163x225mm, soft cover, 24 photographs.

\$16.95 (LRRSA members \$15.26) Weight 375 gm

Echoes through the Tall Timber

The Life and Times of a Steam Man 1895-1984 by Dorothy Owen, published by Brunel Gooch Publications. Life story of Harry Matheson, who drove logging winches, and mill engines in the Warburton-Powelltown area. 176 pages, soft cover, A5 size, 48 illustrations.

\$22.95 (LRRSA members \$20.66) Weight 375 gm

Postage and packing: Within Australia, up to 500 gm: \$4.80; 501 gm to 3 kg \$9.00 Send to: LRRSA Sales, P.O. Box 21, Surrey Hills Vic 3127, Fax (03) 5968 2484. Payments may be made by cheque, money order, Mastercard, Visa or Bankcard

Focus on Victoria's Narrow

Gauge Gembrook Line Part 1 Photographs by Edward A.Downs, published by Puffing Billy Preservation Society. Very highquality landscape format book of duotone photographs from the mid-1930s to the mid 1940s. 48 pages, soft cover, A4 size. \$35.95 (LRRSA members \$32.35) Weight 280 gm

Powelltown

A History of its Timber Mills and Tramways by Frank Stamford, Ted Stuckey, and Geoff Maynard. 150 pages, soft cover, A4 size, 150 photographs, 22 maps and diagrams, references and index.

\$22.00 (LRRSA members \$16.50) Weight 550 gm.

The Innisfail Tramway

The History and Development of the Geraldton Shire Tramway and the Mourilyan Harbour Tramway

by John Armstrong & G.H. Verhoeven. 128 pages, A4 size, 99 photos, 22 maps/diagrams. \$37.90 Hard cover (LRRSA members \$28.43) Weight 650 gm. \$29.95 Soft cover (LRRSA members \$22.46) Weight 470 gm.

Modernising Underground Coal Haulage

BHP Newcastle Collieries' Electric Railways by Ross Mainwaring. 60 pages, soft cover, A4 size, 18 photographs, 13 maps and diagrams, references and index.

\$16.50 (LRRSA members \$12.38) Weight 230 gm.

Laheys' Canungra Tramway

by Robert K. Morgan, revised by Frank Stamford Describes Queensland's largest timber tramway. 32 pages plus soft cover, A4 size, 28 photographs, plus maps/diagrams and index. \$9.95 (LRRSA members \$7.46) Weight 220 gm.

Mountains of Ash

A History of the Sawmills and Tramways of Warburton - by Mike McCarthy

Describes a network of over 320 km of tramways which linked 66 major mills to the Warburton railway. 320 pages, A4 size, 280 photos, (incl. 52 duotones), 50 maps/diagrams, (incl. 14 four-colour maps). \$59.95 Hard cover (LRRSA members \$44.96) Weight 1500 gm.

Settlers and Sawmillers

A History of West Gippsland Tramways and the Industries they Served 1875-1934 by Mike McCarthy

168 pages, soft cover, A4 size, 96 photographs, 17 maps and diagrams, 6 graphs, one loco diagram, references and index.

\$31.90 (LRRSA members \$23.93) Weight 700 gm.

Bellbrakes, Bullocks & Bushmen

A Sawmilling and Tramway History of Gembrook 1885-1985 - by Mike McCarthy 104 pages, soft cover, A4 size, 71 photographs, 17 maps and diagrams, references and index. \$26.00 (LRRSA members \$19.50). Weight 500 gm.

John Moffat of Irvinebank

A Biography of a Regional Enrepreneur, by Ruth Kerr

Published by J.D. & R.S. Kerr 296 pages, 243 mm x 172 mm, 3 maps, 47 photographs, references, bibliography and index.

Not a railway history, but a history of an Australian mining magnate who was very much involved with associated railways and tramways in North Queensland. He was seen as a "monument to honesty".

\$45.00 hard cover (LRRSA members \$40.50) Weight 950 gm

\$30.00 soft cover (LRRSA members \$27.00) Weight 820 gm

6.00

the LRRSA

Membership of the LRRSA offers you:

- Light Railways magazine, mailed to you six times a year
- Substantial discounts (usually 25%) on LRRSA publications
- Opportunity to purchase Light Railway News on CD-ROM
- Meetings in Adelaide, Brisbane, Melbourne and Sydney
- Tours to places of light railway interest

Annual Subscription for year ending 30 June 2006 is \$47.00 Includes LR Nos 184 to 189 (Overseas by airmail: NZ, PNG, Japan, South-east Asia - \$A59.10; Rest of world - \$69.30).

- If joining in June or July pay \$47.00 (\$59.10/\$69.30 overseas) and receive 6 issues of Light Railways (Nos 184-189).
- If joining in August or September, pay \$39.20 (\$49.25/\$57.75 overseas)and receive 5 issues of Light Railways (Nos 185-189)
- If joining in October or November, pay \$31.70 (\$39.40/\$46.20 overseas) and receive 4 issues of Light Railways (Nos 186-189).
- If joining in December or January, pay \$23.50 (\$29.55/\$34.65 overseas) and receive 3 issues of Light Railways (Nos 187-189).

- An invitation to join If joining in February or March, pay \$15.70 (\$19.70/\$23.10 overseas) and receive 2 issues of Light Railways (Nos 188-189).
 - If joining in April or May, pay \$54.85 (\$68.95/\$80.85 overseas) and receive 7 issues of Light Railways (Nos 189-195).

Application for membership of Light Railway Research Society of Australia Inc. P.O. Box 21, Surrey Hills Vic 3127

	-			_
hil name	d	epplet	ni)	

of

Ē.

(address)

(occupation)

desire to become a member of the Light Railway Research Society of Australia Inc. In the event of my admission as a member, I agree to be bound by the rules of the Society for the time being in force. enclose cheque/money order for \$47.00, or please charge my Bankcard/Visa/Mastercard No.

_ _ _ · _ _ _ _ . _ _ _ . _ _ _ _ Expires _ . _ _

(postcode)

Name on Card

Signature



Dear Sir,

Military Railways (LR 184)

Further to your 'Comment' in the August issue of *Light Railways*, may I draw your readers' attention to a wonderful boxed set of three DVDs titled *War Trains*.

This American production doesn't appear to be available through the usual video outlets - I found mine in one of those temporary video stalls at a local shopping centre. The three DVDs are entitled *Combat Strategies, Subvert and Destroy* and *Air Attacks.* Conflicts covered are the American Civil War, WW1, WW2, Korea and Vietnam.

There is much period footage from WW1 including 60cm gauge trench engines, as mentioned in the magazine, Baldwin locos being assembled in France and much more. There are a number of WW2 vintage US Army training films on how to destroy trains, and how to get more damage from your bang.

Have you ever wondered how big a gap in the rails a loco will travel over without derailing? Find out here. Go on an actual bombing raid attacking the enemy's railway system. There is much more.

Each DVD is one hour long. Fascinating and totally riveting. Highly recommended and worth the approx \$45 you will pay.

David Lewis Northmead, NSW

Dear Sir,

Taronga Zoo train (LR 183, 184)

Publication of the article on the zoo trains in LR 183 June 2005, prompted me to visit Coolangatta Estate at Shoalhaven Heads near Nowra on 15 July last to follow up on the comment by John Dunlop in the article that the Taronga train had been last seen there in 1995.

Sure enough, Coolangatta Estate still has the train on display but it appears not to be in running condition - the display is out of the mainstream and is somewhat neglected. But at least it is under cover and out of the weather. It comprises the locomotive plus two carriages. I was not able to ascertain the whereabouts of the third carriage that formed part of the original train.

The consist is set up on a short rail set that looks as if it may be part of the original from the 200 - it certainly appears well used.

The locomotive is now in green, red and black livery. The cowcatcher is still in place.

A cab has been fitted (perhaps during the restoration prior to moving to Coolangatta referred to in LR 183?). The original builder's plates are still mounted in their original positions on the 'firebox' which appears however to have been shortened to provide for the new covered cabin added during the restoration. The builder's plate is a cast iron roundel with the words HV McKay Pty Ltd Sunshine. On the footplate inside the cab is an original steel identification plate with the serial number X 479 spot welded on to it. Perhaps this is the Sunshine Works job number?

Access to the power plant is via a hinged hatch in the 'boiler cover' on the right hand side of the loco. This differs from the other two locos (Adelaide and Melbourne) in that their access hatches were on the left hand side (LR 183 see text and photos). The power plant is an upright cylinder Sunshine petrol engine. Power is transmitted to the wheels from the flywheel on the engine through a series of three drive chains running over geared sprockets. The final drive chain connects the rear to the front axle so the loco is effectively four wheel drive (see attached schematic sketch of the drive train).

The carriages are connected to the loco and to each other by a simple forked rod and pin system. These carriages are considerably altered in comparison with their condition as shown in the photos in LR 183. Welded mesh sides and ends and doors have been added, no doubt in deference to changing safety standards. These meshes are finished in bright pink! The seating however appears to be original highly weathered hardwood timber slats on metal frames and is fore and aft as shown in the earlier photographs.

On an historical note, the good lady in some of the photos is Lyn Day, sister of the airman in the photo on page 6 of LR 183. So life goes full circle!

Ian Bevege Batemans Bay, NSW





The former Taronga Park Zoo 4wPM locomotive HERE SHE COMES at Coolangatta Estate, near Noura, on the NSW South Coast, 15 July 2005. Photo: Ian Bevege

LIGHT RAILWAYS 185 OCTOBER 2005

Dear Sir,

The McKay zoo trains (LR 183, 184) In response to Darryl Grant's letter on page 22 of the August issue, I enclose some material from 1909 editions of the one-time English publication Model Railways and Locomotives, of which the editor was Henry Greenly. As well as describing and illustrating the steam-outline, internal combustion 4-4-4T locomotive BLACOLVESLEY, the article gives some details of the 15in gauge railway at Blakesley Hall, owned by the Squire of Blakesley, CW Bartholomew Esq. The railway, 1503 feet in length, connected the house with the local main line railway station. There was a further extension, 514 feet long, from the house to 'near the farm buildings' on which the steepest gradient, of 1 in 24, occurred.

It would appear that the railway was not a tourist or pleasure railway and that BLACOLVESLEY would not have hauled ordinary fare-paying passengers. No doubt elegantly attired guests of the Squire and his family, having alighted from their 1st class carriages on main line trains, would have been conveyed without charge between the railway and Blakesley Hall.

From information gleaned from various British railway periodicals it appears that *BLACOLVESLEY* was out of use for many years and somehow managed to survive the scrap-metal drives of World War 2. In relatively recent times it was rescued and lovingly restored to operating condition. There is a very nice colour photograph of the restored locomotive on page 70 of the June 1996 issue of *Railway World*.

Reference to photos of the loco shows an air intake under the smoke-box to help cool the radiator. I cannot see any air intakes or ventilation slots on the photos of the



Owner CW Bartholomew Esq, builder Mr WJ Bassett-Lowke, Bassett-Lowke Works Manager Mr Fred Green, designer Mr Henry Greenly and the owner's son Mr James Bartholomew pose with the newly delivered BLACOLVESLEY at Blakesley Hall. Though it arrived there still in lead primer, it was painted in 'Great Northern' green livery soon after. Photo: Northampton Independent from Model Railways magazine



The Tarrant locomotive at Melbourne zoo. LIGHT RAILWAYS 185 OCTOBER 2005

Ray Graf Collection, courtesy Peter Medlin

Australian locos built by HV McKay nor on Peter Neve's photo of the loco at Cronulla. In view of the higher temperatures experienced here in Australia, does anyone know how the radiators on these machines were ventilated? No doubt they would have performed their hardest work during the summer school holidays each year.

The English have made the claim that *BLACOLVESLEY* was the world's first steam outline IC locomotive, but perhaps the loco that began work at Melbourne Zoo in 1904 should have this title. Can anyone turn up a photo to prove that it really did have a steam outline?

Wal Lane

Mt Colah, NSW

Dear Sir,

Zoo trains (LR 183 & 184)

Thanks to Darryl Grant for pointing out the extravagance of my suggestion regarding the possibility of the Melbourne Zoo HERE SHE COMES being the world's first steam outline locomotive for tourist railway use. I should have remembered BLACOLVESLEY, the 1909-built 15 inch gauge machine built in England by Bassett-Lowke, although it was used on a private "Estate Railway" rather than purely for tourists.

I am indebted to Peter Medlin for drawing to my attention a postcard in Ray Graf's collection which clearly shows the Tarrant locomotive that preceded HERE SHE COMES at Melbourne Zoo. There seems to be little doubt that it too (dating from 1904 and therefore before BLACOLVESLEY) could be claimed to be "steam outline" (albeit loosely). The somewhat limited aesthetic of the Tarrant helps to explain the similarly low standards adopted in the McKay design. The photograph also seems to demonstrate that the Melbourne Zoo passenger cars predated the McKay locomotive, although the basic layout may well have been emulated and improved on by McKay when supplying carriages to Adelaide and Taronga Park.

Ray Graf's postcard also features the building bearing the legend "ELEPHANT AND CIRCULAR RAILWAY STATION", not to mention the patient-looking elephant. An earlier postcard (which, for those

with internet access, can be seen at http://www.slv.vic.gov.au/pictoria/a/0/3/ doc/a03184.shtml) appears to suggest that the station was initially designed just for elephant rides and was later adapted to accommodate trains also. However, the card's alleged date of "about 1907" seems inconsistent with the claim that the Tarrant began work in 1904.

Mystery I.C. Locomotives (LR 180 & 181)

Peter Evans tells me that the locomotive at Upton's Engineering, Corowa, shown on p.23 of LR 180 is indeed Whitcomb 40521 of 1947, contrary to my initial thoughts. It is now part of the collection located at Alexandra in Victoria.

John Browning Rockhampton, Qld

News items should be sent to the Editor, Bob McKillop, Facsimile (02) 9958 8687 or by mail to PO Box 674, St Ives NSW 2075. Email address for H&T reports is: rfmckillop@bigpond.com Digital photographs for possible inclusion in *Light Railways* should be sent direct to Bruce Belbin at: boxcargraphics@optusnet.com.au

NEWS

Queensland

AUSTRALIAN SUGAR CANE RAILWAY 610mm gauge Bundaberg Steam Tramway Preservation Society

Further to LR 184 (p.28), restored ex-Moreton Sugar Mill 0-4-0DH VALDORA (EM Baldwin 6/1258.1. 6.65 of 1965) was officially relaunched on Saturday, 3 September 2005. Over 100 invited quests saw the Chief Executive of Bundaberg Sugar Grant McLean 'christen' the loco with some local product. Guests then rode the train to the loco storage facility to enjoy morning tea and view the history of the Society that was displayed in photographs. In the afternoon the ASCR ran trains for the public using VALDORA. This was a rare opportunity as this was the first time a diesel had been used since operations commenced in 1988. VALDORA will be used for shunting and back up to the society's two steam locos -Bundaberg Foundry No 3 and the Orenstein & Koppel GERMANY.

Wendy Driver, 09/05

DREAMWORLD GOLD COAST RAILWAY 610mm gauge Ex-Bingera Sugar Mill 0-6-2T (Perry Eng. 5643.51.1 of 1951) was being prepared for its five-year inspection in June 2005. This requires removing the boiler, fire bars and bricks to allow a close inspection of the firebox walls and

tube plates. The frame was also being checked for cracks and wheel rumbling. Accordingly, the rebuilt ex-Racecourse mill 4-6-0 (Baldwin 45215 of 1917) was the operating locomotive, hauling two tourist toast-rack carriages. The third carriage was under repair, receiving attention to its bogies and re-timbering of the seats.

Bob Gough, 06/05

ROSEWOOD RAILWAY MUSEUM 1067mm gauge Australian Railway Historical Society

A visitor to this museum operation in November 2004 observed and photographed the ex-Southern Electric Authority steeple-cab electric locomotive on static display at the Kunkala museum site. This is Baldwin 59540 built in 1926, which operated on the Murarrie power station industrial line.

Darren Wood, 0705

MARYBOROUGH HERITAGE RAILWAY 1067mm gauge Whistlestop Inc.

MARY ANN, the replica of the unique 0-4-0 vertical-boilered locomotive built by John Walker's Union Foundry in 1873 for William Pettigrew's timber line, was to venture beyond its usual haunt in Queens Park in September as the feature attraction at the Biggenden Shire's Chowey Bridge Centenary Celebrations. MARY ANN operated 20-30 minute shuttle trips from Biggenden station on 16-18 September, together with trips to Chowey early on the Saturday and Sunday mornings, to Broweena on Sunday afternoon and from Broweena to Yerra on Monday morning, 18 September.

John Browning 08/05

WORKSHOPS RAIL MUSEUM, Ipswich 610-1067mm gauges Further to the report in LR 184 (p. 28), the former UK War Department and ex-North Eton 4-6-0T No.4 (Hunslet B/N 1239 of 1917) was moved from the North Eton storage shed to the Workshops Rail Museum on 3 August 2005. It was moved out of the shed and lifted by two mobile cranes onto a semitrailer for the journey to Ipswich. Brett Geraghty, 08/05

New South Wales

BIG BANANA, Coffs Harbour

The 40-year old Big Banana tourist attraction at Coffs Harbour was sold in early August to The Village Building Company of Canberra. The new owners plan to construct 300 houses on the hills above the tourist village, which has meant the closure of the unique 'hill-climbing railway' at the site. Trains comprising a diesel locomotive and four carriages rode on concrete tracks to take visitors through the banana plantation. The 'railway' ceased operation on 8 August.

The Advocate via Len King, 6 August 2005

GOULBURN RAIL HERITAGE CENTRE 1435mm gauge Goulburn Loco Roundhouse Preservation Society Inc. This group acquired the Blue Circle Southern Bo-Bo DE industrial shunter

D1 (Goninan 023 of 1967), previously used at Medway Quarry, in early 2002 (LR 164, p.21). The locomotive is currently located in the Goulburn roundhouse where it is undergoing refurbishment to full working condition. This work was well advanced in July 2005. Goulburn roundhouse is open to the public (7 days a week from 10am) and the loco is accessible.

Colin Grose, 07/05

MELALEUCA STATION,

Chinderah 610mm gauge We last reported on this 1.5km tourist railway in a tea tree plantation beside the Tweed River in northern NSW in LR 170 (p,27). At that time the railway was operated only for pre-booked tour parties and activities have evidently been intermittent since then, Ex-Marian Mill 0-6-2T No.9 (Perry Eng. 2601.51.1 of 1951) is the operating locomotive. On Wednesday 17 August, the locomotive was noted in steam hauling a group of tourists around the loop at the site.

Peter Cokley, LocoShed E-Group, 21 Aug 2005

RICHMOND VALE RAILWAY,

Kurri Kurri 1435mm gauge Richmond Vale Preservation Cooperative Society Ltd

Restoration of the former RVR Directors' Carriage (known as 'John Brown's carriage') is proceeding. It started life as a NSWGR 6-wheel composite brake van, number 120, in 1888. It had the capacity to carry 20 passengers in two compartments with a guard in another smaller

Len King photographed the unique train at The Big Banana, Coffs Harbour, climbing a 1 in 18 grade on 27 November 2000.

LIGHT RAILWAYS 185 OCTOBER 2005

Coming Events

OCTOBER 2005

2 Cobdogla Irrigation Museum, SA. Humphrey Pump operating day with narrow gauge steam train rides and heritage engines. Saturday night Halloween diesel train on 29th. Phone (08) 8588 2323.

8-9 Alexandra Timber Tramway & Museum, VIC. Narrow gauge steam trains – Woodcutters Gala Day on 8th. Diesel-hauled trains operate on 23rd. Information: Bryan 0407 509 380 or Peter 0425 821 234.
8-9 Puffing Billy Railway, Belgrave, VIC. Day out with Thomas – special

8-9 Puffing Billy Railway, Belgrave, VIC. Day out with Thomas – special activities at Emerald station with the Fat Controller, Thomas and Danielle in steam, Dougal the diesel and special train rides. Also on 22-23 October. Bookings (03) 9754 6800.

 14-16 ATHRA Board Meeting, Zig Zag Railway, NSW. Delegates from each state rail heritage body meet to address issues of national significance.
 15 State Mine Museum, NSW. Fund-raising Concert featuring Galapagos Duck from 1400 to dusk at the Museum. Information (02) 6353 1513.

15-16 Campbelltown Steam Museum, Menangle, NSW. Oil, Steam & Kerosene Field Days with narrow gauge trains, traction engines, steam rollers and vintage machinery on display. Phone: (02) 9829 5420; www.csmm.com.au

16 Puffing Billy Railway, Belgrave, VIC. Kids Fun Run Day with Thomas at Station Road, Gembrook (for children 12 years and under). Children run alongside the colourful tank engine as it runs through the scenic countryside. Bookings: (03) 6353

29 Bennett Brook Railway, Whiteman Park, WA. Halloween Party – fancy dress competition and Spooky Train Rides. A supervised activity for children. Bookings essential: (08) 9457 1498.

NOVEMBER

5-6 Puffing Billy Railway, Belgrave, VIC. Day out with Thomas – special activities at Emerald station with the Fat Controller, Thomas and Danielle in steam, Dougal the diesel and special train rides. Also on 12-13 November. Bookings (03) 9754 6800. 12-20 Old Brown Coal Mine Museum, Yallourn North, VIC. Coalies

12-20 Old Brown Coal Mine Museum, Yallourn North, VIC. Coalies' Week. The OBCM museum will be open daily from 10am to 4pm with displays of photographs of the early days in the old open cut, models of the Yallourn W power station and sales of books, videos and souvenirs. A pioneers' monument will be unveiled on Sunday 13 Nov.

13-14 LRRSA Rubicon Forest Tour, VIC. Saturday will be spent exploring the remains of Rubicon Nos 4 and 5 mills, with a visit to the SEC tramway at Royston power station, followed by night operations at the Alexandra Timber Tramway & Museum. Sunday will be spent at the ATTM steamoperating day with a wide variety of train operations. Non-members ring Peter at 0425 821 234 for information.

19 Walhalla Goldfields Railway, VIC. Jazz on Track – enjoy a trip on Victoria's most spectacular railway to the sounds of traditional and Dixieland Jazz. Bookings essential: ring (03) 5126 4201 BH or (03) 5634 2243.
27 Whiteman Park, Perth, WA. 20th Anniversary of Perth Electric Tramway Society with a cavalcade of vintage trams, plus train rides on the Bennett Brook Railway, buses, tractors and vintage cars. Information: (08) 9249 2777.

DECEMBER

3 Puffing Billy Railway, Belgrave, VIC. Santa Special Train departs Belgrave at 1105 for Emerald where Santa hand out presents for children and his helpers serve seasonal refreshments for adults, then proceeds to Lakeside for a picnic lunch. Also on 10 and 17 December, with a Sunset Special on 10th.

11 Illawarra Light Railway Museum, NSW. Steam and diesel train rides at Albion Park from 1030-1700, with barbecue facilities for Christmas celebrations. Phone (02) 4232 2488.

11 Alexandra Timber Tramway & Museum, VIC. Narrow gauge steam and diesel-hauled trains, 1000-1545. Information: Bryan 0407 509 380 or Peter 0425 821 234.

NOTE: Please send information on coming events to Bob McKillop – rfmckillop@bigpond.com - or The Editor, *Light Railways*, PO Box 674, St Ives NSW 2075.

compartment. The centre wheel set was removed, in the mid 1890s, and it was converted into a four-wheel brake van. J&A Brown purchased the carriage in November 1911 and it found use on the Hexham to Minmi trains. Around 1927 it was converted into John Brown's personal passenger carriage. It was fitted with a pressed metal ceiling, leather seats and toilet facilities. After John Brown's death in 1930, the carriage was used by the directors of the new company to travel from Hexham to Richmond Main Colliery where meetings were held in the upstairs directors' room. Later all luxury fittings were removed and solid wooden seats were installed for its use on the Pelaw Main to Richmond Main workers trains. The carriage was finally withdrawn in the 1950s, then sold to a farmer at Clarencetown in 1963 to be used as a feed store.

Restoration of the carriage commenced at Richmond Main around 1990. The first job was lifting the body off the frame. The wooden underframe was totally rotten and found to be beyond repair while the main body frame was surprisingly in reasonably sound condition. While the body was off, all the outer timber sides. the roof timbers and the interior were removed before several minor repairs were conducted on the body frame. A complete new main frame was constructed using the old frame as a pattern. Once complete the 'W' irons (Axle box guides) were roughly fitted before the body was lifted on to the frame.

This initial work was carried out in the open. The body was squared up and bolted down before new tongue and grove timbers were applied inside and out. New doors were constructed and fitted before the whole body received several coats of paint. In 1994 the carriage body was lifted on to an old nonair hopper frame and transported to the Car Shed. Here progress has been slow with minor work carried out on the doors and lining up the four 'W' irons. Also two suitable old wheel sets (fired welded two spoke) were selected, cleaned down and painted before the axle boxes were fitted. The major step, re-wheeling the carriage, was completed in February this year. To help move the carriage around, non-air hopper springs have been temporarily fitted.

Much work still needs to be done. Suitable draw gear has been found but will need lengthening before fitting. Suitable brake rigging will have to be modified before fitting and the interior seating added. New springs will have to be manufactured. Many smaller jobs remain to be completed. The door latches will need to be made, the windows sashes will have to be fitted, lamp brackets fitted and various other tasks completed.

At the present it is uncertain if the carriage will be refitted as a workers carriage or, as hoped, John Brown's carriage due to the lack of information. Any information or photos on its interior as a directors' carriage would be most welcome. Please contact the editors if you can assist. Graham Black and Jeff Mullier.

Graham Black and Jeff Mul 08/05

THIRLMERE RAIL HERITAGECENTRE1435mm gauge

NSW Rail Transport Museum The *Rail Heritage Extravaganza* at Thirlmere over weekend of 16-17 July was a feature event in the 150 Years of NSW Railways celebrations. It saw three steam locomotives (2705, 3112 and 3526), five vintage diesel locomotives and heritage rail motors in action on 73 special trains operating on the RTM's loop line and the mainline between Picton and Campbelltown.

As well as enjoying the operating trains, your editor took the opportunity for a detailed inspection of the museum exhibits, particularly the ex-industrial items in the collection. In the forecourt area are the ex-Burruniuck Tramway 2ft gauge 0-4-0T ARCHIE (Krauss 6063 of 1908) and ex-Emu Sand & Gravel 0-4-0ST No.1 (Vulcan Ironworks 2289/1912), the former in good condition, the latter less so and with little in the way of interpretative information. Other industrial exhibits noted were three restored 4-wheel non-air coal hoppers and a hot metal ladle wagon, ex-Corrimal Coal & Coke Coy 0-6-0 No.18 (Robert Stevenson 1542 of 1864) and J&A Brown 0-6-0ST No.4 (Kitson 1620 of 1870 - see cover LR 173). The latter is undergoing cosmetic restoration and has recently received a coat of paint. The ex-John Lysaght 0-4-0ST ALISON (Andrew Barclay 1738 of 1923) is in a less happy state standing forlornly on 'rotten row'. It is reportedly to be relocated to another preservation group.

Two privately owned 610mm gauge sugar mill locomotives; the diminutive 0-4-2T No.1 from Fairymead Mill (Baldwin 10533 of 1889 – see LR 168 cover) and the ex-Mourilyan Mill 0-4-2T No.7 (Perry 2714.51.1 of 1951 – see LR 141) are stored inside the workshop compound and are not accessible to the public. They have their own 610mm gauge line running off the turntable. The locos are visible from the car park but, being enclosed in tarpaulins, they just look like a big silver block!

The many RTM volunteers on duty over the weekend did a great job keeping the trains 'on time' and

LIGHT RAILWAYS 185 OCTOBER 2005

Heritage &Tourist

catering to the needs of the many visitors. There was some special service in the former *Southern Aurora* dining cars, where patrons could relax over light refreshments or a drink. Editor, 07/05

Victoria

ALEXANDRA TIMBER TRAMWAY & MUSEUM

610mm gauge

With financial assistance from four core members, the ATTM has acquired four additional industrial locomotives for its collection as follows:

1. This locomotives started life as a standard 0-6-0PM Day's rail tractor with an as yet unknown owner and location. Around 1947 it was purchased by JS Lee & Sons of Smithton in northwest Tasmania and the power plant was replaced, converting it into a 3-ft 6-in gauge 4wPM. A Ford V8 engine driving a large reversing box mounted at the rear of the tractor last powered the loco. The Ford engine and gearbox are only suitable for scrap, but a complete Ford V8 engine and transmission were purchased with the locomotive and the replacement motor should drop straight in, making the locomotive operable again.

2. A 5-ton, 2-ft gauge Baldwin-Whitcomb 4wDM model 5DM26A and builder's number 40521. This locomotive was supplied new to the French Supply Council in 1946 and was probably brought to Australia by French contractors working on the Snowy Mountains scheme from 1955-59. It was then sold to Upton Engineering of Corowa, who removed the engine. In 1993 the loco was sold to machinery collector Alan Stebbing. The loco is essentially complete except for the engine and gearbox, but a four-cylinder International petrol engine was purchased along with the loco and the ATTM is on the lookout for a suitable transmission. This locomotive appears to have seen very little use. Only four Whitcomb locomotives came to Australia and this is the only example to be preserved. 3. 3-ft gauge 4wPM 'TACL' type rail tractor built by Malcolm Moore

of Port Melbourne once owned and operated by the Mount Horsfall Sawmilling Company on its tramway that joined with the Loch Valley tramway to Noojee. This rail tractor is quite different from the three known preserved TACLs, and may be an early version of the type. It was discovered during road making operations and removed from the bush in the early 1980s by the Forests Commission.

4. The remains of FLORA, a 4wDM loco was built by Kelly & Lewis at Springvale around 1940 to the order of Caldwell Engineering in NSW. There were two of these 2-ft gauge locos, which weighed 5 tons and were powered by Fowler diesel engines. It worked on the construction of the Captain Cook graving dock at Sydney from 1942 to 1944 (LR 176, p.11) and was subsequently rebuilt to standard gauge and used on the dismantling of the NSW Government Railways line between The Rock and Westby in the early 1960s. It is then believed to have gone to Upton Engineering at Corowa, from where it was purchased as a frame, wheels and final-drive gearbox by a machinery collector. The Day's tractor and Whitcomb locomotive were removed from Belgrave South on 18 June and they touched the rails at their new home at about 1030 next morning. The Day's tractor received some minor conservation work and is stored in the open on an isolated section of track near the goods shed waiting for summer, when it will be lifted onto the 1067mm gauge track. The Whitcomb made two circuits of the track at Alexandra towed by the Simplex 4wPM (MR 10058) after cutting one frozen drive chain away and applying some lubrication. If the International engine can be made to run and a suitable transmission is found, this should make an excellent operational loco for midweek trains with very little cosmetic work other than the replacement of some angle-iron stanchions for the cab, which is a little mangled. A new roof will also be required.

The movement of the remaining two locomotives to Alexandra was scheduled in August, but was postponed. Unfortunately, the frame of the TACL tractor is too bent for satisfactorily restoration and it will be a static exhibit for the foreseeable future. The former Kelly & Lewis 4wDM will also remain as a static exhibit in the short term. Should the museum find a suitable Fowler engine and gearbox and be able to recreate the cast ballast weights at each end of the locomotive, however, there is no reason why it should not eventually be returned to something like its original condition.

Further to the report in LR 184 (p.30), the ATTM has obtained a satisfactory public liability policy through the Community Care Underwriting Agency, a consortium of insurance companies put together specifically to insure incorporated community groups.

Peter Evans, 07/05

PUFFING BILLY RAILWAY 762mm gauge Emerald Tourist Railway Board/Puffing Billy Railway Preservation Society

June and July saw several events commemorating the 50th Anniversary of the Puffing Billy Preservation Society. The PBPS Film Night at the Scots Church Hall in Melbourne on 8 June attracted 250 people who enjoyed several old films of the railway of various lengths and quality dating from the early 1950s.

A special train was run from Belgrave to the Nobelius packing shed on 16 July 2005 to transport members to a luncheon at that location. NA-class 2-6-2T No.12A was especially painted for the occasion in black livery with red lining and a brass number plate from 3A was fitted to the right hand cab side. The re-created consist was to replicate the rolling stock used by the PBPS when it commenced operation in the 1950's. The occasion attracted over 100 PBPS members and friends, including three past presidents, and other committeemen. Unfortunately rain set in during the day, making photography difficult. David Burke, The Sun newspaper journalist responsible for the arranging the 'Young Sun Specials' between Ferntree Gully and Belgrave (LR 162, pp.14-15), made an interesting address. The Hon Tim Fisher was quest of honour and talked about the future of preserved railways. On Saturday 20 August the former stable mates at Moe, 2-6-2T 12A and 2-6-0+0-6-2 Garratt G42, double-headed the 10.30am passenger train to Lakeside for the

first time on the Puffing Billy Railway. Peter Stowall was driver of G42, with LRRSA President Bill Hanks on the end of the shovel.

Restoration of the Climax geared locomotive No.1694 has progressed over recent months. Drawings have been prepared for the refurbishment of the boiler after it was grit blasted to allow a detailed examination. The repairs will include the fitting of a complete new front section of the barrel, new front and rear tube plates. A completely new smoke box is to be made in the original riveted style, which will use the original door. Early in July the boiler was packed into a container and sent off to the USA, arriving at Los Angles in 17 August, from where it was to be transhipped to Portland and the Chelachie Boiler Works near Seattle for repair. Unfortunately, the boiler was impounded by US Customs pending a thorough internal inspection for possible contraband! Peter Ralph 07/05; Bill Hanks, 07/05, 08/05

Tasmania

LUNE RIVER RAILWAY

610mm gauge A visitor to this site in July found

the site in the state of disrepair described in LR 181 (p.29), but was advised that the railway had been sold and the new owners planned to resume operations there. The new owners are Meg and Alan Thornton, who hope to resume railway operations by December 2005. Our visitor noted the remains of two steam locomotives on the site. evidently those that were previously on an Evandale property belonging to a Mr von Steiglitz. One comprised the chassis and cylinders of a 0-4-0T Fowler locomotive, possibly the Tullah Tramway's WEE MARY WOOD (possibly J Fowler 17732 of 1928). The other was a frame and wheels only, which was claimed to be from the unusual 2-4-0T Krauss (5682 of 1906) - other parts having been used to rebuild Krauss 5800 of 1907, now at Sheffield. These remains were sold to Australian Commonwealth Carbide Coy at Electrona in 1948, however, and were subsequently sold or scrapped. The remains at Lune River are more likely to be those of Orenstein & Koppel 719 of 1901.

Andrew Forbes 08/05; John Browning 08/05, Steve Zvillis 08/05

Newly restored ex-Moreton Sugar Mill 0-4-0DH VALDORA (EM Baldwin 6/1258.1. 6.65 of 1965) in action on the Australian Sugar Cane Railway, Bundaberg on Saturday, 3 September 2005. Photo: Lynn Zelmer

The ex-Southern Electric Authority steeple-cab electric locomotive (Baldwin 59540 of 1926) on static display at the Kunkala museum site. (Compare its present appearance to the photo in LR 169, p.31.) Photo: Darren Wood

On 3 August 2005, ex-UK War Department and ex-North Eton 4-6-0T No.4 (Hunslet B/N 1239 of 1917) is secured on a semi-trailer, ready for the journey to its new home at the Workshops Rail Museum, Ipswich. Photo: Brett Geraghty

LIGHT RAILWAYS 185 OCTOBER 2005

Heritage &Tourist

Western Australia

CARNARVON HERITAGE PRECINCT 1067mm gauge Carnarvon Heritage Group Inc

Further to the report in LR 175 (pp.31-32), public operations resumed at Carnarvon in April 2003 following resolution of public liability issues, thanks to assistance through the State government's Community Fund Insurance scheme, with additional local government support in 2005. Operations currently focus on the 'Coffee Pot' train on the jetty, which has proved popular with visitors. Some mechanical problems have emerged with 0-4-0T KIMBERLEY (AB 1754/1922) and the lack of a qualified driver. In addition, KIMBERLEY is deemed to be too heavy to travel right into town over the 'Town Bridge'. The locomotive is currently confined to the railway station as a static display. The Carnarvon Heritage Group, formed by an amalgamation of Carnarvon Light Railway Association and the Jetty Restoration Committee in March 1998, plans to build a replica steam locomotive that will be able to transverse the whole of the line. The 'Coffee Pot' train operates daily on the Jetty from April-November and on weekends December-March. Sue Graham, 07/05

Northern Territory

DARWIN RAILWAY TERMINAL

Further to the report on the 0-4-0ST SANDFLY (Baldwin 7860/1886), the locomotive officially became a Northern Territory Icon in June 2005. The Administrator, Ted Egan, announced the honour at a National Trust dinner in Darwin on 4 June. The locomotive remains on static display on Fisherman's Wharf at the East Arm wharf precinct in Darwin with some excellent interpretative signs detailing the history of the locomotive. While there is a roof cover, the area is open sided, resulting in pressure from several quarters for its relocation to a more protected site away from the corrosive effects of sea spray.

Friends of the NAR at Adelaide River newsletter, 07/05; Ian Bevage 07/05

Heritage &Tourist

Overseas

Darjeeling Himalayan

Railway, India 610mm gauge A visit to the DHR in May 2005 covered rides and motorcade for three consecutive days with both steam and diesel locomotives operating on sections of the line. The daily regular passenger trains 1D and 2D are diesel-hauled both ways, with steam on the Kurseong to Darjeeling section gradually being phased out by diesel. Our reporter was fortunate to capture steam on 10D, the regular school train, which departs Kurseong at 6.40am daily, as the DHR double shifted the regular diesel-hauled passenger train from New Jalpaiguri. As luck had it, train 2D derailed the previous day and 10D reverted to steam, but it too derailed near Tung. Nevertheless, our visitors were able to get some nice lineside shots of B-class 0-4-0ST locomotive No. 779 (Sharp Stewart 3882 of 1892), the oldest in the fleet, as it crossed with a train hauled by diesel loco 605 (Sury and Naire, 1999), the newest on the line, as the school train was taking water. It then preceded the school empty into Darjeeling. No. 605 was then used to haul the daily 9.15am train from Darjeeling to New Jalpaiguri (where the DHR connects with the broad gauge line to Kolkota).

The DHR has only the two diesel locomotives for hauling regular passenger services using four carriages, reducing the running time to 6 hours, instead of the three steam locos previously required. Of course they have the daily steam-hauled Joy Train at 10.30am and 12.55pm between Darjeeling and Ghum, a distance of 6 km, where the famous Batasia Loop is encountered before reaching Ghum. At 2257 meters, Ghum is the highest station on the line. This has a very good railway museum with lots of historic artefacts of the line, which is now enjoying UNESCO World Heritage Railway status.

Of course, steam railway charters can be arranged covering the entire 88 km railway.

Peter Ralph 8/05

While it still awaits the fitting of springs and brake gear, 'John Brown's' carriage is at last sitting on its frame and wheels, at the Richmond Vale Railway. Photo: Jeff Mullier

Bob McKillop photographed the ex-Burrinjuck Tramway 0-4-0T ARCHIE (Krauss 6063 of 1908) on display at the Thirlmere Rail Heritage Centre during the Rail Heritage Extravaganza on 17 July 2005.

The ex-Snowy Mountains Scheme 2-ft gauge Baldwin-Whitcomb 4wDM B/N 40521 of 1946) is moved into place at its new home at the Alexandra Timber Tramway & Museum on 19 June 2005. Photo: Peter Evans

Peter Ralph captured 2-6-2T 12A with the Puffing Billy Golden Anniversary special train to the member's luncheon at Nobelius packing shed at Menzies Creek station on 8 June 2005. The locomotive was especially painted for the occasion and the train replicated the rolling stock used by the PBPS when it commenced operation in the 1950's. A Now a Northern Territory lcon, the 0-4-0ST SANDFLY (Baldwin 7860 of 1886) on static display on Fisherman's Wharf at Darwin's new East Arm railway terminus in May 2005. Photo lan Bevage D Darjeeling Himalayan Railway 0-4-0ST B779 (the oldest in fleet, built by Sharp Stewart in 1892), hauling the school train, crosses with diesel locomotive NDM 605 BUCCANEER (the latest in the fleet) at Tung on 6th May 2005. Photo: Peter Ralph

