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Australia's Magazine of Industrial & Narrow Gauge Railways

Light Railway Research Society of Australia Inc.

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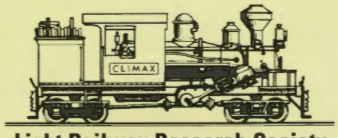

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Conversions:

1 inch (in)	25.40 millimetres
1 foot (ft)	0.30 metre
1 yard (yd)	0.91 metre
1 chain	20.11 metres
1 mile	1.60 kilometres
1 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

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Comment

From time to time, articles are sent to us that have little to do with our definition of 'light railways'. Over the past decade, subject matter as diverse as British miniature live steam, Melbourne's metropolitan tramways and the locomotives of the Nepalese Government Railways has found its way into our post box or e-mail in-box.

It would be great to be able to please everyone, but given that this is a self-evident impossibility, we invariably stay true to our prime directive, even though some quite interesting material (in a general sense) may be lost to us in the process.

Still, I believe that *Light Railways* should not only be as good as we can possibly make it, but that it should continue to be '*Australia's Magazine of Industrial & Narrow Gauge Railways*'. So long as I'm in the chair, I promise it will. *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.

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

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

Front Cover: *A typical industrial 0-6-0T of its era, Corrimal Coal & Coke number 1 (Yorkshire Engine Co. B/N 428 of 1888) was one of two identical machines purchased by the Southern Coal Co. to operate their newly built Mt Kembla-Unanderra-Port Kembla railway. With the takeover of Corrimal Colliery by Southern Coal Co in 1890, number 1 and its sibling saw increasing use there until, with the opening of the Corrimal coke ovens in 1912, the two locos were moved there permanently. As well as working on the CC&C trackage, they sometimes hauled coal trains along the government railway metals to Port Kembla, until this practice was banned in the late 1930s. In October 1963, Peter Neve photographed the well-kept septuagenarian bringing a train of loaded four-wheel non-air coal hoppers towards the exchange sidings. By this stage, the poor condition of number 1's boiler had seen the working pressure reduced to 120psi. Retirement followed soon after and, in September 1964, after 75 years of service, number 1 was cut up for scrap. For further information on the railways of Corrimal Coal & Coke, see 'The locomotives of Corrimal' in LR 171, June 2003 and 'The Corrimal Colliery Railway' in LR 60, April 1978.*
Back Cover: *The ranks of non-bogie locomotives seen in regular cane haulage may be thinning, but Carl Millington caught this shot of Victoria Mill's Clyde 0-6-0DH* PERTH *(69-682 of 1969) storming up Beeva Bank after crossing the Stone River on 5 September 2007.*

Munmorah State Mine 63 standing at pit top on 22 January 1993. This locomotive rebuild utilised the original Moxon frame with alterations to accommodate the new equipment installed. *Photo: Craig Wilson*

Receiver and Manager appointed

EM Baldwin & Sons Pty Ltd, Rooty Hill, 1985-1989

by Craig Wilson

The balance of '85

From this distance, the strategy of the receiver appointed to take control of EM Baldwin in mid 1985 appears straightforward. It was to sell any surplus assets and, with the quality underlying product lines, either bring capital in through a joint venture or, if necessary, arrange an outright sale of the company or the product line. The receiver advertised the assets for sale on 28 August 1985, and until interest was evaluated the business continued substantially unchanged.[1]

On the workshop floor was the stripped frame of Elcom's loco number 63 (Moxon B2200 of 1979) awaiting attention. It received virtually a complete rebuild. A Caterpillar 3306PCTA replaced the existing Cummins engine. A new Niigata DBSG 100 transmission and an EMB reversing box (as used in the 25-tonne locomotives) were provided. Only the Moxon final drives were retained. Dump brakes replaced the disc brakes originally fitted and the radiator was moved to a transverse position.[2] In short the locomotive had been 'fully Baldwinised' at a cost of approximately $250,000 and '*turned into an excellent locomotive and puller of loads*'[3] as requested by the owner. Shipped as serial 12566.1 11.85, with a rebuild plate located in the cab, it left the works in December 1985.[4]

There were other rail jobs of interest. On Job 12613, the bogie locomotive AIS 19 (EMB serial 7744.1 9.78) was overhauled and then subsequently, on Job 12627, had an axle replaced before being delivered.[5] Ellalong Colliery's number 1 (EMB serial 8179.1 3.79) had modifications made to its cooling system on Job 12621. While that order was received in November 1985, it did not leave the workshop until April 1986.[6]

The Hexham sale

In answer to their advertisement the receivers received an enquiry from Hexham Engineering Pty Ltd (Hexham) for the railway products business of EM Baldwin. Hexham was a wholly owned subsidiary of Coal & Allied Industries Limited. For many years it had operated as a support workshop for the parent company's collieries as well as supplying a limited number of products to the coal industry generally. The Baldwin products would complement the underground rolling stock already manufactured by the company.

As well as the drawings and listings of customers, spare parts, manuals, patterns and rights to use locomotive designs, the Receiver offered close to two million dollars worth of orders. These comprised the two orders from Elcom and AI&S for a total of five 25-tonne flameproof locomotives, worth approximately $1,600,000 and an order from Isis Central Mill Co for a bogie brake wagon. Additionally, Baldwin had tendered to build a further 25-tonne locomotive for Newcom Collieries Pty Ltd, Angus Place Colliery.[7] This order, when ultimately won, was also transferred. Hexham purchased the Baldwin rail business in December 1985 and the receiver entered into a five-year restriction of trade that prevented EM Baldwin from building or rebuilding powered railway vehicles. The six existing orders were built with Hexham/Baldwin plates.

The seven orders transferred understandably overwhelmed the existing Hexham production capacity. Consequently, Hexham did not take over the overhaul jobs for the remaining two Elcom Moxon locomotives, and orders from Bellambi and Huntley Collieries for overhauls. In addition, Hexham subcontracted overflow work to Rooty Hill during this initial period.

Rail work after the Hexham sale

The initial rail work in 1986 was the rebuilding of the two Elcom Moxon locomotives. In March 1986 both locomotives were sent to Rooty Hill to be stripped down, quoted upon, and reassembled if required.

The two locomotives were Munmorah Colliery's number 65 (Moxon serial 8364 of 1979) and Newvale No 1 Colliery's number 64 (Moxon serial 95572 of 1979), with work being booked to Jobs 12643[8] and 12644[9] respectively. The quotations, and presumably the operation of number 63 at Wyee Colliery, were satisfactory and in June 1986 the "rebuilding" of both locomotives proceeded on job 12662.[10]

One of the difficulties encountered on number 63 was working with the existing Moxon frame, though Frank Baldwin persevered with its re-use. The original layout, apart from being cramped, had created difficulties with the placement of the drive shafts that he considered had been placed at '*some shocking angles*' and were also '*undersized for what they were asked to do*'.[11] While this was solved on number 63 with much thought and oxy cutting of the frame, it was agreed that it was cheaper to design and build new frames for the following locomotives.[12] So numbers 64 and 65 were built with an overall length of 6,120mm and a wheelbase of 2,140mm[13] in comparison to an overall length of 5,860mm and wheelbase of 1,860mm on 63. Mechanically the two locomotives followed 63 with the exception of the reversing box.[14] Here the client avoided the cost of a new Baldwin box by retaining the original Moxon box.[15]

The second of the leftover jobs was for the overhaul of the transmission and braking systems of Huntley Colliery No 2 (serial 2941.1 2.70). The upgrading of the locomotive was progressively undertaken with the engine, a Cummins N855 rated at 175hp, overhauled on Job 11853 and delivered in April 1984.[16] The last part of the work, completed on Job 12649, involved the fitting of a new Niigata model DBG 115 transmission[17] which incorporated lock up direct drive as well as a retarder function, and an upgrading of the remainder of the braking system. Included were two additional reservoirs, a 'dead man' braking system actuated by a foot valve and replacement Guston Bacon type 36 Maxi brake cylinders.[18] The job was completed in just over five months and invoiced in October 1986.[19]

The last of the 'outside' jobs was for South Bulli Colliery with the overhaul of locomotive D1 (serial 6/2047.2 10.68). Costs on this work were accumulated on at least two jobs, Job Nos 12688 and 12689, both of which resulted in progress claims totaling just under $100,000.[20]

The other 'customer' was the purchaser of the rail business, Hexham Engineering. While an amount of spares was taken with the purchase, Baldwin had yet to begin any work on the six 25-ton locomotives that Hexham were now to build. Hexham needed to commence construction immediately. For instance, Newcom had been promised a delivery date 42 weeks after receipt of order, a time line that was now running.[21] The heavy work load and lack of experience at Hexham made it a sensible decision to sub-contract many of the components back to Rooty Hill.

Due to the author's time constraints limiting work in this area, together with the multiple Job numbering systems and

On 22 May 1995 Liddell Colliery 2611 ABIGAIL *stands in a line of man cars and locomotives awaiting disposal. Of the six cars built on Job 3022, only it had survived on the Coal & Allied roster as a result of being chosen for rebuilding at Rooty Hill on Job 12768. Photo: Craig Wilson*

the fragmentation of the records, the list of these components is in no way complete but illustrates the range of material provided. The earliest known work for 30 mounting plates was invoiced on 18 July 1986 on Job 12625. Job 12629 was for the AD8 final drives, six driving and six driven. Like the South Bulli job, the card only records the first two progress payments of $195,000. These, under Baldwin standard sale conditions, must have been less than 90% of the total price and indicate the large relative share in the cost of the locomotives which had a tendered sale price of $314,000 with all options.

August also saw the delivery on Job 12630 of six reversing gearboxes at an invoiced price of $369,257. These were to be the major sales traced to job cards with sales of 12 VDO generators (Job 12658), 11 Coolant loss valves (Job 12670), six throttle cylinders (Job 12672) and 16 manganese wear plates (Job 12674) being noted.[22] Baldwin was also to supply the flameproof equipment for the Caterpillar 3306 PCTA engines, though the actual flameproofing was done at Hexham, and on Job 40-00375 supplied six model 506064 exhaust conditioners.[23] They were supplied between May and July 1986.[24]

This was not the only work to come from Hexham in this period. On order R268 dated 6 April 1987, three Coal & Allied Industries personnel cars were authorised to undergo partial refurbishment at Rooty Hill.[25] The first, *ABIGAIL* 2611, (EMB serial 3022.5 9.70), was sent just two days later and the repairs carried out on Job 12768.[26] It was followed by *AGNES* 2602 (EMB serial 2301.1 2.68) and *ANNE* 2604 (EMB serial 2301.4 2.68) on Jobs 12804 and 12805 which were not dispatched to Rooty Hill until March 1988. The work done at Rooty Hill was limited. The cars were stripped and evaluated. Any structural work required was done, as was any mechanical work on brake systems and wheelsets. The engines were sent to Narellan Diesel for evaluation and overhaul. But apart from the supply of any Baldwin parts required, the cars were returned to Hexham for final re-assembly.

This marked the end of substantial conventional rail work during the currency of the agreement with Hexham. However there was the ongoing supply of proprietary spare parts like lights, and minor component repair. This was an allowable area under the agreement, such as a universal shaft repair for Penn Central (Sperry Rail Services) on Job 12747, or gearbox repairs, again for Penn Central, on Job 12737, or for Marian Mill on Job 12702.[27]

Staying in business

Over the period of the receiver's appointment there was an ongoing struggle, especially once the rail business was sold, to win enough business to keep the staff occupied and the business profitable.

The sale of agricultural tractors, that had offered so much, faded in attraction during the first year when the Commonwealth Government cancelled the tractor bounty. Overnight tractors that were competitive in price became uncompetitive. Tractor sales were still pursued but effectively now were built only against order. Five were built during the receivership period, a DP600, a DP500 and three DP400 tractors. The last of these, serial 13393.1 5.89, was fitted with television and a video player, indicating the premium nature of the product.

If the tractors were not going to sustain the business during this time, consideration returned to the area where Baldwin had a good reputation, the coal mining business. Two problems with this strategy confronted them. While they retained a small number of product lines, they lacked any product that brought numbers of enquiries. Also, given that their work was built around the company building relationships with original equipment purchasers, much of the coal industry did not have a current relationship with the company.

To counter this, Steve Lewry was re-employed, this time for a role in the sales team. On leaving EM Baldwin in May 1985 he had been employed by Hunter Hydraulics. This involved cold calling on mines seeking maintenance and repair work that was carried back to their workshop or, if of significant size, might be tendered for. Steve Lewry re-joined in April 1986 to continue the role he had with Hunter of cold calling colliery engineers. '*We were scratching and scraping. I was knocking on doors of mines and we were getting things like steer axles out of PET man transporters (rubber-tyred Personnel & Equipment Transporters) to rebush and rebuild, anything we could get. We were scratching to keep going. But that was what they bought me back for.*'[28]

Non-Rail solutions

To remedy the first perceived shortcoming, a flameproofed skid steer loader, the Baldwin XTractor, was developed. The principal features of the prototype unit[29] were:

- Perkins 4.154 motor rated 33.5 kW @ 2400RPM
- Eaton model 25 hydraulic drive pump
- Commercial P30 implement drive pump
- Eaton hydraulic motors
- Four wheel planetary hub reduction drive.
- Ingersoll Rand air starter motor, air receiver and on-board compressor.
- Rated bucket capacity of 800kg.

The first unit was built on Job 40-00498 but after testing, including the Easter long weekend in 1987, moving four hundred tons of dirt on Steve Lewry's property, and it was decided to change to Rexroth hydraulics. Five more loaders were built during the time of the receiver, three on Job 13137 and a further two on Job 13240. The all time production total included another two built later. The prototype plus one other went to South Bulli Colliery, three went to the Sydney Water Board, and one each to Appin, Cordeaux and Ulan Collieries.[30]

The second major development project was the development of an articulated dump truck (ADT). This unlikely product came about through Steve Lewry's cold calling for business at Clarence Colliery. On the road in he had to pass Kable's Sand & Gravel Quarries. He called in and met David Wilpour who was the workshop foreman and an enthusiast for Australian made products. Drawings of the agricultural tractors Baldwin were then building were shown and it was agreed that the Company had the capacity to build an ADT. Brian Watts did a quotation drawing and a presentation was made to Les and Kevin Kable. They were immediately interested, and joint development of the concept took place over the next six months before a further presentation to the Kable Brothers resulted in an order for the ADT which was built on Job 13034.

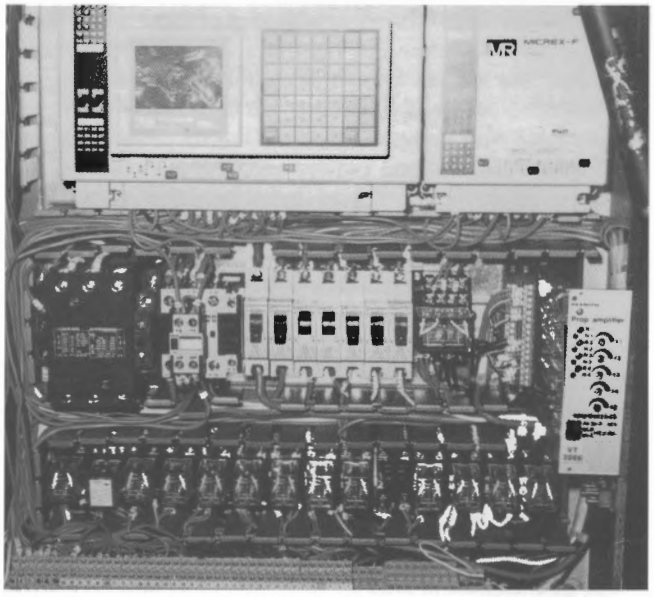
The truck was powered by a Caterpillar 3406 turbocharged and aftercooled diesel rated at 298Kw. The transmission was a 6F/1R Allison CLBT6061 transmission driving through a Baldwin HD400DB drop box and Baldwin HD400TD axles with planetary reduction wheel hubs and Eaton differentials. The truck went into service in 1988 and due to greater power, speed and payload it was an immediate success.[31] Pioneer Concrete ultimately took over the Kables' operation, and the truck was transferred to Western Australia by which time it had worked for over 17,000 hours. While both of these developments offered possibilities for future growth, the sale of the company in June 1989 and the ability to return to rail work diverted the sales effort away from these products and the agricultural tractors, back into the more profitable and available rail work.

A (concrete) rail solution

The largest of the new projects came from an enquiry from John Holland Constructions Pty Ltd, who were retained as consultants to a theme park development at Coffs Harbour. The site was to the north of the town, built on very hilly terrain. The concept, apart from moving the visitors around the park on tour, was to link the park shop at the base of the hill to the restaurant perched at the highest point of the site. John Holland was interested in a locomotive to power the tour train and approached the company to tender.

When Warren Miller received the enquiry, he immediately saw that if it were an application on steel rail, the locomotive would have to work on rack on the planned steep sections of 1 in 7. Even then, given the sharp curvatures and the continuous heavy grades, the ride would be slow and maintenance heavy. A different solution was required. '*So when I got hold of the idea . . . you make a locomotive, put it on rubber wheels on concrete track. You would get traction. We did all the figures and came up with this concept.*' The original concept was to build a solid concrete road with the guide rails at the side but '*once we started tossing ideas around, the cost advantage of building it on two single tracks was quite (apparent).*' The guidance system was very simple, '*(They were) eight wheel vehicles with a bogie fore and aft.. (The bogie had) four (pneumatic) wheels with a guide system. . . . . It can just pivot and it (the guide wheels) follows along the inside of this concrete track.*'[32]

Four power units, classified as model DH6RT, were built, Serial 13270.1 4.89, 13270.2 4.89, 13270 3 4.89 & 13270 4 4.89. They were run in two trains of two power and two trailer cars with usually only one train in service except at peak times. A Caterpillar model 3116T engine rated at 145HP at 2200 RPM powered each locomotive. They had a hydrostatic pump and motor transmission, the pump being a Rexroth model A4V90ELIOR 001010. Mechanically they were very simple to operate with the major design difficulty being to design a successful level of sound proofing, as the engines were mounted immediately in front of the trailer cars.[33]

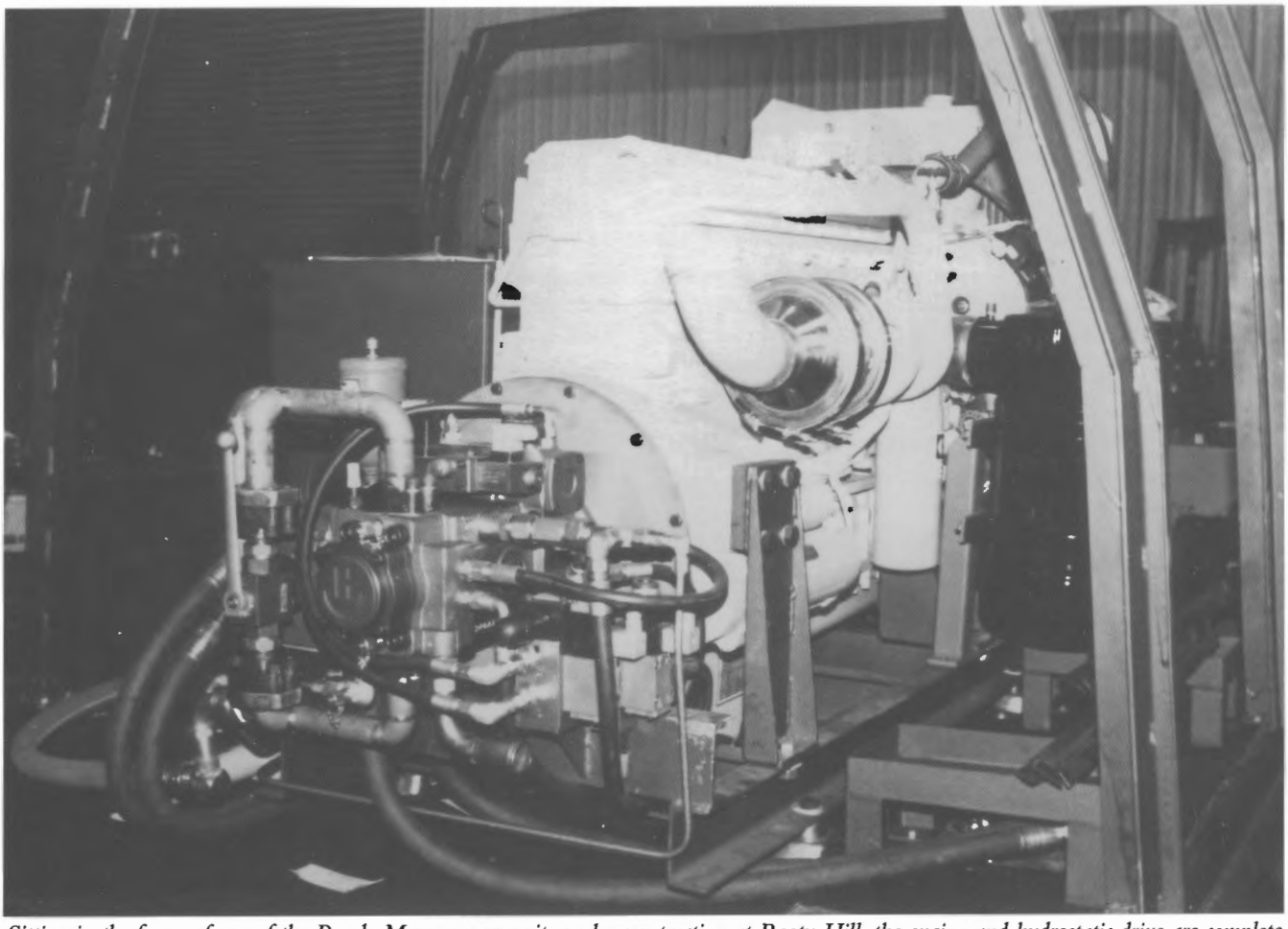


The electronics used to control the hydrostatic drive on the People Movers incorporated Programmable Logic Controls and allowed an exact control over the train's operation. Pictured here is the electronics cabinet located in the power unit.

Photo: Frank Baldwin, Craig Wilson Collection

Somewhat surprisingly, if the development of these units ever came to Hexham's attention, they must not have been

In 1989, one of the People Mover power units is worked on. *Photo: Frank Baldwin, Craig Wilson Collection*



Sitting in the frame of one of the People Mover power units under construction at Rooty Hill, the engine and hydrostatic drive are complete and await piping up.
Photo: Frank Baldwin, Craig Wilson Collection

regarded as locomotives covered by the agreement. However, by the time they were delivered Hexham itself had closed and was for sale, with Westfalia as the probable purchaser. Whether recognised as locomotives or not, as 'People Movers' they were unusually trouble free when compared to contemporary Australian experience.

The end of receivership

While less than three years of the five-year restraint of trade had passed, Hexham Engineering had run into financial trouble itself and was in the throes of closure and sale as the Adelaide Steamship conglomerate collapsed around it. During this time, the Baldwin activities at Rooty Hill had been compressed into half of the workshop space with another engineering firm, Westfalia Pty Ltd, purchasing the property in 1986 and occupying half for its own activities. The Baldwin operations had been profitable in each of the years of control by the receiver and provided a potential base of business to supplement the existing Westfalia business. However it was seen that the real benefit would only be gained if Baldwin could undertake rail work. Accordingly, negotiations were opened by Westfalia staff with the Hexham management. Baldwin was purchased in 1989, along with Hexham's right to build rail equipment, and the receivership ended.

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22. All Hexham jobs quoted from job card extracts.
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25. Job listing extracts for Job 12768,12804 & 12805. The three man cars have been identified from their individual Liddell Colliery locomotive files which detail the transfer of the cars between sites for repairs. It should be noted that the EMB flameproof approvals record 2611 as *WENDY*. The car was photographed at Stockrington No 2 Colliery in 1983 under this name though by 1985 it had been officially renamed *ABIGAIL*. This was undoubtedly due to the popularity of the name, with two other cars at Liddell already so named (a Fox and another Baldwin car built on Job 10229, both out of service at that time). It is likely at the time of repair 2611 still carried the name of *WENDY* and was recorded as such.
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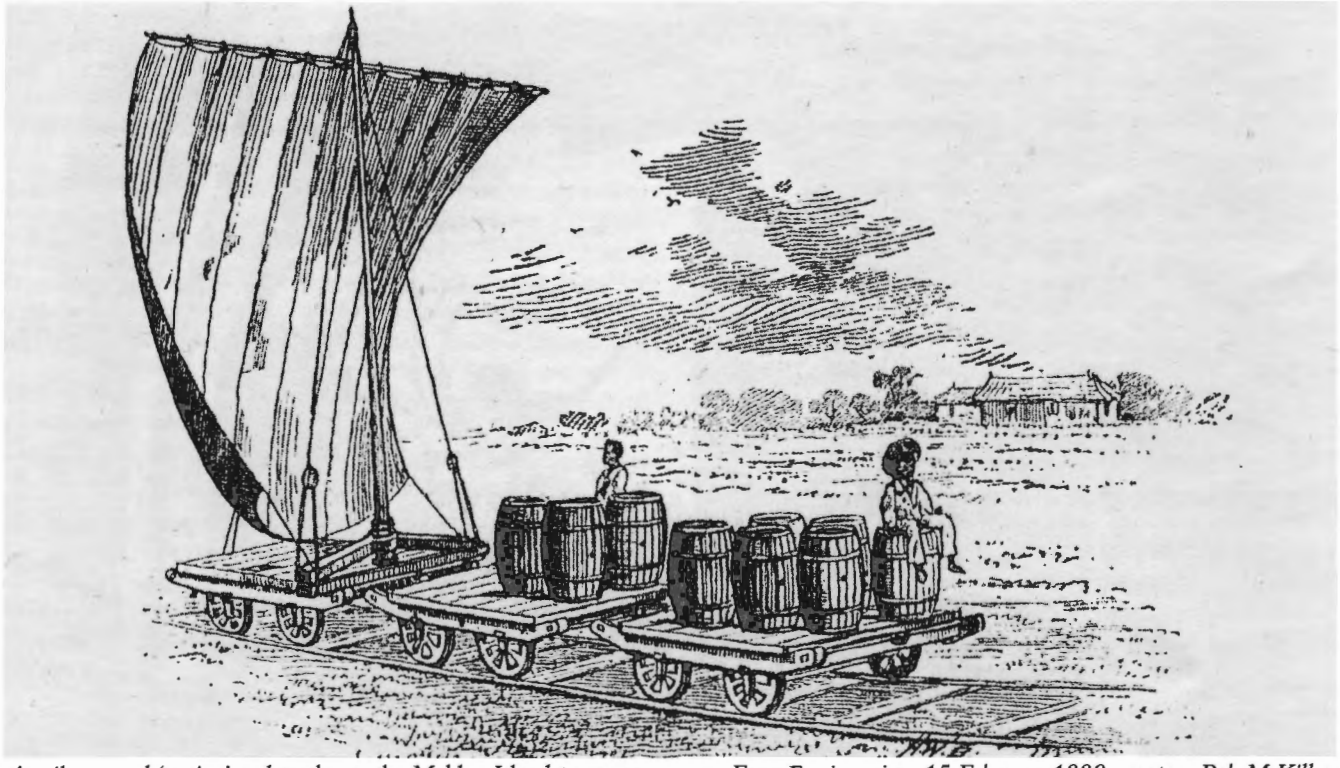

A sail-powered 'engine' and trucks on the Malden Island tramway. *From* Engineering *15 February 1889, courtesy Bob McKillop*

Malden Island Tramway: powered by sail

by Jim Longworth

Malden Island

Malden Island lies on the border of the Southern Pacific, four degrees south of the equator, beyond the verge of the Polynesian archipelago, seldom visited by ships. The glaring barrenness does not possess a single elevated area or solitary tree, simply an immense white beach, a little abandoned settlement fronted by the remains of a big wooden pier, and a desolate plain of low greyish-green herbage. Water had to be produced by condensers and food imported, except for pig and goat.

Captain Chapman, an American whaling captain, discovered Malden during a long cruise in 1848. He landed on the island, found nothing for himself and his crew in the way of fruit or vegetables, but discovered guano beds, and made up his mind to sell the valuable knowledge as soon as his cruise was over. Then he put to sea again, and did not reach San Francisco for the best part of a year. Meanwhile, another American, Captain English, found the island and its treasure. Much wiser, he abandoned his cruise, and hurried to Sydney, where he sold the island to a trading firm. Malden was claimed by Americans under the Guano Act (1856), but by then the Australian firm was already established there. Just prior to 1889, Messrs. Grice, Sumner and Co., of Victoria, employed 8 Europeans and 150 Polynesians on Malden. Natives of Niue dug and transported the guano. Cook Islanders from Aitutaki handled the boats. On January 1, 1922, Malden was leased to Malden Island Pty. Ltd. of Melbourne, for 21 years, but they did not stay out their lease. The island was abandoned, becoming part of the Line Islands, Republic of Kiribati.[1]

The island is made up of three distinct strata: A hard white surface crust, the beds of guano, and the solid substrate of coral rock. At one time, the island must have been home to innumerable frigate-birds, nesting all over its diminutive landmass. Guano beds covered practically the whole of the island.

The crust had to be broken through before the guano, lying a foot or two underneath, was reached. Labourers broke away the stony crust with picks, and shovelled out the fine, dry, earth-coloured guano that lay beneath, from one to three feet thick. Excavated guano was piled in great heaps, and sifted through large wire screens. The sifted guano was then spread out in small heaps in the fierce sun, and left to dry thoroughly. When dried, the guano was stored away in an immense shed near the settlement. If the guano had been obtained from the pits on the other side of the island, 5-8 miles away, it was brought across to the storehouse on a tramway.

Tramway

The Malden Island tramway was worked not by gravity, horse, steam, electricity, or petrol, but by sail! The SE trade-wind blows across this island practically all year round so the Company kept a little fleet of tramway trucks, cross-rigged, with large sails, to convey the guano to the settlement. Empty trucks were pushed, up to windward, across to the pits by the workmen, and loaded there. On evening, the labourers climbed onto the loaded trucks, set the great sails, and flew down to the settlement as fast as their train would go. These sailing-trucks of Malden were a bit unmanageable at times, and were known to jump the rails when travelling at high speed, thus causing unpleasant accidents, but the Kanaka labourers did not seem to mind a trifle of that kind. Not even in a south-east gale would they condescend to take a reef in the sails.

The so-called 'engine truck' carried a single mast in its centre, rigged with a large sail. The first time one visitor saw the train the trucks were empty. The visitor asked the man in charge to hoist his sail while the visitor took a photograph. He did so accordingly but, as the trucks were not in motion or carrying ballast in them at the time, the 'engine truck' promptly capsized. He was more fortunate on another occasion, when he managed to take a good photo of the 'engine' and trucks, which later formed the basis of an engraving published in the Feb 15 1889 issue of *Engineering* (see above).[2]

Sail also powered tramways in England, America, Chile, Falkland Islands and north-western Western Australia.[3]

As it was necessary to push these railway 'ships' on the outward trip, the managers generally travelled on a small railway tricycle, driven at a fair speed by means of arm levers. Across the desolate inland plain they clattered, the centre of a disk of shadowless grey-green, drenched clear of line and colour by the merciless flood of white fire from above. The sky was of the very thinnest pale blue; the dark, deep sea out of sight. The world seemed all dead stillness with the smiting sun. Only the thin rattle of the labouring car relieved the emptiness. On sunset, dark specks in the sky grew nearer and more numerous, filling the sky with the sweep of rushing wings and the screams of angry bird voices - the smaller Man-of-War bird, about the size of a duck, though much lighter in build.

Island life

A row of little tin-roofed, one-storeyed houses above the beach were tenanted by the half-dozen white men who acted as managers. A skilled chemist was kept on the island, together with a fine laboratory. The post of official chemist was no sinecure as it included duties of dispenser and some rough-and-ready doctoring at times. Food was tinned of various kinds, with bread, rice, fowls, pork, goat, and goat's milk. Vegetables or fruit were a rare and precious luxury, for the nearest island producing either lay a thousand miles away. Big yams, weighing a stone or two apiece and whitewashed to prevent decay, were sent up from the Cook Islands now and then, but the want of really fresh vegetable food was one of the trials of living on the island.

Labourers signed up for a year's work, at 10 shillings a week, plus board and lodging. Working hours were from 5 am to 5 pm, with an hour and three-quarters off for meals. Food consisted of rice, biscuits, yams, tinned beef, and tea, with a few coconuts for those who might fall sick. Accommodation was in large, bare, shady buildings fitted with wide shelves, on which the men spread their mats and pillows to sleep. Labourers came to the island equipped with beautifully plaited pandanus sleeping mats. Cushions were stuffed with down from the silk-cotton tree and covered with 'trade' cottons, embroidered with decorative designs and affectionate mottoes.

Recent history

In 1956, Britain selected Malden as the 'instrumentation site' for its first series of H-bomb weapons tests, and three thermoneuclear devices were detonated a short distance offshore, at high altitude, in 1957.

On 29 May 1975, Malden was reserved as the Malden Island Wildlife Sanctuary, the main purpose of this being to protect the large breeding populations of seabirds.

Today, the uninhabited island's main economic value to the Republic of Kiribati lies in the rich tuna fisheries of the 200 nautical mile Exclusive Economic Zone. In recent years, some revenue has also come from ecotourism.

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This article is largely based on material from "In the Strange South Seas", written by Beatrice Grimshaw in 1908 (Hutchinson & Co, London) and to be found at http://www.janesoceania.com/about_malden_island/index.htm (accessed 30/5/2007). Other citations appear below.

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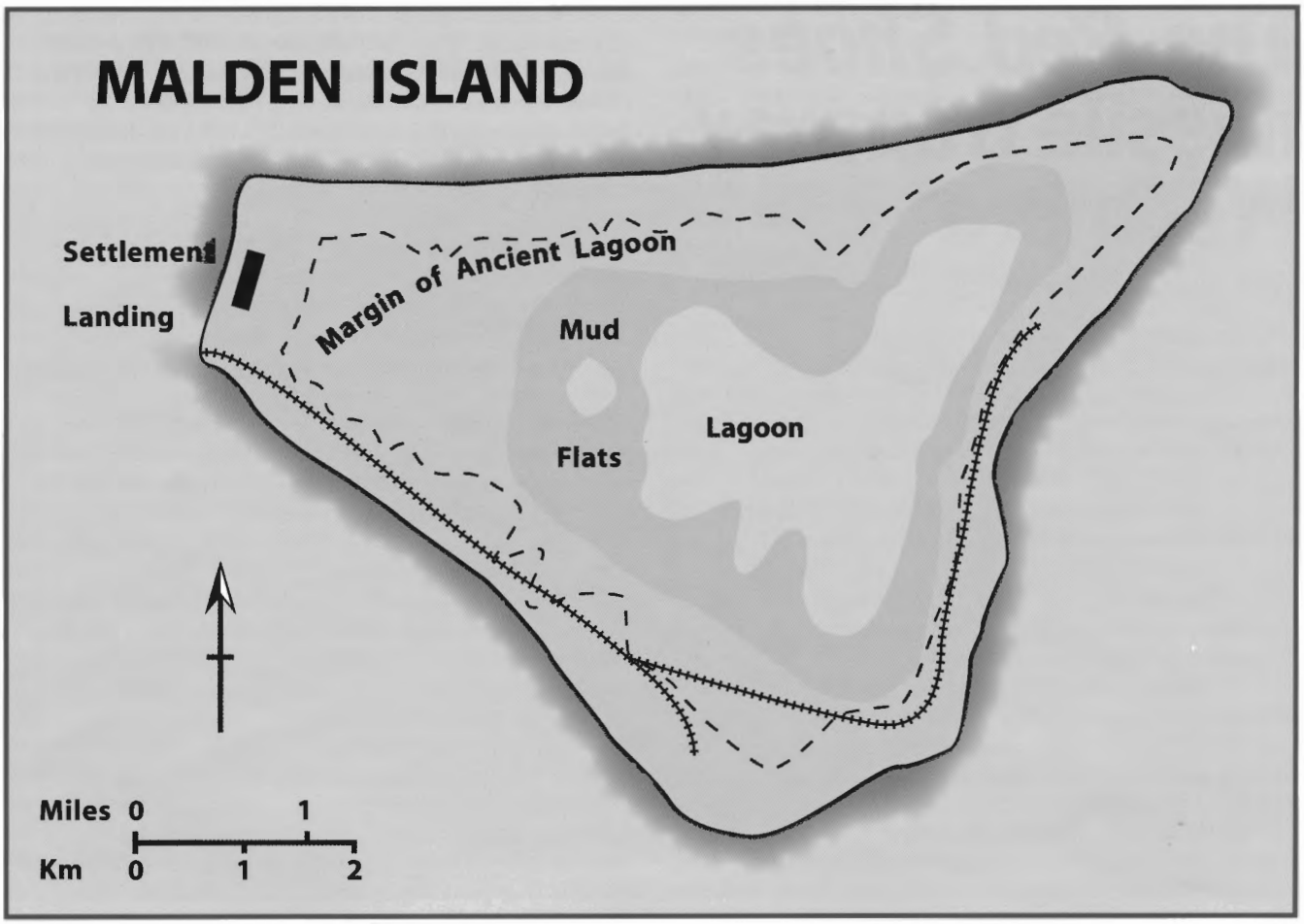


Malden Island, circa 1924, showing the position of the settlement and landing, and the route of the tramway.[4]

Launching Apron No. 3 with track-laying in progress, February 1954. *Photo: LRWE*

The *Red Shoes* missile tramway, Woomera

by F Brian Andrews

Introduction

One probably tends to associate light railways with diminutive steam locomotives, primitive trackwork and - perhaps through the seductive imagery of those wonderful photos of long-defunct timber tramways - with events firmly embedded in our past. Yet light railways are not entirely out of place in this space age. Indeed, it is the very technology which put men on the moon that spawned the missile system whose tramway is the subject of this article.

In the decade following World War II many nations, having been awakened to the awesome military significance of Germany's V-2 rockets, embarked upon the development of guided weapon systems deliverable by solid and liquid fuel rocket propulsion. The United Kingdom, with a large research and development program in the field of guided weapons, approached the Australian Government in 1946 with a proposal to set up an experimental guided weapons testing range across Central Australia. Discussions between the two governments led to the signing of the UK/Australian Joint Project Agreement in 1947. The object of the Joint Project was to set up and operate an experimental range and a supporting establishment for the testing of guided weapons, pilotless aircraft and air-launched equipment.[1]

The immediate product of this Agreement was the setting up of Long Range Weapons Establishment (LRWE) at Salisbury, near Adelaide, South Australia, on the site of a World War II explosives and filling factory,[2] and the building of a range starting from a new town, Woomera, some 300 miles north north-west of Adelaide, and extending 1250 miles north-west to the Indian Ocean.

The *Red Shoes* program

One of the areas of concern to the UK Government in the early 1950s was the air defence of Great Britain. Accordingly, the Ministry of Supply funded the research and development of two independent programs to achieve this goal through the deployment of surface-to-air guided weapons. Two English companies, Ferranti and English Electric, were prime contractors for the programs. The developmental system of Ferranti was designated *Red Duster* and that of English Electric was *Red Shoes*.[3] The UK programs of those years were nothing if not colourful, including such names as Blue Streak, Black Knight, Yellow River and Indigo Corkscrew.

The operational concept for the *Red Shoes* system, developed by a specially formed think-tank of bright young men in the English Electric company, included the movement of fuelled and armed missiles to their launchers by means of self-propelled launcher trolleys over 2ft gauge light railway tracks at the various required sites throughout Great Britain. The rail infrastructure planned for this concept was to be standard 2ft gauge Decauville track with flat bottom rails and pressed steel sleepers.[4] For the missile firing, the launcher trolley would form an integral part of the launcher and the weapon would actually lift off from the trolley.

Following preliminary tests at the Aberporth Range in South Wales, the need arose for a comprehensive program of developmental testing of *Red Shoes* missiles at the Woomera

Range. The requirements for these trials were set out in a planning document issued in April 1953. The Woomera trials were envisaged to encompass over 150 missile firings during the years 1954 to 1956. A majority of the firings would be of D (development) rounds, finishing with firings of W (service) versions of the weapon. Of all these planned firings, approximately 20 would be fired from a fixed launcher, the remainder being fired from the launcher trolleys.

In order to accommodate the *Red Shoes* program at Woomera, construction of new facilities and the re-allocation of some existing ones at Range 'E' was called for in the planning document. These facilities and their relationship to the missile tramway are best described in the context of their planned functions (see map, page 14).

After arrival from England missiles were assembled, checked and measured at LRWE, Salisbury. Here they were mounted on a laboratory trolley (not rail equipment) and prepared for transport direct to Range 'E'.

Test Shop No. 3, Range 'E', had been allocated to the English Electric Company for the *Red Shoes* trials program. In this building the missile's telemetry would be checked out and it would then undergo further measurements in a common Measurement Shop. 2ft gauge tramway tracks would pass right through Test Shop No. 3 and the building would also contain a spur siding. This would enable rounds (a term for missiles) to be returned to the shop on launcher trolleys if required and also permit maintenance work on the launcher trolleys. There was also provision for battery chargers to be connected to the launcher trolleys

After the Measurement Shop, the missile would be taken to the Boost Fitting Shop No. 2 where a boosting rig would be used to fit its cluster of four solid fuel Mayfly boost motors. It would then be transferred to the launcher trolley standing on the tramway tracks passing through the shop.

A Round Store was to be provided with accommodation for up to three fully prepared rounds. Tramway tracks passing through this store would permit a *Red Shoes* missile prepared for firing, or recalled from the launcher, to remain on its launcher trolley.

For those D version missiles with liquid thermal ignition sustainer motors - pending the development of solid fuel sustainer motors - a Filling Post would be required. The missile on its launcher trolley would travel through the post to separate fuel and oxidant filling sections to permit filling or emptying of its aviation kerosene and HTP (High Test Peroxide) respectively.

From the abovementioned group of buildings, the missile on its launcher trolley would travel to Launching Apron No. 3, a facility to be developed in support of the *Red Shoes* program. Here the missile would undergo final monitoring, preparation for firing, and firing.

Trackwork details

The task of designing and constructing the *Red Shoes* missile tramway went to the Commonwealth Department of Works. The design work was accomplished during 1953, resulting in a track layout as shown in the map.[5] Side-of-the-road running was the norm on the tramway and the approximately 1.6 miles of track consisted of 30lb per yard standard flat-bottom rail laid on 3½in x 6in x 4ft wooden sleepers, set in crushed rock ballast. The maximum gradient on the tramway was 0.4 per cent.[6] Well-engineered 35ft radius left-hand, right-hand and wye turnouts were used, being actuated by throw-over mechanisms of the familiar cheese-knob variety.[7] On the line out to the launcher, curves were constrained to 100ft radius, whereas in the vicinity of the various round preparation and storage facilities, as well as at the launcher site, 35ft radius curves were employed.

Initially, the launcher area was proposed to have rail access to four launcher turntables set in the launching apron. This stemmed from strategic thinking dating from the pre-guided weapon era, which envisaged the use of such weapons very much in the traditional manner of artillery pieces. Hence the notion of firing in salvos and the consequent need for a multiple launcher capability.[8] Only two launch turntable pits were in fact constructed and only one of these was fitted with the necessary turntable base. On the launching apron the rails were set in concrete to railhead level.

A view from Launching Apron No. 3 back along the main line towards Test Shop No. 3, May 1954. The desolate nature of the desert environment is evident. *Photo: LRWE*

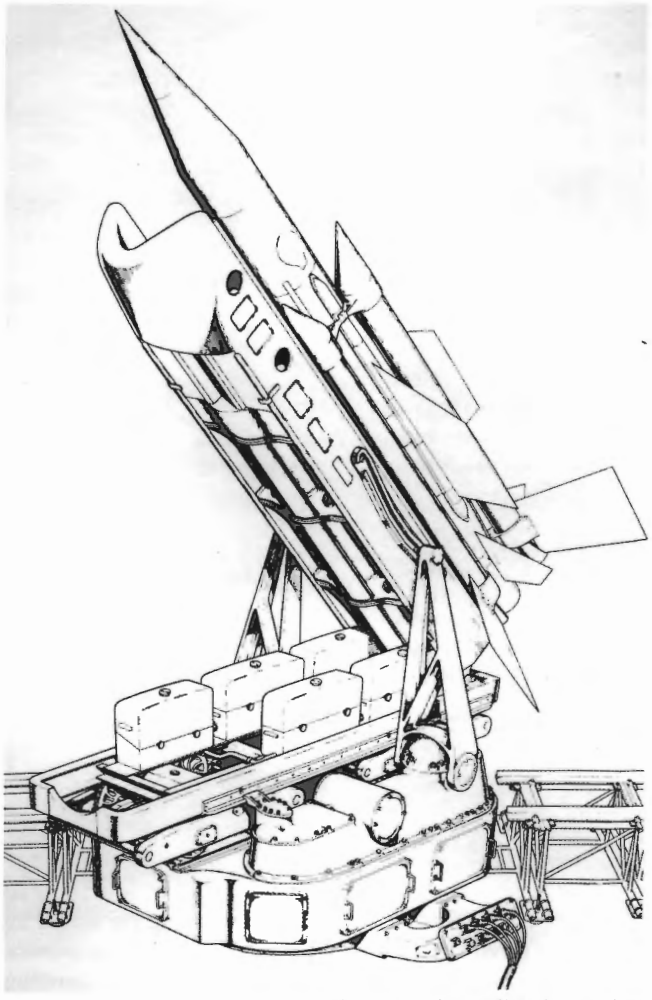
Rolling stock

Two items of rolling stock, a launcher trolley and a self-propelled flat car, operated on the tramway. Both were electric vehicles powered by storage batteries.

The launcher trolley must surely have been one of the most sophisticated and unusual narrow-gauge railway vehicles ever invented. Essentially, it was the self-propelled half of a missile launching equipment, the other half being the aforementioned turntable. When driven onto the turntable, automatically locked into position and coupled to external power supplies, the trolley became the launcher with its elevation control whilst the turntable provided the azimuth control.

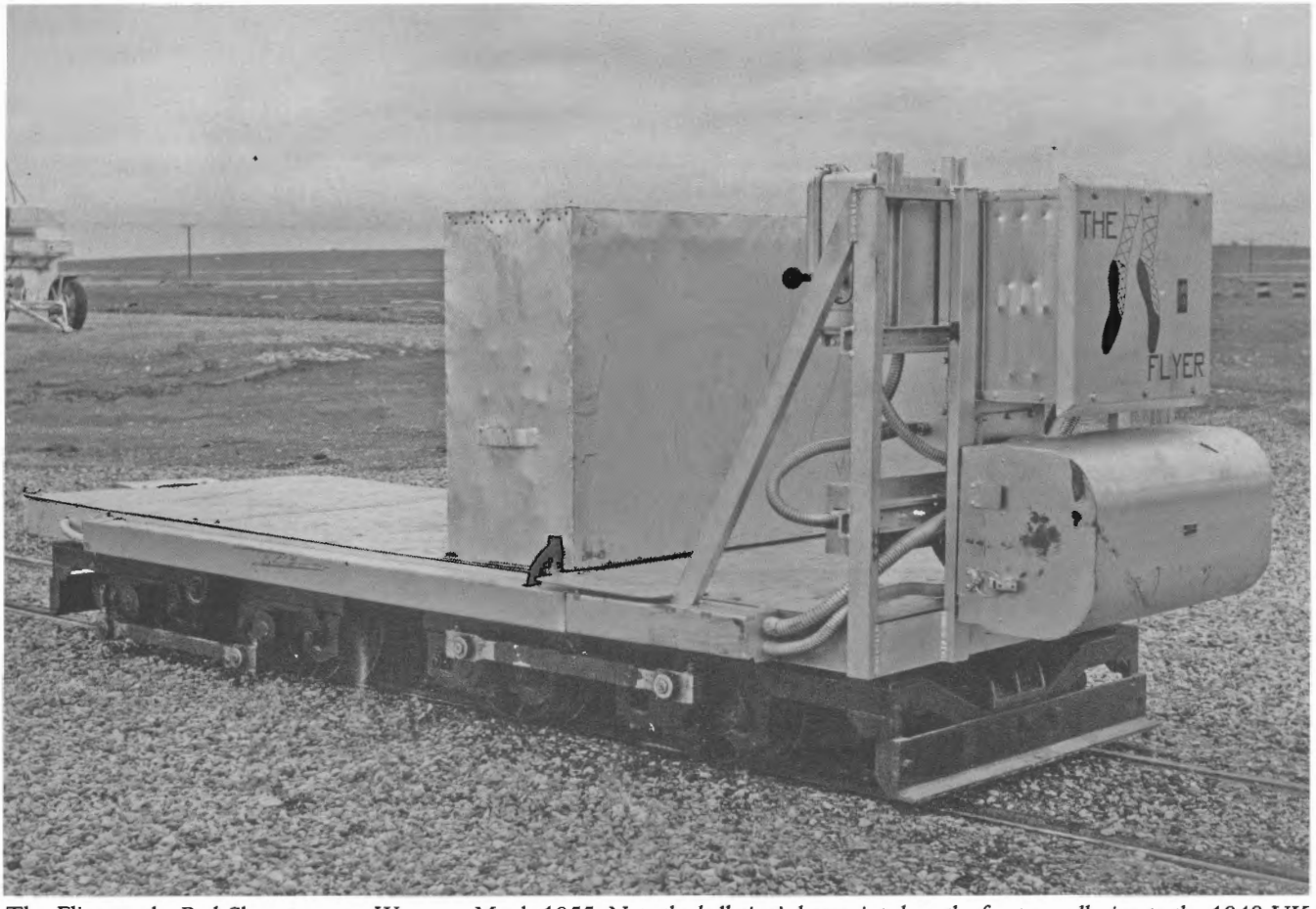
The trolley had a pair of bogie assemblies, a chassis and an elevating frame. Each bogie consisted of an outside frame from which was suspended, in conventional electric tramway fashion, a nose-hung English Electric EE202 traction motor. This powered the driving axle through reduction gearing whilst the other axle was coupled via a Reynolds triplex chain to the driving axle.[9]

The trolley chassis was of welded construction. On its upper surface were mounted a contactor box and four battery boxes, whilst at the rear was a hinge bracket to which was attached the elevating frame. Along each side was a guide rail which was part of the clamping and securing arrangement for the trolley at the launch site. The elevating frame supported the *Red Shoes* missile. It was of U-section to provide clearance for one of the missile's main fins and had grooved runners on its upper surface. Into these runners were engage four feet attached to the missile, one forward and one aft of each of the two lower of the four boost motors. As the missile fired, the feet slid along the runners to provide initial stability during lift-off. A pair of massive cast cam grooves were located on the sides of the elevating frame which, in conjunction with the turntable mechanism at the launch site, enabled the missile to be set to the required firing elevation.



An artist's impression of the Red Shoes launcher trolley deployed on its launcher turntable. Image: courtesy British Aerospace

This December 1957 view shows the Red Shoes *missile on its launcher trolley outside Test Shop No. 3. The detachable driver's seat can just be seen under the nose of the missile. In the shadows of the Test Shop entrance is the battery electric flat car,* The Flier. *Photo: LRWE*



The Flier *on the Red Shoes tramway, Woomera, March 1955. Note the ballerina's legs painted on the front, an allusion to the 1948 UK film* The Red Shoes, *with its ballet theme.* *Photo: LRWE*

Finally, a detachable seat could be fitted to the side of the elevating frame. It contained controls for the trolley and, when connected via cable to the chassis, could be used by the operator to drive the trolley under local control.

The envisioned mode of use in operational circumstances was for the trolley to be remotely driven onto the turntable where it would be automatically locked in position. Massive hinged arms in the side of the turntable would engage in the cam grooves on the trolley's elevating frame. These would be actuated to raise the frame, thereby elevating the weapon to the correct attitude for firing and then the turntable would be slewed towards the target. After firing the turntable could be brought back to the loading/unloading position, the elevating frame lowered, the supplies disconnected and the trolley locks removed, allowing the trolley to drive through the turntable and back to the 'ready to use' store.[10]

A close-up view of the launcher trolley bogie.
Photo: courtesy British Aerospace

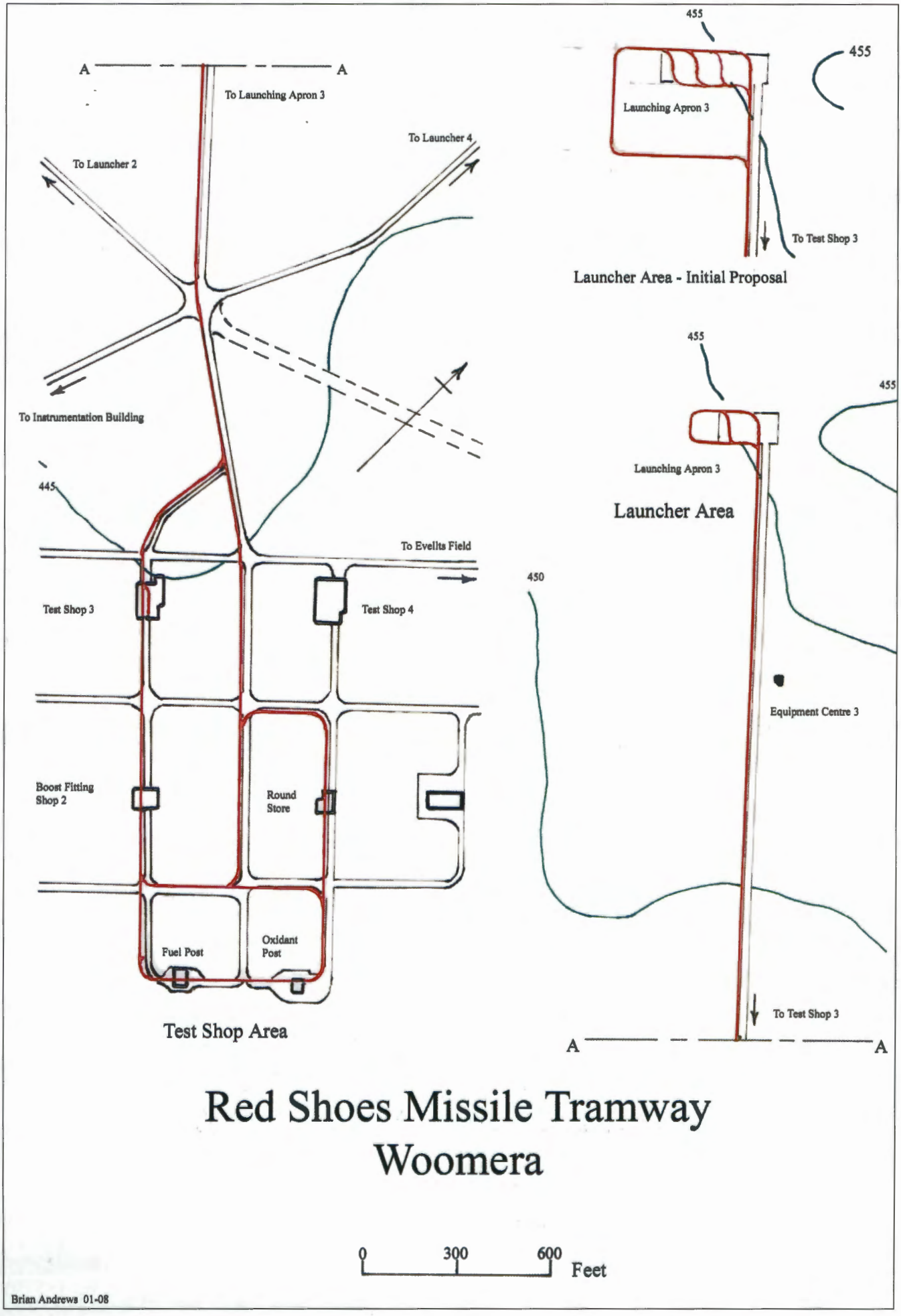
One such trolley/turntable combination was shipped from the UK to Woomera in 1954 for the *Red Shoes* development trials.

The other vehicle used on the Woomera tramway, the flat car, was dubbed *The Flier*. It was employed for general purpose haulage on the line. Its chassis was mounted on two bogies and the wheels on each bogie were connected by coupling rods, the electric drive being - presumably - to one axle only on each bogie. *The Flier's* rudimentary controls consisted of a circuit breaker, an ammeter and a tramway-style controller with two forward and two reverse notches.

Usage

At the very time that the *Red Shoes* tramway was being installed at Woomera, logistic studies in the UK revealed that this tramway concept was not the optimum way of deploying the weapon in operational circumstances.[11] Ultimately the surface-to-air weapon which evolved from the *Red Shoes* development program, namely, the *Thunderbird* missile, was configured to be launched from a fixed, so-called 'zero length', launcher. Accordingly, the Woomera tramway saw very little use in the way it was intended.

Normally, for a test firing the launcher trolley, which was parked in Test Shop No. 3, was driven empty up to Launching Apron No. 3 and clamped to the turntable. The *Red Shoes* round was transported to the launcher by a rubber-tyred vehicle and then lifted onto the launcher trolley by a crane.



Nor was the Filling Post much used. After the first three or four firings of rounds with liquid fuel sustainer motors the superior solid fuel sustainer motors became available.[12]

Towards the last days of the development test firing program at Woomera, a couple of *Red Shoes* missiles were actually transported over the tramway to the launcher as originally intended, but this was more of a nice *ad hoc* historical gesture on the part of the test program personnel than an operational requirement.[13]

The *Red Shoes* program tailed off in the late 1950s. By that stage the launcher trolley was left clamped to the turntable on Launching Apron No. 3 and simply covered by a tarpaulin when not in use. As late as the mid 1980s a few hundred yards of disconnected trackwork along with several turnouts were still in situ in the test shop area at Range 'E', Woomera, the last tangible evidence of a truly remarkable application of light railway technology.[14]

Acknowledgements

The author wishes to acknowledge with gratitude the assistance of Charles Downes, Jim Boucaut and Sid May in the preparation of this article. He also extends his thanks to the Defence Science and Technology Organisation Salisbury, SA, and to British Aerospace Dynamics Group, UK, for the provision of material and for permission to publish it.

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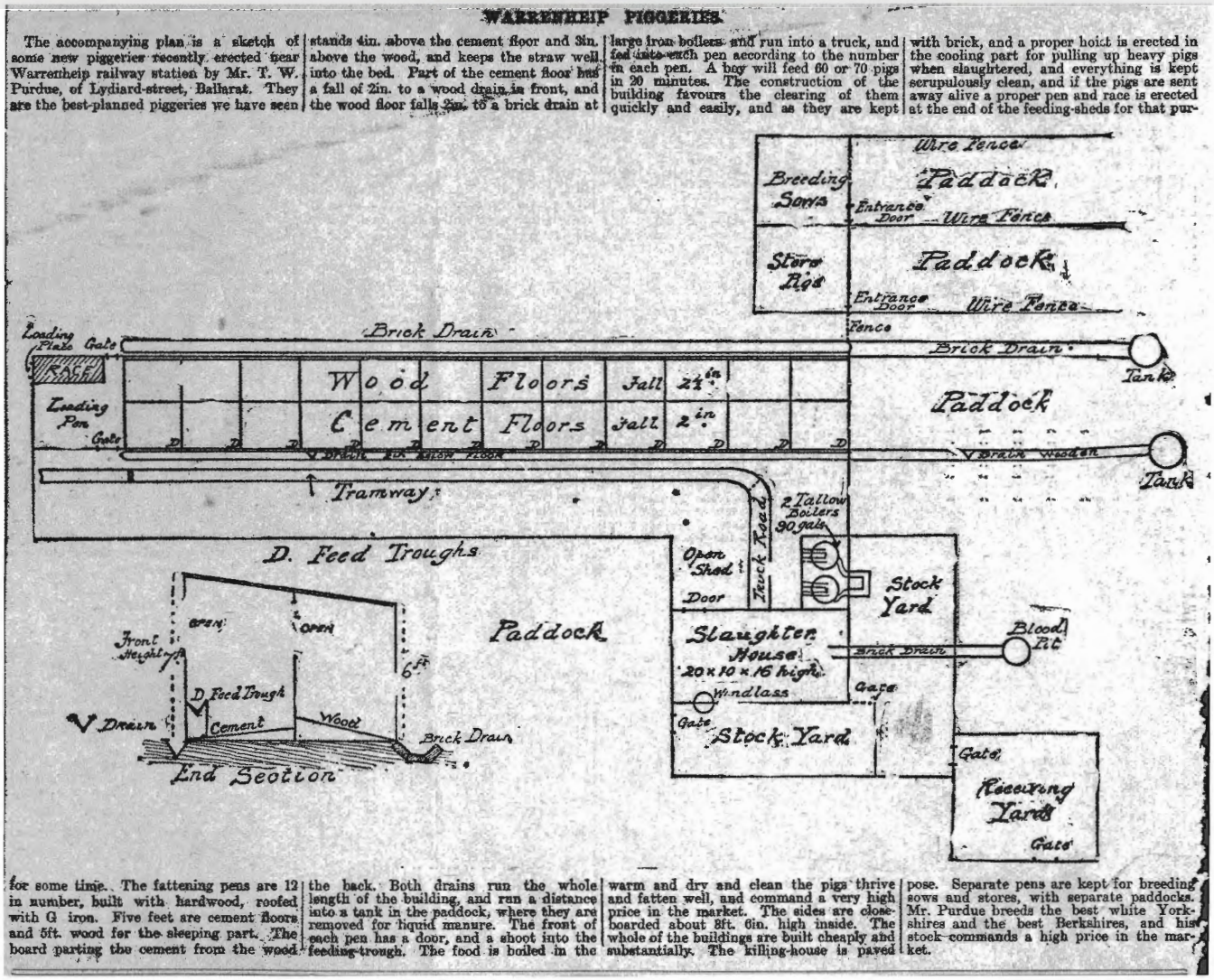
13. ibid.
14. Visual inspection by Sid May, Trials Resources Laboratory, Defence Science and Technology Organisation, Salisbury.

FROM THE ARCHIVES



WARRENHEIP PIGGERIES.

The accompanying plan is a sketch of some new piggeries recently erected near Warrenheip railway station by Mr. T. W. Purdue, of Lydiard-street, Ballarat. They are the best-planned piggeries we have seen for some time. The fattening pens are 12 in number, built with hardwood, roofed with G iron. Five feet are cement floors and 5ft. wood for the sleeping part. The board parting the cement from the wood stands 4in. above the cement floor and 3in. above the wood, and keeps the straw well into the bed. Part of the cement floor has a fall of 2in. to a wood drain in front, and the wood floor falls 2in. to a brick drain at the back. Both drains run the whole length of the building, and ran a distance into a tank in the paddock, where they are removed for liquid manure. The front of each pen has a door, and a shoot into the feeding-trough. The food is boiled in the large iron boilers and run into a truck, and led into each pen according to the number in each pen. A boy will feed 60 or 70 pigs in 20 minutes. The construction of the building favours the clearing of them quickly and easily, and as they are kept warm and dry and clean the pigs thrive and fatten well, and command a very high price in the market. The sides are close-boarded about 8ft. 6in. high inside. The whole of the buildings are built cheaply and substantially. The killing-house is paved with brick, and a proper hoist is erected in the cooling part for pulling up heavy pigs when slaughtered, and everything is kept scrupulously clean, and if the pigs are sent away alive a proper pen and race is erected at the end of the feeding-sheds for that purpose. Separate pens are kept for breeding sows and stores, with separate paddocks. Mr. Purdue breeds the best white Yorkshires and the best Berkshires, and his stock commands a high price in the market.

This venerable press clipping, from The Australasian *of 19 December 1896, provides some indication of just how widespread was the use of light railways, for all sorts of purposes, during the 19th and early 20th centuries.* *Submitted to* Light Railways *by Norm Houghton*

Industrial Railway NEWS

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http://au.groups.yahoo.com/group/LRRSA/
and to Barry Blair's ANZ Inside Rail enews

NEW SOUTH WALES

NDIA NRE MINERALS LTD,
India NRE No.1 Colliery, Corrimal
(see LR 164 p.18)
1067mm gauge
This is the former South Bulli Colliery, also previously named Bellambi West and Belpac No.1. It still has some underground rail in use, including man transporter cars. The mine is accessed through the old BHP Cordeaux Colliery shaft. Mining at Cordeaux (see LR 159 p.19) was suspended in 2001.
Australian Longwall Magazine 9/07 via Ray Graf;

QUEENSLAND

BUNDABERG SUGAR LTD, Bingera Mill
(see LR 198 p.18)
610mm gauge
Malcolm Moore 4wDH "Hydro" (1025 of 1943 rebuilt Bingera 1969) was noted parked in the yard at Fairymead on 17 November.
Editor 11/07

BUNDABERG SUGAR LTD, Babinda Mill
(see LR 198 p.18)
610mm gauge
There is a suggestion that a new out depot shed may be built at Goondi to replace the old mill locoshed demolished by Cyclone Larry in 2006.
Shane Yore 12/07

CSR SUGAR (HERBERT) PTY LTD,
Herbert River Mills
(see LR 198 p.20)
610mm gauge
Following the end of the crush on the Herbert, two **Victoria** Mill locomotives were loaned to Burdekin district mills to replace failed units. Walkers B-B DH *CAIRNS* (681 of 1972 rebuilt Bundaberg Foundry 1997) left for Invicta Mill on 30 November, and was accompanied by the Solari brake wagon BV13. EM Baldwin B-B DH *GOWRIE* (7135.1.7.77 of 1977) left for Kalamia on 5 December.
At **Macknade**, work started immediately on locomotives that are to be refurbished during the slack season. EM Baldwin 0-6-0DH 14 (6/2490.1 7.68 of 1968) had already been gutted by the end of crushing on 25 November and is expected to receive a new Mercedes-Benz engine. Shortly before Christmas EM Baldwin B-B *BRISBANE* (5423.1 9.74 of 1974) had been thoroughly gutted and was off its bogies. This locomotive is to be receive a new Caterpillar engine and drive train, with the work possibly to be done in Brisbane.
At Victoria Mill, Clyde 0-6-0DH *CANBERRA* (65-433 of 1965) had been gutted by 10 December, and will receive a new Mercedes-Benz engine. EM Baldwin B-B DH *TOWNSVILLE II* (6400.2 4.76 of 1976) may be fitted with the engine removed from *BRISBANE*, which was moved over to Victoria. Walkers B-B DH *JOURAMA* (680 of 1972 rebuilt Bundaberg Foundry 1996) will probably be receiving a new MTU 2000 series engine.
By 17 December, Victoria Mill's Clyde 0-6-0DH locomotives *CENTENARY* (65-433 of 1965) and *INGHAM* (64-382 of 1964) were both at Macknade Mill.
The short Lower Camp line at Victoria was removed in mid-December. This line was the last remnant of an early one that once extended all the way to the New Cemetery. The removal of this line is part of rationalisation in the mill yard which will see a new loop line well over 200 bins in length that will replace Lower Camp and Fraser's Siding.
It expected that the 1.2 km extension to the Macknade Mill Hawkins Creek line, built in 1990, will be removed and the line cut back to Faget's, which will be rebuilt and enlarged. This will eliminate a road crossing. The original need for the extension was largely been obviated by the building of Victoria Mill's Elphinstone line about five years ago.
Brett Geraghty 11/07; Chris Hart 11/07, 12/07; Steven Allan 11/07; 12/07

CSR SUGAR (KALAMIA) PTY LTD,
Kalamia Mill
(see LR 198 p.20)
HAUGHTON SUGAR CO PTY LTD
(see LR 198 p.21)
610mm gauge
Maintenance and weather problems disrupted the 2007 crush on the Burdekin, with crushing continuing into the new year north of the Burdekin River. In an attempt to expedite the crushing,

Victoria Mill's B-B DH CAIRNS *(681 of 1972 rebuilt Bundaberg Foundry 1997) loaded at the mill for transport to Invicta Mill on 30 November 2007.*
Photo: Brett Geraghty

Top: *Victoria Mill's EM Baldwin B-B DH* GOWRIE *(7135.1.7.77 of 1977) at the junction for Jarvisfield 8 siding on the Kalamia Mill system on 17 December 2007. Photo: Carl Millington* ***Centre:*** *Mackay Sugar's Walkers B-B DH* WALKERSTON *(672 of 1971 rebuilt Pleystowe Mill 1994) heads a rake of cane across the road-rail bridge on Head-Menkens Road at Septimus on the former North Eton mill system on 29 November 2007. Photo: Tom Badger* ***Above:*** *A brand new blue Invicta Mill 6-tonne bin, 16 December 2007. Photo: Scott Jesser*

two locomotives were sent from Victoria Mill to replace units that had broken down. Walkers B-B DH *CAIRNS* (681 of 1972 rebuilt Bundaberg Foundry 1997) was tranferred to **Invicta Mill**, departing 30 November, with the Solari brake wagon BV13. EM Baldwin B-B DH *GOWRIE* (7135.1.7.77 of 1977) was transferred to **Kalamia**, departing on 5 December. These locomotives were noted in use in mid-December.

On December 27, Invicta Mill's Com-Eng 0-6-0DH *BARRATTA* (AH4098 of 1965) was noted crossing Kalamia Mill's McDesme road crossing, returning light engine to the Invicta network. This suggested that Invicta cane was being transferred to Kalamia in an an effort to keep one mill going in spite of rain disrupting harvesting.

Invicta Mill's The KMX-06 tamper (Plasser 133 of 1978) has had a new roof fitted at the rear complete with handrails around it. The Mitsubishi van linecar was noted in the navvy yard on a short section of track. The mill's new 6-tonne bins are painted blue.

Brett Geraghty 12/07; Chris Hart 12/07; Scott Jesser 12/07; Carl Millington 12/07, 1/08; Jason Lee 12/07; *Townsville Bulletin* 29/12/07

MACKAY SUGAR CO-OPERATIVE ASSOCIATION LTD

(see LR 198 p.21)

610mm gauge

Most of the locos had been transferred to **Racecourse** by shortly before Christmas for slack season maintenance, while all the brake wagons had been taken to **Farleigh**.

With residential development ongoing in Mackay's northern beaches area, Farleigh Mill's Eimeo line has been cut back to a point about 150 metres on the Bucasia side of Eimeo 8 siding at Richmond, eliminating four road crossings.

Carl Millington 12/07; Brett Geraghty 12/07

MT ISA MINES LTD

(see LR 182 p.33)

1067mm gauge

Walkers B-B DH 5803 (682 of 1972) was noted at Cloncurry heading east on or about 21 December. The last surface shunter at Mt Isa, it had been offered for sale in 2001 and 2002 and had been stored on site even since. Any reports about its destination would be welcome.

Garner M Simpson 12/07

THE MULGRAVE CENTRAL MILL CO LTD, Gordonvale

(see LR 198 p.21)

610mm gauge

On 12 December, Mulgrave Mill shareholders were informed that the planned merger with Bundaberg Sugar's northern operations was off. The Mulgrave Board also recommended rejection of the takeover offer from Maryborough Sugar Factory. However, merger talks will now take

place involving Mulgrave, Bundaberg Sugar and Tully Mill.
Courier Mail 12/12/07 via Carl Millington; *The Australian* 20/12/07

WESTERN AUSTRALIA

BHP BILLITON IRON ORE PTY LTD

(see LR 198 p.21)
1435mm gauge
General Electric Co-Co DE 6075 (51067 of 1999) was the second locomotive to be turned out in the BHP-Billiton 'bubble' livery at the start of November. 120 Golynx ore wagons are on order from Goninan in Perth. A 09-3X ballast tamper and SSP305 ballast regulator are on order from Plasser Australia.
Richard Montgomery 11/07; *Railway Digest* 12/07

THE PILBARA INFRASTRUCTURE PTY LTD

(see LR 198 p.22)
1435mm gauge
Construction work on the Fortescue Mining Group 260km railway, connecting the Cloud Break mine with Port Hedland, remained behind schedule in late December although it was claimed by the company that they had started to make up time. All 15 new General Electric Co-Co DE locomotives and 202 iron ore wagons manufactured in China have been delivered to site. A total of 814 ore wagons, semi-permanently coupled in pairs, is on order from China South Locomotive and Rolling Stock Industry Group Corporation.
The company expects the Cloud Break mine site to be fully operational by the end of February and its Port Hedland facility ready to accept ore by April 1, with a mid-May projected first ore shipment.
West Australian 29/12/07; *Railway Digest* 12/07

PILBARA RAIL

(see LR 198 p.22)
1435mm gauge
Large numbers of iron ore wagons are being delivered to Pilbara Rail with a current order of 470 from Bradken Ltd in Ipswich, Queensland. Oxide coloured wagons are for Hamersley and silver grey ones are for Robe. They are semi-permanently coupled in pairs. A further 500 wagons are on order from China. A 09-3X ballast tamper is on order from Plasser Australia together with a ballast regulator, continuous track lifter and sleeper squarer from Harsco Track Technologies in Queensland.
Roger Renton 11/07; *Railway Digest* 12/07

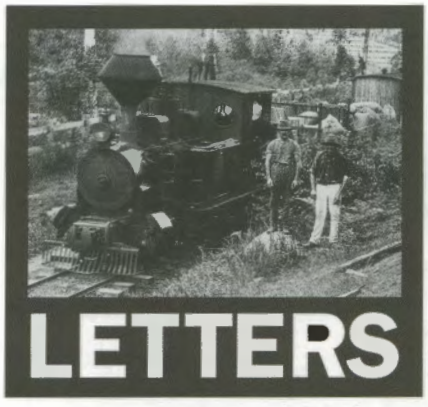
LRRSA ONLINE DISCUSSION GROUP
Have you joined the LRRSA's email discussion group yet ? See:
http://au.groups.yahoo.com/group/LRRSA/
and click on "Join This Group"!

Top: *Macknade Mill's veteran Clyde 0-6-0DH 16 (DHI.1 of 1954) arrives at the Macknade side as it hauls a rake across the Herbert River bridge from Cordelia on 5 September 2007. The temporary bridge repairs carried out in November 2006 are apparent. Photo: Carl Millington* ***Centre:*** *These prefabricated track panels in the Victoria Mill yard to be used in siding construction have been assembled using sleepers made of recycled plastic. December 2007. Photo: Brett Geraghty* ***Above:*** *BHP Billiton's General Electric Co-Co DE 6075* NEWMAN *(51067 of 1999) heads General Motors Co-Co DE 3084 (786263-35 of 1979) on a loaded train at Port Hedland on 2 November 2007. 6075 had recently emerged in its new 'bubble' livery. Photo: Carl Millington*

FIJI: Lautoka Mill number 18

With the return of Lautoka Mill's Baguley 0-6-0DH 18 (3770 of 1983) from its 2006 sojourn at Penang Mill, it could resume its normal duties such as recovering spilt cane and derailed cane trucks from the mill system.

Left: *Empty cane trucks are shunted by hand from the path of the train as it heads towards to the mill.* ***Centre Left:*** *The trucks, complete with bush timber stanchions, are shunted out of the way, to allow the locomotive to pass.* ***Centre Right:*** *The train departs, having set back into the siding to attach the empty trucks in the rear.* ***Bottom:*** *The train crosses the Vuda River bridge at Lomolomo, on its way to the mill. All photos: Kevin Waid*



LETTERS

Dear Sir,

The miniature railway at Taronga Park Zoo, 1929-1977 (LR 182, 183, 184, 185)

Many readers of this journal will be aware that the last sections of the Sydney tramways, from Hunter Street, City and Railway Square to La Perouse and Maroubra Beach, were closed on 25 February 1961 and that the last closure of a section of a line authorised by the Tramways Extension Act, 1880, occurred on 1 January 1963 when the branch line from Campbelltown to Narellan and Camden was closed. If, however, one was to adopt the extended definition of a "government tramway" as a line constructed (though not operated) by the New South Wales Tramways, the last section did not close until 1977.

In its issue of 23 January 1930, *The Staff*, the monthly journal of the New South Wales Railways and Tramways Institute (1924-1930) published the following brief account of the miniature railway at Taronga Zoo Park:

The latest addition to the Government "railways" is the line opened at Taronga Park Zoo. Whilst the mileage is negligible the interest created amongst the younger generation will no doubt make up for that deficiency. Alongside Jumbo's beat, where for many years children have had a more or less rocky ride, a short light railway track has been built to provide an added attraction to the Zoo. This track is interesting because it was designed and laid by the Tramway Department, although the earthwork was carried out by the Zoological Gardens staff. The line is built to a high standard, and all the calculations were worked out so as to avoid the sacrifice of any existing trees. The Gauge is 1ft. 10in. and the track is 500 feet long in the form of a flattened oval-pear shape. Practically the whole of the work is in "cut" or in "fill," the deepest being about 3 feet. The road is full of curves, the sharpest being 30 feet radius. These curves are transitioned and superelevated as on ordinary lines and the curves are checked. The road is ballasted, laid on sleepers 4ft. 9in. by 4½ in., and 20 lb. rails have been used. There are no grades, the line being dead level throughout. There is a tunnel on the route which serves the dual purpose of giving a thrill to the riders and providing cover for the vehicles during rest periods.

The rolling stock came from Melbourne and consists of a petrol-driven locomotive with the high sounding name of "Here She Comes," and several carriages. The train is capable of a speed of 6 miles an hour. No doubt many of our young folk and perhaps some of their elders will make an excursion behind "Here She Comes": when next they visit Sydney.

PRINCE HENRY *(built Randwick Tramway Workshops 1934) takes a load of passengers around the circuit at Taronga Park Zoo in the late 1950s. Photo: Colin Peebles, courtesy David Mottram*

Marian Mill's Clyde 0-6-0DH MELBA *(64-377 of 1964) rests in the creek bed after plunging off a bridge on the Mt Jukes line on 15 November 1984 (see letter opposite). Photo: Len Heaton*

The broken rail that caused all the trouble. Photo: Len Heaton

The annual report for 1916 of the Taronga Zoological Park Trust to the Minister for Lands mentions, *inter alia*, provision of a "... *scenic railway, swings, &c., and other appliances for merry making*.".

Work had commenced on the construction of the new zoo in June 1912 and an inaugural ceremony had been conducted on 14 October 1912 when the place was named "Taronga Zoological Park". It was opened to the public on 14 September 1914, who could inspect the site on payment of a small charge. The jetty on Athol Bay was completed in June 1916.

The zoo at Moore Park was closed on 1 September 1916 and the official opening of its replacement by the Premier took place on 7 October 1916. The new electric tramway from Avenue Road, Mosman was opened for ordinary traffic on 9 October while a new ferry service was provided by Sydney Ferries Limited from Circular Quay on 7 October. The tramway was extended to the Taronga Park wharf facing Athol Bay on 27 October 1917. The Tramways chose to identify the new terminus as *ATHOL*, and *ATHOL WHARF* from 1952.

The opening of the tramway extension to the wharf coincided with the reopening of the zoo which had been taken over by the Government from 8 August to 26 October 1917 to accommodate men who had volunteered to work on the waterfront in defiance of the prolonged strike.

On 10 December 1929 *The Sydney Morning Herald* reported the opening, by the Minister for Lands who was introduced by the chairman of trustees, on 9 December of the miniature railway. The Minister cut a ribbon and the function was described a memorable day for the children. The facilities included a platform with the nameboard *TARONGA*.

An overhead bridge was opened by the Commissioner for Railways on 12 May 1938.

Advice contained in a letter of 2 October 1980 from the Zoo's Community Liaison Director indicated that a new locomotive, the *Prince Henry*, had been obtained in 1934 during the visit to Australia of the Duke of Gloucester in that year. This letter advised that the railway "... *had continued in operation until mid-1977 when it was dismantled together with the merry-go-rounds and elephant walk, as we needed the flat land for our new Friendship Farm*." The Department of Government Transport had continued to be responsible for the maintenance of the track.

On 9 December 1971 *Prince Henry* was involved in a derailment at the entrance to the tunnel and was taken out of service. Understandably *Here She Comes* was in a bad way after 42 years. A new locomotive using some of this unit's components, including wheels and axles, came from Sydney engineer, John Dunlop. It was built at his workshop at Hornsby and entered service in September 1972. It and five new steel carriages, which had been built in September 1973 and June, August and September 1974, were sold to Mr Dunlop about August 1977.

Ross Willson
Canberra, ACT

Dear Sir,

EM Baldwin & Sons Pty Ltd, 1984-85 (LR 198)

I would like to make a few comments on the story about EM Baldwin & Sons, specifically about Marian mill's *MELBA*.

My recollection of the incident is as follows, though unfortunately I am not in a position to qualify my account, as the two other people involved, chief engineer Nev Anderson and loco shop foreman David Lloyd have both sadly passed away.

MELBA was heading out from the mill to Mt Jukes on the last day of the crushing to pick up the final deliveries from that area. The crew was Stu Garnham, driver, and Dave Seato, assistant. As they approached the bridge a rail broke on the outside of the curve and the loco derailed. Both of the crew bailed out and, as strange as it may seem, they ran across the bridge in front of the loco. The loco fell off the bridge, landing on the fireman's side back headstock.

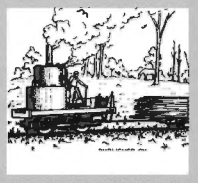
The location was approximately two kilometres from the nearest road, so a dozer and grader had to be employed to push a road through to enable the crane and lowloader to reach the site and recover the loco.

Now the haggling started. To the best of my recollection, an insurance assessor attended the scene and the insurance company agreed to 'repair' the loco. However, the assessor wanted to give the job to a local steel fabrication company. This firm was quite proficient at what they did (steel buildings, farm cultivation machinery, etc) but had no expertise in railway rolling stock. They did not even construct cane bins. Nev and David were both horrified, to say the least. There followed several weeks of heated discussions, which culminated in the insurance company agreeing to EM Baldwin getting the job.

The major damage to the loco was a twisted frame, from its obvious landing on one corner. It was only out by fractions of an inch, but it was too much. The final drive box was cracked because of this. There was no damage from the cab forward, consequently all this was reused. In rebuilding the final drive, the opportunity was taken to alter the gear ratios, as both *MELBA* and its sister loco *HAMPDEN* were very low geared. It was given the same ratios as the DH-71s. As well, a Niigata hydraulic drive with lock-up drive (as used on EM Baldwin's bogie locos) was fitted.

The cab was a low profile as we had a height restriction on the Mt Jukes line at Mulei, where our track passed under the QR main north coast line. Our track had already been lowered to accept the earlier cabs and we did not consider that it could be lowered any further. Looking at the Marian Baldwins 16 and 17 you will see that their cabs are a lot lower than other Baldwins of the same type. When we were ordering the Eimco locos we had to specify a maximum height. As to why the air-conditioner was put on the front, rather than the rear, of *MELBA*'s cab, I don't know.

Len Heaton
Belmont, Vic



LRRSA NEWS

MEETINGS

ADELAIDE: "Plans for 2008."
There will be a discussion regarding plans for the coming year.
Location: 150 First Avenue, Royston Park.
Date: Thursday 7 February at 8.00pm.
Contact Arnold Lockyer on (08) 8296 9488.

BRISBANE: "The origins of 3ft 6in gauge"
Frank Stamford will give a presentation on early 3ft 6in gauge railways in Norway, and its spread to Queensland and the world.
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 8 February at 7.30pm. Entry from 7pm.

MELBOURNE: "Sandy River and Rangeley Lakes Railroad"
Bill Hanks will give a brief introduction to the legendary 2 ft gauge Sandy River and Rangeley Lakes Railroad which operated in Maine USA from 1878 to 1936, and will then present a DVD on the SR&RLRR which includes original footage.
Location: Ashburton Uniting Church Hall, Ashburn Grove, Ashburton.
Date: Thursday, 14 February 2008 at 8.00pm

SYDNEY: "Viseu de Sus"
Bring along sprigs of garlic to the February meeting as we visit the incomparable 'Viseu de Sus' 2ft 6in gauge forestry railway in Romania. See superb Krauss steam locomotives pulling disconnect log trains through beautiful autumn tinged river valleys. This is about the last steam logging railway at work in the world. A 'must not miss' night.
Location: Woodstock Community Centre, Church Street, Burwood, (five minutes walk from Burwood railway station).
Date: Wednesday 27 February at 7.30pm.

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

Furnace, Fire and Forge
Lithgow's Iron and Steel Industry 1874 -1932
by Bob McKillop

The story of Australia's first and only inland heavy industrial centre, from its beginnings with the opening of New South Wales' Great Western Railway into the Lithgow Valley in 1869 and the establishment of the first blast furnace there in 1874, to the final closure of the iron and steel works in 1932. It covers the technical, commercial, industrial and political history of the operation.

G.& C. Hoskins and its predecessors used twenty locomotives at Lithgow steel works and associated plants. The works railways, and those of the limestone quarries, iron ore mines, and collieries which supplied the raw materials, are described and illustrated in the book.
320 pages, hard cover, A4 size, over 250 photographs, 80 maps, plans and diagrams

$59.95 [LRRSA members $44.96] Weight 1,600 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.

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.

The Golden City and its Tramways
Ballarat's tramway era
by Alan Bradley.
Published by Ballarat Tramway Museum Inc.

Using the wealth of the 1850s goldrushes, the founders of Ballarat built a magnificent provincial city. This book is not a dry technical history but describes how the citizens of Ballarat used the trams in their daily lives. It brings to life the difficulties experienced in the second world war, when lights were dimmed and petrol severely rationed. The book also addresses the technology, economics, politics, working conditions, and competition from other forms of transport. Many wonderful photos dating back to the 1880s. 144 pages, A4 size, hard cover, 119 photographs (15 in colour), 4 maps, bibliography, index.
$43.95 (LRRSA members $39.56) Weight 900 gm

The Mapleton Tramway
The line of the diminutive Shay locomotives
By John Knowles, published by the author

The Mapleton Tramway was an 18 km long 2 ft gauge railway, which climbed the steep ranges, west of Nambour, about 110 km north of Brisbane. In many places the line was located on shelves in the mountainsides with magnificent views over the coastal lands to the sea. It used steep gradients and very sharp curves, and reached 380 m. altitude. It was operated by two small Shay locomotives. It carried sugar cane, logs and sawn timber, fruit, cream, small livestock, as well as passengers and mail.
Includes seven scale drawings of the rolling stock and locomotives.
92 pages, A4 size, plus card cover, 81 illustrations, references, and index.
$28.50 (LRRSA members $25.65) Weight 480 gm

Laheys' Canungra Tramway
by Robert K. Morgan, revised by Frank Stamford.
Describes Queensland's largest timber tramway with one Climax locomotive and 3 Shay locos.
32 pages, soft cover, A4 size, 28 photographs, plus maps and diagrams, references and index.
$9.95 (LRRSA members $7.46) Weight 220 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.

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)

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 gm.

Postage and packing: Within Australia, up to 500 gm: $4.80; 501 gm to 3 kg $9.50
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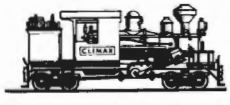

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- Meetings in Adelaide, Brisbane, Melbourne and Sydney
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- If joining in December or January, pay $24.00 ($30.00/$36.00 overseas) and receive 3 issues of Light Railways (Nos 199-201).
- If joining in February or March, pay $16.00 ($20.00/$24.00 overseas) and receive 2 issues of Light Railways (Nos 200-201).
- If joining in April or May, pay $56.00 ($70.00/$84.00 overseas) and receive 7 issues of Light Railways (Nos 201-207).

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DVD Reviews

LRRSA Sales now has available the following industrial railway DVDs produced by D & C Videos and International Steam Videos, Beijing, China.

Logging Off – The last year of the Weihe Forestry Railway

D & C Videos; duration 55 minutes; LRRSA Shop price, $44.00 plus postage.

This visually stunning DVD features the last year of operation of the narrow gauge Weihe Forestry Railway during 2002/2003. Its setting is about 200km south-east of Harbin in north-eastern China. This railway was one of several 762mm gauge railways built in the 1950s to access large forests in the mountains. The network branching south from Weihe was approximately 70km long.

Two Chinese women, Du Jianbin and Chen Yuehong produced this DVD with assistance from a small team of men for photography in some areas where women were not permitted. Where this DVD differs is that the production team lived with the loggers and the railway workers as they went about their tasks during this last winter of logging operations. The Manchurian winter is COLD!!

On the logging side, aspects featured are the loggers' lodge in the forest, felling and transporting the logs to the loading area by skidding using oxen and horse sleds and loading the logs onto the railway wagons using overhead cable loaders. The DVD gives a true feel of the harshness of both the job and the conditions involved in getting the logs to the tracks.

The steam locomotives shown are of the 0-8-0 tender type, possibly of the C2 class. Although passenger and other goods services ran on this line, this DVD concentrates on those trains hauling the empty bogie log wagons out to the loading areas and then bringing the heavily loaded log wagons back to Weihe.

Rail operations include some double-heading and banking, but most trains are hauled by a single locomotive. There are several hard slogs as well as some run-bys at speed, all with impressive steam clouds trailing behind. Train control on the single line sections between passing loops uses an electric staff and several electric staff handoffs are featured. Rail operations run 24 hours a day to bring the logs in before the thaw. The frozen countryside along the tracks is shown from the trains as well as from the ground as the trains roll past. Several sequences are shot inside locomotive cabs.

The locomotives are life-expired. The cold weather highlights every steam leak. There is extensive coverage in and around the workshops as the crews battle to keep the trains rolling while working in extreme weather conditions. The scenes shot at night in the workshops show a world rarely seen on film.

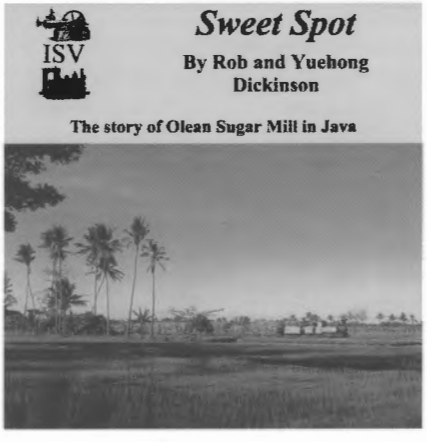
The DVD concludes with black and white film of the track lifting operations in 2003. Sadly the Weihe railway, the last narrow gauge logging railway in northern China, is no more.

The DVD itself is well presented. Its case carries a good description of its contents and a map of the line. It is not partitioned into chapters. It loaded and ran cleanly on my desktop computer and on two different DVD players. The videography is sharply photographed and crisply edited. The English narration is unobtrusive and, for the most part, sound is the spoken Chinese of the crews and loggers.

The trains are the real stars of this DVD. On some of the longer pan shots there is quiet music that fades to the actual sounds of the trains as they approach the camera. Subtitling (in English) is used sparingly, but effectively, to highlight the attitudes of the workers who know that this will be their last year logging the forests, or servicing and running the trains.

The producers are to be commended for their perseverance under extreme conditions to produce such a fine DVD. If you are interested in logs and steam trains photographed brilliantly against an exotic background, then this DVD is well worth the purchase price. As a result of their meeting in the Weihe winter, Yuehong is now married to another train photographer, Rob Dickinson, and they are actively recording the last gasps of Asian steam-powered machinery on film.

John Garaty



Sweet Spot: The story of Olean Sugar Mill in Java.

International Steam Videos; duration 60 minutes; LRRSA Shop price, $44.00 plus postage.

This DVD is beautifully photographed and has many small vignette scenes which provide an overall ambience to the visual presentation that takes it beyond a simple record of an industrial railway and mill machinery. At the same time it is somewhat frustrating, as there is little information on what many of the scenes are actually portraying beyond the immediately obvious. It's like looking at a family photo album without captions, or someone to explain the significance of the photos – you can sense there is significance in the photos but there is no context to place them in!

Sweet Spot was shot in the vicinity of Olean sugar mill in north-east Java, Indonesia, and basically covers the cane railway, the mill machinery, a few mill operations and some aspects of village life for the cane workers. The running time is split approximately 45 per cent on railway operations, 45 per cent on the mill and about 10 per cent on the local culture. There is no dialogue at all, just ambient sound, and even where snippets of speech or conversation are incorporated, they have no significant bearing on the associated visual scene. Nevertheless, the ambient sound quality is very good, with no evident distortion or muffling.

The railway sequences basically cover steam locos delivering empty cane trucks to the cutting area, laying temporary track, moving trucks by hand to the cutting field, loading the trucks, hauling them out with water buffalo to the mainline, and then steam haulage of the loaded trucks back to the mill and unloading. Some excellent run-by sequences in a variety of locations, including street running in Tribungan, illustrate the variety of right of way the mill railway traverses.

Sequences within the mill cover the machinery more or less from the entry of cane into the mill, through processing into molasses, transformation into sugar, then bagging and movement to the warehouse. Various other aspects of the mill operation which do not fit into the sugar production flow, such as firing the boilers and ash removal are also included. Most major pieces of machinery or significant mill operations are introduced with a simple label style caption. In general the captions are clear, but some were hard to read against the visual background. As well as the video presentation, the DVD contains a glossary of key words (in PDF and MS Word formats) and some diagrams that provide additional information on the mill processes, but unfortunately there is no information on rail operations.

If, like me, you are left wondering what the basic route plan for the P G Olean cane railway mill looks like, you may find the hand-drawn map at http://www.farrail.com/pages/trip-reports-engl/java-indonesia-2005-07.html useful.

So, is this CD worth purchasing? It depends what you expect of it! As 'The story of the Olean Sugar Mill in Java' it basically fails, as it is really more a series of loosely related snapshots than any sort of connected story. As the cinematic equivalent of a lavishly illustrated coffee table book about Olean, however, it is visually fascinating and something that can be dipped into time after time. *Bill Bolton*

Book Review

The Bellerive to Sorell Railway – Revisited

Second Edition

by John Houghton et al

204 pages, 255 x 187mm, hard cover with dust jacket, 132 photographs, 26 maps and diagrams, many reproductions of historic documents. Published 2007 by Bellerive Historical Society Inc. Available from LRRSA Sales at $45.00 plus postage

The Bellerive to Sorell railway was a 3ft 6in gauge line operated by the Tasmanian Government Railways. As such, it is outside the scope of railways normally covered by the LRRSA. But it was an endearingly eccentric operation of the type that would be of interest to many of our members. Separated from the rest of the TGR system by the Derwent River, it was opened in 1892, and closed in 1926. The 23.7km line included several interesting features: a terminal station on the end of a pier, a 164m long stone-lined tunnel, a 256m long stone causeway, a 582m long timber viaduct, and the 400m long Shark Point cutting.

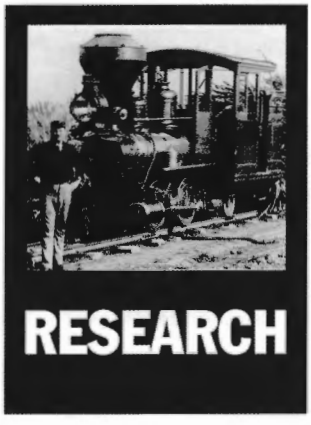
The railway used ex-Tasmanian Main Line Railway Company rolling stock, banished from the main system due to its centre-buffer link-and-pin couplings and continuous chain-brake system. The four-wheeled carriages were not noted for their comfort. '*Coming in today I almost had my arse pinched off*' wrote one irate passenger.

The book includes reproductions of many original documents, extensive details of the route and of ferry connections across the Derwent, and proposals for extensions, branches, and connections to the main system, either by bridging the Derwent or by train ferry. It also includes extensive details of the considerable remains of the line, and how to find those remains that are accessible to the public.

The book is a very well presented high-quality production, which paints an excellent picture of how the railway operated in the community. Some of the diagrams need to be treated with caution. For example, the photographs of the station at Cambridge show a building much bigger than that in the diagram. Also, the book is vague on some details a railway enthusiast would like to know. One that I noted is the precise identity of the third locomotive, a Hunslet 4-4-0, although the first two, Dübs & Co. 4-4-2Ts, are very well covered. There is an index of personal names, but no general index, which makes finding specific details (like the tunnel length), somewhat difficult.

In summary, this is a delightful book about a fascinating railway. The first edition, which was considerably smaller, sold out almost as soon as it was printed. I expect this one may also sell quickly.

Frank Stamford



RESEARCH

Frederic Buss and the Invicta Sugar Mill, QLD

Coincidently with the recommissioning of the locomotive *INVICTA* at the Australian Sugar Cane Railway in November (page 29), your editor has been introduced to descendents of Frederic Buss, a key pioneer of the sugar industry in the Bundaberg district, and they have passed on the results of their family history research. Railway historians, it seems, have often overlooked family history in their research efforts. For researchers into industrial railways, the families concerned often have valuable records and other information that can add depth and context to the story of an industry and its railways, although care is required in interpreting the views put forward in memoirs and oral accounts of a particular event.

The Buss family history prepared by Ken Buss provides another valuable dimension to our understanding of the early sugar industry in the Bundaberg district. Frederic was born in Faversham, Kent, on 2 January 1845 to Thomas and Francis Helen Buss. Following the death of Francis in October 1860, Thomas and his seven children migrated to Australia. Thomas was a chemist by trade and he established a business in Maryborough (Queensland) in 1863.

Frederic's first employment was with a firm of drapers in Maryborough and, after his marriage to Maria Howard in 1870, he commenced his own business in Quay Street Bundaberg around 1876. The business flourished and expanded its interests into sugar mills and plantations. At various times he owned Pemberton, Windermere, Ashfield, Invicta, Knockroe (Isis) and Obobo estates and mills. With three others, Frederic owned the Bundaberg Distillery at Millaquin, the home of 'Bundaberg Rum' and, in partnership with John Cran, Thomas Penny and WH Williams, he became part-owner of the Farleigh Estate Sugar Company in 1902. In 1895, Frederic built the Invicta Mill at Kolan River. Ownership of this mill was transferred to Buss Brothers (the partnership of his sons George and Horace) in 1901, with Horace serving as manager.

Initially, tramways and punts were used to bring cane to the mill. The first locomotive was in use in 1895, a John Fowler 0-4-0ST known as *ROSE* (B/n 7365), probably named as a riposte to the Scot Angus Gibson at Bingera, who named his first locomotive *THISTLE*. It was joined by Decauville 0-4-2T 246 of 1897, *VICTORY* (which may have been named in connection with the Boer War), and finally in 1907 by Fowler 11277, *INVICTA*, which took its name from the motto of the County of Kent. All three were recorded as ordered by Frederic Buss, suggesting that he remained actively involved in the mil's affairs after 1901.

In 1919 Invicta Mill was sold and dismantled, being re-erected at Giru in the Burdekin district, and the tramline and its locomotives were leased to Gibson and Howes of Bingera Mill. The old Invicta tramway system was connected to the Bingera network in 1942 and the mill purchased the locomotives the following year. *Editor*

Eucalyptus distillery railway, Kangaroo Island, SA

The Emu Ridge eucalyptus distillery on Kangaroo Island has several good photos on display of a light railway once used in a local FH Faulding & Company eucalyptus plantation. The short straight track ran from the distillery cooking pot down hill to a dumping area for cooked leaf. Cooked leaf was removed from the pot in bundles by a hand-powered derrick crane and loaded onto the single item of rolling stock. The wagon was a simple 4-wheel flat-top with leaf springs, pushed by hand.

Jim Longworth

Hebburn locomotive (2nd) No.1 (LR 177, 179, 196)

Robert Driver has responded to the editorial in LR 196 regarding the Hebburn locomotive with further comment on his letter in LR 179. Robert noted that we traced the origin of the incorrect 'official' weight for (2nd) No.1 to the item in the December 1955 *ARHS Bulletin* and advises that this is was what he was alluding to in suggesting that the figure therein of 75t 2cwt was fairly obviously an accidental corruption of the accepted figure of 65t 2cwt which appears in British sources. The accompanying list from *Industrial Railway Record* No.62 (Oct.1975) compares some leading dimensions of the Hebburn engine with the other members of its lineage. The article concludes that there can be no doubt that 65t 2cwt is the correct loaded weight.

	Mersey Railway (Beyer Peacock)	Mersey Railway (Kitson)	Alexander Docks (Hawthorn Leslie)	Hebburn No.1 (Stephenson)
Cylinders	19½ x 26 in	19½ x 26 in	19 x 26	19 x 26
Driving Wheels	4ft 6in	4ft 7½in	4ft 7in	4ft 7in
Truck Wheels	3ft 0in	3ft 0in	3ft 0in	3ft 0in
Boiler centreline	7ft 4in	?	7ft 9in	?
Weight (loaded)	62ton 17cwt	67ton 9cwt	65ton 0cwt	65ton 2cwt

The author adds that, as No.1 was a one-off build, the weight shown on the drawing was probably only an estimate of the empty weight.

Burrinjuck Krauss locomotives, NSW and QLD

Locomotive builder's numbers provide a key to the identity of locomotives and they become particularly important in the case of industrial locomotives, which can work at many sites under different owners during the course of their operating life. Unfortunately, once a locomotive's identity is published in a printed document, there is a tendency for others to repeat this assertion without further research. As pointed out by Ted Flint in LR 198, p.23, this appears to be the case for the identities of the two well-known locomotives now in preservation that carry the nameplates *ARCHIE* and *JACK*. These Krauss locomotives were imported from Germany for the railway built to transport materials for the construction of the Burrinjuck Dam in southern New South Wales. Following closure of the railway in 1929, three of the locomotives saw further service at Queensland sugar mills. It is clear that the loco that went to North Eton Mill was *DULCE* (B/N 5869 of 1907). Krauss records show that the other three locomotives at Burrinjuck were B/N 5870 and 5945 of 1907 and 6063 of 1908, but as Ted points out, the identity of the two locomotives that went to Farleigh and Fairymead sugar mills appears to have become muddled over the years.

In his book *The Goondah-Burrinjuck Railway* John Newland records that the first three locomotives to arrive for the railway were named after the children of C R Cunningham, the engineer responsible for the survey and construction of the line, namely Dulce, Robin and Archie, in the period May to August 1908. The fourth locomotive, constructed in September 1908, was of a slightly different design with an open doorway at the centre of the rear cab wall. On arrival at Burrinjuck it was named *JACK*, probably from the nearby Barren Jack Mountain. From a detailed assessment of high quality photographs of the locomotives that enable a match of builder's numbers and names, John assigned the remaining names as *ROBIN* (5870), *ARCHIE* (5945) and *JACK* (6063). With the outbreak of war in 1914, their German builder's plates were removed, making ongoing identification more difficult. The nameplates were removed prior to disposal of the locos in 1929, thus further complicating their individual identities.

In the *ARHS Bulletin* No.167 (September 1951) George Bond and John Buckland describe Fairymead mill number 7 as an 0-4-0T Krauss No.5945, although MG Baker indicates that the builder's numbers of *ARCHIE* and *JACK* were unknown in his article on the Burrinjuck railway in the *ARHS Bulletin* No. 230 (December 1956). A follow-up letter from 'The Steam Tram Research Group of the Society' in *Bulletin* No. 236 (June 1957) suggests that *ARCHIE* was B/N 6063 and *JACK* was B/N 5945, and that *JACK* had been sold to Fairymead Sugar Mill and *ARCHIE* to Farleigh Mill. These identities have been widely quoted since. John Newland repeated this information in his *ARHS Bulletin* article on the Goondah-Burrinjuck Railway (No. 596, June 1987), but corrected this in the first edition of his book, as described above (1994).

Following receipt of Ted Flint's letter stating that number 7 at Fairymead mill (B/N 5945) appears to have been *ARCHIE* and not *JACK* as previously believed, detailed checks of the remaining locomotives have been made. The locomotive now on display at the Thirlmere Rail Heritage Centre and carrying the name *ARCHIE* has the number 6063 stamped in many places on the running gear and the rear of the cab shows clear evidence of the former doorway, while the boiler of the loco at Burrinjuck, previously thought to be *JACK*, is numbered 5945. A check on the remains of the North Eton locomotive located in Graham Chapman's yard confirms that it is 5869 (*DULCE*). Locomotive authorities now agree that the locomotive at Thirlmere is *JACK* (B/N 6063) and that at Burrinjuck is *ARCHIE* (B/N 5945). *Light Railways* will henceforth refer to the locomotives according to these identities. *LR editors*

Mistaken identity! The ex-Goondah-Burrinjuck Railway Krauss locomotive (B/N 6063 of 1908) carries the nameplate ARCHIE *at the Thirlmere Rail Heritage Centre, but evidence indicates that this loco is* JACK. *Photo: Bob McKillop*

Heritage &Tourist

Towards sustainable preserved railways

The efforts of the Alexandra Timber Tramway & Museum in central Victoria to address global warming challenges recently caught my eye. In the December issue of its members' newsletter, *Timberline*, the actions by this railway and museum to be a good environmental citizen are documented. In an age where the role of even smaller greenhouse gas emitters such as heritage railways is coming under increasing scrutiny, the ATTM can point to some impressive achievements.

At the Alexandra site the use of electricity is minimised as far as possible, with the locomotive shed being lit entirely by solar electricity, which also provides trickle charging to the locomotive batteries. Electricity use at the site during 2006-07 was equivalent to 5.29 tonnes of carbon dioxide emissions if all the power came from the fossil fuel source used by the main generators in Victoria. The steam locomotive uses 1.5 cubic metres of firewood as fuel on operating days, all of which is sourced from waste timber and firewood is used to heat the main display room during winter. Wood burning does not release any more carbon dioxide than natural decay and is therefore considered to be 'carbon neutral'. The society estimates that its greenhouse gas emissions from burning liquid fuels (petrol and diesel) is equivalent to 1.74 tonnes, giving a total carbon emission of just over 7 tonnes per year, or about half that of the average household. The ATTM is examining the purchase of carbon credits to offset its current emission levels. Reports from other preserved railways report on their efforts to address greenhouse emissions and climate change are most welcome.

On another topic, we often receive photographs from readers of preserved heritage or tourist railways and museum activities without an accompanying report for inclusion in the H&T section. While we may occasionally publish an outstanding photograph of an item that has not been covered for some time, preference is given to photographs that support news items about a specific railway, museum or other restoration project that can be published in this magazine.

Bob McKillop

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

ATHERTON TABLELAND RAILWAY, Atherton
1067mm gauge
Updating the report in LR 196 (p.35), a 4wBE locomotive was also noted and photographed at Platypus Station on 16 December 2007. Erroneously described as a 'mancar' by the locals, this item has been identified as a Jeffrey battery electric locomotive built by AE Goodwin Limited at St Marys NSW for the Bellambi Coal Company at South Bulli.
A large number '1' is welded onto its battery box as a memento of its underground haulage days. Following colliery service, this locomotive went to the Illawarra Light Railway Museum Society at Albion Park before being sold to the Ravenshoe Atherton Insteam Locomotion Company at Atherton in 2001. Painting of the Vernier man car No. 111 was reported to be 90 per cent complete.
CN Sylvester via John Browning, 12/07

DURUNDUR RAILWAY, Woodford 610mm gauge
Australian Narrow Gauge Railway Museum Society
Ex-Pleystowe mill 0-6-2T No. 5 (Bundaberg Foundry 5 of 1952) underwent a boiler inspection in late 2007 and, while some minor work is required, it has been passed. ANGRMS reports that it is becoming increasingly difficult to find inspectors who will inspect riveted locomotive boilers and the society now relies on an inspector from Mackay. The new run-around loop at Woodford station was officially opened at the ANGRMS Christmas Party on 8 December. In addition to facilitating train operations, the loop has a significant safety benefit as it will result in reduced shunting movements.
Durundur Railway Bulletin 290;

QUEENSLAND PIONEER STEAM RAILWAY, Swanbank
1067mm gauge
Further to our report in LR 198 (p. 26), the QPSR launched an urgent appeal for funds to purchase its only operating locomotive, ex-Pioneer sugar mill 0-4-2T *KILRIE* (Perry 265 of 1925), in November 2007. The 1067mm gauge *KILRIE* has been leased from ANGRMS for the past 27 years, but for financial reasons this society now wishes to sell the locomotive, for $45,000. The Ipswich mayor, Paul Pisasale, pledged $20,000 to save KILRIE and urged others to also donate.
The Queensland Times, 24 November 2007, via John Browning

New South Wales

ILLAWARRA TRAIN PARK, Albion Park 610mm gauge
Illawarra Light Railway Museum Society
The ILRMS had a grand finale to the year 2007 with the official opening of the Ken McCarthy Museum Building on Sunday 9 December. The Albion Park site saw a small gathering of official guests and visitors for the opening of the new building. Its construction was the result of a Federal Government Regional Partnerships grant for the project and the building fittingly was named after one of the society's foundation members, the late Ken McCarthy.
ILRMS representatives Tony Madden (operations manager and founding member) and Brian Holmes (workshop manager and a foundation member) spoke of Ken's work and dedication to the society in its early years and recalled Ken's famous phrase: "we need another rabbit pulled out of the hat to keep us going"! The official opening of the museum was then performed by Ken's son Steven and daughter Alex, who both spoke proudly of their father and expressed their deep honour at the building being named after their 'dad'.
The museum has interpretative displays and photographs of the early years of the ILRMS and other related memorabilia. The feature exhibit is the 4-wheel Fordson-engined rail tractor from Fairymead sugar mill displayed on a section of track with coal skips, a coal hopper wagon from the Balls Head tramway system in Sydney, a horse-drawn explosive wagon from South Australia and the CSR meat van. The recently restored ex-Goondi mill 4wDM Simplex locomotive (Motor Rail 10291 of 1951) made a public appearance at the ceremony.
The return to service of the ex-Tully mill 0-6-0DH No. 8 *SHELLHARBOUR* (John Fowler 2192 of 1937, rebuilt EM Baldwin 5.80.9.63 of 1963) moved a step closer on 13 November when the locomotive operated under its own power following the successful fitting of the recently-acquired torque converter. The locomotive is expected to commence main line operations early in 2008.
The ILRMS hosted a number of events during the lead-up to Christmas, resulting in several locomotives being called into service. 0-4-0ST *BURRA* (Hawthorn Leslie 3574 of 1923) was the operating locomotive for the Fire Brigade Christmas party in November and the Windang Bowls Club on 8 December, 0-6-2T *TULLY No.6* (Perry Eng. 7967/40/1 of 1949) was in action on 2 December for the Oak Flats Bowls Club Christmas day, and then 0-6-0DH *SEYMOUR* (Baguley 2392 of 1952) made an appearance on main line duties at the December running day.
Brad Johns, 12/07

STATE MINE HERITAGE PARK & RAILWAY, Lithgow
1435mm gauge
City of Greater Lithgow Mining Museum Inc.
Lithgow State Mine Railway Ltd.
The Lithgow State Mine Railway is currently working through issues

involved with transferring the standard gauge rolling stock to the control of the new company. While it is proposed that this transfer will be covered by a Bill of Sale, the transfer cannot be completed until LSMR Limited is granted rail safety accreditation. The new company has taken over the lease of Eskbank Railway Station and the former Lithgow SM's residence in Railway Parade. Former Port Kembla steelworks B-B DE locomotive D20 (English Electric Australia A.041 of 1960) has been returned to service and is used for shunting the yard at State Mine. Privately-owned rolling stock on the site is progressively being removed.

At the museum the mercury arc rectifier formally used to power underground electric locomotives at Kandos Colliery has been placed on display in the bath house. The two former Glen Davis electric locomotives are expected to join the rectifier in the display by January 2008.

Gully Gazette, September 2007; Ray Christison, 12/07

TINY TIM MINIATURE TRAIN, Queanbeyan ? gauge

An advertisement for the private sale of the 'Tiny Tim' amusement train operation at Queanbeyan has been circulated on the LRRSA Yahoo Group. The advertisement includes a photo of two steam-outline petrol powered locomotives with large 'Thomas' faces. It states that the operation is located in a council park close to Queanbeyan CBD and, in addition to the locomotives, it includes 400 metres of track, four carriages and a 9m x5m shed. We have not previously had a report on this operation, but it was evidently voted 'Best New Business' in the *Queanbeyan Age* Excellence in Business Awards in 2005. Further information is welcome.

Phil Rickard, LRRSA Yahoo Group 28 November 2007

ZIG ZAG RAILWAY, Lithgow

1067mm gauge

Zig Zag Railway Cooperative Ltd.

Com-Eng 0-6-0DH *ISA MINE 5802* (JA4282 of 1964) was noted at Clarence on 25 November 2007. This locomotive was built for Mount Isa Mines and had been offered for sale by Australian Train Movers at Penrith since 2001.

Ray Graf, 12/07

Victoria

ALEXANDRA TIMBER TRAMWAY & MUSEUM

610mm gauge

The task of renovating and retubing the boiler of John Fowler 0-6-0T (B/N 11885 of 1909, LR 198, p.27) has progressed rapidly. The boiler was lifted from its frames on 10 October 2007 and removal of the old tubes was completed by the 17th. This revealed that the front end of the boiler was encased in mud and scale. Once this was cleaned out, the boiler shell, tubeplate and inner firebox were found to be in remarkably good condition. The new tubes, supplied by Boiler Tube & Pipe Specialists in Brisbane, were to be installed following a formal boiler inspection.

The market stalls during the annual 'Woodies Day' on 13 October were a great success, with over $500 being raised for the 'Fowler Fund'. Trains were operated by Kelly & Lewis 0-6-0DM 5957 of 1936, while an additional train operating day was arranged for 3 November over the 'Melbourne Cup weekend' in response to a request by the Alexandra Traders & Tourist Association. The Association was scheduled to have its meeting at the Museum on 11 December, providing volunteers from the Tourist Information Centre, shop owners and their staff an opportunity to view the exhibits and their interpretation.

Timberline 99, December 2007

KERRISDALE MOUNTAIN RAILWAY 610mm gauge

Kerrisdale Mountain Railway Inc.

This railway, last reported in LR 188 (p.27), formally commenced public operations in November 2007. Opening hours for the railway and museum are 10am-5pm Thursday to Monday with regular trains operated by the Malcolm Moore 4wDM No. 2 *MAL* (B/N 1039 of 1943) or the rebuilt Ruston & Hornsby Model 20DL 4wDM No. 4 (B/N 285301 of 1949). The rail journey climbs 38 metres via a zig zag to Summit View station, which affords a spectacular panorama of the surrounding peaks and valleys. A new 75-metre section of track takes passengers 180 degrees around 'The Summit' and allows them to alight safely on the level, with all the usual station facilities. Congratulations are extended to the dedicated group of volunteers that steadfastly and professionally assisted in bringing all facets of the project to this important stage. The museum features a boiler house with a Grantham boiler running various steam engines, pumps and a steam winch; *Invincible*, a vertical-boiler steam tractor; a photo history of the KMR; and restoration works in progress. Refreshments are available at the Bottom Points kiosk. Admission is $15 for adults, $12 concession and $10 for children. All proceeds are put back into the development and running of the railway. For further information, see http://kerrisdalemtnrailway.com.au phone (03) 5797 0227, or email Andrew Forbes: douglas@eck.net.au

Andrew Forbes, 12/07

PUFFING BILLY RAILWAY

762mm gauge

Emerald Tourist Railway Board

2-6-2T locomotive 7A (built Newport 1905), which has been undergoing major overhaul since early 2006, undertook a test run hauling three NQR wagons and a NC van in the evening of 19 November 2007. The most significant change is to the livery from the two-tone green and white lining to its original Canadian Pacific red and chocolate with white lining. This is the same colour scheme it had when issued to traffic on 6 May 1905. The Victorian Railways retained this livery until a major overhaul at Newport Workshops on 10th September 1921 when it was repainted all over black This livery was retained until 15 October 1979, when the Puffing Billy Railway returned the locomotive to service painted in two-tone green livery based on the 1900 era. 7A worked a special train on Saturday 24 November.

Peter Ralph, 11/07

Following the official opening of the Ken McCarthy Museum Building on Sunday 9 December 2007, Brad Johns photographed the interior with the 4-wheel Fordson-engined rail tractor from Fairymead sugar mill displayed on a section of track with coal skips, a coal hopper wagon from the Balls Head tramway system in Sydney.

Heritage & Tourist

Tasmania

REDWATER CREEK RAILWAY, Sheffield 610mm gauge **Redwater Creek Steam & Heritage Society Inc.**

Peter & Helen Stirling, committee members of the RCS&HS, purchased the Gemco 10-tonne 4wBE 3 *Pitt Pony* (2362-3/175/79 of 1979) in 2004 following closure of Pasminco's underground rail system at Rosebery. It was moved to their home at Don, where work has reached an advanced stage in converting it into an 8-tonne diesel hydrostatic locomotive with air brakes fitted to enable it to run with suitably equipped passenger stock. It is hoped that the locomotive, to be named *FAITH*, will be available for service at Redwater Creek during 2008. This will be particularly valuable as currently only the Krauss steam locomotive is available for passenger train running. The arrival of the diesel will mean that trains will still be able to operate on total fire ban days, or in the case of any mechanical problems with the Krauss.

A 600-gallon tank is to be installed near the loco shed to enable chemically treated boiler water to be recycled after each running day.

Redwater Creek Express, Dec. 2007, via Ray Graf

South Australia

NATIONAL RAILWAY MUSEUM, Port Adelaide

457/1067/1435/1600mm gauges

The museum's operating 1067mm gauge steam locomotive, ex-BHAS Port Pirie 0-6-0T *PERONNE* (Andrew Barclay 1545 of 1919), was stripped for overhaul, including boiler retubing, in October 2007. The work team faced difficulties in removing some of the old tubes. In addition, extensive re-sleepering work was undertaken on the 457mm gauge Semaphore & Fort Granville Railway during the winter months. The NRM undertook this work in conjunction with the City of Charles Sturt.

Catchpoint, No.182, November 2007

Western Australia

BENNETT BROOK RAILWAY, Whiteman Park 610mm gauge **WA Light Railway Preservation Assoc. Inc.**

Updating the report in LR 194 (p. 28) on the restoration of the Krauss 0-4-0WT (B/N 2181 of 1889) by Charles De Bruin, a significant milestone was reached on 30 November 2007 when Charlie and M Watson fitted the chassis to the re-profiled wheels, the boiler was placed on the chassis and various parts were reassembled. The cab was fitted in darkness, bringing to conclusion a successful and productive day. The following day 4wDM *YELLOW ROSE* hauled the diminutive locomotive from the Mussel Pool depot to Whiteman Village Junction (WVJ) Station for display on No. 3 road prior to the annual dinner for WALPRA members. The dinner, attended by 110 people, provided the opportunity to present awards to six members for their dedicated voluntary service during the year.

In early December 0-4-2T BT1 (Perry Eng 8967.39.1 of 1939) had been completely stripped down in readiness for its annual boiler inspection. Arrangements had been made with Gemco Rail to undertake rehabilitation of the wheel sets. Three diesel locomotives – 4wDM PW27 (Gemco-Funkey 1963), 0-6-0DM *ROSALIE* (John Fowler 411019 of 1950) and ex-Lake View & Star Planet 0-4-0DM (FC Hibberd 2150 of 1938) – were available for summer train operations.

The BBR was required to operate on a daily basis between 17 December 2007 and 2 February 2008, placing a heavy demand on the volunteer crews. To meet the challenge, it was decided to run only bushland loop trains during the week (apart from public holidays), with the train being stabled at WVJ overnight. In addition, the popular bush dances were not held this summer. On Friday 14 December the night crew reassembled corridor carriages as a consist to provide, for the first time, a 4-car set with concertinas that enable the crew and passengers to walk through the train.

BBR Newsletter 12/07; BBR website news, 12/07.

Coming Events

FEBRUARY 2008

Kerrisdale Mountain Railway & Museum, VIC. This scenic narrow gauge railway and steam museum is now open to the public from 1000-1700 Thursday to Monday and public holidays. Information, phone (03) 5797 0227 or website: www.kerrisdalemtnrailway.com.au. [see report p.27]

2-3 Redwater Creek Steam & Heritage Society, TAS. Narrow-gauge steam railway rides daily 1100-1600. Information Chris Martin, phone (03) 6334 8398 or 0429 418 739.

3 Wee Georgie Wood Railway, Tullah, TAS: narrow gauge steam train operates 1000-1600; also on 9-10, 17 and 24 February. Phone: (03) 6230 8233.

3 Australian Sugar Cane Railway, QLD. Steam-hauled narrow gauge steam trains in Bundaberg Botanic Gardens (1000-1600) every Sunday, public holiday and Wednesdays during Queensland school holidays. Phone (07) 4152 6609.

10 Illawarra Light Railway Museum Society, Albion Park, NSW. Operating day with two narrow-gauge trains on mainline, plus the trolley-wire miners' tram and miniature railway 1100-1630. Also on second Sunday each month. Phone: (02) 4256 4627 or www.ilrms.com.au

10 Alexandra Timber Tramway & Museum, VIC. Narrow gauge steam trains 1000-1545 and museum displays. Also petrol/diesel-hauled trains 18 (Market day) and 25 March. Information: Bryan 0407 509 380 or Peter 0425 821 234.

MARCH 2008

1-2 Puffing Billy Railway, VIC. *Day Out with Thomas*, featuring *THOMAS* in steam and *DOUGAL* the Diesel performing in Emerald yard and *THOMAS* hauling special steam trains to Nobelius or Clemartis and return. Also 15-16 March and 12-13, 19-20 April. Bookings (03) 9754 6800.

1-2 Wee Georgie Wood Railway, Tullah, TAS: narrow gauge steam train operates 1000-1600; also on 22, 29 and 30 March. Phone: (03) 6230 8233.

8-10 Redwater Creek Steam & Heritage Society, TAS. 2008 Steamfest, Tasmania's largest display of steam era working equipment with narrow-gauge steam railway rides, steam traction engines and road rollers, heritage displays and tractor pulling competitions. Steam trains also run daily during the Mural Fest from 27-30 March and on 5-6 April. Information Chris Martin, phone (03) 6334 8398 or 0429 418 739.

11-12 Alexandra Timber Tramway & Museum, VIC. Labour Day weekend with narrow gauge steam trains 1000-1545 and museum displays. Also petrol/diesel-hauled trains 18 (Market day) and 25 March. Information: Bryan 0407 509 380 or Peter 0425 821 234.

23 Cobdogla Irrigation Museum, SA. Operating day with Humphrey Pump and narrow gauge steam train. Phone (08) 8588 2323.

APRIL 2008

5-6 Wee Georgie Wood Railway, Tullah, TAS: narrow gauge steam train operates 1000-1600 – last operating days 2007-2008 season. Phone: (03) 6230 8233.

7-9 Alexandra Timber Tramway & Museum, VIC. Easter Gala event with narrow gauge steam trains 1000-1545 and museum displays. Also petrol/diesel-hauled trains 20 (Market day) and 27 April. Information: Bryan 0407 509 380 or Peter 0425 821 234.

20 Cobdogla Irrigation Museum, SA. Steam train operating day. Phone (08) 8588 2323.

Note: Please send information on coming events to Bob McKillop – rfmckillop@bigpond.com - or the Editor, Light Railways, PO Box 674, St Ives NSW 2070. The deadline for the April issue is 1 March.

Overseas

DOC rail heritage sites, New Zealand

Continuing the list of Department of Conservation (DOC) rail heritage sites in New Zealand, some of the outstanding sites in the South Island are:

- **Kawatiri Walkway,** 1920-1955, Kawatiri, Nelson. The walkway covers a short section (500m) of the route of the former Nelson to Glenhope railway, including a bridge, a tunnel and the site of Kawatiri station.
- **Charming Creek Walkway,** 1910-50, near Westport, West Coast. Route of a legendary bush tram and coal railway 9 km long with, incredibly, 4 km of track still intact. Includes many bridges, three tunnels, two sawmill sites with steam plant, a restored steam log hauler, and two coal mine sites. Three rail tractors and two Q wagons are on site.
- **Big River coal tramway,** 1914-1934, Victoria Forest Park near Reefton, West Coast. Route of a 3km long 450 mm gauge coal mine tram serving a gold mine and timber mill. Many historic relics remain including a restored poppet head, steam winding engine, boiler, and sawmill ruins.
- **Mananui tramway,** 1905-1951, near Hokitika, West Coast. Route of a bush tram 6 km long through wonderful scenery; virgin rimu forest and a pristine swamp.

Recommissioning of *INVICTA* at Bundaberg

Over two hundred local dignitaries and rail enthusiasts gathered Saturday 17 October 2007 in the Bundaberg Botanic Gardens to celebrate the 100th Birthday and recommissioning of the 0-6-2T locomotive *INVICTA* (John Fowler 11277 of 1907) by the Bundaberg Steam Tramway Preservation Society (BSTPS), operators of the Australian Sugar Cane Railway (ASCR).

INVICTA was ordered in 1907 by Frederic Buss for the Invicta Mill near Bundaberg. Following closure of the mill at the end of 1918 the tramline and its locomotives were leased to Gibson and Howes, of Bingera Mill. The old Invicta tramway system was connected to the Bingera network in 1942 and the mill purchased *INVICTA* the following year. The locomotive subsequently saw service at Millaquin and Qunaba sugar mills. When Bundaberg Sugar replaced steam with diesel power in the late 1970s, *INVICTA* went to HMAS Nirimba at Quakers Hill in NSW for use at the Naval Apprentices' School.

INVICTA returned to Bundaberg in 1993 and was dry stored in the ASCR loco facility until funds became available for its restoration. With the arrival of ex-naval instructor David Twiss, who had been responsible for the locomotive when at HMAS Nirimba, the restoration of *INVICTA* commenced in 2003.

Funding of the restoration project was achieved entirely by donations, ticket and souvenir sales. Many BSTPS members are current and retired tradesmen from the sugar industry, others bring skills from throughout Australia, and the project would never have come to fruition without their skills and technical knowledge. While some facilities from the steam era have disappeared, the skills remain and the BSTPS volunteers were even able to fabricate a manual cylinder boring machine when this was required.

The restored locomotive was recommissioned in a ceremony that included local Navy Cadets; pipers from the Caledonian Band; representatives of HMAS Nirimba from when *INVICTA* was located there; Bundaberg Sugar CEO Grant Maclean; and Ron Atkinson, *INVICTA*'s last driver at Qunaba Mill. Ken Buss, grandson of Frederic Buss, formally christened the loco with a splash of Bundaberg Rum, a symbolic gesture as Frederic was instrumental in establishing the famous brand that has put its home city on the world map.

Ken Buss, son of Horace and grandson of Frederic Buss, christens the 0-6-2T locomotive INVICTA *(John Fowler 11277 of 1907) with a bottle of Bundaberg Rum at the Australian Sugar Cane Railway in the Bundaberg Botanic Gardens on 16 November. The ceremony to commemorate the locomotive's 100th Birthday and its recommissioning was attended by many individuals associated with* INVICTA *and its restoration, including included Navy Cadets and representatives of HMAS Nirimba.*

Photo Hilary Lambour (nee Buss)

INVICTA has joined ASCR's other locomotives on a rotational basis for the weekly (Sunday) running sessions, its roster commencing the following morning when a large crowd was drawn to the ASCR to witness the historic locomotive in action and to ride behind it once again.

Lynn Zelmer, 12/07; Bob Gough, 11/07

The immaculately restored 0-6-2T locomotive INVICTA *(John Fowler 11277 of 1907) about to take guests on its first official journey following its formal recommissioning at the Australian Sugar Cane Railway in the Bundaberg Botanic Gardens on 16 November 2007. LRRSA stalwart Bruce Macdonald and his wife Dorothy look forward eagerly to the trip in the front seat of the first carriage.* *Photo: Lynn Zelmer*

Heritage & Tourist

• **Trails rail tractor,** 1936-1952, Tautuku, Catlins Forest Park, Otago. Restored rail tractor displayed at the site of Cook & Sons sawmill. The tram route can be explored but requires tramping skills.

• **Mäori Beach tramway,** 1913-1926, Stewart Island National Park, Southland. Route of a bush tram 5 km long, including an incline, steam boiler remains at the mill site and two steam log haulers are preserved at the top of the incline.

• **Johnston A lokey,** 1925-1956, Longwood Ranges, near Otautau, Southland. A restored geared locomotive displayed at the site of More & Sons sawmill.

• **Port Craig tramway,** 1917-1930, Fiordland National Park, Southland. Site of one of New Zealand's largest sawmills and its associated village. Route of a bush tram, 16km long, including four massive, restored wooden viaducts, the largest ever used on a bush tram. Remote access with school used as a hut.

Further information at:
www.doc.govt.nz/upload/documents/conservation/historic/topics/rail-heritage-factsheet.pdf

Paul Mahoney, DOC, 08/07

WELSH HIGHLAND RAILWAY, United Kingdom

597mm gauge

K1 was load-tested on 6 December, hauling seven bogie carriages, three bogie B-wagons and a DZ bogie van up the grade from Caernarfon to Waunfawr without any problems: K1 maintained line speed and the normal schedule with no slipping. There were comments about steam leaks. The steam seen under the cab is mostly the injector overflow flashing off at the back of the firebox, and any water in the ashpan when it's raked out comes from the same place. Anyway, you're bound to see steam during winter! If all went well, K1 was to be in charge of the 8/9, 15/16 & 22/23 December Santa trains, the 27 December - 1 January & February half-term service trains.

Peter Lawson, 12/07, via John Browning.

SCOTTISH MINING MUSEUM, Newtongrange, Midlothian

The Lady Victoria Colliery at Newtongrange (9 miles from Edinburgh), a disused Victorian coal mine that is now home to the Scottish Mining Museum, was named the most treasured place in Scotland in a poll of iconic images. In a survey that asked respondents to choose from ten archive images of places around the country to identify the favourite spot, the Lady Victoria Colliery polled more than 20,000 votes, placing it ahead of the Charles Rennie Mackintosh Glasgow School of Art and Skara Brae, the prehistoric village on Orkney.

The museum promotes the social and mining history of Scotland and the colliery is regarded as one of the finest surviving examples of a Victorian colliery in Europe. The museum boasts a hands-on visitors' centre, a recreated underground roadway and coalface where visitors experience the atmosphere and noise of a working pit, the largest winding engine in Scotland (in working order) and two major exhibitions – 'The Story of Coal' and 'A Race Apart' – which feature interactive displays, reconstructions, sound and visuals to tell the history of coal mining technology and the story of mining communities.

The Scotsman, 11 December 2007, via John Shoebridge; Scottish Mining Museum website

The recently restored ex-Goondi mill 4wDM Simplex locomotive No.1 (Motor Rail 10291 of 1951) made its first public appearance at the Illawarra Train Park, Albion Park, during the official naming and opening of the Ken McCarthy Museum Building. *Photo: Brad Johns*

Charlie de Bruin stands beside the recently reassembled Krauss 0-4-0WT (2181 of 1889) displayed at Whiteman Village Junction Station on the Bennett Brook Railway, prior to the WA Light Railway Preservation Association dinner on 1 December 2007. *Photo: Neil Blinco*

The Kerrisdale Mountain Railway's 4wDM No. 4 (Ruston & Hornsby 285301 of 1949) at Strath Creek siding with a visiting Probus group occupying two of the former St Helena Island railway carriages. Photo: Andrew Forbes ❑ *Ray Graf photographed the former Mt Isa Mines 0-6-0DH* ISA MINES 5802 *(ComEng JA4282 of 1964) at Clarence on the Zig Zag Railway on 29 November 2007.* ❑ *Newly overhauled Puffing Billy Railway 2-6-2T 7A (Newport 1905) makes a fine sight hauling its first test train across Monbulk Creek trestle bridge, on the evening of Monday 19 November 2007. Restoration of its original Canadian Pacific red livery, which it lost in 1921, removal of the smokebox ash chute, and several other modifications to period style have transformed 7A's appearance. Photo: Peter Ralph*