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LIGHT RAILWAYS

Australia's Magazine of Industrial & Narrow Gauge Railways

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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

Contents

Comment

Today, I took my family (plus children's friends) for a day out at Taronga Park Zoo. We hadn't been there for a while, at least five years, and I was amazed at how many improvements had been made in that time. Of course, the Taronga Park of today is light years away from the zoo of my childhood, though one thing I do miss from those days is the 2ft gauge railway (see LR 183, p.3).

The boring rubber-tyred people mover of today that calls itself the 'zoo train' simply can't compare to a genuine steel wheels on steel rails experience. It's a shame the railway had to go, but in the 1970s it was seen as very much a symbol of the 'old way' of running a zoo.

Taronga Park has now moved so far beyond those less enlightened days, that the old train would now be considered by patrons to be delightfully 'retro', and very much a genuine historical relic of the Hallstrom years. If a place could be found for it, it certainly would be nice to see the train back.

Further to my last editorial, I enjoyed my two-month assignment in India, though I didn't get to see much railway stuff. At left is one of the highlights - the O&K 0-3-0T monorail (3358 of 1909) at the National Railway Museum, Delhi. If this year's projected assignments in Mumbai and Calcutta go ahead, I'm looking forward to seeing Matheran and the DHR as well. *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.

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Front Cover: *Fiji Sugar Corporation, Lautoka Mill Clyde 0-6-0DH 22 (59-204 of 1959) ambles through the tropical luxuriance of the Sigatoka valley en route to the terminus of the line at Kavanagasau in July 2005. Photo: Ian Dunn* ***Back Cover:*** *The spoil unloading system at the Mullaloo (ocean) end of the Beenyup sewerage outfall tunnel, seen on 29 August 1977. The WA Public Works Department constructed a sewerage processing plant using a 2ft gauge railway to help build the outfall tunnel, with a length of over one mile. Three George Moss battery electric locomotives were used, they and the rolling stock having previously seen use on a water tunnel at Canning Dam. Photo: David Whiteford*

The Simplex loco bringing a load of silica south over Narrawallee Inlet, February 1937. *Photo: Government Printing Office*

Silica tramways on the NSW far south coast

by Jim Longworth

Looking west along Boat Harbour Beach on the northern shore of Red Head near Conjola, you will see a large block of concrete situated on the point. The structure is massive, its industrial appearance somehow out of character with the rest of the tranquil coastal scene. Closer inspection reveals that the block is not alone. There are other smaller concrete blocks, large intricately patterned concrete slabs and odd shaped concrete piers, all clustered along the ridge of the point looking out to sea.

Further south, also on the northern shore of a headland known as Bannisters Point, walkers come across a similar but much smaller and less impressive complex of concrete blocks and walls. Walking along the gravel beach towards Narrawallee will reveal twisted, heavily rusted lengths of light rail.

Unfortunately there is no interpretation at either site to help visitors understand why the structures existed, when they were built, how they functioned or when they were abandoned. This brief article is intended to provide readers with some background information about these two intriguing archaeological sites.

Discovery and rediscovery

While surveying a portion of the far south coast of New South Wales during May 1828, Thomas Florence was struck by the occurrence of what he determined to be flint outcropping in a headland, three-quarters of a mile north of Ulladulla Harbour. He recorded the find in his field book, and assigned the name Flint Point to the headland.

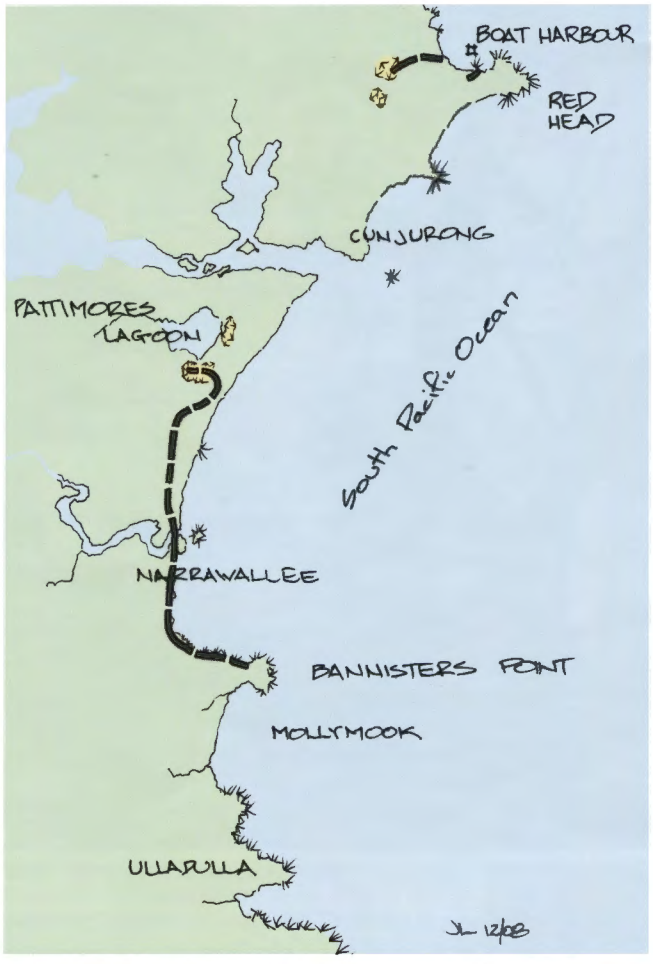
Ninety years later, Richard Cambage noted Florence's entry of 'Two Flints'. Cambage visited the location and returned with specimens for examination. Following assessment by the Department of Mines, the rock was determined to be a dense quartzite very suitable for the manufacture of silica refractory bricks.[1]

Silica, refractory bricks and Newbolds

Quartzite deposits in the Milton-Ulladulla area of the south coast became the main source of silica for making firebricks in New South Wales, particularly for the iron and steel industries. These bricks were used in lining blast furnaces, open-hearth steel furnaces, coke ovens and in other processes involving high temperatures. Some of the silica quarries in this area used locomotive operated 2ft gauge tramways.

Initial local demand for silica bricks was limited to the G&C Hoskins Limited iron and steelworks at Lithgow, copper companies and glass manufacturers. Collaborating with Hoskins, Arthur and Fred Newbold had opened a small works at Lithgow in 1908, drawing on stone quarried at *Eskroy Park*, the property then owned by G&C Hoskins Limited. The bricks were not of a high quality so the company searched for better material, finding exceptionally good quality rock on the far south coast at Red Head.[2]

The Newbold brothers erected a new works at Marangaroo outside Lithgow in 1912 and established a public company, the Newbold Silica Fire-brick Company Limited. With the opening of the BHP steelworks at Newcastle in 1915, Newbolds had a major new customer and in 1919 a new refractory plant was built at Waratah, within sight of the steel works. The company was able to survive the Great Depression and even expanded its position, closing the Lithgow plant and acquiring those of the Ulladulla Silica Co at Port Kembla and the Vulcan Firebrick Co at Thirroul to coincide with the development of the steel industry at Port Kembla.



Newbolds held the attitude that horizontal integration was the best way to succeed. The company was keen to control its own sources of raw material and was able to secure the finest deposits and invest in good quality quarrying and processing equipment, thus guaranteeing supply and excluding competition. When BHP took over the Australian Iron & Steel works at Port Kembla in 1935 and became Newbold's major customer, the brick-maker was able to withstand their attempts to gain control of the company.[4]

Red Head

The Department of Mines referred the find at Flint Point to the Illawarra Brick Company, which was then seeking a source of such a material. A representative of the company visited the site, procured samples, and arranged for their analysis. Analysis proved most satisfactory, so a bulk sample was sent to America for further investigation, which concluded that the material gave promise of yielding a refractory brick equal to the best in the world. The report was sufficiently favourable to justify the company proceeding with the venture. Meanwhile the company secured the mineral rights to the deposit, and had a trial lot of bricks made for testing. The public announcement led to a rush in prospecting and securing mineral rights. Raw material was taken from Ulladulla by boat, then by train to the company works at Woonona, where it was used to manufacture high grade silica bricks, primarily for use at the Newcastle steel works.[5]

The main part of the deposit outcropped on the north side of the headland known as Red Head, later as Bendalong, and in smaller deposits along the coastline to the north-west. Owing to the shape of the coastline it was thought that it would be possible to ship direct from the somewhat sheltered cove on the north side of the headland, especially during normal weather. Two quarries were opened up practically on the beach.

Due to the closing down of the Newcastle steelworks in 1920, and a difficulty in supplying the demand for ordinary and fire-clay bricks, the Illawarra Brick Company abandoned its silica brick plant. The company disposed of its rights to the various deposits at Ulladulla to Messrs Kirton and Earnshaw.

Kirton and Earnshaw raised 475 tons of quartzite during 1920-21. Erection of a short jetty, flying fox, and island wharf were practically completed the following year. The flying-fox was capable of handling 1000 tons of quartzite per week, and the storage bin on the island wharf had a capacity of 340 tons. Unfortunately much of the material in the quarries was either too soft or contained an undesirably high proportion of iron oxide that necessitated considerable spalling and hand picking. Other deposits were known to occur from half a mile to 1½ miles to the west of the loading point. By 1924 the Kirton and Earnshaw leases at Red Head were supplying most of the needs for quartzite of the Newbolds works at Waratah near Newcastle, shipping 1800 tons during 1923-24. The loading wharf was completed during 1923-24 at a cost of £10,000, which should have allowed an outlet for their other leases near Conjola. That year 9562 tons of quartzite was raised.

Working in conjunction with Kirton and Earnshaw's sawmill at Red Head, the quarrying operation was seen by the locals to offer a reliable future for the small settlement. Their hopes were dashed in May 1926 when Kirton and Earnshaw closed the sawmill. Quarrying continued for a short time and was then abandoned, as the firm was unable to dispose of the quarried quartzite to Newbolds.[6]

Bannisters Point

The deposit at Bannisters Point lay on the eastern side of a small bay known as Boat Harbour on the northwest side of the headland. A prominent dyke about 36 feet wide formed the cliff face. The major deposit of quartzite was found along the northern side of the dyke. About 50,000 tons of suitable material was thought to be available.

The Newbold Silica Fire Brick Company commenced quarrying at Collers Beach about 1917. Ray Spencer, who was in charge of blasting, would hoist a red flag on the beach to warn picnickers. Steam-driven jack-hammers were installed, increasing the rate of drilling from 15 inches a day for two men, to 15 inches in a few minutes.

Newbolds employed 17 workers to produce about 120 tons per week, which was transported by 12 horse-drawn carts to Ulladulla for shipment. Lumps of silica that fell off the carts were left where they fell, sometimes causing damage to other road vehicles. Ulladulla Harbour became quite congested when the steamers were delayed, so management entered into negotiations for a site at Ulladulla on which to stack stone awaiting shipment. The site was to be connected by tramline to the then existing tramway running along the wharf, but nothing seems to have eventuated. By January 1920, the company employed 50 to 60 men under the supervision of the local manager, Mr Bloomfield. While orders had increased to 250 tons per week, difficulties in procuring sufficient explosives prevented continuous working in the quarries.

Multiple handling of the heavy rock seriously increased transport costs, so planning commenced to erect shipping facilities at Bannisters Point, together with a horse-worked tramline from there northward, crossing Narrawallee Creek, extending to the area around Pattimores Lagoon where very large deposits of quartzite had been found.[7] Another tramway linked the quarries at Collers Beach to the Point.

Construction of the boat loading facilities commenced around the middle of 1920. A bridge-like structure was erected high on the embankment out to the water's edge. Tram trucks ran out on a 200ft long jetty and discharged the rock into bins under the structure. A giant crane would then pick the rock up in an iron bucket and swing the load over into ships moored nearby. Two beams formed the crane mast and two formed the crane jibs, one on either side of the mast. Each beam was 75-feet long. As one bucket was being refilled, the other was being discharged into the ship.

During 1920-21 Newbolds raised 7957 tons of silica, which was capable of producing 3 million nine-inch silica bricks.[8] Demand was not constant so retrenchments in the industry were common. Depressed economic conditions following World War I resulted in reduced output over the following years, but as conditions improved the company commenced planning improved facilities.

The small cove known as Jones Beach on the northwest corner of the headland was sheltered from the dangerous south easterly winds, but ships being loaded at the wharf could still be caught by a sudden 'nor-easter'. Should the weather turn nasty the master would immediately put to sea to ride out the weather. Heavy seas washed rock stored on the jetty off into the sea, which was recovered by a diver.

The tramway

Reports of the five-mile long tramway route from Bannisters Point to the Pattimore leases in 1920 evidently referred to the company's plans for construction of the line. Building trucks for its operation was carried out during 1922-23. The scanty evidence available suggests the line may have been originally of 1ft 11½ inch gauge, but the type of rails initially used is uncertain. Some £2600 was spent on a 1025 feet long bridge over the Narrawallee Inlet, while the jetty at Bannister's Point cost £5000.[9] The estimated life of the Pattimores Lagoon deposit was 50 years at an extraction rate of 1000 tons per month. The tramway was completed during 1924-25, but heavy floods and high seas during 1925 caused considerable damage to the long bridge over Narrawallee Inlet, necessitating expenditure of £1000 to make the necessary repairs.[10] The tramline carried regular supplies of quartzite to the jetty. Over the years, new quarries were opened up in the hinterland north of Bannister's Point and the original tramway was extended and upgraded accordingly.

During 1925-26 Newbolds made the decision to start crushing the rock at Bannister's Point instead of at Waratah during the coming year, and to install devices for carrying the silica along the jetty deck to steamers tied up alongside so saving on labour. The following year saw extensions to the tramways, installation of a crushing plant on land behind and above the jetty, installation of machinery to convey stone from the crusher along the jetty and erection of storage bins. Towards the middle of 1928 the crushing plant had been erected, and silica was being crushed before shipment instead of spalls being forwarded by boat.

Following acquisition of a second-hand 2ft gauge steam locomotive, Frank Higgins cut 3000 sleepers to widen the gauge of the tramway by a half-inch to 2 feet. He advised that one of the rails was simply shifted outwards, suggesting that steel rails were in use.[11]

As noted below, Newbold closed its operations at Bannisters Point around 1939. By 1960, the long abandoned wharf there had become derelict. Due to concerns about safety, it was blown into matchsticks in July 1961.[12]

Washed by salty sea spray, the Blackstone brings a load of silica along the shore behind sandy beaches. *Photo: Newbold catalogue*

Posing for the photographer at knock-off time at the quarry loading point, c.1928. Photo: P Turnbull collection ❑ *Deep in the forest, among the south coast gum trees on the northern section of the tramway, the Blackstone loco brings its train onto a wooden bridge built 'pig sty' style over a shallow depression. Photo: Newbold catalogue.* ❑ *The Blackstone locomotive and wagons on the wharf at Bannister's Point. Engineer Walter Islow sits on the running board, while engine driver Peter Carey leans against his charge. The loco appears to be in pristine condition. Photo: A McAndrew collection*

Red Head revisited

Around 1939 Newbolds moved its quarrying operations from Bannister's Point north to Red Head, including the tramway and the steam locomotive.[13] A line was laid to connect a quarry behind the beach with a new T-headed wharf constructed immediately west of and nearly parallel to the old flying-fox. A single line of rails was laid out along the jetty. Frank Higgins camped in the bush and hauled all of the piles and girders for building the wharf and bunker. The latter was built on the headland at the shore end of the jetty to hold silica brought down from the quarries. Eleven men were employed and mining was from shallow open-cuts. The crushing plant consisted of a jaw crusher, conveyor belts delivering crushed rock into the storage bin, and another belt conveyor for loading the ships. Power was supplied by a 65hp diesel engine.

By 1945-46, it was reported that two diesel locomotives were being used to haul ore from the quarry to the crusher. However the decision had been taken to replace the tramway with road haulage.[14] The beach quarry was abandoned and other deposits were exploited by means of shallow open cuts. The new system of road transport meant that the crusher no longer had to be located at Red Head. It was dismantled and re-erected at Yatta Yattah, four miles north of Milton, during 1947-48. Use of the crusher finally ceased in 1956 when the silica was taken direct to the brickworks for crushing, so saving on handling.

Work on demolishing the jetty commenced on 30 November 1970. The winch was removed and a rope was secured to haul floating debris in to shore. Skindivers attached charges to the bottom of the piers. The first charge was only partly successful, but the second charge demolished the landward section of the jetty. Debris floated to shore, but while the middle section of the jetty had been blown, it was resting on the sea bottom and held up by the remaining seaward part of the jetty. An explosives fault had prevented the demolition extending of the seaward end. The charges were reconnected, and on 1 December the seaward part of the jetty was also blown up. The middle part of the jetty still stood on the sea bed, and additional small charges were required to demolish it. On 1 May 1974 the sea bunker was also demolished by explosives.[15]

The Simplex bringing a load of silica up to the higher level at Bannister's Point. Note added inclined belt conveyor, silica stockpiled at grass beside the line and line of track discernable running along the foreshore in the background. Photo: A McAndrew collection

Krauss 0-4-0WT 2179 of 1889 working for contractors Norton Griffiths on the construction of the Coonabarabran line, circa 1913. Photo: NSW SRA, from Phil Belbin collection

Locomotives

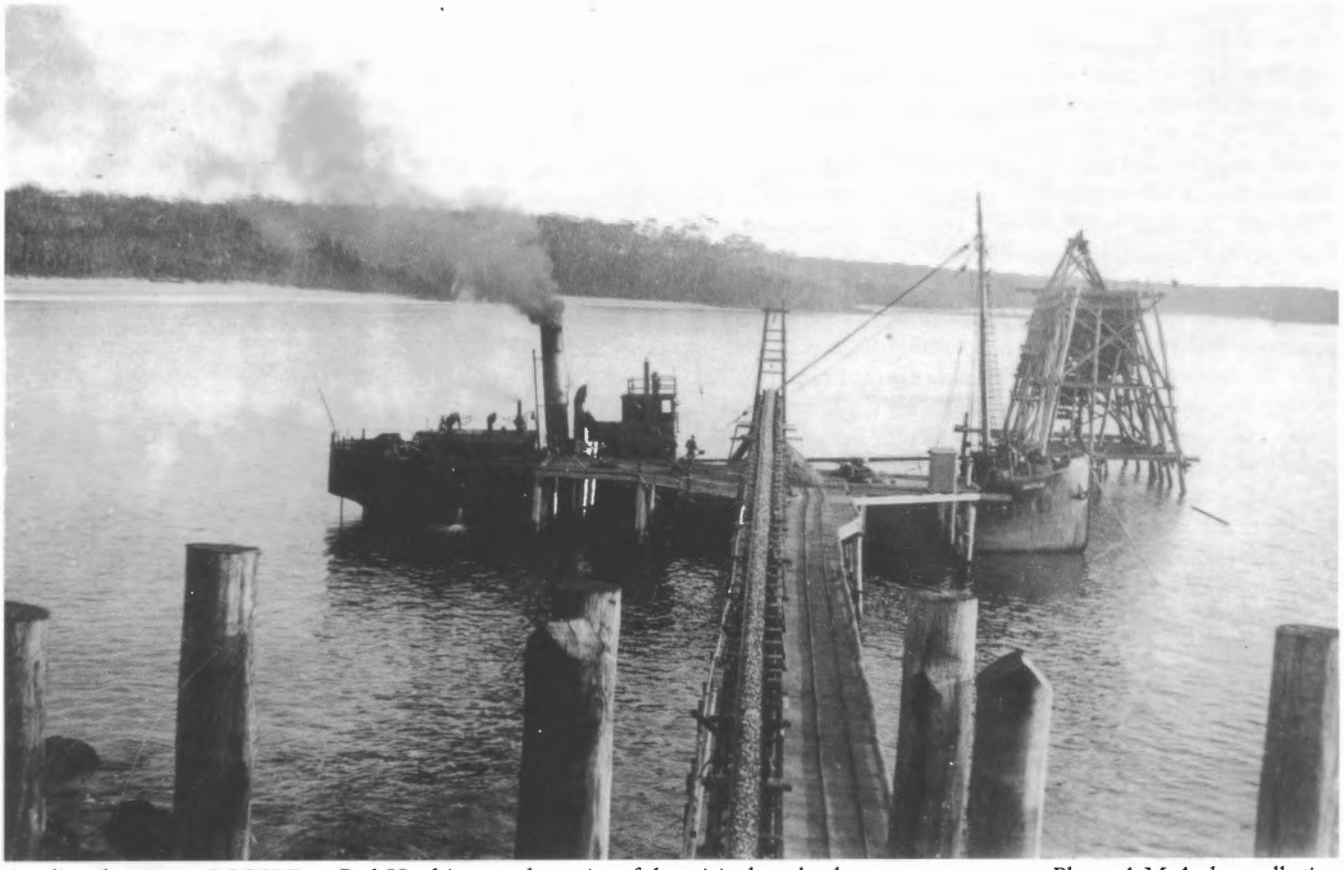
Three locomotives are known to have worked on these tramways:

1. An oil locomotive by Blackstone & Co. Ltd
2. An 0-4-0WT steam locomotive by Krauss
3. An internal combustion locomotive by Motor Rail Ltd. of Bedford[16]

Seemingly the first to arrive was an oil locomotive by Messrs. Blackstone & Co. Ltd. of Stamford, England, probably built sometime during 1921.[17] It was a very rare beast powered by a 25hp three-cylinder engine, with a normal engine speed of 750rpm, producing 1200 pounds of tractive effort. Drive was transferred from the gearbox, which was aligned with the engine shaft, to the connecting rods via chains running in oil enclosed in dirt-proof cases.[18] The locomotive had outside frames, a tall chimney positioned above the radiator giving it an appearance reminiscent of a steam locomotive, a curved exhaust pipe to the base of the chimney, a full length overall cab roof supported on pillars, a cylindrical fuel tank carried horizontally on brackets across the back of the rear cab plate, and low cab plates forming a low sided driver's cabin.[19]

A 2ft gauge steam locomotive arrived during August 1936. This was Krauss B/N 2179 of 1889, which was purchased by Newbolds from machinery dealer W West.[20] The locomotive had previously been in use by the NSWGR (Number LO.43) on railway construction work and as a stationary steam generator. Around 1939 the Krauss was transferred to Newbold's Thirroul brickworks and converted to a petrol locomotive by installing a Leyland 4-cylinder lorry engine.[21]

The third and final locomotive to operate on the Bannisters Point to Pattimores Lagoon line was a small 4-wheel 'Simplex' locomotive, probably B/N 5944. This 2ft gauge locomotive with diesel engine No.ID29841 was of 32/42hp, weighed 5 tons and was fitted with a cab. It was dispatched on 16 October 1936 to Frank Saunders Ltd., Sydney on SS *PORT HUON*.[22]



Loading the steamer BOPPLE *at Red Head jetty, and remains of the original sea bunker.* *Photo: A McAndrew collection*

Visitors and accidents

Various descriptions of tramway operations at Bannisters Point and Red Head over the years provide further insight into its operation. In August 1935, a reporter from the *Sydney Mail* described stepping warily along the narrow gauge line as it skirted the sea shore. He was surprised by the shrill whistle of a tiny locomotive, 'saying he was in the way and it had business to do. As he scrambled up the landward slope, she puffed past with importance, pulling wagons loaded with stone along behind.'[23]

A wartime report comes from Peter J Walker, a soldier on leave who walked along the beach with his young wife Daisy one mild Autumn afternoon in April 1944 and then took a short cut back towards the township of Lake Conjola. Following a track through the sand hills they came across a narrow gauge railway line. They were even more surprised when along the line came a small train. 'Like a lift?' called the driver. They climbed aboard and hitched a ride back towards town.

Three accidents have been recorded, one of them fatal. The first occurred in August 1920 when Archie McDonald was driving a young horse along the tramline. He had touched the horse with his whip, after which it lashed out catching him behind the ear, knocking him out. W Millard was injured when the handle of one of the giant buckets used to load the ships at the Bannister Point jetty got free from its catch one day, landing across his toes.

On 19 August 1946 John Joseph Butler was sitting in the cabin of the locomotive driven by George Broadfoot, which was hauling two loaded trucks and pushing a pump trolley in front of the engine. About half a mile from the quarries, the trolley derailed, rose up and smashed the front of the locomotive cabin. The two front wheels of the locomotive left the line, and the trolley was thrown over the embankment severely injuring Butler. He was taken to Dr Roy Thompson in Nowra with fractured ribs and crushed chest walls, but died at 4:45 pm two days later.

Acknowledgements

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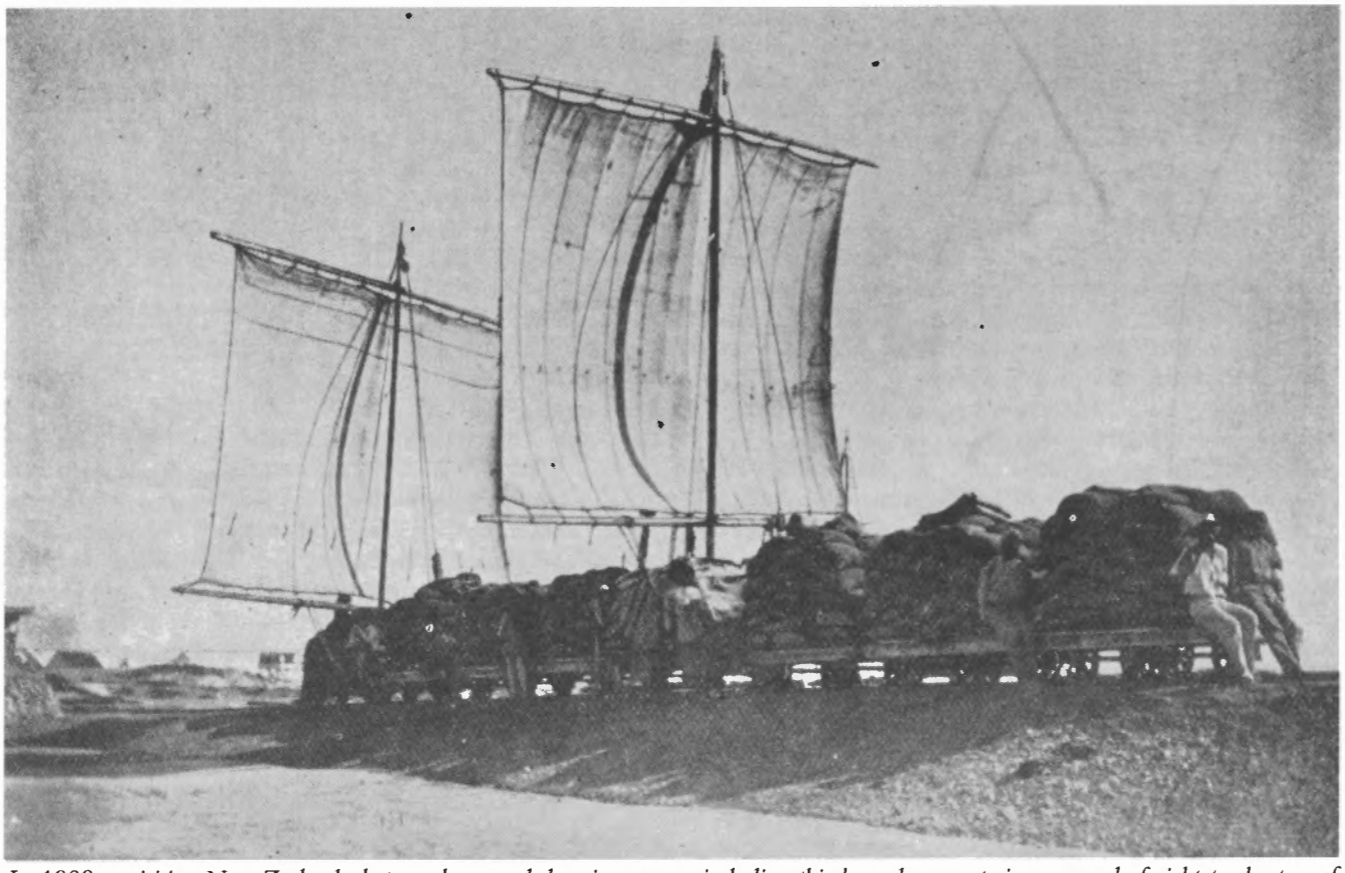
References

1. Department of Mines, 1918, Annual Report.
2. Hoskins C, 1969, *The Hoskins Saga*, Halstead Press; Newbold AR, *The Silica Brick Industry, The B.H.P. Review*, December 1935; Watson M, 1994, *In the Shadow of BHP – Newbold General Refactories*. BA (Hons) Thesis, http://www.geocities.com/Athens/Oracl.
3. *Sydney Morning Herald*, 1938. Made in Australia. John Fairfax, Sydney.
4. Watson M, 1994, *In the Shadow of BHP – Newbold General Refactories*. BA (Hons) Thesis.
5. Harper LF, 1924, NSW Department of Mines Geological Survey, Bulletin No. 10, Silica, Government Printer, Sydney.
6. Archives Office of NSW, Public School file, 'Red Mill', Deposit 5/17461.3; *The Nowra Leader*, 16 July 1920.
7. *The Nowra Leader*, 20 January 1920.
8. *Moruya Examiner*, 9 September 1922.
9. Department of Mines, 1924, Annual Report.
10. Department of Mines, 1925, Annual Report.
11. Higgins F, 1977, 1978, letters, Laidley D collection.
12. *South Coast Times*, 13 July 1961.
13. Higgins F, 1978, letter to Laidley D.
14. Department of Mines, 1946, Annual Report.
15. McCarthy K, Personal notes taken from the Newbold Company records, author's collection.
16. Horne R., 1994, Letter, *Light Railways*, No.125, July.
17. *The Locomotive*, 15 November 1921; Neale A, The Blackstone Oil Locomotive, *The Narrow Gauge*, No.125.
18. *The Locomotive*. 15 November 1921.
19. Burke D. 1993. Letter. *Light Railway News*. No. 96, October.
20. *ARHS Bulletin*, No.110, December 1946; McCarthy K, Krauss 2179, *Industrial Railway Record*, No.95, December 1982.
21. McCarthy K. 1982. Krauss 2179. *Industrial Railway Record*. No. 95, December.
22. Browning J, 1992, letter.
23. *Sydney Mail*, 7 August 1935.
24. Walker P, The Bannister Express, *Australian Sea Heritage*, No.68, Spring 2001.
25. *The Nowra Leader*, 20 September 1946, quoted in, Mc Andrew A, 1991, Congenial Conjola, Author.



In 1908, a visiting New Zealand photographer recorded various scenes including this bagged guano train composed of eight trucks, two of which are under sail. Such a formation would make operations more stable and less prone to derailment than a single truck. Otago Witness, *Dunedin, 14 October 1908* *Photo: Alexander Turnbull Library, Wellington, NZ*

Malden Island – Sails upon the Rails

by Phil Rickard

It was with much interest that I read Jim Longworth's article on the sail-powered tramways of Malden Island (LR199) and this prompted me to dust off my 'guano files' and follow-up some leads on this rather remote Australian-built and operated industrial railway.

Whilst the south-east trade wind was the principal means of motive power on Malden Island, it would seem that locomotive haulage was tried at one time. In 1871, some 18 years prior to *Engineering*'s sail-railway report, the Melbourne newspapers noted the completion of a small locomotive for Malden Island. However, the story starts many years before that event.

Introduction

The use of bird guano as an agricultural manure was first introduced to industrialised countries in the mid-1820s but the resultant crop increases were initially treated with some scepticism by farmers on both sides of the Atlantic. It wasn't until the early 1840s that British farmers started using guano in any significant quantity and not until 1848, when the results were without dispute, was it adopted by conservative US farmers in the mid-Atlantic States. With typical American enthusiasm, use then increased dramatically, from a thousand tons in 1848 to over 175,000 tons just six years later, followed by a decrease in 1855 as supplies started to dwindle.[1]

At the time most guano was sourced from Peru with lesser amounts from Chile, Brasil, Venezuela, Mexico and south-west Africa. The huge Peruvian guano trade was largely controlled by the London merchant house of Antony Gibbs & Sons, under licence from the Peruvian government.[2] By the mid-1850s the US Government was so worried by diminishing supplies and English domination of the trade that in 1856 they proclaimed the Guano Islands Act to allow Americans to claim for the USA any unclaimed islands that might be guano-rich. This stimulated the search for new guano sources, prompting exploration of the many islands in the vast expanse of the Pacific Ocean.

In June 1859 the *Journal of the American Geographical Society of New York* advised that the '*. . . American Guano Company had laid claim to Baker's and Jarvis' Islands whilst the United States' Guano Company had claimed Howland's, Christmas, Malden's and Arthur's* [now McKean] *Islands*', all situated in the central Pacific near the equator. Although Malden was included on the Americans' list, it was never occupied by the USA – somebody had beaten both the United States and their Pacific rivals, the Kingdom of Hawai'i, to the island

BB Nicholson's lease

The *Honolulu Polynesian* of 9 July 1859 reported that the Hawai'ian schooner *Manuokawai* and the United States' ship *Ivanhoe* '*. . had a race to a place called Malden's Island, reported to be rich in guano, of which each country desired to take possession.*' On arrival they found that a private firm had already taken possession, and that possession was respected. We are not told the identity of the occupiers but it may have been a mysterious 'Mr Harrison, a resident of Melbourne' whom some sources say discovered the guano and, realising its value, sold his knowledge to BB Nicholson, a Melbourne shipping agent and would-be entrepreneur. Nicholson, having extensive knowledge of trading matters, took steps to bring Malden under British protection and within his lawful reach.[3]

On 16 May 1864, British sovereignty was proclaimed over Malden Island[4,5] and seven months later, on 21 December, the Colonial Office in London granted to Benjamin Barnard Nicholson, of Melbourne, the sole and exclusive right, subject to a royalty of 2s per ton, to 'raise and export guano from Malden Island for a period of seven years and permission to construct buildings, roads, tramways, jetties, moorings etc as necessary'.[6] The first shipments of guano were made in May 1865 and soon B.B.Nicholson & Co were selling Malden guano in Melbourne for £7 5s per ton, about half the price of Peruvian guano.[7]

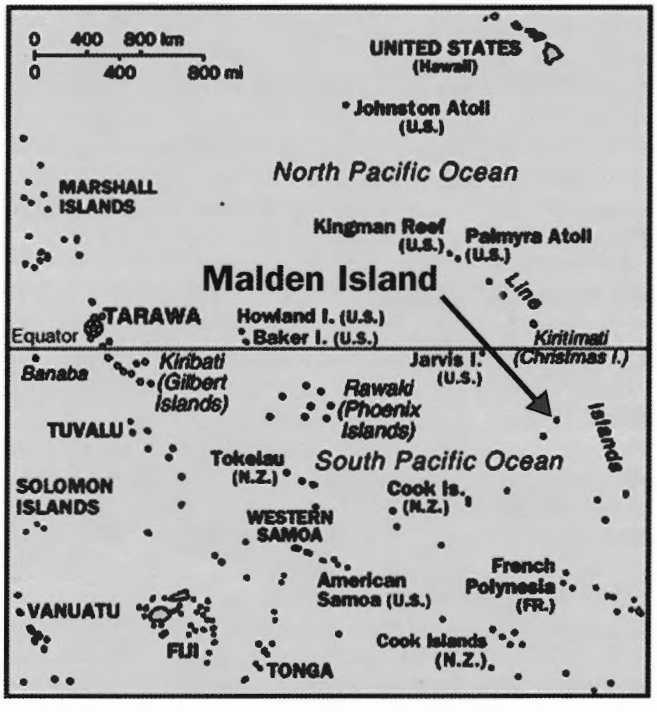
The Argus, (Melbourne) of 1 March 1866 carried a lengthy report, 'Malden Island and its Guano Deposits', which includes this very early description of guano operations, possibly obtained from Nicholson himself:

First of all houses had to be erected for the accommodation of the persons employed . . . Five or six buildings, partly of wood and partly of stone, were put up near the beach, and as the number of individuals employed is about sixty . . . these structures [are] of a rather commodious character.

It was necessary to construct a tramway two miles in length, for the purpose of bringing the guano down to the beach. The conveyance of the loaded trucks to the beach used to be a task of considerable labor, and it had been determined to obtain horses for the work, but, luckily, an expedient was hit upon which has altogether removed the difficulty. The trucks are now furnished with large sails , and as the trade wind blows nearly always straight across the island, the waggons are taken backwards and forwards with equal facility.

Another expensive work had to be undertaken. To facilitate the loading of vessels, jetties were required, and two were accordingly constructed, each 140 feet in length. They consist of piles driven obliquely into the sand, and arranged in pairs so that the tops of each set meet, and are bound together. These timbers support a wooden floor, on which a line of rails is laid, so that the trucks can be brought right to the end of the pier, from which be means of a shoot, their contents are soon transferred to the vessels.

An obvious error is the trade wind – it only blows in one direction – east to west, and this would only be of assistance for loaded trains..Also, this is the only report that mentions two jetties. All later reports mention just one, of the same type of A-frame construction with the deck and rails up the middle,

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£7 5s. per Ton

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The above Guano will be found a most useful manure when applied to all soils, but especially so when put on those that are poor or exhausted from overcropping.

It is well known that the soils of the Colony are deficient in all sorts of Lime; the Malden Island Guano is rich in those constituents; therefore more suitable, as a manure, than the hot and stimulating Peruvian, which can only be used successfully in forcing crops on rich lands. For all general agricultural purposes the Malden Island Guano will be found better than the Peruvian, and costs only half the price.

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on the cross beam. Further into the report we are informed that a number of ships' captains claim the unprotected off-shore anchorage is one of the safest. Such a claim must be 'company puff' as Malden Island was to be the scene of a number of shipwrecks over the next sixty years.

Within a couple of years and after the expenditure of over £13,000 of his own and other people's funds Nicholson found himself financially embarrassed – the guano was a success but the initial outlays were crippling his under-capitalised operation. One unwanted, but initially vital, outlay was the necessity to construct a coal-fired water distillation plant, said to be capable of producing 200 gallons per day from seawater as Malden is a dry island. On 26 October 1866, in return for transferring the lucrative Malden lease plus all infrastructure to Grice, Sumner & Co, Nicholson's debts were liquidated.[6] BB Nicholson, by now in poor health, died in April 1867 aged just 34 years; he is buried in St Kilda, in suburban Melbourne.[3]

Grice, Sumner & Co.

Grice, Sumner & Co was a long-established and respected Melbourne firm of import/export agents, wholesale merchants and financiers originating from among the landed gentry in Victoria's Western District. The senior partners at the time were Richard Grice, Theodotus John Sumner and John Benn. The company had imposing, three-storied premises in Flinders Street West, near the wharves along the Yarra River. In addition to operating many large rural properties in four colonies, they were soon to find themselves involved in the Pacific guano trade.[8]

In June 1867, *HMS Falcon* visited Malden, to 'fly the flag' and inspect what must have been one of Her Majesty's most remote possessions. Captain Blake duly noted that there were six Europeans (including the resident manager Francis Paterson) and 24 Kanakas‡ and '. . . *they were 40 natives short, the usual number being 60*'. The native labourers were engaged to work for six months at £2 per month. Paterson, who had been BB Nicholson's resident manager, was initially retained by Grice, Sumner & Co but in August 1867 he was recalled. Up to that time about 17,000 tons of guano had been 'mined' and exported in 33 vessels.[6]

One reason for Paterson's recall was the apparent discrepancies found between tonnages he recorded as shipped and the amount that was received at various ports of discharge. Grice, Sumner & Co estimated that Paterson was overstating by about 10 percent the quantity shipped. An example is the 65-ton *Zillah*, a New Zealand schooner under Captain Wyatt. Paterson recorded it leaving Malden on 10 July 1867 with 82 tons of guano.[6] The Port of Auckland records its arrival on 20 August with between 70 and 75 tons.[9] The reason for the alleged overstating of tonnage is not known.

Another early report of the guano operations and sail-powered railway appears in the Auckland *Daily Southern Cross* on 12 March 1867 entitled 'Cruise of the Hercules':

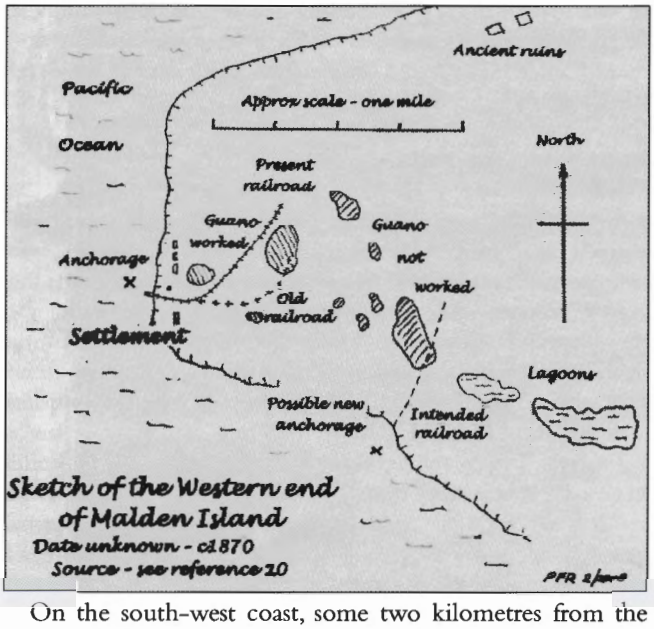
'*There are 11 Europeans and 50 kanakas working at the guano, the works being under the supervision of Captain Paterson . . . the guano is brought from the fields by a tramway, the trucks being propelled by a sail set on them, as the wind blows almost always one way. A stage has been run out, so that a boat* [belonging to the guano company] *can be loaded by means of a sheet. The boats are brought alongside and discharged on board the vessel loading. The* Hercules *was loaded (56 tons) in twelve hours, whilst from 60 to 100 tons can be put on board a vessel in a day.*'

Yet again the amount stated above as loaded on the *Hercules* (56 tons), differs from the amount per Paterson's despatches to head office (40 tons); but this time understated!

Early tramways

The National Maritime Museum in London holds an early chart of Malden Island[10] with details of the anchorage at the western end of the island and containing sailing directions for ships on the Melbourne to Malden run. It is illustrated with a sketch showing an extensive settlement, jetty, houses, natives' quarters, tall flagstaff (a navigation requirement per the lease agreement) and the water distillation plant featuring two boilers with smoke billowing from their chimneys.

This chart shows a tramway heading north-eastwards from the settlement for a mile or so, together with an adjacent line marked 'old railroad' leading to worked-out guano areas. It would seem the map depicts tramways at a time when guano deposits close to the settlement were virtually exhausted and the company was starting the extension to the north-eastern end of the island, where the chart marks other deposits of 'good guano', thus requiring locomotive haulage.



On the south-west coast, some two kilometres from the settlement is another line, marked 'intended railroad', heading inland from a possible landing spot. It was just that – 'intended' – and shipping difficulties determined that the existing shipping place, dangerous as it was, remained the only shipping place. The chart probably dates from between 1867 and 1870.

Following Paterson's departure, the resident analyst, William Dixon* was made manager, in addition to his other duties. During Nicholson's tenancy all guano had been obtained from the western end of the island near the settlement and thus required relatively short tramways – a mile or so in total. However, in his despatches dated 28 October 1867, Dixon advised that '*. . . to load the remaining good deposits it will be necessary to lay down eight miles of railway, the east coast of the island where the good guano is being quite impractical for shipping.*' This was relayed to the Colonial Office as part of Grice, Sumner & Co's submission requesting a reduction in royalties.[6] These pleas must have made some impression as the royalty was set at £500 per annum when next renewed in 1871. As shipments were now about 10,000 tons per annum, this was much better than the old agreement of two shillings per ton.

Grice, Sumner & Co's tenancy was soon beset by financial problems. In 1867 and 1868 a number of vessels were lost at sea whilst engaged in the Malden guano trade and by early 1869 Grice, Sumner advised the Secretary of State for Colonies that,

The frequent casualties have so alarmed the insurance offices that they now decline to grant insurance on ships or cargo in this trade and we have been compelled to purchase vessels and sail them at our own risk. We have, in addition to purchase of three ships, incurred a large outlay in about 7 miles of railway and plant which is now afloat and on its way to Malden.[6]

By the end of 1870, Grice, Sumner & Co estimated that they had expended almost £50,000 on their Malden operations, but the financial situation was improving. Shipments to Europe were realising up to £8 10s per ton and £7 per ton in the Australasian colonies. Working expenses on Malden were now estimated to average £1 per ton and the freight £2 6s to £2 15s per ton.[6] In time the venture was to prove quite remunerative.

A steam locomotive for Malden

With a fairly lengthy railway nearing completion, Grice, Sumner & Co needed to find some means of motive power – sail-powered trucks were fine for a mile or so but to run a railway seven miles long something more substantial was surely required. Animal power was out of the question – Malden rarely had enough rain for grasses to grow. Thoughts naturally turned to a steam locomotive and in late 1870 an order was placed with the local Melbourne firm, the Atlas Company of Engineers. Early the following year *The Age* of 25 February contained the following item:

The first locomotive that has been entirely made in this colony by a private firm, has just been completed by the Atlas Company of Engineers, Queen-street, for Messrs. Grice, Sumner and Co. This engine, which is intended to draw guano trucks on Maldon [sic] *Island, is of a gauge of 2 ft. 6 in., and of 10 horsepower, capable of working up to 15. Its length is 14 feet; its weight 2 tons 15 cwt., and its cost £550, or, as we are informed, just about as much as a similar engine would have cost if imported. It comprises all the latest improvements, presents a neat and finished appearance, and, judging by the way in which it worked yesterday when steam was got up, it is perfect. It will burn coke, and, in consequence of the scarcity of fuel on the island, every contrivance has been adopted which will prevent waste. Though this is the first locomotive that has been completely made in the colony by a private firm, another was turned out some years ago by another company, several of the parts of which were imported from England.*

On 27 February, another Melbourne paper, *The Argus*, carried the same basic story but their reporter added some additional interesting details as follows:

A small locomotive has been built by the Atlas Engineers' Company [sic] *. . . to run on a railway on Malden Island, whence large quantities of guano manure are obtained. The engine has been built for Messrs, Grice, Sumner & Co., and is intended to draw the guano from the beds to the shipping-place, a distance of about eight miles. It is made on the same principle as an ordinary railway locomotive, but is very diminutive, only weighing 2 tons 15 cwt., when empty,*

and 3 tons 10 cwt. when the boiler is filled with water. The gauge is only 2ft. 6in., and the lightness of the engine will enable it to run on a 19lb. rail. It is from 8 to 10 horsepower, but capable of working up to 15, and calculated to draw 50 tons of loading at 10 miles an hour on a level line, but a greater speed could be attained if necessary. The tender attached can carry 3cwt. or 4cwt. of coals at a time – enough for a trip. The engine has a 7in. cylinder and the boiler contains 30 tubes, 5ft. 6in. long and 2in. in diameter. The wheels, four in number, are 2ft. 6in. in diameter. The order for the locomotive was given about four months ago, and it was built entirely here, the iron being imported to the colony in the raw state. The price charged for making the locomotive was £550.

Narrow-gauge industrial locomotives did not come much smaller – by comparison Bagnall's smallest, an 0-4-0ST rated at 10hp, weighed 3½ tons in working order, water supply included. The water on the Atlas Company's loco was probably carried on the tender and this may account for what appears to be a very low engine weight. Intriguingly, *The Argus* report mentions 'cylinder' in the singular – was this engine one of that very rare breed – a single-cylinder locomotive? The gauge of the loco, 2ft 6ins, must have been dictated by the existing railway and is a very early example of steam power on this narrow gauge.# (*The Age*'s assertion that it was the first loco made in Victoria by a private firm is incorrect, indeed it was not even the first made for export.)

The Atlas Company of Engineers** was founded in 1868 by John Scott and George Young and had premises at the corner of Queen and La Trobe Streets, Melbourne. Amongst their output were marine steam engines, agricultural machinery and windmills, and, in 1879, some goods trucks for the Victorian Railways.[11,12] Atlas had previously done work for Grice, Sumner & Co having in July 1870 supplied new pistons for one of their vessels, the coastal trader SS *Blackbird*, a three-masted barque,[13] which may explain why the locomotive order came their way a few months later. Whilst nothing is known about the wagons used on Malden Island at this time it seems probable that they were also supplied by Melbourne firms.

The locomotive was duly shipped to Malden, maybe on one of Grice, Sumner's vessels or possibly on the first vessel heading that way – the sailing ship *Lucibelle*, belonging to Houlder Bros, a London-based shipping line who were running the guano operations on Starbuck Island, 108 miles south-sou'west of Malden. Grice Sumner & Co and Houlder Bros had a mutual agreement to assist each other in relation to mails, supplies etc, for their remote operations. The 914-ton *Lucibelle* 'cleared out' from Melbourne on 2 March 1871; its manifest included the following interesting items: *3 packages (fire engine), 2 packages spikes, 6 bags iron wedges, 2 boxes, chisels etc., 575 iron rails, 315 sleepers, 133 packages comprising 19 trollers and 4 breaks, 25 packages four sets 'switch-crossings.*[sic] [14]

The *Lucibelle* was also carrying JT Arundel, Houlder Bros' agent on Starbuck Island. The *Lucibelle* was wrecked at Starbuck on 23 May. Had she made a prior call at Malden to unload the loco? By whatever means, the locomotive reached Malden, and was duly unpacked from its crates, assembled and trialled. The native labourers, who would never have seen a steam locomotive must surely have gazed in awe at the smoky, steamy 'thing'!

Abraham McCullough

All was still not well on Malden Island as one manager followed another until in 1873 or 1874 Grice, Sumner & Co installed a manager with 'guano experience'. Abraham McCullough, previously with the trading firm of Houlder Bros on 'nearby' Starbuck Island, and before that with the Phœnix Guano Co for two years on one of their islands, soon had an impact on Malden. The island life must have suited his Presbyterian temperament as he was to remain for many years apart from occasional leave trips to Melbourne.[3] He ultimately died on the island in May 1897 and is buried there.

McCullough found the little steam locomotive lying out of use – '*. . a useless consumption of time, effort, hope and money*' – surely a victim of its environment. McCullough must have reasoned that if sail power was good enough for a mile or so to the jetty, why not use it on the new line, some five or six miles, and take advantage of the near-constant south-east trade wind to propel the loaded trucks?

Each of the trucks was fitted with a spar and sail. Loaded with guano sacks, a truck (after a helping push) then sailed its way with the prevailing wind from the field down to the settlement. Back in Melbourne, Grice, Sumner & Co's trading manager and partner, Mr John Benn***, was surely pleased when he read McCullough's despatches from Malden Island – an inexpensive solution to the motive power problem. As for the locomotive; it was said to have been taken away; but to where? Did it return to Melbourne in the same manner it had departed; in crates but now in disgrace?[3]

McCullough had only been in residence a few months when his wife, Mary, arrived on a visiting guano vessel. Mary stayed for a year and a half, during which time she had a baby boy, appropriately named Malden. In a cruel stroke of fate, baby Malden drowned in January 1876. A few months later, in May, EM Walker, the Malden wharfinger also died. Both are buried in Malden's tiny cemetery. Other interesting imports around this time included a crate of Melbourne's best alley cats (to wage war on the rats, an unintended import, but the cats soon got out of control and then they too had to be culled!) and Mary's prized spinet (a type of harpsichord) so she could have some homely entertainment. Mary and the spinet were to visit several times over the years; each time both would be carefully lifted off the vessel into a boat, rowed inshore and then lifted and deposited onto a tram truck on the jetty, and trundled ashore to the settlement.[3]

Sails upon the rails

Use of sail power on Malden Island in the mid-1870's is related by one 'G. Earnest' in a rather whimsical travelogue entitled *Two Years Adrift*. Earnest, a roving sailor of sorts, recounts an experience on Malden where he and a mate walk beside the railway from the settlement to the new guano fields – a distance they claim, of eight miles – under the merciless sun and into a head wind. After a rest and meal (plus some local 'moonshine') they tell their host they don't fancy the return walk. No problem says their host – take a "cab"!

I have mentioned that the guano was transported across the island in railway trucks impelled by the trade winds; well one of these vehicles was specially constructed and reserved for the conveyance of passengers, and this was our "cab".

It was fitted out with a large sail with lots of reefs in it, and, as it ran smoothly upon the metals, a high rate of speed was attainable . . . we started out with three reefs in the sail. This was enough to take us home comfortably at ten miles an hour. After a few minutes however my companion, who had liked the "port" rather better than I did, wanted to go faster. I was not loath to a little excitement, so we shook out two reefs and before long we were rattling away over the rails at 15 miles an hour.

This was an improvement, but not enough. As evening came on the wind rose, and when we were about three miles from home my friend proposed that we should shake out the other reef and go home in style. With some misgivings I consented, and in another moment we were tearing along like an express train. We both held on tightly

and for a time enjoyed it immensely. Gradually however the unpleasant impression dawned upon us, that we could not stop ourselves in time to prevent an accident at the terminus.

Of course the inevitable happened – rounding a rather sharp curve they encountered a piece of wood lying across the track and rocking wildly, hit it at near full speed. The truck stopped with a violent jolt, hurling the occupants some five yards distant, onto the ground where they lay stunned for some time. Fortunately no bones were broken and a pair of rather bruised sailors walked the rest of the way to the settlement[15]

Over the years the Malden work force varied in numbers; the Europeans were usually hired in Australia and the 'natives' generally from the Cook Islands. Until 1900, when the Cooks were annexed to New Zealand, the hiring of islanders was subject to regulations attached to the 'Licence for the Carriage by Sea of Native Labourers' issued by the colonial governments. After 1900, Cook Islanders were free to travel, subject only to approval of the Resident Commissioner. In 1905 for example, thirty-five Cook Islanders were working at Malden Island[16], whereas in 1889 when the SS *Titus* called to load guano her chief officer found,

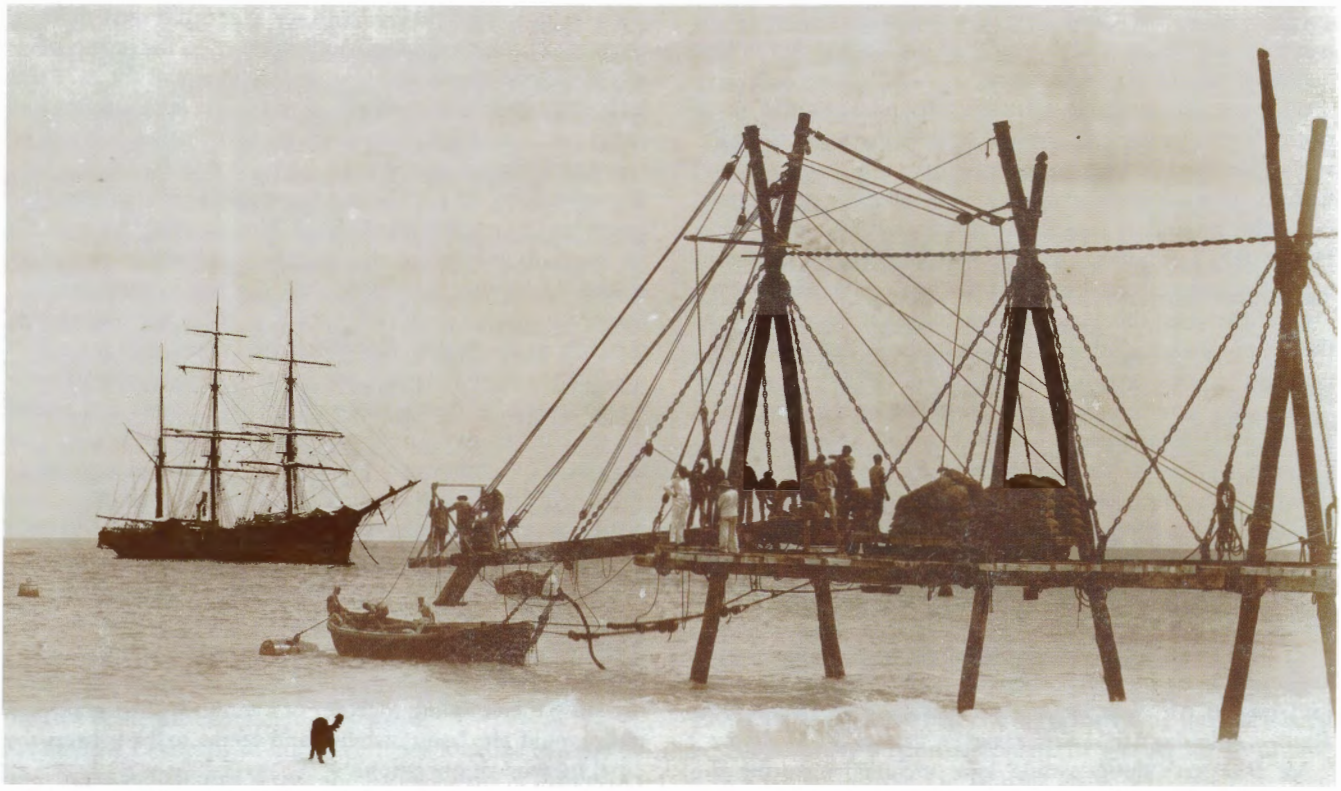
. . . some 200 South Sea natives under Mr Strickland as managing half-caste, and six European officers . . . the manager, Mr McCulloch [sic]; *surgeon, Mr Nash, harbourmaster, Mr Howard; carpenter, Mr Petersen; sailmaker, Mr McKenna; and . . . steward, Mr McAllister.*[17]

Mr Petersen's duties would have included repairing the tramway trucks but Mr McKenna's tasks must have been unique among railway workers – maintaining the sails and rigging of the world's largest fleet of wind-powered railway 'engines'.

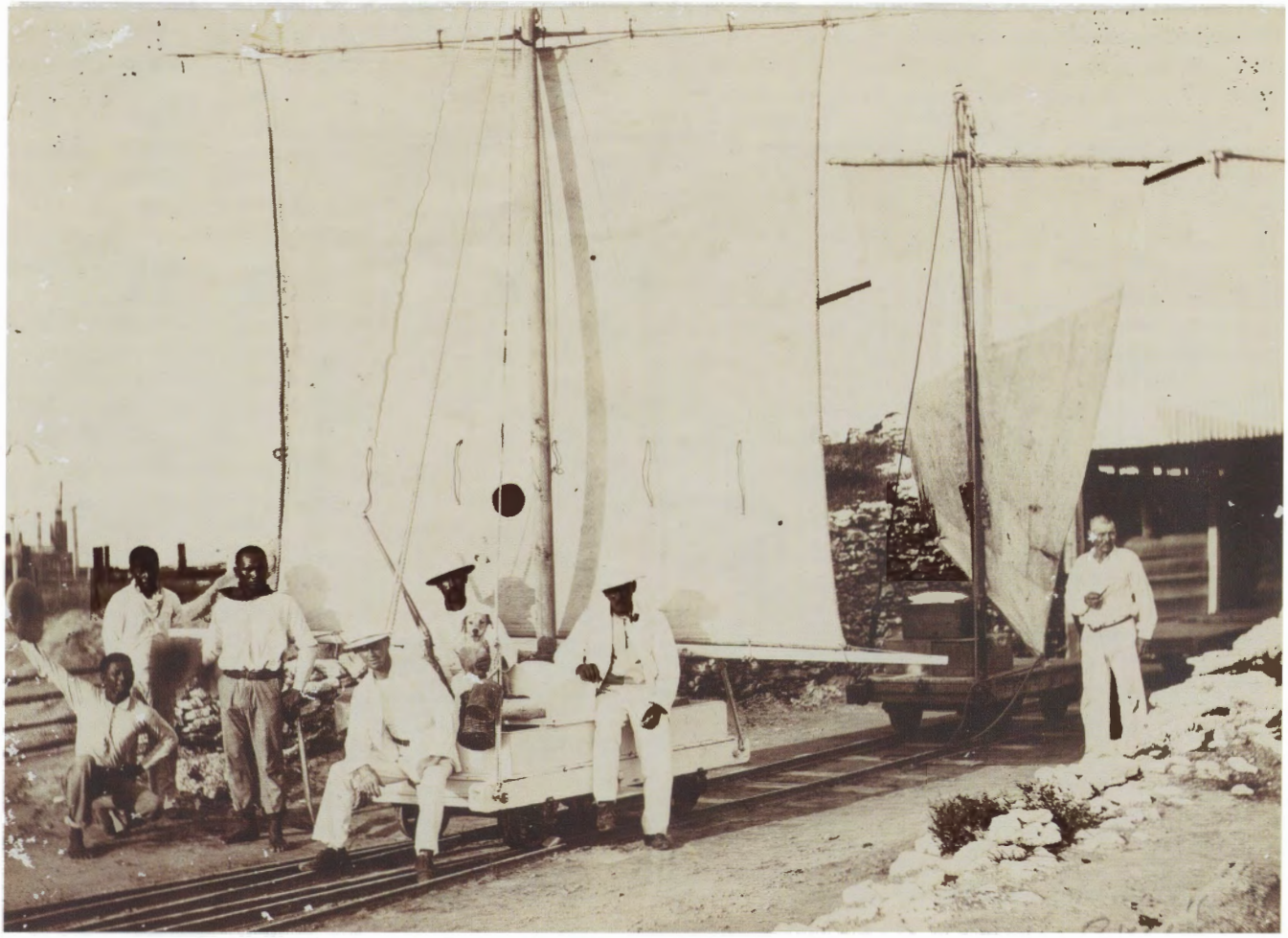
Photographs taken in the 1890s and later depict three different types of sail vehicles in use. Motive power on the guano trains was large, solidly constructed wagons with a mast about 22 feet high. They were square-rigged, with a single large sail attached at the top to a lifting yard which, using the halyards, could be raised or lowered on the mast - a mast ring facilitating this. The mast footgear is unclear; presumably a collar allowed the lower yard to revolve on the mast. The sail could be reefed if necessary to reduce the area of canvas exposed to the wind; unlike a conventional sailing ship, the reef points could be reached from the 'deck' of the truck so there was no need for the crew to climb aloft. Ropes attached to the four corners of the wagons provided some bracing for the mast; two of these were the 'falls' of the tackles used on the halyards that hauled the yard up the mast – these ropes also acting as backstays whilst the other two ropes may be forestays. There seems to be an absence of 'lifts' that are normally used to hold the upper yard horizontal and it appears that the downhauls, which run from the upper yard arm to the lower yard arm, serve this function. The rig is clearly designed to have the minimum amount of gear and to be easy to set up and dismantle and stow. With about 270 square feet of canvas, the large sail wagons, to avoid capsizing, would be loaded with bags of guano before raising the sail – the coupling together of a number of trucks into a train would also assist stability and seems to have been the usual method of operation.

'Small' sail trucks, with around 120 square feet of canvas and a mast about 16 feet high, were fitted with padded seats and used for personnel transport. In 1918, the barque *John Murray*

At the settlement, a three-truck guano train, including one of the large sail trucks, is about to be unloaded. Substantial storage sheds, seen in the background, were situated here in later years. The shed roofs no doubt provided the catchment for rain water and and may have rendered obsolete the condensers from the 1860s. The large flagstaff, invaluable to incoming vessels for sighting the island, is at the extreme right. Photographer: John McCullough, taken between 1891 to 1897. *Photo: Mitchell Library, State Library of NSW*



The jetty at Malden Island showing the A-frame construction, chained together to resist the occasional westerly gale. Three trolleys are having their sacks of guano transferred to a boat via a chute; they will then be rowed out to the three-masted barque lying offshore. The photo was taken by McCullough's son, John, who was on Malden from 1891 to 1897. *Photo: Mitchell Library, State Library of NSW*



At the settlement. Seven men and a dog pause for the camera with two of the smaller sail trucks; the nearest is fitted with padded seats. The rifle held by one of the Europeans may indicate the group has been goat or pig hunting. At the far right is the manager, Abraham McCullough. Photographer: John McCullough. Date: between 1891 to 1897. *Photo: Mitchell Library, State Library of NSW*

was wrecked on Malden Island and during their stay four of its hungry crew borrowed one of these small trucks and, with three pushing while one rode in luxury, headed for the East coast. It took them 2½ hours to reach the guano diggings and another half-hour to reach the bird rookeries at the very end of the line. Despite the close attentions of thousands of wheeling and screaming birds they collected hundreds of eggs before setting sail for 'home' to prepare their feast.[18] Ordinarily, as part of their twelve-month stay, the Kanakas, in relays no doubt, had to push all the sail trucks, large and small, on the six-mile upwind trek to the diggings. Thankfully the railway was virtually level throughout.

Smaller than the sail trucks was a three-wheeled single-seater 'Velocipede' hand-car of the type manufactured by the Sheffield Velocipede Car Co. of Three Rivers, Michigan, USA.[19] The velocipede's power was supplied by the driver via a hand-operated push-pull lever, supplemented by foot levers, geared to the rear wheel. On Malden, manual effort was only required to reach the diggings – the hand-car being modified by the addition of a small sail of about twelve square feet, so that one could effortlessly sail back home. At a squeeze, a second person could ride 'pillion' on the small rear tray.

Catalogue illustration of the Sheffield No. 1 Velocipede Hand-Car, c. 1885. Malden's was virtually identical, but of 2ft 6ins gauge.

Sail power was still supreme in 1904 when Malden Island was visited by writer Beatrice Grimshaw during her South Pacific travels.[20] Grimshaw noted that the 'natives' were paid 10s per week, or £25 for their year's labours. She continues – but ends with an ominous note:

From 5 a.m. to 5 p.m. are the hours of work, with an hour and three-quarters off for meals. There is nothing unpleasant about the work, as Malden Island guano is absolutely without odour, and apparently so dry and fine when taken from the pits that one wonders at the necessity for further sifting and drying. Occasionally, however, one of the workers develops a peculiar intestinal trouble which is said to be caused by the fine dust of the pits. It is nearly always fatal, by slow degrees.

Though Grimshaw says the guano is odourless, that was only whilst it was dry – several reports mention the stench of the guano when it became wet; at times during periods of prolonged rain it became almost unbearable.[21] By this time wind power had been used for almost forty years, surely the longest sustained use of 'sails on rails' anywhere in the world.

Malden Island guano

Guanos vary greatly in composition. That from Malden Island has a high percentage of phosphates and was well regarded as a fertilizer, being exported to many places including the Australasian colonies, Mauritius and Northern European countries. It found particular favour amongst farmers on New Zealand's South Island where in Otago and Southland it was found to give excellent results with turnip crops, so much so that for a time prizes were awarded at a local A & P society show for the best turnips grown with Malden Island guano![22]

Malden Island is not an idyllic tropical island, being low, flat and bare with brackish water, glaring white sand, merciless sun and a treacherous reef. The south-east trade wind is constant for most of the year – estimated at a steady 10 to 13 knots. Rainfall is most variable – virtually rainless for years followed by torrential downpours. It is thought the island did have some tree cover at one time. In 1825 the European discoverer of Malden, Capt the Rt Hon Lord Byron (George Anson Byron, cousin of the poet) on HMS *Blonde* reported that there were only scattered stands of trees.[23] Under the first guano diggers' occupation these suffered wholesale felling and soon disappeared.[24] Today the island is treeless with only some low shrubby bushes and grasses.

On Malden the locomotive would have obtained water from the condensers that initially supplied the settlement but fuel had to be imported – *The Age* report says it was to burn coke. Ships usually came to Malden 'in ballast' to load guano so there was plenty of room for a few tons of coke or coal; shipping records show that coal was regularly shipped to Malden, presumably for the condensers.

It has been said that during the first 30 years of guano extraction Malden was the richest and one of the most prosperous of the guano islands, exporting between 12,000 and 14,000 tons of guano annually in its peak years. It was certainly one of the longest-producing 'guano islands', not being finally abandoned until 1927, after more than 60 years of mining. Dixon's worry, voiced in 1867, that supplies of the best guano were limited appear to have been unfounded – it seems that the best guano was actually at some depth and not initially recognised until the overlying crust was broken through.

The Great War and closure

Details of the final years of guano extraction on Malden are somewhat unclear. In 1914 the then-current partners in Grice, Sumner & Co restructured their guano operations into a separate limited company; maybe the pending incorporation of Malden Island into the new British colony of Gilbert and Ellice Islands had something to do with it – a legal move as the original lease was set up with the Colonial Office in London acting via the Governor of Victoria.[6,25]

Be what may, a company called Malden Island Pty Ltd was registered on 7 June 1914 with Grice, Sumner & Co personnel as directors. Two years later they resolved to liquidate the new company – the Great War being the reason given[26]. No guano had been shipped since 1915, although *The Argus*, 18 July 1916, indicates another possible cause. In January 1915 the Norwegian barque *Fram* was wrecked at Malden and the shipping company launched legal action against Malden Island Pty Ltd citing deficient moorings as the cause of the wrecking. They won this, and an allied case in relation to failure to supply guano to the 'rescuing' vessel, and were awarded £5052.

Trade remained suspended until the war's end due to shipping restrictions and fear of German raiders. Guano mining continued on the island at a much reduced rate using a dozen or so Kanakas and a manager from Melbourne. By mid-1918 about 10,000

Screening guano at the diggings. Note in the background the masts of the train can be seen, with yards lowered and sails furled. Otago Witness, *Dunedin, 14 October 1908* *Photo: Alexander Turnbull Library, Wellington, NZ*

tons had been stockpiled when, as previously mentioned, the barque *John Murray*, whilst on a San Francisco to Melbourne voyage was wrecked on the island. John Moodie Heddle, an apprentice sailor, along with 27 other crew members, had to endure two-and-a-half months on Malden with dwindling supplies. Moodie Heddle later wrote of his enforced stay in *Seven in the Half-Deck*[18]:

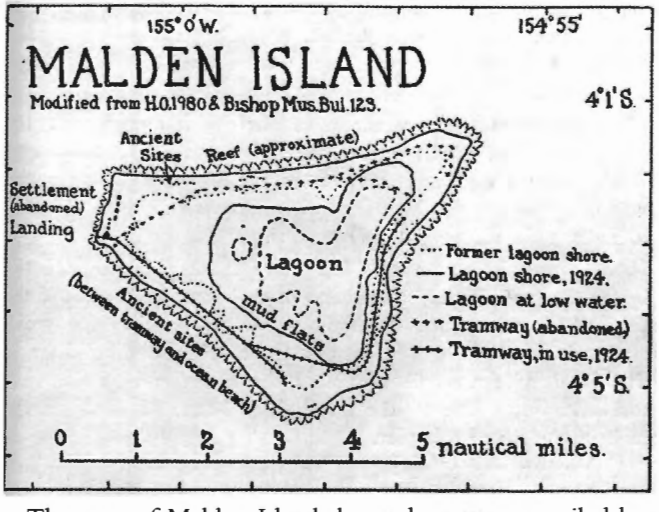
. . . at the guano diggings . . . the Kanakas labour at grubbing guano out from between the coral rock. They were working in wide pits about six or eight feet deep, in which stood coral heads every few feet. The work was not hard but was tedious, as the diggers had to dodge around the coral to get at the soft guano. They were using short-handled shovels and hand brooms. The guano was piled on trucks and wheeled to a storage shed not far away.

After drying and sieving, the guano was bagged in jute sacks. The labourers would camp at the diggings for the working week and only return to the settlement for the weekend, together with the week's output of bagged guano, on the 'large' sail trucks, marshalled into a train. At the settlement the bags were transferred to large storage sheds to await shipment. When a vessel came sacks would be placed on flat trucks and run out onto the jetty, slid into boats and rowed out to the waiting vessel. As the moderate strength south-east trade wind only blew for nine or ten months of each year it is thought that digging continued but guano transport stopped – the output being held in the sheds at the diggings.

Following the war, trade was revived and Malden Island Pty Ltd received a 21-year lease effective from 1 January 1922.[5] Was that a new Malden Island Pty Ltd under a new jurisdiction or the old one resuscitated? Richard Sumner Grice returned to the island (he had been there as manager during the war); the jetty and tramway received some repairs and shipments re-started but it was all in vain. Though there was still plenty of guano, times had changed; the 'phosphate islands' such as Nauru, Ocean (Banaba), Makatea and Angaur were in the ascendancy, with post-war costs rapidly increasing. Malden was a dangerous place at which to load, and 'down market' cargoes such as guano, long the preserve of old sailing vessels, were an anachronism. Guano extraction continued at a reduced rate with the final shipment leaving in 1926 on the German steamer *Gustav*. Its loading took place during tropical rain squalls and Captain Driver of the *Gustav* described the stench of the wet guano as appalling.[21] In August 1927 the island was abandoned leaving much of the infrastructure, tramways and machinery to the elements.[5,27]

Thirty years later, the British conducted atomic tests at 'nearby' Christmas Island (also spelt as Kiritimati - 675km distant) and high-level atmospheric tests were also conducted near Malden which was occupied by scientific observers for the tests. HMS *Messina* landed the first advance parties of engineers on 3 October 1956 and they discovered that,

. . . some of the relics of the 60 years' guano occupation were very well preserved. Light trucks on the disused mining railway could still be pushed easily along the rails, and a valuable stock of long-handled spades were put to good use by the Sappers. In the Manager's house, which was somewhat dilapidated, stacks of books and records of the old Company were found which underlined the extreme remoteness of the settlers.[5]



The map of Malden Island shown here was compiled by Edwin H Bryan, Jr and draws much from the situation as found by anthropologist Kenneth P Emory in 1924 during a detailed scientific survey of Pacific islands, undertaken on behalf of the prestigious Bishop Museum in Honolulu.## It shows

abandoned tramways along the north side of the island totalling almost seven miles' length – this was the line built in the late 1860s and where the 'sail' trucks, as depicted in *Engineering*, were utilised. The 'new' lines along the south coast, also of 2ft 6ins gauge, were probably built around the start of the 20th century.[28]

It is unclear why the southern lines were constructed, as a short extension of the north coast line would have reached the same area. Possibly the original northern track was becoming unusable and at some time the company decided to take the opportunity to build a new line which would be slightly shorter than the old line and tap new deposits near the extreme south-eastern corner of the island. [Google Maps, http://maps.google.com/maps, covers most of Malden to very high resolution and enables the online viewer to trace the tramways shown on Bryan's map.]

Readers will also note 'Ancient sites' on the map. These were first noted by Lieut Charles Malden (of HMS *Blonde*) in 1825, and are pre-European stone platforms believed to have been constructed by Polynesians at some time, proving that despite Malden's remoteness it had been discovered and occupied many hundreds of years ago when the island may have been more liveable with tree cover and potable water.

Should readers have further information regarding the railways of Malden Island or the Atlas Company of Engineers' locomotive both the editor and I would be glad to hear from you.

Notes

‡ 'Kanaka' is used in this article in a non-derogatory sense and with no relation to the name for Solomon Islanders coerced into labouring in Australian sugar-cane and banana plantations. All Kanakas who worked on Malden went of their own free will from various islands in the Cooks for a 6-month indenture.[16]

* William Adam Dixon FIC, FCS. Migrated to Australia from Scotland in the mid-1860's. He was on Malden from Oct 1866 to March 1869. Back in Sydney he established himself as an analytical chemist, assayer and consultant in his laboratory in Hunter Street. He became renowned as a teacher. He was a foundation director of the North Shore Gas Company in 1875, remaining until about 1912. In 1877 Dixon recalled his time on Malden with two talks to the Royal Society of N.S.W.

** The Atlas Company of Engineers should not to be confused with the Melbourne firm of Wright and Edwards which later became the Atlas Iron Works.

*** John Benn joined Grice, Sumner & Co in 1856, and soon became a senior partner. He was also active in gas companies in Melbourne and was chairman of the Metropolitan Gas Co from 1878 until 1895. A steam locomotive (Couillet B/n 861/1886) at the West Melbourne gasworks was named after him. Interestingly, the MGC chose a gauge of 2ft 6in – the same as Malden Island. Coincidence?

Early Steam on the 2ft 6ins gauge included: British War Dept. 1845; Fletcher, Solly & Urwick (Willenhall Furnaces, England) 1862; Gaekwar's State Railway (India) 1863; Cape Copper Co. Port Nolleth (Cape Colony) 1871; Peruvian Railway 1872; Antofagasta Nitrate & Railway Co 1872; Pentewan Railway (Cornwall) 1873.

The Bishop Museum was founded in 1889 and is the foremost natural and cultural institution in the Pacific with a huge collection of artifacts, documents and photographs relating to Hawaii particularly and the Pacific generally. www.bishopmuseum.org

Acknowledgements

My grateful thanks are extended to Peter Medlin who alerted me to, and supplied copy of, the locomotive reference in *The Age*; Colin Harvey who had the perspicacity to seek out, and supply *The Argus* report, and examined Malden Island guano records in the Public Records Office Victoria, carefully noting the relevant details; Prof Peter Harris, President of Tall Ships Victoria Inc for his valued explanations regarding the sails and rigging of Malden's rail sail vehicles; the helpful staff at the Alexander Turnbull Library, Wellington and the Mitchell Library, Sydney; and John C Orr, author of *A Far and Stranger Shore*, the fascinating story of Abraham McCullough, the long-serving manager on Malden Island. John's diligence and tenacity over many years of searching for records and photographs have added immensely to this article; which would be much the poorer without his input and comment.

References

1. *Journal of the American Geographical Society of New York* Vol. 1, No. 6, June 1859 *Department of Statistics - Statistics of Guano.* By R.S.F pp181-189 New York 1859
2. *Britain and Latin America: A Changing Relationship*, V. Bulmer-Thomas, Royal Institute of International Affairs, (Cambridge Univ Press 1989)
3. *A Far and Stranger Shore*; John C. Orr, (KOA Productions, 1997)
4. *Parliamentary Papers, Commercial Reports (1866-67)*, House of Commons, Great Britain, (HMSO, Lon-don, 1867)
5. www.christmas-island.3l1t3.net/ - Operation Grapple
6. PROV - VPRS 1095 Governor of Victoria – Special Files, Consignment P0, Unit 14, Bundle12, No. 4 – Guano 1866-1872
7. *The Victoria Post Office Directory*, 1866 [full text online version at books.google.com/books]
8. www.adb.online.anu.edu.au/biogs/A040339b.htm
9. *Daily Southern Cross*, Auckland, 21 August 1867 Shipping News
10. www.nmm.ac.uk/collections/
11. www.members.westnet.com.au/caladenia/index.html
12. members.ozemail.com.au/~scotlandfam/CAPORN/i0004861.htm
13. home.vicnet.net.au/~maav/blackbird.htm
14. *The Argus*; 3 March 1871, Shipping News – sailings
15. *Two years adrift : the story of a rolling stone.* G.Earnest. (A.M.Robinson, Brighton, England, nd. c1878) First published in the Brighton Guardian.
16. *The Cook Islands, 1820-1950*, Richard Gilson, (Victoria University Press/USP Suva., 1980)
17. *Otago Witness*, Dunedin, 28 November 1889
18. *Seven in the Half-Deck*, J.Moodie Heddle (Longmans, Melbourne, 1949)
19. Sheffield Velocipedes www.midcontinent.org/rollingstock/builders and patent RE10303 at www.google.com/patents
20. *In the Strange South Seas*; Beatrice Grimshaw (Hutchinson & Co. London, 1908) www.archive.org/details/instrangesouthse00grimiala
21. John C. Orr - pers comment
22. *Otago Witness*, 10 July 1907
23. *Voyage of H. M. S. Blonde to the Sandwich Islands, in the Years 1824-1825*; Captain The Right Hon Lord Byron. (John Murray, London, 1826)
24. www.iwmi.cgiar.org/wetlands/
25. www.lib.unimelb.edu.au/collections/archives/
26. PROV - VPRS 932/P0, Unit 301, File 5678
27. www.lib.unimelb.edu.au/collections/archives/
28. *American Polynesia - Coral Islands of the Central Pacific* (Edwin H. Bryan, Jr., Tongg Publishing Co. Honolulu, Hawaii, 1941) Online version at http://www.pacificislandsinfo.com/

Also consulted:

Reports of Committees of the House of Representatives, Report No. 347 Trade between the United States and the Re-public of Peru, Washington, DC, 1854

Hunt's Merchants' Magazine and Commercial Review Vol 49 Freeman Hunt & Thomas P Kettell. New York 1859

American Journal of Science and Arts, Article XX *On Phosphatic Guano Islands of the Pacific Ocean*; by J. D. Hague Vol. XXXIV. No. 101. Sept, 1862

A Directory for the Navigation of the Pacific Ocean etc. Vol. 2 The Islands etc. Alexander G. Findlay. (R.H. Laurie, London 1851)

On the stowage of ships and their cargoes By Robert White Stevens. (Stevens, Plymouth; Longmans, London 1858)

Imagining Development: Economic Ideas in Peru's "Fictitious Prosperity" of Guano, 1840-1880. Paul Gootenberg (University of California Press, Berkeley 1993)

From an American perspective the populist work is *The Great Guano Rush: Entrepreneurs and American Overseas Expansion* by Jimmy M. Skaggs, (Palgrave Macmillan 1994)

For an internet site devoted to wind and sail-powered trolleys see:: www.mike.munro.cwc.net/ng_rly/sailtruc/sailtruc.htm

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NEW SOUTH WALES

HELENSBURGH COAL PTY LTD, Metropolitan Colliery
(see LRN 6 p.4)
1067mm gauge
This former AI&S colliery, which has 1067mm gauge rail underground, is presently owned by Peabody Pacific and proposals have been made to develop further mining areas to extend its life by approximately 23 years. As indicated (above right) a diesel locomotive is currently under overhaul by Ontrak Engineering.
Helensburgh Coal Pty Ltd; Steve Lewry 12/08

SHOALHAVEN STARCHES PTY LTD, Bomaderry
(see LR 202 p.16)
1435 mm gauge
Goninan Bo-Bo DE D2 (024 of 1967) was noted shunting at Manildra's Bomaderry plant on 19 December still with its Blue Circle paint scheme and markings.
Neville Conder 12/08

QUEENSLAND

BUNDABERG SUGAR LTD, Millaquin Mill
(see LR 203 p.18)
610mm gauge
The new River Line from Millaquin Mill to the Burnett River ferry at Strathdee's was in operation from around mid-October.
Lincoln Driver 11/08

BUNDABERG SUGAR LTD, Innisfail District
(see LR 204 p.17)
610mm gauge
On 12 December, Bundaberg Sugar announced the completion of the new link to the South Johnstone network from the old Mourilyan Mill area. Costing $13 million, the project includes 12 kilometres of new lines and two bridges including the 192-metre long concrete Basilisk Bridge which carries the line 16 metres above the South Johnstone River. Three old bridges will be made redundant. The new line reduces cane haulage distances and will divert 4900 trains each season from South Johnstone's main street.
ABC Rural News 16/12/08; *Innisfail Advocate* 16/12/08 via David Mewes

CSR SUGAR (HERBERT) PTY LTD, Herbert River Mills
(see LR 204 p.18)
610mm gauge
A deviation at McKell's Depot on **Victoria** Mill's Abergowrie line will be put in during the slack season. It will extend from the depot to about the cane inspectors' houses where it will cross the road and rejoin the existing line to Abergowrie near Quagliotto's. This change will eliminate level crossing and shunting problems at the depot and enable the removal of Springer's bridge although it will mean a slightly steeper grade.
Alterations in the Victoria Mill yard will see a new Half Acre 5 line added, and Cartwright's Loop will be extended towards the full yard and will possibly continue along beside Half Acre 1. The missing leg of the full yard triangle will also be installed. It is understood that the short full lines 8, 9 and 10 will be removed.
On 8 November, the molasses storage tank at **Macknade** Mill ruptured and the sticky substance inundated the truckshop and parts of the sugar line and the empty yard lines.
Experiments around the joining of two existing

Cane bins are piggy-backed on semi-trailers between the Bingera and Millaquin systems across the Burnett River at Fairymead using this ferry. 6 November 2008. *Photo: John Kramer*

LOCOMOTIVE, ROLLING STOCK & EQUIPMENT MANUFACTURERS

ONTRAK ENGINEERING PTY LTD, Maraylya, NSW
(see LR 202 p.16)
Clyde Engineering 610mm gauge 0-6-0DH 59-202 of 1959 (ex Proserpine Mill number 4) has been rebuilt for the Fiji Sugar Corporation. It has been fitted with a 290hp Mercedes-Benz OM926LA engine, and a Niigata DBSG100 torque converter removed from a redundant underground mining locomotive. The locomotive has received restyled bodywork and cab. The underframe, steps and running gear are painted black, the headstocks are red and black dazzle stripes, and the bodywork is orange below waist level and light grey above. The name *Howie* has been painted above the radiator grille. Shipment was due to take place on 20 December. Similar locomotive 56-91 of 1956 (ex Proserpine Mill number 2) is receiving the same treatment, with work 70% complete by mid December and shipment to Fiji scheduled by the end of January.
The three Fiji Sugar Corporation 0-6-0DH locomotives currently being refurbished at Ontrak, Lautoka 3 (Clyde 57-173 of 1958), Lautoka 8 (63-290 of 1963) and Labasa 13 (EM Baldwin 9442.1 4.81 of 1981) all require extensive gearbox and side rod work as well as new tyres and major axle box repairs. It is planned to have them ready for return to Fiji by the start of the 2009 crushing season.
Hexham 4wDH 1067mm gauge 25-tonne mining locomotive 657 of 1985/6 is currently being rebuilt for the Metropolitan Colliery of Helensburgh Coal Pty Ltd and will be numbered D5.
The sole EM Baldwin B-B DH mining locomotive, 1067mm gauge 7744.1 9.78 of 1978, built for Corrimal Colliery, was acquired from Zig Zag Railway Co-operative and dismantled. Its four final drives are being refurbished and modified for fitting to Inkerman Mill's 610mm gauge B-B DH *IONA* (4498.1 7.72 of 1972).
John Garaty 12/08; Steve Lewry 12/08

Top: *Clyde Engineering 0-6-0DH 59-202 of 1959 (ex Proserpine Mill number 4) as rebuilt by Ontrak Engineering awaits shipment to the Fiji Sugar Corporation at the Ontrak facility at Maraylya. Photo: Ontrak Engineering Pty Ltd* ***Centre:*** *Millaquin Mill's EM Baldwin B-B DH* FAIRYDALE *(10048.1 6.82 of 1982) approaches the mill yard as it hauls a loaded train across the causeway bridge on the newly-completed River Line on 16 November 2008. Photo: Lincoln Driver* ***Above:*** *Babinda Mill's Com-Eng 0-6-0DH twin units 1* JOSEPHINE *(A1821 of 1957) and* RUSSELL *(A2027 of 1958) cross the Alice River at Eugenangee light engine as they head back towards Goondi depot on 28 September 2008. Photo: Shane Yore*

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4-tonne bins have continued. Two new versions have been noted with lengths of flat steel used for strengthening rather than the tie rods used previously.

Just after 11pm on 29 November, a train hauled by Victoria Mill's Walkers B-B DH *HERBERT II* (612 of 1969 rebuilt Walkers 1993) collided with a B-double truck which failed to give way at the Bruce Highway (Herbert Street) level crossing, which is equipped with flashing lights. The locomotive left the track as it was turned 90 degrees and ended up wedged up against a shop front awning. It was reported that the truck driver was unaware of the collision.

Chris Hart 11/08, 12/08; Steven Allan 11/08

CSR SUGAR (KALAMIA) PTY LTD

(see LR 204 p.18)

610mm and 1067mm gauge

The 1067mm gauge ex-Aramac Tramway Walkers 0-6-0DH (583 of 1968) was transferred from Pioneer Mill to Kalamia Mill in the early part of 2008 and is now used to shunt 1067mm gauge stock between Kalamia Siding at Ayr and the mill. It was noted at Ayr shunting molasses wagons on 9 November.

Carl Millington 11/08; Jason Lee 12/08

ISIS CENTRAL SUGAR MILL CO LTD

(see LR 203 p.19)

610mm gauge

The connection between Mittelheuser's Branch and the Gregory line has been severed. The branch line was about one kilometre in length and only served one siding. It was difficult to work.

It appears that all the Walkers B-B DH locomotives have now been fitted with Caterpillar 3412 engines.

Carl Millington 11/08

MACKAY SUGAR LTD

(see LR 204 p.19)

610mm gauge

With the closure of **Pleystowe** Mill, a triangle is expected to be installed at Dews Junction to facilitate working towards **Farleigh**. The most challenging aspect of working cane from the Pleystowe area to Farleigh is Church Hill, with a grade of 1 in 26 against the load. Late in October, trials were conducted using various combinations of up to four locomotives to try to ascertain the best approach for shuttling cane up the hill.

It is anticipated that no cane haulage locomotive will be stationed at Farleigh Mill's Calen depot in 2009. Farleigh's Eimeo line is expected to be cut back further to sidings 6 and 7 due to urban encroachment.

At **Racecourse** Mill, the 5-ton Baldwin 4wDH (5/774 2.64 of 1964) has been repainted in the new yellow and red livery.

It appears that most of the **Marian** and Farleigh mill 4-tonne bin fleets have been gathered in the sidings near North Eton depot. A large pile of 4-tonne bins is mounting at the depot. This

suggests the elimination of the 4-tonne fleet, leaving only 5-tonne, 6-tonne and 15-tonne bins in service.

In November the slack season resleepering and rerailing program was in progress at various locations including between Mt Jukes Junction and Hampden 7 at Kuttabul on the Marian network. The bridge gang did some work at Wise's Bridge on the Hampden line in mid-November and because of the track works, Com-Eng 0-6-0DH *SEPTIMUS* (A2128 of 1958) and the bridge gang train were moved by road to Cowell's loop along with Plasser ballast regulator BREG3 (431 of 1997).

Andy Roberts 11/08; Carl Millington 11/08

PIONEER SUGAR MILLS PTY LTD, Pioneer Mill

(see LR 202 p.19)

1067mm gauge

The ex-Mount Isa Mines Walkers B-B DH 682 of 1972 has been commissioned for use at Pioneer Mill. It was noted in early December shunting at the New Farm siding near the BSES road crossing. The locomotive has been used as a replacement when other diesels are being serviced. It has been given a very rudimentary coat of yellow paint and is expected to be named during the coming maintenance season. It still retains its larger couplings and air hose connections, presumably for hauling molasses wagons to and from the mill following the transfer of Walkers 0-6-0DH 583 of 1968 to Kalamia Mill.

Jason Lee 12/08

TULLY SUGAR LTD

(see LR 204 p.20)

610mm gauge

Tully Sugar is to appeal to the Planning and Environment Court in Brisbane against a local government decision to approve forestry plantation on some 1000 hectares of former cane land, the majority of it prime agricultural holdings. The company claims that its viability is threatened by the loss of cane land to managed investment teak plantations and that the plantations provide little benefit to the local community.

ABC News 21/11/2008; *North Queensland Register* 27/11/2008

SOUTH AUSTRALIA

ONESTEEL LTD, Whyalla

(see LR 202 p.20)

1067mm & 1435mm gauge

In November 2008 Gennesee & Wyoming Goodwin Co-Co DE 901 (G-6016-03 of 1969) was noted on narrow gauge iron ore haulage duties paired with Clyde Bo-Bo DE1302 (56-116 of 1956 rebuilt MKA 1975). In addition, Goodwin Co-Co DE 848 (G-6016-02 of 1969) was working as standard gauge hot metal shunter.

David Donald 11/08

Top: *Mackay Sugar's Com-Eng 0-6-0DH* SEPTIMUS *(A2128 of 1958) and the bridge gang train at Cowell's loop on Marian Mill's Hampden line on 25 November 2008. Photo: Carl Millington* ***Centre:*** *Tully Mill's Walkers B-B DH* TULLY-8 *(606 of 1969 rebuilt Bundaberg Foundry 2004) departs the mill yard with empty bins on 31 October 2008. Photo: Scott Jesser* ***Above:*** *At the Bogong headrace access tunnel Ray Graf and a McConnell Dowell employee discuss F&M Baldwin 4wDH No.1 (FMB8T294 of 1994), recently fitted with rail washing equipment, on 16 November 2008. Photo: Phil Rickard*

VICTORIA

McCONNELL-DOWELL CONSTRUCTORS, Bogong Hydro-Electric Scheme

(see LR 201 p.21)

762mm gauge

As part of the LRRSA weekend tour to north-east Victoria (see separate tour report), the afternoon of Sunday 16 November saw the group in the upper Kiewa valley to visit the two sites where tunnelling work has been proceeding. The lower site (see photo in LR 201), on the banks of Lake Guy, was found to be devoid of all rail infrastructure. Enquiry revealed that following completion of excavation of the kilometre-long high pressure tunnel, the construction tramway was removed in August to enable the tunnel floor to be concreted. Rails will then be re-laid and will be utilised by trains installing the steel lining segments in this tunnel. The new rail installation will require a very high degree of precision – unobtainable with a 'normal' construction tramway. The only rail seen was a short length protruding from the workshop. Potential visitors should note that the well-appointed viewing platform is now useless for watching the tunnel as the new power station building blocks the view. However, the site is visible after a walk down the road.

A short distance away, but at a much higher elevation, a visit was made to the upper site where the TBM was launched into the hillside on its six-kilometre journey boring the headrace tunnel. In the yard were four locomotives, two of them being the locos that were seen in March 2008 at the lower tunnel.

F&M Baldwin 4wDH No.1 (FMB8T294 of 1994) was on personnel haulage duties. This unit has been regauged from 610mm gauge and is believed to be the same one that was delivered to McConnell Dowell for a sewerage tunnel job in the Blue Mountains numbered DL1. (A similar loco on the same job was numbered DL2. The two locomotives were rebuilt by Ontrak Engineering in 2004 when they were ballasted up to 11 tonnes, apparently for use on a project in Singapore.)

F&M Baldwin 4wDH hydrostatic rack locomotive (FMB12TRA-295 of 1995) was noted under repair. This has also been regauged from 610mm gauge and carries the number 040/156. It appears to be used in adhesion mode only at Bogong.

The Plymouth 4wDH has faded Mining Equipment Inc logos and a Plymouth builder's plate reading 'DHMD24' '15500/6952' 'Approved 24/206'. It is a 24-tonne locomotive and is possibly builder's number 6952. It carries the Mining Equipment plant number ME5065 but also has a welded number PN040/292 suggesting that it now belongs to McConnell Dowell.

The Clayton 4wDH locomotive is numbered PN040/158. It seems very likely that it is B1864E of 1979, which was used with the F&M Baldwin locomotives in the Blue Mountains in 1995.

According to staff, a great deal of trouble has been caused in the headrace tunnel with dirt and muck on the rails. Subsequent to a locomotive getting out of control on the 4% grade and sliding along for a kilometre or so, it was decided to fit water tanks and rail-washing jets between the wheels on No.1. This seems to have solved the problem and the other locos may be similarly fitted. Interestingly, the grade in the headrace tunnel was originally to be 3% but was changed late in the design stage. The rock being encountered is said to be six times the hardness of concrete!

Other equipment seen in the yard and on a siding a hundred metres inside the tunnel included the torpedo-shaped concrete wagons and Atlas Copco drill previously seen at the lower site in March, a couple of personnel carriers, and various other underground mining trucks and flats. There was no sign of the Hägglund shuttle cars that were previously at the lower site – all rock removal at the upper site is done by conveyor.

Another visit on 2 December revealed that the Plymouth loco was back at the lower site, off rails. No laid track was in evidence here but a large stack of rail, steel sleepers and pandrol clips was clearly being utilised. Whilst watching, a set of points arrived from the upper site on the back of a truck and was unloaded near the tunnel. Track laying in the yard would seem to be imminent and was presumably underway in the tunnel.

Hopefully LR readers in the north-east will be able to supply updated reports over the next few months.

Phil Rickard 12/08

Top: *McConnell Dowell's F&M Baldwin 4wDH hydrostatic rack locomotive 040/156 (FMB12TRA-295 of 1995) stopped for repairs at the Bogong headrace access tunnel on 16 November 2008.* ***Above:*** *Lined up at AGL Hydro's Bogong Creek raceway depot on 16 November 2008 are Ruston & Hornsby 4wDM 296070 of 1950, Motor Rail 4wDM 7366 of 1939, and the 1980s vintage Maximove 4wBER. Photos: Phil Rickard*

AGL HYDRO PARTNERSHIP, Bogong Creek

(see LR 193 p.21)

915mm gauge

The motive power equipment situation has not changed in recent years. Ruston & Hornsby 4wDM 296070 of 1950, Motor Rail 4wDM 7366 of 1939, and the 1980s vintage Maximove 4wBER were all in operational condition on the occasion of the LRRSA visit on 16 November. The ex-Rubicon Tramway 4wBER *The Jeep* of around 1946 is still off the rails and out in the weather.

Phil Rickard 12/08

Industrial Railway NEWS

WESTERN AUSTRALIA

BHP BILLITON IRON ORE PTY LTD

(see LR 203 p.21)
1435mm gauge
The latest batch of GM EMD Canada Model SD70ACe Co-Co DE locomotives was scheduled to arrive in Port Hedland on 8 January 2009.
Brett Geraghty 12/08

THE PILBARA INFRASTRUCTURE PTY LTD

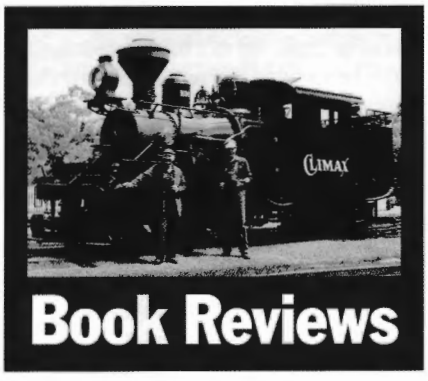
(see LR 203 p.21)
1435mm gauge
Fortescue Metals Group have suspended construction work on the new 44km rail link from the Cloudbreak Mine to the Christmas Creek project, which was part of a plan to lift annual ore production to 100m tonnes. The contract to build the formation of the new line was being undertaken by NRW Holdings and was nearly half completed when the work was halted for a period expected to be at least six months.
West Australian 26/11/08

FIJI

FIJI SUGAR CORPORATION

(see LR 204 p.22)
610mm gauge
The leases on the land over which the railway line from Nadi to Sigatoka runs are believed due to expire by the end of 2009, making negotiations with landowners to renew the leases a high priority.
Meanwhile, funding in 2009 for the sugar industry from the European Union remains in serious doubt as a result of the failure of the interim government to hold democratic elections.
Fiji Broadcasting Corporation 27/11/08; *Fiji Times* Online 3/12/08

After a number of years out of commission, Fiji Sugar Commission's Teidamu Creek bridge north of Lautoka was at last returned to use during 2008 with the construction of a new pier. Here Lautoka Mill's Clyde 0-6-0DH 13 (65-449 of 1965) heads back towards the mill on 23 July with a rake of fulls. Note the 10-ton cane trucks included in the load. *Photo: Scott Jesser*



Book Reviews

Copper at the 'Curry

by Norman Houghton

Published by the author, Geelong 2008. 148 pp, A4, laminated card cover. 163 b&w photos, 40 maps and plan blocks (some blocks have multiple dwgs) and seven tables. RRP $34.95 (Society members - see Sales List for discount).

Like many rail enthusiasts I have gazed at the map of western Queensland and pondered the network of railway lines radiating from Cloncurry. Apart from the long and tenuous-looking line leading eastwards to Hughenden and Townsville, the 'Curry seemed to be the centre of an isolated railway system. What forces had been at work to create this railway network in the back-of-beyond?
In this ground-breaking work, Colac-born author Norman Houghton has 'strayed' a long way from his usual stamping ground of Victoria's Western District and the Otways. Moving north to Brisbane four years ago on assignment as an archivist for QR, Norm had access to container loads of files, sent in for sorting. Always with his eye out for an interesting story, Norm had his interest sparked by the story of the Cloncurry copper boom of early last century. From a railway perspective very little had previously been published; this interesting book, coinciding with the centenary of the official arrival of the railway in Cloncurry, sets that to right.
Copper was first discovered near Cloncurry in 1867, to be followed by even larger discoveries in the 1880s, but the tyranny of distance retarded development. When the copper price was up, high-grade ore was taken out by animal power via Normanton and the Gulf. But pressure for a railway was growing, not only from the copper miners but also from the developing pastoral industry. The obvious route was from Normanton to Cloncurry and the first section of this was duly authorised and partly constructed. But it wasn't to be . . . gold was found at Croydon and the line was 'deviated'.
Following a brief introduction (that includes some very useful notes on terminology and differences between QR and southern railway practice), the role of Cloncurry as the district centre and railway pivot is discussed, followed by chapters on each of the lines involved (the later Mt Isa branch is not covered, falling outside the scope of the book). The Selwyn line, which included the great copper areas of Hampden and Mt Elliott, the Dajarra Extension line and the Trekelano tramway, the Ballara line and its tramway to the Wee Macgregor mine, the Mount Cuthbert line and branches to Dobbyn and Orphan.
After ten years of steady growth following the railway's arrival, 1917 saw a boom as copper demand from the Great War peaked. From the early 1920s the mines' output slumped and the lines went into a long and gradual decline only partly ameliorated by the pastoral trade. Full descriptions of each line together with all stations and sidings and their loadings are covered plus a potted history of the copper companies behind them. Every station and siding has a well drawn diagram to help elaborate on the text.
A good selection of photos are included and although 'pure' railway photos are few, the copper mines, both in their heyday and the remains today are well represented. Photographic reproduction is excellent – seemingly done by a desktop photocopy process without screening; indeed, four or five of the historic photos could have been reproduced to a larger scale to great effect. That aside, and despite the lack of an index, my only real 'beef' is the lack of detailed maps for each line; though a diagrammatic locality plan is included I found it necessary to consult an atlas to help me understand the topography and find some of the stations and places mentioned in the text.
If one is seeking details of the early attempts at building a line from Normanton to Cloncurry you may wish to consult Knowles' *Lonely Rails in the Gulf Country*, or for a general introduction to the mines of the area see the first six chapters of Blainey's *Mines in the Spinifex*. The strength of *Copper at the 'Curry* is that it concentrates on the early copper railways radiating from Cloncurry; that is its strongpoint and the author is to be congratulated on wading through mountains of dirty dusty files to bring their story to life.
I suspect most of us will never get to Cloncurry, and even if we do, are unlikely to have the time to visit all the interesting (and remote) sites and relics that remain there. This book should help fill that void. Highly recommended.

Phil Rickard

Shays, Crabs and Phosphate

A history of the railways of Christmas Island, Indian Ocean

by David Jehan

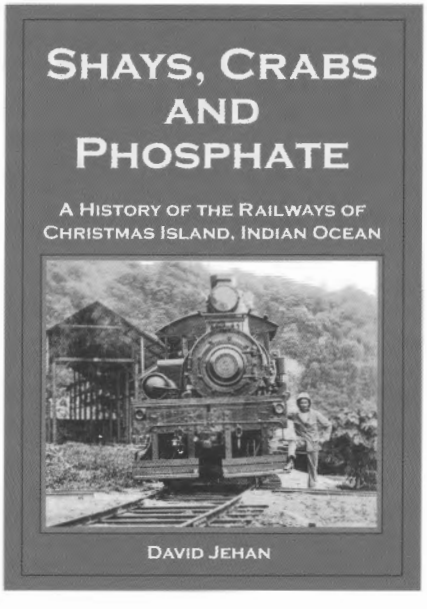
Published by LRRSA. 140 pages, A4 size, 167 photographs, 14 maps and diagrams, bibliography and index. $33.00 ($24.75 to LRRSA members) plus postage.

Australians railway enthusiasts are likely to be aware of the railway systems on the Pacific Ocean islands (at least those under British influence) of Fiji, Nauru and Ocean Island. All these enjoyed the use of steam-worked 2ft gauge railways and, in respect of Fiji, a commonality with similar sugar industry operations in Australia, of locomotives and ownership. The Nauru and Ocean Island lines were part of the process of mining the phosphate reserves on each island. Fewer enthusiasts, perhaps, are so aware of the very different railway operation that once served similar mining operations on Christmas Island in the Indian Ocean, with its use of a standard gauge 'main line' railway (initially steam-powered), fed by 2ft gauge lines from the quarries, worked exclusively with internal combustion locomotives. Should a link with Australia be needed, the final two standard gauge locomotives, Bo-BoDEs, arrived second-hand in 1975 from the NSWGR, but since 1958 a stronger link has existed, for at that time the island became a non-self governing External Territory of Australia, with full voting rights for its citizens in federal elections through the northern Territory electorate of Lingiari.

10 degrees south of the Equator, Christmas Island is only some 230 miles from Java, but 880 miles from Northwest Cape, the nearest part of Australia. Discovered on Christmas Day 1643, it is the top of a volcanic mountain and at its extremities, is approximately 11 miles by 10 miles (east-west/north-south). Exploitation of the huge phosphate deposits (for use as fertiliser) by the Christmas Island Phosphate Co. commenced in 1896 using indented Chinese labour. These primitive operations used 2ft gauge tramways with gravity inclines down to the shipping point at Flying Fish Cove at the north end of the island. Although World War I resulted in a down-turn in output, the CIPCo. revolutionised its operations by building an 11-mile standard gauge railway north-south along the island, with attendant 2ft gauge lines to the quarries, which put it in good stead with the return to normality after the war. A huge incline to the loading point and modern facilities for loading ships were all part of this modernisation. The Japanese occupation from 1942 to 1945 saw only neglect, for bombing and sabotage denied them any production. Post war recovery resulted in the introduction of North American-built diesel electric locomotives on the standard gauge (although two German diesels had arrived just before World War II) and the elimination of steam. In 1948 the CIPCo. was sold jointly to the Australian and New Zealand Governments, giving a lease to the Christmas Island Phosphate Commission which appointed the British Phosphate Commissioners (already managing operations on Nauru, Ocean Island and Makatea) as managing agent. Development and extension of the rail system continued, but the 'colonial' style of management led to industrial unrest, such that the operation was taken over by the Australian Government owned Phosphate Mining Company of Christmas Island in 1981. However, Australian Government environmental policies with regard to the protection of Australia's rain forests denied the Company access to new phosphate reserves with the result that it went into voluntary liquidation in November 1987. The railway was closed and scrapped, but local inhabitants have been allowed to mine old left-over stockpiles.

This is the bare bones of the story, but David Jehan's excellent book provides in a readable form a well researched and detailed history of the island, its people, the mining operations and the railways. One that he admits was intended to be an article, but its complexity necessitated a whole book! The National Archives of Australia holds a comprehensive collection of photographs of Christmas Island which, with those from other sources, has enabled the book to be profusely illustrated with over 170 well reproduced photographs (8 in colour). These are complemented by 13 beautifully drawn maps, diagrams and locomotive drawings. Chapters include a history of the island, the phosphate industry, development, a railway to South Point, major expansion, locomotives, rolling stock and railcars, operations, railway maintenance and closure of the railway, together with five appendices relating to standard and narrow gauge locomotive and phosphate production.

The standard gauge locomotive fleet initially consisted of a 0-6-0STOC and a 4w+4w+4wTG Shay, both built by Lima in 1913 and 1914, respectively. By 1925 there were three Shays and two 0-6-0STocs in use but, to speed up main line operations, in 1931 a 0-8-0oc was purchased from Peckett (the firm's largest locomotive).



Book Reviews

Although the railway was constructed with the rails bolted to sleepers made from rolled steel joists (possibly a unique feature), the gauge was apparently widened to 4ft 9ins to accommodate the long wheelbase of the Peckett and only reverted to true standard gauge during reconstruction in the late 1960s. How this was done is not explained. The final steam locomotive was a very British 0-4-0STOC, built in 1938 by Robert Stephenson & Hawthorns to a standard design. It was acquired second-hand from the British Admiralty's Singapore Dockyard in 1949.

As already mentioned, two German standard gauge diesels were acquired in 1938 and 1939, respectively. Both were built by Orenstein & Koppel, the former a 0-6-0DM with a low floor cab (for ease of shunting) and the latter a 0-6-0DH of a design similar to that used by the Wehrmacht. O&K had already provided many reliable narrow gauge i.c. locomotives to the Company since c1912. Post war dieselisation saw the introduction Bo-BoDEs: three from Whitcomb, USA in 1946, followed by two from Canadian Locomotive Co. in 1957, with a third in 1966. The final two were those bought second-hand in 1975 from the NSWGR (7920 and 7923), built by General Electric in 1943 to the order of the US Army Transportation Corps. Over the years from 1922 a fleet of inspection and passenger railcars, supplied by Wickham and Drewry, was built up. School trains, consisting of five Wickham cars (each with four compartments and central door locking) were operated; quite possibly another feature unique to the railway.

Although not as well documented officially as the standard gauge locomotives, the fleet of 2ft gauge i.c. locomotives is covered in detail in both text and photographs. 23 locomotives are identified, of which 15 were built by O&K, five by Hunslet and one each by Hudson, Baguley and Wickham. There is some doubt as to whether two of the O&Ks of 1939 and three of the Hunslets of 1941 actually reached Christmas Island.

The book gives equally detailed information on the operation of the railway and extensions to it over the years as well as on locomotive and track maintenance. Its description, recollections and photographs of the 'colonial' lifestyle of the 'management' present an interesting contrast with those relating to the workers, but together they form a fascinating insight into an industrial process carried on in an extremely remote location and one can but marvel at the how this was achieved. And the crabs in the title? The island is host to a wide variety of crab species, but the most prolific is the red crab which migrates in large numbers (and thereby caused some operating problems to the railway). The other crab of note is the robber crab, growing up to a foot across and prone to taking and hoarding anything, edible or not, and quite capable of breaking into a meat safe!

The book is thoroughly recommended.

Richard Horne

LETTERS

Dear Sir,

PFA's Darling Harbour car float (LR 203)

In my letter on the PFA's Darling Harbour car float, published in LR No. 203, an alteration in one word as printed has made nonsense of one sentence.

In the second paragraph as printed, '...with the width of the dock being twenty four feet, it is unlikely that both vessels could enter the dock still lashed together.', 'unlikely' is incorrect and should be replaced by 'likely'.

Bill Pearce
Kensington, Victoria

Dear Sir,

Deutz locomotives at Queenstown (LR 201 & 202)

Questions were raised about the intended use of these three locomotives at the Mt. Lyell copper mine at Queenstown, Tasmania. On a recent visit to the town the writer met Mr Doug Brookes, who was employed as a diamond driller there. He stated that the locomotives were intended to run on the old Comstock Tramway hauling diamond drilling equipment on flatcars to a drill site near the Comstock ore body.

The diesel engine in the Deutz locomotives was started by a cartridge firing procedure but this proved very troublesome and recourse was made to pulling a loco along the yard trackage by the company's Landrover in an effort to get it started. The locomotive experiment was a total failure and they were disposed of. At a later date the Comstock Tramway embankment near the works was washed away and a road was then bulldozed through to the drill site.

Ross Mainwaring
St Ives, NSW

Dear Sir

Electric locomotives at Mount Morgan (LR 99)

Further to the article by David Mewes in LR 99, January 1988, when I visited the mine in August 1957, I saw or was informed:

• No. 1, 10 tonner, had been converted to 3 ft 6 ins gauge by moving the frames out and fitting wider transverse pieces and longer axles, but displayed no number. It was used on the slag tip.

• Nos 2 and 3, 10 tonners, were seen stored on the 2 ft 2 ins gauge, but were to be converted to 3 ft 6 ins.

• Of the seven tonners, No. 4 had been scrapped, and No. 5 abandoned, and used for parts.

• Nos 6 to 10, 2½ tonners, had been scrapped. I can't say when this occurred. David noted that two of these were not included in the items in the 1930 sale catalogue, presumably already sold or scrapped.

Also seen on the 3 ft 6 ins electrified lines were:

(i) former No. 1 steam, Hunslet 0-4-0ST 796 of 1902, converted to an electric, abandoned about 1954.

(ii) a four wheeled electric built at the mine, using axles from QR B13 engines, said to be 20 hp, used on coal shunt.

On a subsequent visit in 1969, two electrics, similar to No. 1 in 1957, were on the 3 ft 6 ins gauge. No. 1, still with no number, shunted ingots. No. 2 in the shed occupied by (i) in 1957 presumably shunted coal wagons, having displaced (ii). No. 3 and (ii) were not seen, but George Bond had a photo of No. 3 as a 3 ft 6 ins gauge machine carrying that number, taken between 1957 and 1969.

A letter from Bill Henderson in the *ARHS Bulletin* for March 1984 p 70 reports that (i) had been converted by 1946, that it had a 50 hp electric motor, and that he saw its remains in a very advanced state of deterioration on the Linda level in both 1976 and 1980.

ERRATUM

A mistake occurred in Tony Weston's letter on page 25 of *Light Railways* 204. The final paragraph should read: *'It is possible that the photo of the diesel locomotive may have been taken at a later date than 1950, and a locomotive of this apparent size may not have been required for the mine production rate in 1950.'*

Our apologies to Tony for the error.

John Knowles
New Malden, UK

Dear Sir,

National Library of Australia - Newspapers Digitisation (LR 204)

Further to the research note in LR204, Messrs Browning and Rickard (and possibly others?) had by Christmas Eve, 'tagged' over 900 articles, adverts and snippets in the newspapers that have been digitised to date. Spanning the width and breadth of the country, dozens of previously unknown (at

Mt Morgan Mine, 13th August 1957: 3ft 6ins gauge electric built using QR B13 wheelsets, shunting coal on Linda level. *Photo: John Knowles*

Mt Morgan Mine, 13th August 1957: abandoned 3ft 6ins gauge electric built on frame of Hunslet 0-4-0ST 796 of 1904, on Linda level. *Photo: John Knowles*

least to us) tramways have been identified plus industrial operations that we had on the 'possible and probable' tramway list have now been confirmed. Indeed, the LRRSA tag team has more than three times the number of tags of the next most prolific tagger! By way of example we may mention that over twenty-five tramways have been identified in the Northern Territory between 1875 and 1920. Though mostly mining trams (gold, silver, copper, lead and tin) there were also two sugar tramways and a timber tramway in addition to those operations previously known.

To view the LRRSA tags go to http://ndpbeta.nla.gov.au/ndp/del/tag?name=LRRSA. And if you'd like to help and experience the joys of finding something new, feel free to jump in – there are over 37,000 search hits for 'tramway' so we have a way to go!

Phil Rickard
Ringwood, Vic

VALE HARVEY FLANDERS

Thirty members of the Australian Sugar Cane Railway attended the funeral of Harvey Flanders on 23 December 2008. Harvey passed away after a battle with cancer. He will be long remembered within the train fraternity. Prior to his retirement he worked at the Bundaberg Foundry converting ex-QR 1067mm gauge locos to 610mm for use in the cane railways.

While working he was an honorary member of the Society and became a member five years ago together with his wife Cheryl. They worked together on the roster with Harvey as driver and Cheryl as sales officer.

During the restoration of *INVICTA* Harvey devised a hand operated line boring machine that was used to hone out the cylinders. At the recommissioning ceremony, he attached the builder's plate after the official handover. Harvey will be sadly missed on Tuesdays for his knowledge and his sense of humour and story telling.

Wendy Driver, President, BSTPS *(Photo: Ross Driver)*

LRRSA members held their Melbourne meeting around a sacred object, the Climax loco at Puffing Billy's Belgrave Workshops, on 11 December 2008. In the centre background Workshops Foreman Graham Kidgell is operating the barbecue. Photo: Frank Stamford

LRRSA NEWS

MEETINGS

ADELAIDE: "SA Light Railways and plans for 2008."
There will be a discussion regarding the list of SA light railways and plans for the coming year.
Location: 150 First Avenue, Royston Park.
Date: Thursday 5 February at 8.00pm.
Contact Arnold Lockyer on (08) 8296 9488.

BRISBANE: 'British Industrial Railways'
David Rollins will show colour slides of various industrial railways in Britain.
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 13 February at 7.30pm. Entry from 7pm.

MELBOURNE: "Wonthaggi Brickworks - the tail and the dog!"
Mike McCarthy will describe a 'socialist experiment' - the Wonthaggi brickworks, which had their own tramways to add an extra layer of complexity to Wonthaggi's tramway and railway map. What does the tail and the dog have to do with that? You will need to come to the meeting to find out.
Location: Ashburton Uniting Church Hall, Ashburn Grove, Ashburton.
Date: Thursday, 12 February 2009 at 8.00pm

SYDNEY: "Railways of Christmas Island"
David Jehan will further enlighten us on the island's railways and phosphate operations, using material and many photographs that could not be included in his recently published book *Shays, Crabs and Phosphate.*
Location: Woodstock Community Centre, Church Street, Burwood, (five minutes walk from Burwood railway station).
Date: Wednesday 25 February at 7.30pm.

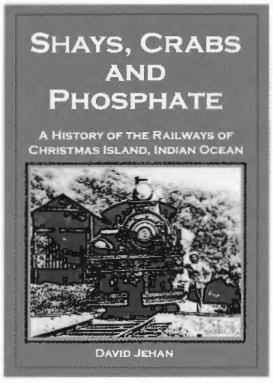
New from LRRSA Sales ...

SHAYS, CRABS AND PHOSPHATE

A HISTORY OF THE RAILWAYS OF CHRISTMAS ISLAND, INDIAN OCEAN

By David Jehan

Published by the LRRSA.



Christmas Island, Indian Ocean, is 2600 km north-west of Perth. For most of the twentieth-century a system of industrial railways — on gauges of 2 ft and 4 ft 8½ in — were used to carry phosphate. The variety of locomotives - both steam and internal-combustion - was remarkable. They came from Australia, Canada, Germany, the United Kingdom and the USA. These included three 70 ton geared Shay locomotives.

The book explores the way the industry was managed, the living and working conditions, the use of passenger trains, and the unique problems caused by the huge population of crabs living on the island.

Since its release early in December this book has been selling very quickly. Customer comments have included: *amazing amount of information; easy to read; excellent diagrams;* and *the photographs are sensational.*

Soft cover, 136 pages, A4 size

Over 160 photographs, 14 maps and diagrams,

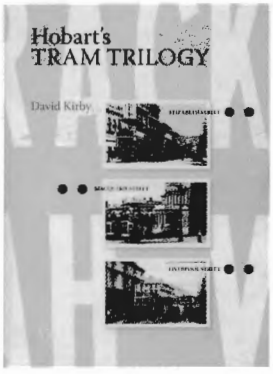
References, bibliography, and index.

Price $33.00 plus postage ($24.75 to LRRSA members)
Weight: 700 gm

Hobart's TRAM TRILOGY

By David Kirby

Published 2008 by Hobart City Council



This massive book is the definitive history of Hobart's electric tramway system. Right from the start, in 1893, it adopted electric traction, the first Australian city to successfully do so.

There were eight routes based on three city streets - Elizabeth Street, Macquarie Street, and Liverpool Street. The book is therefore divided into three sections, hence the word "trilogy" in the title.

Hobart's trams had some unusual features. There were many double-deck cars of typical English appearance, and bow collectors rather than trolley poles were used.

The last tram ran in 1960. There are an abundance of photographs illustrating the trams — and the city — over their entire lifetime.

The book is well printed, and excellent value at $60.00 for 2.5 kilograms.

Soft cover, 560 pages, A4 size,

About 1000 photographs (some in colour)

Maps, fleet lists, and bibliography.

Price $60.00 plus postage ($54.00 to LRRSA members)
Weight 2,500 gm

Postage and packing: Within Australia, 501 gm to 3 kg $10.90, over 3 kg $14.00
Send to: LRRSA Sales, P.O. Box 21, Surrey Hills Vic 3127, Fax (03) 5968 2484.
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Application for membership of Light Railway Research Society of Australia Inc. P.O. Box 21, Surrey Hills Vic 3127

I, _____
(full name of applicant)

of _____

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(address) (postcode)

_____
(occupation)

desire to become a member of the Light Railway Research Society of Australia Inc. In the event of my admission as a member, I agree to be bound by the rules of the Society for the time being in force. I enclose cheque/money order for $48.00, or please charge my Visa/Mastercard No.

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Heritage & Tourist

Challenging times

2008 has been a difficult year for the Australian and the global economies and prospects for the coming year continue to look grim. This economic downturn will undoubtedly impact on railway preservation groups, which had already experienced the twin challenges of attracting sufficient volunteers to maintain operations and the ever increasing demands of accreditation. A number of groups have reported reduced visitor numbers with the escalation of fuel prices by mid-year and tourist attractions that rely on large numbers of international visitors are expected to face difficulties in 2009. On the other hand, domestic tourist numbers are forecast to remain firm as families cut back on overseas travel.

The passing of Ann Drake of the Wee Georgie Wood Steam Railway (page 29) and Harvey Flanders of the Australian Sugar Cane Railway (page 25) remind us that the generation who established our preserved railways will not go on for ever and that the survival of these operations depend on coming generations. While we often hear that the younger generation are not engaging in community activities, I am heartened to hear regular reports that a number of the rail preservation groups featured in this section of LR are recruiting younger members, among them the Bennett Brook Railway and the Puffing Billy Railway. Several groups, including the Australian Sugar Cane Railway, Bennett Brook Railway, the Cobdogla Steam Friends and Illawarra Train Park, have been active during the year with major upgrades of their track infrastructure, thereby ensuring a sound base for operations over the coming years.

I have been involved for some time in the preparation of the 8th edition of the *Guide to Australian Heritage Trains & Railway Museums*, and while this did not make it into bookshops during 2008, it is expected to be available early in 2009. The task has required a major review of the material, with a number of former preserved railways and museums no longer operating, but there was a similar number of newcomers to add since the 2000 edition. The overall lesson is that the railway preservation movement in Australia is a dynamic one of both decay and renewal, with a number of the new groups – as well as many existing operations – meeting the challenge of providing a quality experience for a wider range of visitors. As for the Guide, it will be in a completely new format, which I believe will make it more user-friendly.

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

HERVEY BAY HISTORICAL VILLAGE & MUSEUM

1067mm gauge

An interesting exhibit at this local museum is a line car from an industrial railway. Known as *RADISH*, the vehicle appears to be a modified Fairmont type. It used to be operated by Caltex on the Urangan pier which connected with their fuel terminal. It is painted in red livery with a Caltex logo and is stated to be in operational condition.

John Browning, 11/08

THE WORKSHOPS RAIL MUSEUM, Ipswich

1067mm gauge

Queensland Museum

The museum launched 'The Hunslet Locomotive Project' in December 2008 to restore former UK War Department and ex-North Eton 4-6-0T No. 4 (Hunslet Eng. 1239 of 1917). The Queensland Museum Foundation has raised $80,000 towards the project, but a further $50,000 is required and a public appeal for funds has been made through a brochure. In announcing the project, Andrew Moritz, Director of the Workshops Rail Museum, said: 'The restoration of the Hunslet locomotive will provide us with a unique opportunity to expose a different aspect of our efforts during World War I and adds a new dimension to our rail history.' North Eton No. 4 was one of 115 locomotives of this type, and like many of its companions, it was used in France to maintain supplies of food and ammunition to British and Australian soldiers fighting on the Western Front. It subsequently operated at North Eton sugar mill from 1921 to 1964 before being placed on open air display in Langford Park. The Mackay Sugar Cooperative Association Ltd donated the locomotive to the museum and it arrived there on 3 August 2005 (LR 185, p.27).

New South Wales

ILLAWARRA TRAIN PARK, Albion Park

610mm gauge

Illawarra Light Railway Museum Society

Since the report in LR 203 (p. 27), the ILRMS has continued to make good progress on its project to upgrade the track. Concrete sleepers from CSR's Victoria Sugar Mill have been laid on the main line and other upgrading works are well advanced. Restoration activities at the workshops during 2008 saw completion of the project to restore the ex-Condong Mill Ruston 40DL 4wDM (R&H 371959 of 1953), while the former Kalamia Mill 4wDM *IVANHOE* (ComEng GA1042 of 1960) is now in running order and ready for painting. In addition, the track tamping machine from Invicta Mill has undergone a heavy overhaul and is now in good running order.

With the major track upgrade now nearing completion, the ILRMS is looking forward to the resumption of full operations on the 610mm gauge track in 2009. The Historical Aircraft Restoration Society (HARS) 'Wings Over Illawarra' air day on 22 February is expected to feature another bus-rail shuttle service to the Illawarra Train Park, while the ILRMS will mark 30 years of passenger service at Albion Park in February 2009. An official function to celebrate this event will be held towards mid year.

Brad Johns, 12/08

STATE MINE HERITAGE PARK & RAILWAY, Lithgow

1435mm gauge

City of Greater Lithgow Mining Museum Inc.

During August 2008 new directional lighting with movement activated switching of lights was installed in the museum. The lighting highlights specific exhibits and greatly enhances visitor experience. Work is progressing on the installation of a skip winding display in the former State Mine Belt Drift. This drift was cut into the mine in 1958 and originally contained a conveyor, which was the longest continuous conveyor in Australia at the time. A skipway was installed next to the conveyor. Installation of this display had been delayed while museum volunteers sourced suitable winding rope and rope clips. The museum recently contributed an article to the *Australasian Mine Safety Journal* which is available on its website. Titled 'I'm not alright Jack – I'm hurt bad' this article describes the tragic death of underground shift boss Sydney Shorney in 1950. Mr Shorney was run over by a rake of full coal skips on the main underground haulage way and died as a result of his injuries.

A major exhibition, *Beneath the Southern Cross*, featuring trade union banners and other memorabilia from the Sydney Trades Hall collection, will be launched at the State Mine during Heritage Week in April 2009. It will be housed in the bath house and will run through to October 2009. It is planned to move the museum's rail-mounted mining equipment, which includes the former BHP Nebo Colliery battery-electric and Kandos Colliery Jeffrey battery-electric locomotives, to a new covered display area near the downcast shaft in 2009. The museum has de-accessioned the Gibson Battle Jeffrey battery storage locomotive from its collection and this item has been sold.

Leases for the Lithgow State Mine branch line and track in Eskbank Yard have been officially transferred to Lithgow State Mine Railway Limited. Future reports on this operation will appear under this group.

Ray Christison, 11/08, 12/08

Heritage & Tourist

MELALEUCA STATION, Chinderah 610mm gauge

We have not had any reports on this steam-operated tourist railway since LR 185 (October 2005, p.26), when it was operating only for pre-booked tour parties and activities were intermittent. The operation had formally closed some time before our correspondents visited the railway on 18 November 2008 to inspect the carriages there for possible purchase by ANGRMS for the Durundur Railway at Woodford. They found the carriages lying on their side with the bogies removed, as the owner wished to retain these. The ANGRMS Board met on 23 November to consider possible purchase of the carriages, but decided against doing so on the grounds that the group had sufficient tasks ahead of it to keep the available work force fully occupied for a considerable period.

The visitors found ex-Marian Mill 0-6-2T No.9 (Perry Eng. 2601.51.1 of 1951) standing on track under some trees awaiting transport to a new home northwest of Sydney near Windsor, to where it was transported on 28 November. The rail had been lifted with sleepers attached and was stockpiled on site awaiting use elsewhere.

Bob and Jill Gough, 11/08; Terry Olsson, 11/08

Victoria

ALEXANDRA TIMBER TRAMWAY 610mm gauge

Alexandra Timber Tramway & Museum Inc.

Good quality track laid to a configuration that meets operating requirements is a key ingredient of a successful preservation railway. The ATT&M made significant progress in this department over the weekend of 29 and 30 November, when a massive effort by volunteers saw the main line being broken at the south end of the loop and a new 60lb/yd point inserted into the track. This point will form the start of the missing third leg of a triangle linking the loop line and the tramway extension by which rolling stock and locomotives will be able to be turned without having to resort to a crane. The new perway section will also improve operational flexibility once the track extension out past the ITC sawmill is completed, as it will form a balloon loop by which a whole train may be reversed without uncoupling. The new track follows the route of the northern-most siding of the Rubicon Lumber & Tramway Company's tramway system, and will utilise part of the surviving small embankment.

The track between the two points was dismantled and the sleepers removed on the Saturday afternoon. On the Sunday new sleepers were inserted, and the new track was bolted-up and then spiked down to gauge. The sleepers were then levelled and the ballast was packed around them. The point blade has been dogged semi-permanently into position for the main line until the new section of track is completed. Several trial trains were run over the new points with complete success. These included the works train hauled by Simplex 10058 and the test passenger train hauled by Malcolm Moore 1049.

Timberline 105, December 2008

Coming Events

FEBRUARY 2009

1 Wee Georgie Wood Steam Railway, Tullah, TAS: Narrow gauge steam train operations with locomotive *WEE GEORGIE WOOD*, 1000-1600. Also on 21-22 and 28 February-1 March. Information, Graham and Nancy on (03) 6473 1372 or 0417 142 724.

1 Red Cliffs Historical Steam Railway, VIC. Narrow gauge train operations using Kerr Stuart steam and EM Baldwin diesel locomotives, 1100-1600 and the first weekend of following months. Enquiries: (03) 5024 1345.

1 Richmond Vale Railway, Kurri Kurri, NSW. Open day with regular steam train operations. During 2009 the RVR will be open on the first three Sundays of each month plus school holidays. Enquiries: (02) 4955 1904.

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

8 Alexandra Timber Tramway, VIC. Narrow gauge steam train operations, 1000-1545. Also petrol-powered locomotives for the Saturday Market on 14 February and diesel-hauled trains on 22 February. Information: Bryan 0407 509 380 or Peter 0407 537 837.

22 Illawarra Train Park, Albion Park, NSW. Train/bus shuttle services to allow visitors to the Historical Aircraft Restoration Society's 'Wings Over Illawarra' event to travel on a narrow gauge steam-hauled train. Public train operations on the second Sunday of each month. Phone (02) 4256 4627 or www.ilrms.com.au

28 Workshops Rail Museum, Ipswich, QLD. Australian Model Railway Convention, including workshops and speakers to engage model railway enthusiasts of all levels. Attendance fee $66. Phone the museum on (07) 3452 5100 or visit www.theworkshops.qm.qld.gov.au

MARCH 2009

7-9 Redwater Creek Steam & Heritage Society, Sheffield, TAS. Annual Steamfest with rides on narrow gauge steam-operated railway, steam traction engines and road rollers, historical, oil, petrol and diesel engines, horse-drawn coaches and wagons, and craft and food stall. Information: (03) 6424 7348 (secretary) or redsteam@bigpond.net.au

8-9 Alexandra Timber Tramway, VIC. Narrow gauge steam train operations, 1000-1545. Also petrol-powered locomotives for the Saturday Market on 14 February and diesel-hauled trains on 22 March. Information: Bryan 0407 509 380 or Peter 0407 537 837.

28-29 Wee Georgie Wood Steam Railway, Tullah, TAS: Narrow gauge steam train operations with locomotive *WEE GEORGIE WOOD*, 1000-1600. Information, Graham and Nancy on (03) 6473 1372 or 0417 142 724.

APRIL 2009

5 Wee Georgie Wood Steam Railway, Tullah, TAS: Narrow gauge steam train operations with locomotive *WEE GEORGIE WOOD*, 1000-1600. Also on 25-26 April; the steam season closes on Sunday 3 May. Information, Graham and Nancy on (03) 6473 1372 or 0417 142 724.

11-13 Alexandra Timber Tramway, VIC. Easter Gala event with narrow gauge steam train operations, 1000-1545, on 11-12 and petrol-powered locomotives on 13th. Diesel-hauled trains on 26 April. Information: Bryan 0407 509 380 or Peter 0407 537 837.

12 Cobdogla Irrigation Museum, SA. Experience a twilight narrow gauge train ride behind a diesel locomotive. The Humphrey steam pump will be operating and a sausage sizzle, drinks, ice creams and souvenirs are available. 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.

PUFFING BILLY RAILWAY

762mm gauge

Emerald Tourist Railway Board

The Belgrave Puffing Billy Workshops played host to the LRRSA Melbourne meeting on 11 December 2008, which drew some 50 members and friends. The society thanks Graham Kidgell, the Works Foreman, for arranging the visit, complete with a barbecue for the large group, and then organising a tour of the workshops, together with Harold Higbane, Manager of the Engineering Drawing Office, who provided expert guidance during the inspection tour.

The workshops presented a busy scene, with the locomotives receiving attention being NA Class 2-6-2Ts 12A (Newport 1912) and 14A (Newport 1914), ex-South African Railways 610mm gauge 2-6-2+2-6-2 Beyer Garratt NGG129 (Beyer Peacock 7340 of 1950) (without boiler), Climax logging loco 1694 of 1928 and ex-West Melbourne Gasworks Couillet 0-4-0T *CARBON* (986 of 1890). The Climax and 12A are both undergoing a major rebuild, 14A is receiving a major overhaul and the Garratt is being converted to 762mm gauge. 14A, previously in Canadian Red livery, is being finished in black livery while 12A will be returned to service in Canadian Red for the first time since it lost that livery in the 1920s. The LRRSA group were shown 14A's water tanks painted in a brilliant gloss black, achieved by using yacht varnish to achieve a durable gloss finish.

The experience of the PBR is that welded boilers are far superior to their riveted counterparts because they can stand a higher level of water treatment. With the higher level of treatment, they expect a welded boiler to last 60 to 70 years, whereas a riveted boiler may not exceed 10 years. Accordingly, the workshops propose to obtain a new welded boiler for the South African Garratt rather than repair the existing riveted boiler.

Frank Stamford, 12/08

SOVEREIGN HILL, Ballarat

The new inclined tramway at the quartz mine in this 'Historical Park' opened on 29 December 2008 as the 'Journey Through the Labyrinth of Gold'. The inclined tramway takes visitors down to the start of the underground mine where they experience the life of a miner, a trip that previously required a long walk down a very steep track.

Ex-Marian Mill 0-6-2T No.9 (Perry Eng. 2601.51.1 of 1951) stored at the Melaleuca Station railway site south of Tweed Heads on 18 November 2008 awaiting transport to its new home. Photo: Jill Gough

The track gang in action installing the new points in the main line at the Alexandra Timber Tramway on 30 November 2008. Photo: Peter Evans

John Fowler 0-4-0WT WEE GEORGE WOOD *(B/N 16203 of 1924) stands at Tullah station on 19 February 2006 ready to depart on another journey over the Tullah Tramway on Tasmania's west coast. Photo: Nick Anchen*

Heritage & Tourist

There are two tunnels with a rope-hauled tram in each that can carry 30 passengers up and down an incline of about 30 degrees. A 1907 Walkers tandem horizontal steam engine has been restored by Sovereign Hill staff and is installed next to the new hydraulically powered winding gear built by Miller Brothers of Ballarat to replicate the appearance of a historic incline winding house. Our reporter was unable to ascertain the gauge of the tramways. Operational training and testing of equipment was carried out during December prior to the formal opening of the new attraction. The 'Journey Through the Labyrinth of Gold' attracts an additional change over the Sovereign Hill admission. Keith Vanston, 12/08; *Ballarat News*, 17 December 2008.

WALHALLA GOLDFIELD RAILWAY 762mm gauge
Walhalla Tourist Railway Committee of Management

The extensive modification and re-gauging of ex-Emu Bay Railway 10 Class B-BDH (Walkers 576 of 1963, see LR 187, p.28) has been completed and the locomotive received accreditation in November. It commenced public operations at its new home on Saturday 6 December 2008, greatly increasing the WGR's train capacity over the busy summer period. The railway did not operate during November as the existing locomotives – ex-SECV 0-6-0DM 14 (John Fowler 4210051 of 1951) and 4wDH *KASEY* (EM Baldwin 3225.4.2.70 of 1970) – required urgent maintenance. Both these locomotives are expected to be back in operation by January 2009. Maidentown, LRRSA Yahoo Group, 6/12/08

Tasmania

WEE GEORGE WOOD RAILWAY, Tullah 610mm gauge
Wee George Wood Steam Railway Inc.

Updating the report in LR 204 (p. 29), this small preservation group has been through some major challenges during 2008. Not least of these was the premature death of a founding member and its former president, Ann Drake, who lost her battle

with cancer and passed away on 16 October aged just 57. Anne's contacts and her energies as an employee of the Pasminco Mine at Rosebery, which then owned the line and the locomotive *WEE GEORGIE WOOD* were critical in getting the society established and making it what it is to-day. The Wee Georgie Wood Steam Railway Inc. was to a large extent Anne's life, and her passing has left a big hole in the organisation. She is sadly missed and the Society is arranging for a plaque to commemorate her service.

In addition to Anne's tragic death, the WGWSR also had to contend with the departure for greener pastures of long time members and committee stalwarts Joan and Reg Hinkley, who left before the start of the steam season. Joan held the Treasurer position for many years, while Reg was the number one driver and Vice President for many years as well. Their long service is also to be recognised in the New Year.

In the face of these challenges, the committee has forged a close association with the Tullah Progress Association in an effort to promote the railway and achieve more sustainable passenger numbers. Additional volunteers have been recruited, trained for their new roles and work rosters have been drawn up. The 'mechanical problem' with 0-4-0WT *WEE GEORGIE WOOD* (J Fowler 16203 of 1924) was a badly fitting boiler inspection plate that had warped in the past and had been forced on in a previous inspection by bashing the nuts around with a big hammer and stretching the bolts to create a seal. This ongoing problem was fixed during the off season and repairs were also carried out to the firebox.

The 2008-2009 steam season was delayed until September, but the weather wasn't kind and the patronage numbers were low for the initial month. There was also a derailment of the fire tender when worn bogies split a set of points, derailing the tender and the locomotive. A report was prepared for the state's rail regulator and a site inspection was made the following month, which resulted in a good report. While the fire tender was out of service for repairs, it was found that the loco used less wood and coal due to the weight of the tender (some 5 tonnes when full of water), so to conserve fuel it will only be used when absolutely necessary. Encouraging signs have been the running of four special school charters for local school groups in November-December and special community carols night runs on 6 December. These have generated additional funds and the treasurer reports that the society is just under the budget target at the end of the year.

The WGWSR has reached the mid-point of its 2008-2009 steam season in better shape than it started. Its

AUSTRALIAN SUGAR CANE RAILWAY, Bundaberg

610mm gauge

Bundaberg Steam Tramway Preservation Society Inc.

The BSTP Society celebrated 30 years since its foundation and 20 years of operation during 2008. In 1978 a group of six keen steam enthusiasts formed a group with the aim of obtaining a local steam locomotive for restoration and operation in Bundaberg. The group was donated Qunaba Mill 0-4-2T No 6 (Bundaberg Foundry 3 of 1952) in 1981 and subsequently gained a lease in the Bundaberg Botanic Gardens. A locomotive storage facility and one kilometre of track were established here and the group was formally incorporated as the Bundaberg Steam Tramway Preservation Society.

When operations commenced on November 20 1988 the Society operated as the Botanical Gardens Railway. That year the former Millaquin Mill 0-4-0WT *GERMANY* (Orenstein and Koppel 6805 of 1914) was donated to the BSTPS and it entered service at its new home in October 1990. When its apprentice school closed in 1993, the Australian Navy donated 0-6-2T *INVICTA* (John Fowler 11277 of 1907) to the Society. It purchased Moreton Sugar Mill's 0-4-0DH *VALDORA* (EM Baldwin 6/1258.1.6.65 of 1965) in 2004.

Bundaberg Foundry 0-4-2T 3 (3 of 1952) in action hauling passenger trains on the mainline at the Australian Sugar Cane Railway on 2 November 2008. *Photo: John Kramer*

Restoration of *INVICTA* commenced in 2003 and it was recommissioned on the 100th anniversary of its arrival for service at Invicta Sugar Mill in 1907 (LR 199, p.29). This project resulted in the BSTPS wining the Australian Tourist Heritage Railways Association Award for best steam locomotive restoration project in 2008.

The trading name of the Society was changed to Australian Sugar Cane Railway (ASCR) in 2003. It has a current membership of 70 members and has working partnerships with Vietnam Veterans, Scouts, Crossroads and the other attractions in the Botanic Gardens. Regular maintenance days are held every Tuesday and Saturdays following the monthly meeting.

Scott Driver (left) and his father Ross ready to take out INVICTA *for passenger train duties at the Australian Sugar Cane Railway on 28 December 2008 – a record day for the Society with more than 600 passengers carried. Scott works for QR in the Ipswich Railway Workshops and enjoys coming home to fire for Dad.* *Photo: Wendy Driver*

The ASCR operates every Sunday and only one Sunday was missed during the first 20 years of operation and that was because of a cyclone! Nearly 350,000 passengers have ridden on its trains over this period. To mark the first 20 years of operation, a commemorative dinner was held on 17 November 2008. The local Member of Parliament, Jack Dempsey, handed out caps to BSTP Society volunteers for years of service. The secretary of 10 years, Ross Driver, was presented with his 30 year membership cap having been with the Society since its inception. Ross, a steam locomotive driver at Millaquin Sugar Mill in the 1970s, is also maintenance co-ordinator and works on the roster. Jack Dempsey spoke in parliament the following week about the Society.

Wendy Driver OAM, President, 12/08

long-term future remains a challenge, but hopefully no gremlins will raise their ugly heads before the end of the season is achieved in May. Greg Blake, Vice President, 11/08 and 12/08

South Australia

COBDOGLA IRRIGATION MUSEUM 610mm gauge
Cobdogla Steam Friends Inc.
Recent progress on the restoration and engineering front has seen the construction of a rail-mounted spray unit that enables the society to control weeds along the track for a width of 8 metres. The unit has a 1000 litre tank, giving sufficient capacity to spray the whole of the track extension to Loveday when it opens. With proper weed control, the CFS fire permit will enable the year round operation of the steam locomotive, so the new unit is a particularly welcome addition to the works unit fleet. The group's spike-pulling machine has also received a complete overhaul. During the overhaul the engine was stripped down and refurbished, the hydraulics were 'rejigged' and provision was made to regauge the machine to 610mm gauge. It will remain on broad gauge until all the sections from Loxton Station yard have been dismantled, and then it will be permanently converted to 610mm gauge.

Cobdogla Steam Friends now has its Fairmont section car operational and Denis Wasley photographed CME Robbie Osborne conducting a training session for a group of volunteers.

The Friends of the North Australian Railway (Adelaide River) achieved a milestone on 8 November 2008 when ex-Mt Isa Mines Hudswell Clarke Hero Class 0-4-0ST (B/N 928 of 1910) made a run over temporary track using compressed air. Trevor Horman photographed Mike Bowman making the first application of compressed air at the Work in Progress event on the previous day.

Heritage & Tourist

The Fairmont section car has been made operational. This unit was restored several years ago, but the wheel flanges were found to be too thick to go though the points without derailing the vehicle. The rolled flanges on the wheels were machined to reduce the thickness until they met the clearance requirements of the points. A training session has allowed a number of society volunteers to be accredited to operate the machine
Denis Wasley, 12/08

Northern Territory

ADELAIDE RIVER & SNAKE CREEK RAILWAY 1067mm gauge
Friends of the North Australia Railway (Adelaide River)
This group held its annual *Works in Progress* Exhibition at its Darwin works base on Friday 7 November 2008. Guests included two parliamentarians and the Chair of the NT Heritage Advisory Council. A highlight was a special gathering at the ex-Mt Isa Mines Hudswell Clarke Hero Class 0-4-0ST (B/N 928 of 1910; LR 201, pp. 29-30), to watch Mike Bowman climb on board and apply air pressure to the boiler for the first time in decades. The 100 year old boiler held the pressure, making it an emotional moment for all those there to witness the event. The following day the locomotive 'steamed' her first 200 metres out and back, probably the longest distance she has run since about 1975. The restoration team had laid out three panels of rail, applied 125psi of compressed air to the business end of the boiler (not pressurising the whole thing) and off she went without a groan or wheeze! It gave the team a great boost to prove the running gear and see her moving again. By mid-December, Mike had made steady progress rebuilding the braking system on the locomotive.
Trevor Horman, 11/09, 12/09; Mike Bowman, 11/09