# LIGHT RAILWAYS

## Mortlake Gasworks Railway, Sydney, NSW
## Railways of Papua New Guinea, Part 2

**Number 97**
**July 1987**

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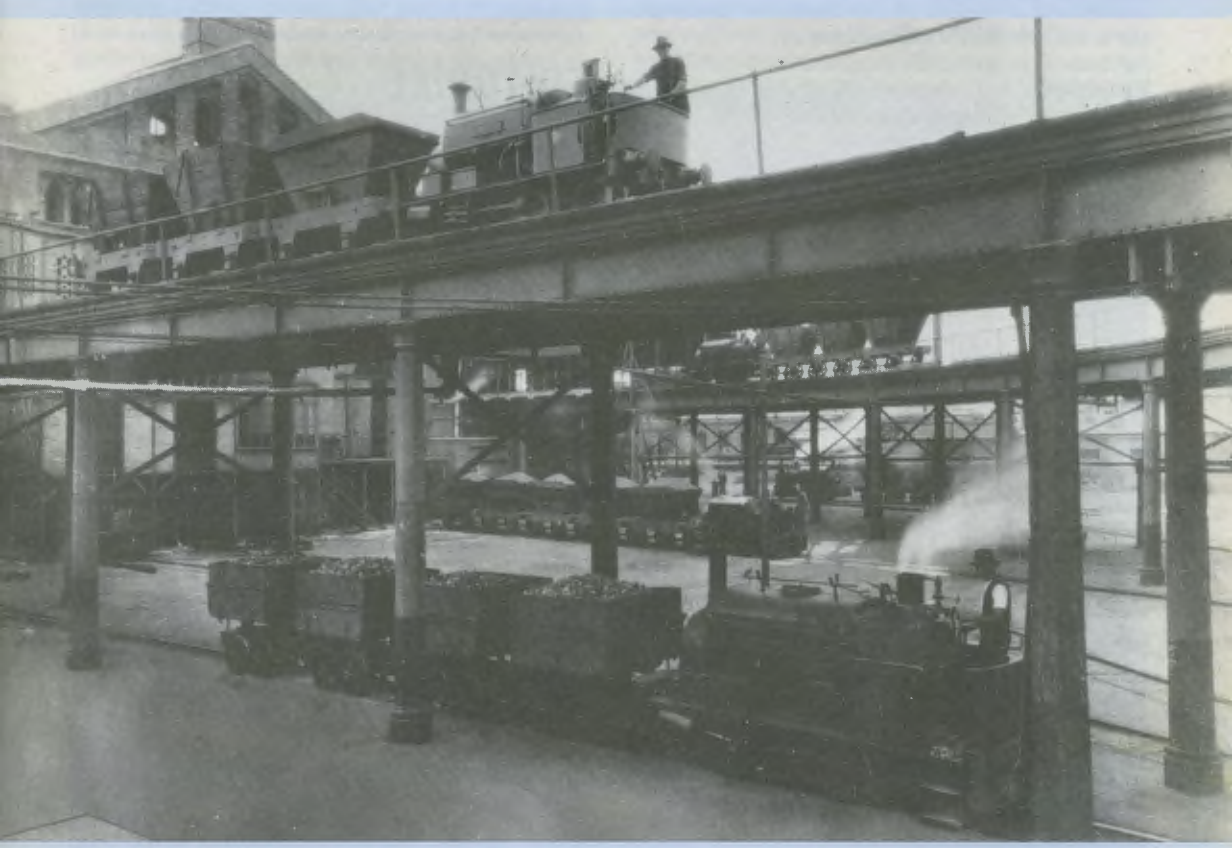

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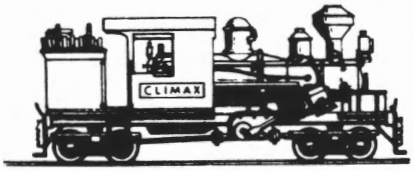


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## Light Railway Research Society of Australia

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# EDITORIAL

A number of readers have commented on our policy with respect to the use of metric units in *Light Railways.* The practice of some other Australian railway journals to convert all measurements to metric units has no doubt prompted this interest.

As a historical journal, it has been our policy to present articles using the units of measurement used with respect to the construction or activity being described. Thus, the majority of material presented in the journal relates to a period when Imperial units of measurement were used and we have maintained these units for historical accuracy. If the item being described was constructed to metric specifications (eg. a Decauville or Krauss locomotive), then metric units are used. This issue has been discussed by the LRRSA Council and it was decided that this approach should be followed as a general policy for *Light Railways.* If you have particular views on this subject, please put them down and submit them for publication in our letters columns.

Erratum: Bruce Belbin's name was incorrectly spelt on p.10 of *LR.95.* Apologies to Bruce.

**Cover:** Panoramic view of the two levels of the AGL railway at Mortlake gasworks shows five of the six operational locos. Those on the elevated track are working three-wagon rakes for coal transport to the retort house bunkers. Those on the ground level show two types of wagons used for transporting coke and ash. Photo: AGL Co

# THE MORTLAKE GASWORKS RAILWAY OF THE AUSTRALIAN GAS LIGHT COMPANY

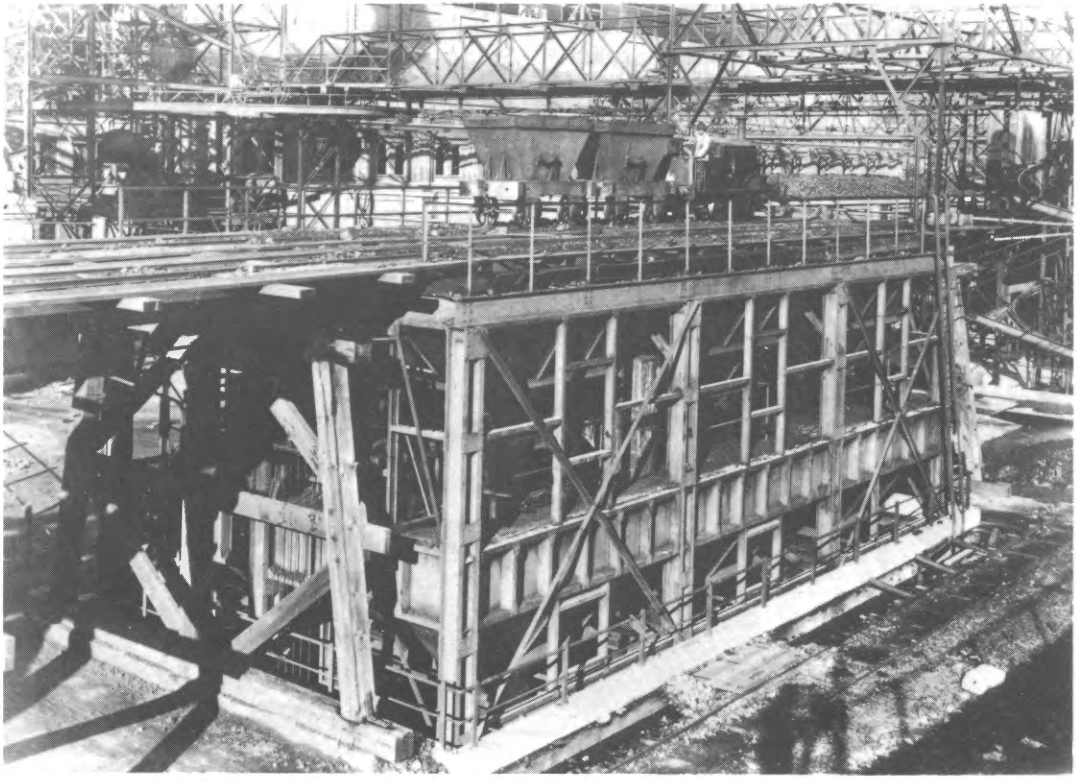
## by John L Buckland

Sydney's largest and most modern plant for production of town's gas for industrial and domestic use (and originally for domestic and public street lighting) was established by The Australian Gas Light Company at Mortlake, on the southern shore of the Parramatta River in the upper reaches of Sydney Harbour in May, 1886.

Now supplanted, following the extension to Sydney in 1976 of the supply of natural gas transported through a pipeline from the Moomba-Gidgealpa field in the Cooper Basin, in far north-eastern South Australia, the Mortlake works were notable for having been served by a narrow gauge industrial railway system. This quite extensive 3 ft (914 mm) gauge system, now regrettably vanished due to changing technology, is said to have totalled almost 7 miles (11 km) of track on two levels within the gas-making plant. The site within the Municipality of Concord in Sydney's western suburbs originally covered 60 acres (24 hectares), but subsequently extensions increased the area of the plant to 100 acres (40 ha).

### The Australian Gas Light Company

The Australian Gas Light Company (AGL) was established in Sydney in 1837, just 25 years after the world's first gas company began operations in Britain. At that time, Sydney's streets were poorly lit by oil lamps, while lamps and candles were used for domestic light. The availability of gas brought significant advances and, by the 1880s, gas lighting was well established throughout the city. Suburban growth resulted in an increasingly rapid demand for



Battery of six electrically driven coal breakers each of 30 tons per hour capacity fed by overhead railway and discharging into telpher at the AGL Mortlake gasworks. Photo: AGL Co

gas and this led to AGL's decision to consolidate its gas-making operations at Mortlake, following purchase of land having access by land and water.

## The Mortlake Works

Manufacture of town's gas was effected by heating suitable grades of coal in sealed retorts made of firebrick originally arranged in horizontal banks. These were charged with coal manually then sealed before commencement of gas-making process, at the conclusion of which the residues — coke, ash and coal tar — were discharged. This too was a manual operation, hot, dirty and labour-intensive.

The AGL plant at Mortlake came into operation in May, 1886 with the original retort house 280ft long and 70ft wide with 24 benches each of nine retorts producing 2.5 million cu ft of gas per day. The gas produced was washed and scrubbed to remove impurities and recover ammonia before storage in a telescopic gasholder for reticulation through the company's mains to consumers.

The No. 1 gas-holder had storage capacity for 2.7 million cu ft of gas which was pumped through a 36 inch main for 5½ miles to link with Burwood, Strathfield and Ashfield as well as Canterbury and thence to the city to Sydney. Smaller mains supplied Marrickville, St Peters, Randwick and West Botany (Rockdale).

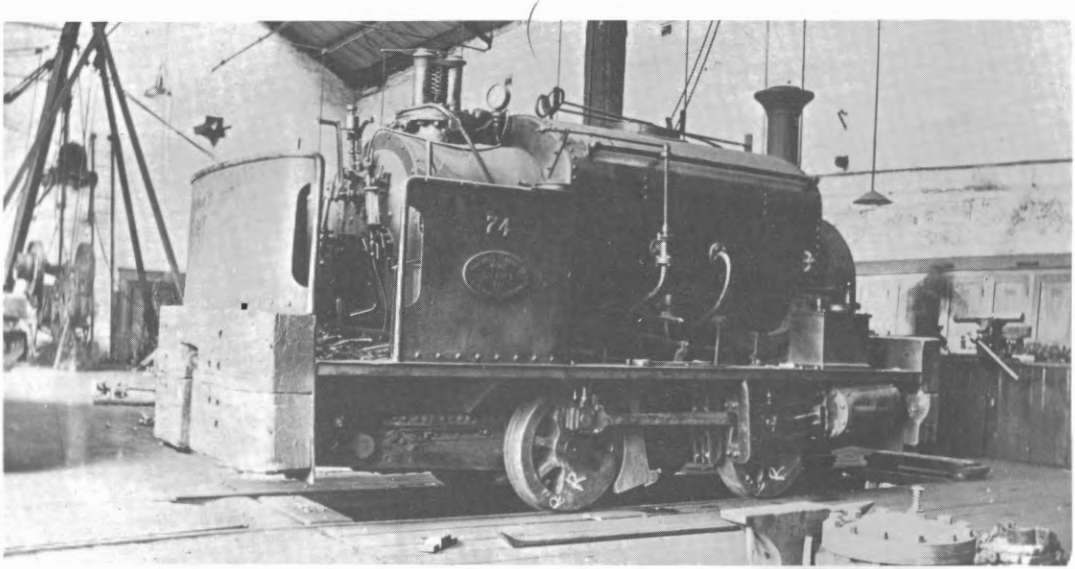
In 1888-89 a second retort house and gas-holder were commissioned at Mortlake, equipped with West's charging and drawing machinery, the first such mechanisation of gas-making in Australia. No. 2 gas-holder with capacity of 3.75 million cu ft and the additional retorts were sufficient to service the ever-growing demand for gas following mains extension to Auburn and Hurstville in 1887.

The Parramatta Gas Company's undertaking, serving Parramatta, Granville, Prospect and Sherwood districts was purchased by AGL in 1890. After completion of an 18 inch main connection from Mortlake in 1891, the small plant at Parramatta was closed down. Gas supply was extended to Ryde, Gladesville and Hunter's Hill on the north side of the Parramatta River after permission was obtained by the company to attach a main pipeline to the railway bridge spanning the river on 1 May 1898.

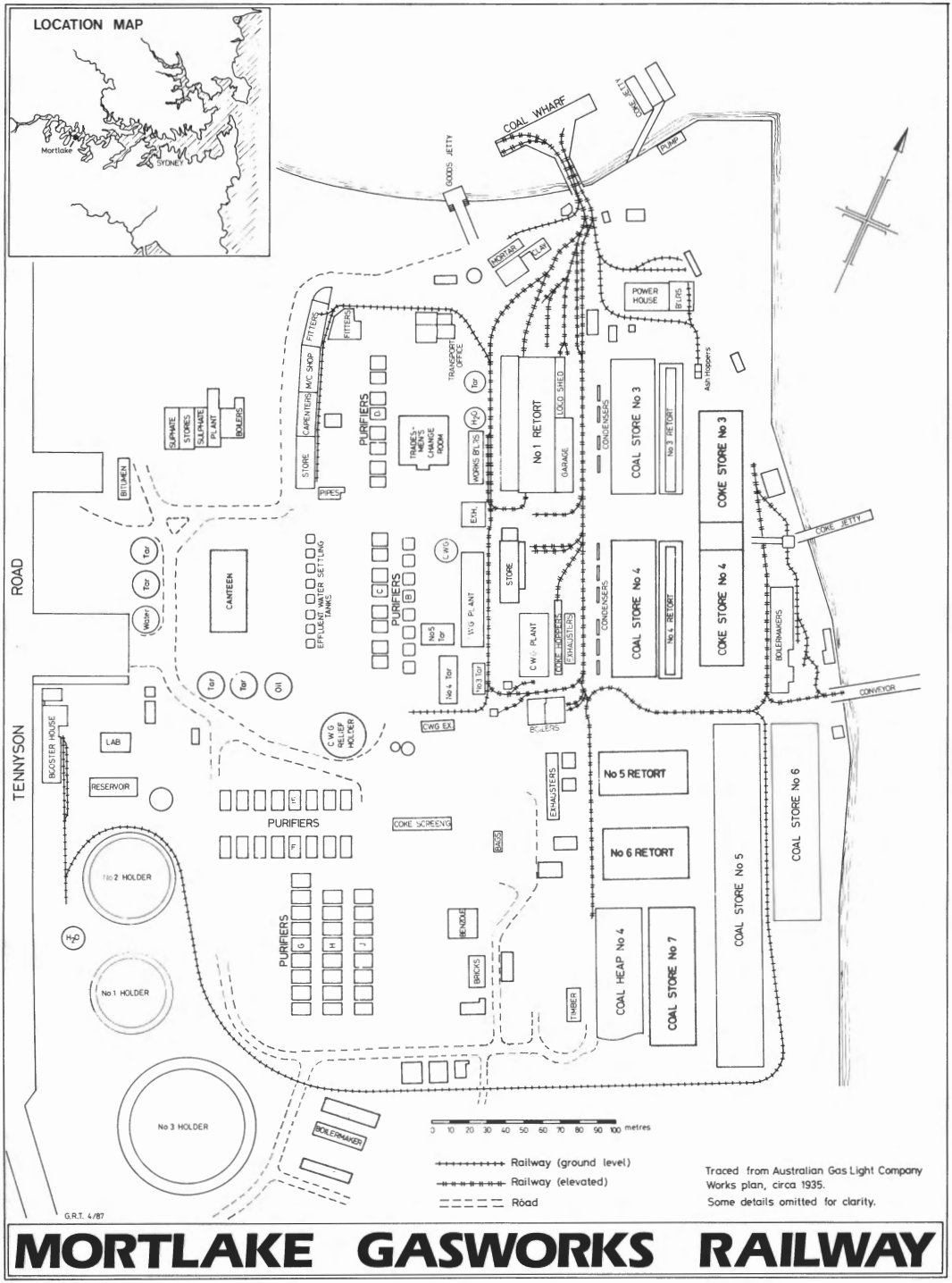
In 1895 the 36 in main was converted to high pressure with governor stations at various locations en route to reduce the pressure for reticulation to consumers.

## The Railway System

The Mortlake works sited on the southern bank of the Parramatta River in the upper reaches of Sydney Harbour were ideally situated for direct delivery of coal by sea. This was carried in small steamships known as 'Sixty-milers' — from the approximate sea distance from the source of gas coal at Newcastle.




The Hudswell Clarke pattern for the AGL locomotive fleet, B/No. 282 of 1885 illogically carried the running number 74 and was not named. It is shown in the workshop after overhaul.
Photo: Late MA Park from Singleton, Collection




# MORTLAKE GASWORKS RAILWAY

Coal was unloaded at the company's two-level tee-head wharf which extended for 160ft into the Parramatta River. The wharf was 168 ft wide at the head and 25 ft at the shore end with railway tracks of 3 ft (914 mm) gauge linking with the end bunkers at the retort houses. The coal was unloaded from the colliers by grab-equipped steam cranes on the wharf.

The first section of the 3 ft gauge railway system to service the gas-making plant was commissioned on the opening of the works in May, 1886. Rails were originally 40 lbs/yard, but this was later replaced with AS 60 lb plant and some 80 lb. The railway employed one small 0-4-0ST cabless steam locomotive to haul rakes of 4-wheel timber-framed hopper wagons with lift-out hoppers from the wharf along the viaduct to the bunkers in No. 1 retort house. This 8½ ton locomotive with outside cylinders 7 in x 12 in and 24 in diameter wheels was ordered through Wm Coward & Sons, London from Hudswell Clarke & Coy, Leeds and carried B/No. 282 of 1885.

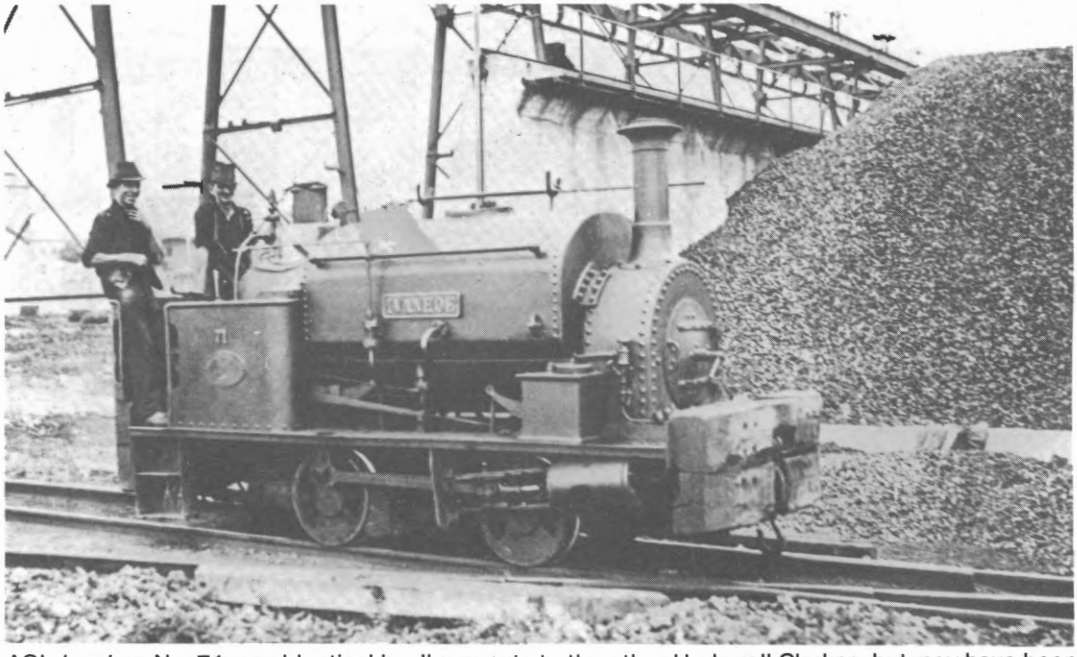
In 1891, an identical locomotive was obtained from the same source to work in the yard at ground level, handling coke and other materials. This carried Hudswell Clarke's works No. 385 of 1891 and a nameplate *Kangaroo* mounted centrally on the saddle tank sides. Two years later a third order resulted in the arrival through the agency of James Livingstone of Hudswell Clarke works No. 408 of 1893, bearing the nameplate *Ivanhoe* to assist in handling the growing volume of traffic on the works railway, now operating on two levels.

There is some suggestion that *Ivanhoe* may have been imported new by Cullen Bullen Lime and Cement Co which later sold the engine to AGL Co about 1903. This might account for the name, as the former company operated the Ivanhoe Colliery, near Portland, NSW and operated a 3 ft gauge railway.

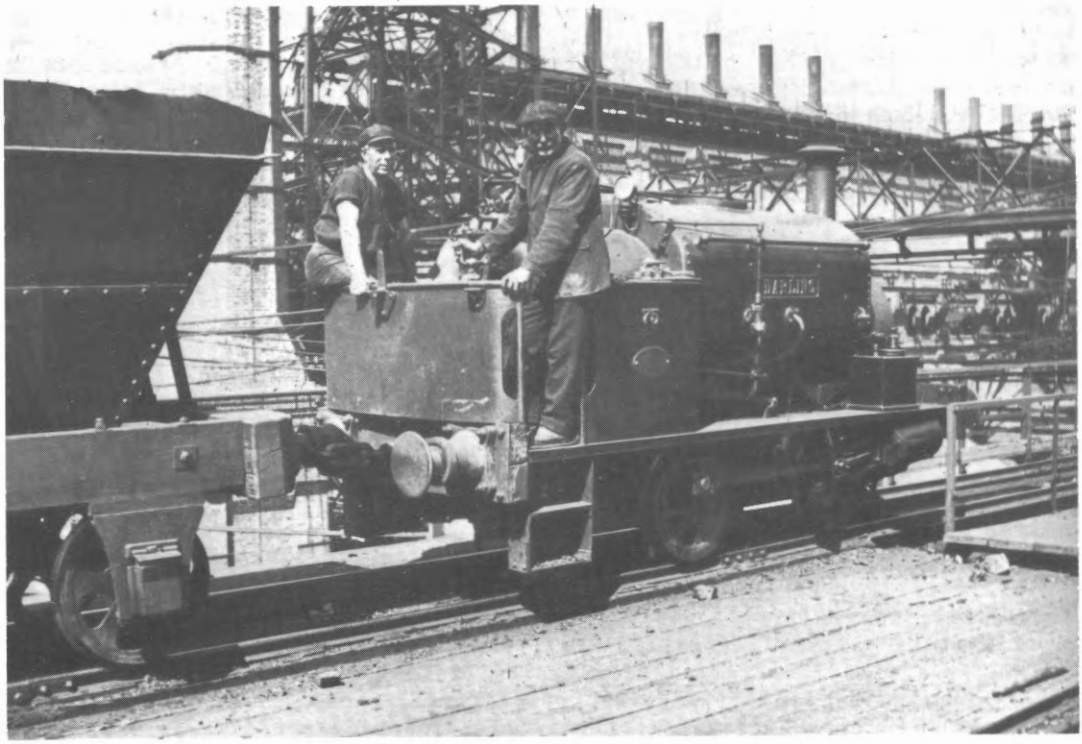
Certainly before the end of the century, two engines were kept fully employed on coal haulage from the wharf to the bunkers on the elevated line and the third was used on the ground level hauling coke and residue from the retort houses to storage; a task formerly performed by horses.

In 1910 a fourth locomotive arrived from Hudswell Clarke (works No. 910 of 1910) and named *Darling,* possibly for one of the company's directors.

A further major expansion of the Mortlake works commenced in 1914 to compensate for the forth-



AGL *Ivanhoe* No. 71 was identical in all respects to the other Hudswell Clarkes, but may have been acquired secondhand. Photo: Late MA Park from Singleton, Collection



The crew of *Darling* No. 75 give some indication of the diminutive size of the AGL Hudswell Clarke locos.

coming closure of the Darling Harbour plant in 1916, with resultant increased demands on the works railway. This was alleviated to some extent following the installation and commissioning of a telpher system to supply the No. 3 retort house which was opened in 1914 and later No. 4 retort house, both of the more efficient vertical design.

Due to the wartime conditions then obtaining, importation of any additional locomotives from Britain was not possible, so it was decided to build one from spare parts at the AGL workshops. This project made such slow progress, however, it was not ready for commissioning until 1922. It was in all respects identical to the Hudswell Clarke machines and bore the name *Phoenix*.

In order to fill the gap, the Sydney representative of the Davenport Locomotive and Machine Coy, of Davenport, Iowa, USA on learning of the company's predicament, apparently offered to supply an engine suitable for the company's requirements at short notice. It is most regrettable that lack of documentation concerning this leaves the matter in some doubt, but according to a card index record seen by the author, AGL placed an order on the Davenport Co on 31 May 1917 for one cabless saddle tank locomotive for the price of £1296-5s subject to cancellation if not delivered in time to catch the regular July sailing ex San Francisco to Sydney. The agent concerned was one FR Perrot of Sydney and according to the Davenport records the engine was constructed (and presumably delivered) in accordance with the contract. It was works No. 1618 of 1917 in the Davenport list.

Here, unfortunately, the author's research has drawn a blank. The engine must have been delivered, but strangely nobody still surviving who had anything to do with the operation of the AGL railway, or maintenance of the locomotives, admits to knowing anything about it, or ever having seen it! Yet the fact remains that when the railway operations at Mortlake were being phased out in the mid-1940s, such a loco was photographed by Mr Bruce Macdonald in the process of cutting up, the boiler of which is known to be in the possession of a resident of Sutherland, NSW.

The Davenport, which remains something of a

'mystery engine', was a 7½ ton 0-4-0 saddle tank of typical American outline, but without a cab. It had bar frames and outside cylinders 6 in x 10 in and 24 in diameter wheels, but no other details are known so far. The AGL-built locomotive, named *Phoenix* was commissioned finally in 1922 and no doubt replaced the American, which would have been so unfamiliar to the works' staff that it was no doubt unpopular and it has been suggested, used as little as possible; being hidden away in the depths of the engine shed and soon forgotten. This seems to be the only possible explanation.

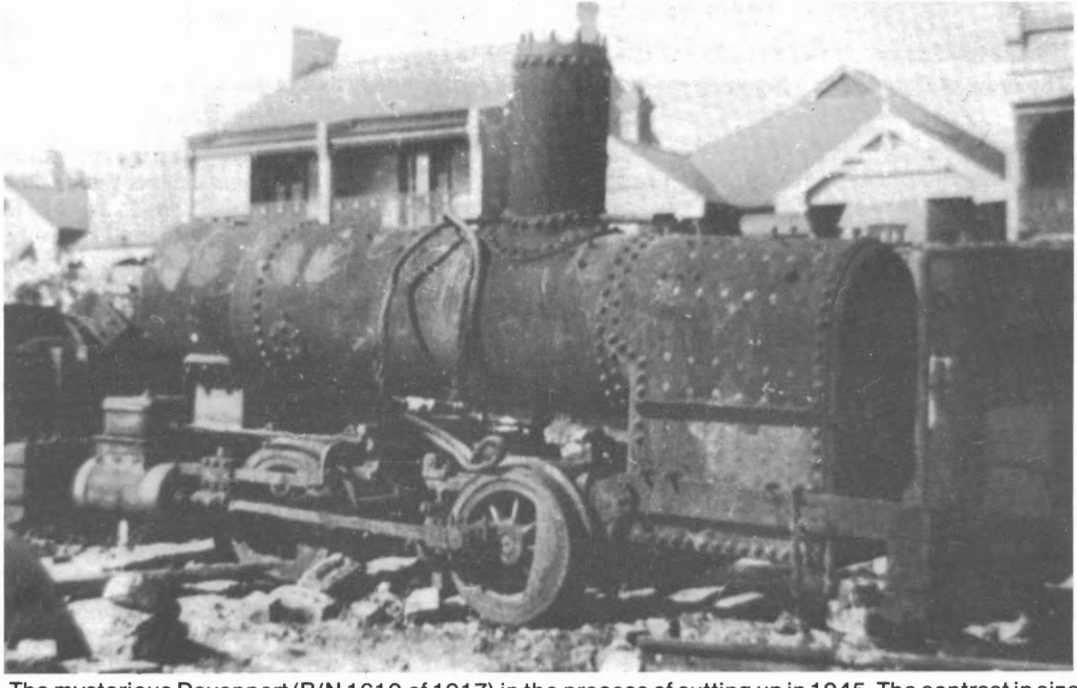
The final addition to the AGL locomotive fleet was marked by arrival of the fifth Hudswell Clarke (works No. 1560) in 1925. It carried the name *Concord* and doubtless after its arrival the luckless Yankee was even more redundant. At the time of peak demand on the railway system, the plant had six locomotives working full time and it was claimed that even then one could not be spared for overhaul.

## Locomotive Details

With the sole exception of *Concord,* all the engines were reboilered at the works, but no records giving details have survived. The engines were painted black without lining, but were always maintained in spotless condition with polished brass dome covers and fittings. At some stage the engines received numbers, not in order of construction, from No. 71 (*Ivanhoe*), No. 72 (*Concord*), No. 73 (*Kangaroo*), No. 74 (the unnamed 1885 pattern), No. 75 (*Phoenix*) and No. 76 (*Darling*). It is perhaps significant that the Davenport was not numbered, or named.

Although all the Hudswell Clarke locomotives were originally identical, some minor differences became apparent as Nos. 71, 74 and 76 had large wooden buffers attached to the headstocks at either end, while Nos. 72 and 75 had normal steel buffers. The status of No. 73 in this regard is unknown.

As built the Hudswell Clarke engines weighed approximately 8½ tons and with 165 psi working pressure boilers developed 22-25 horsepower and were capable of operating at 30-35 mph. The diminutive 0-4-0's with saddle tanks mounted between the raised firebox and smokebox, had slightly inclined outside cylinders 7 in diameter x 12 in stroke and drive was to the trailing pair of wheels; the between the frames Stephenson valve gear being reversed or notched up by a lever in a



The mysterious Davenport (B/N 1619 of 1917) in the process of cutting up in 1945. The contrast in size between this machine and the diminutive Hudswell Clarke locos perhaps explains its lack of appreciation at Mortlake. Photo: Bruce Macdonald


Typical of the Hudswell Clarke cabless 0-4-0ST locos *Concord* No. 72 (B/No. 1560 of 1925) posed for its portrait at AGL Co Mortlake gasworks circa 1937. Photo: AGL Co

quadrant on the right hand side. A steam turret surmounted by a pair of Ramsbottom safety valves was placed on top of the firebox with a shrill whistle.

The footplate was without protection for the crew except for a rear apron without bunker and two rather superfluous side sheets covering the lower sides of the firebox. Boiler feed was maintained by two injectors and a sandbox was carried on either side of the smokebox, which delivered sand mechanically only when running forwards. A tool box on the left side of the footplate was immediately behind the sandbox. A screw handbrake on the footplate operated large brake blocks on the trailing pair of wheels only. Fire irons were hung in racks on top of the saddle tank. All the engines, except the Davenport, had neat three-piece built-up chimneys with a bell mouth top.

## Rolling Stock

Unfortunately, little or no information has survived from the records of the number and types of rolling stock formerly employed on the Mortlake works railway, but photographic evidence suggest there were at least two types of timber-framed drop-bottom hopper wagons for coal transport. These had lift-out hoppers of an estimated two tons capacity either of steel or steel reinforced timber construction. They were on short wheelbase 4-wheel underframes of timber with timber buffers of curved profile attached to the headstocks either side of the central link and pin chain couplings. The large hopper wagons were painted red and the small ones black. They were almost certainly used for coke transport also, most likely after the coal haulage ceased.

The railway also used even smaller box-like open wagons of timber construction of very short wheelbase, which may have had side-tipping bodies, for coke haulage. In the later years of the railway operation, these were used mainly for transport of coke breeze, ashes and rubbish. There were also an unknown number of flat wagons for transporting equipment around the works area.

Locomotive and rolling stock maintenance was carried out in the plant workshops and there appears to have been a loco shed or lean-to on the elevated section.

The only firm record remaining of the rolling

Typical of the drop-bottom hopper wagons with lift-out hoppers as used for coal haulage on the AGL railway at Mortlake with a rake coupled to the Hudswell Clarke loco *Concord* probably circa 1927. Photo: AGL Co

stock is that tenders were invited and accepted in June 1917 for supply of 20 two-ton capacity wagons by the Meadowbank Manufacturing Co, Sydney but the details are unknown. These would in all probability be some of those illustrated, showing the coal hoppers in use at Mortlake.

## Demise of the Works Railway

During the 1914-18 war the Darling Harbour works were closed and the site resumed by the State Government. While electricity gradually replaced the gas lamps of Sydney, two new retort houses were commissioned at Mortlake. These contained the new vertical retorts which significantly improved the efficiency of the coal carbonisation process. A third, much larger gas-holder was erected and telpher tracks supplied with power from the works' own power station, were installed to move coal from the new wharf to the bunkers above the retorts.

This immediate post World War I period was the peak for the works railway, for as the vertical retort houses replaced the original horizontal retorts, the accompanying extension of the telpher system from the new Kendall Bay wharf became the source of coal supply for the retorts.

The twin problems of fluctuating seasonal demand for gas and the mountainous stockpiles of coke were solved by the increasing use of carburetted water gas plants (CWG). These, together with the space-saving qualities of vertical retorts, made it possible for Mortlake to meet all the needs of the company's consumers until coal carbonisation for gas production ceased in 1971.

So the volume of haulage work required of the railway contracted until No. 1 retort house finally ceased gas-making in 1929 eliminated railway haulage of coal within the plant.

Prior to the final displacement of locomotive haulage in 1948-49, some 15 tons of coke were required at the booster pump house each day as well as removal of coke breeze from the carburetted water gas plants necessitated haulage to the boilers or elsewhere. In addition transport of ashes from the plant to the dump and sundry other materials required use of a locomotive. So there was still sufficient work to require two engines during the day shift prior to closure of the railway and its replacement (as also the telpher system) by a conveyor belt system in 1949.

As the railway was phased out, the locomotives were withdrawn and set aside. Two were advertised for sale in March 1935 and were stated to be of 12 horsepower with 120 psi boilers and weighing 12 tons. Others were allegedly scrapped on site in 1947-48, but the fact remains that three, No. 72 (*Concord*), No. 71 (*Ivanhoe*) and No. 76 (*Phoenix*) were stored at the Sydney Machinery Company's yard in Alexandria in 1949, awaiting possible sale. According to one source, there is some evidence that one former AGL locomotive was shipped to Japan as scrap in November 1953.

Unlike the locomotives, the AGL Company's three 'Sixty-miler' colliers, ss *Pelton Bank*, *Mortlake Bank* and *Hexham Bank* were still operating regularly between Hexham wharf in the Hunter River at Newcastle and Mortlake carrying gas coal until coal carbonising ceased in 1971.

## Mortlake Today

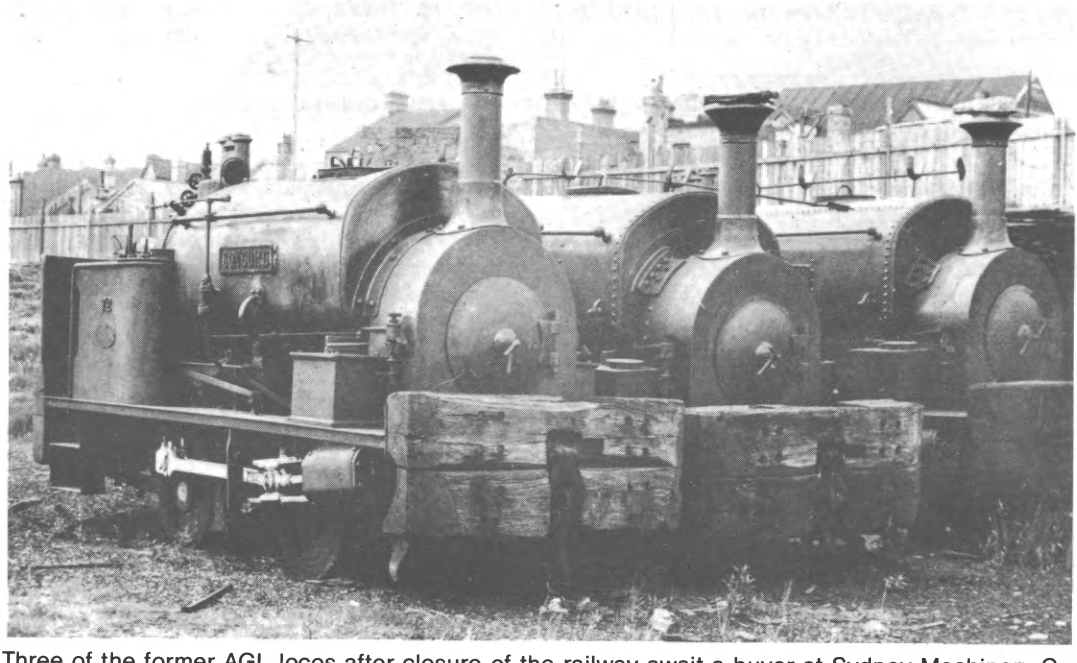
The Mortlake works still serve as AGL's main distribution centre to Sydney's consumers. Now catalytic reformers convert natural gas piped some 1200 miles (1920 km) from Moomba, South Australia into gas for domestic consumption. These will remain at Mortlake until all Sydney consumers have had their appliances converted for direct supply of natural gas.

Today there are fewer than 500 people employed at Mortlake. In the 1960s, 140 men were needed to operate the retorts for each shift. Now four work on the reforming plants and two in the computer room to monitor the natural gas pipeline and control distribution of gas to the company's still growing supply areas.

## References and Acknowledgements

Grateful acknowledgement is made to Mr Jack Thurston, superintendent of general maintenance at Mortlake, who kindly provided the plan of the works and other information. Others to whom the author is indebted for their interest and assistance include: Craig Wilson and EA Downs (Sydney), Ken McCarthy (Wollongong), Bruce Macdonald (Canberra) and David Mewes (Brisbane) the latter of whom holds George Bond's records of the AGL Company's railway.

Much useful information was gleaned from the history of the Mortlake works researched and written by Rosemary Broomham in the capacity of the Company's official historian and published in the book *'Concord — A Centenary History'* published by Concord Municipal Council in 1983.



Three of the former AGL locos after closure of the railway await a buyer at Sydney Machinery Co storage yard, Waterloo, November 1949, left to right *Concord* No. 72, *Ivanhoe* No. 71 and *Phoenix* No. 76.
Photo: Late Bart Wiles from Buckland, Collection

*Service* — AGL Journal for July 1936.

*ARHS Bulletin* No. 90, June 1944 which has a brief article on the locomotives (Davenport excepted) by the late Malcolm Park, who visited the works circa 1933.

Acknowledgement is made also to The Australian Gas Light Company for some of the photographs and the late CC Singleton Collection now included in the New South Wales State Rail Archives, Sydney.

# A CHRONOLOGY OF TRAMWAYS AND RAILWAYS IN PAPUA NEW GUINEA PART 2: 1914-1942

by Michael R Pearson

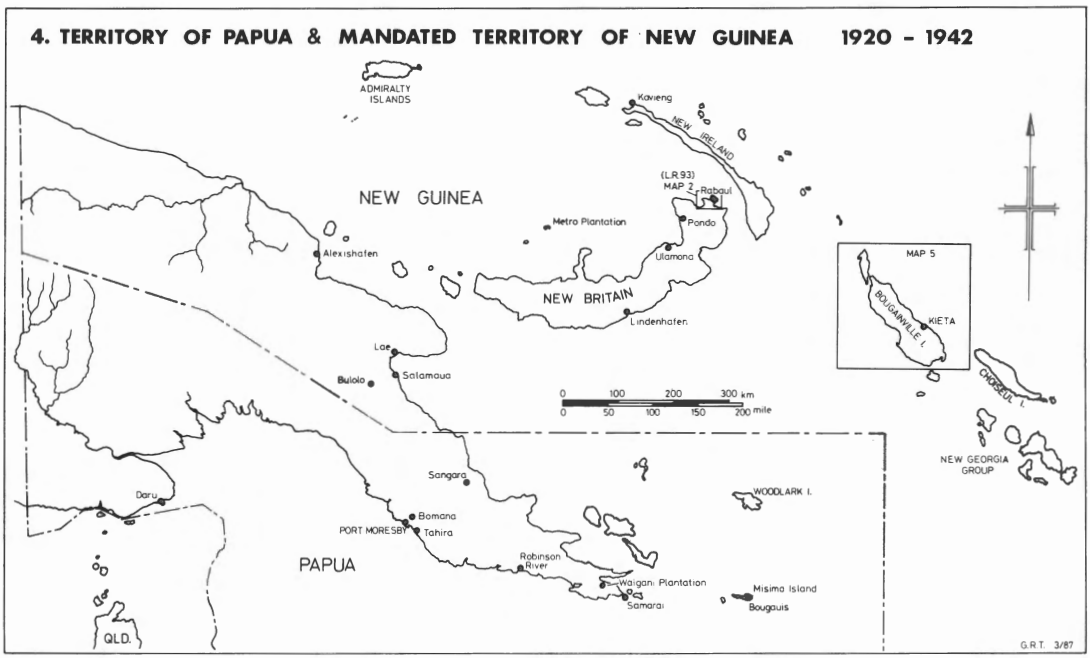
## A New Colonial Order

In September 1914 an Australian Expeditionary force captured Rabaul and German New Guinea (GNG) became an occupied territory. Under war-time conditions, no further development of railways took place.

With the cessation of hostilities, Australia retained control of GNG under the Terms of the Armistice and the area became the Mandate to the Territory of New Guinea (MTNG) in 1920. All German properties were expropriated and war reparations were paid to Australia. Over the period 1920-30 the tramlines established by the Germans became the property of Australian companies who continued their operation.

With Australian administrations in both Papua and the MTNG, the immediate post-War period held high hopes for a more prosperous future. German plantations were resold to some 350-400 individual Australian soldier settlers who brought new hopes for tropical agriculture, and Australian companies were active in prospecting for mineral wealth.

1917 The British New Guinea Development Corporation established extensive sisal plant-



Kerr Stuart 0-4-2T locomotive (KS 743/1901) at Bwagaoia, Misima Island.
Photo: H Gilbee Brown, G Bond collection

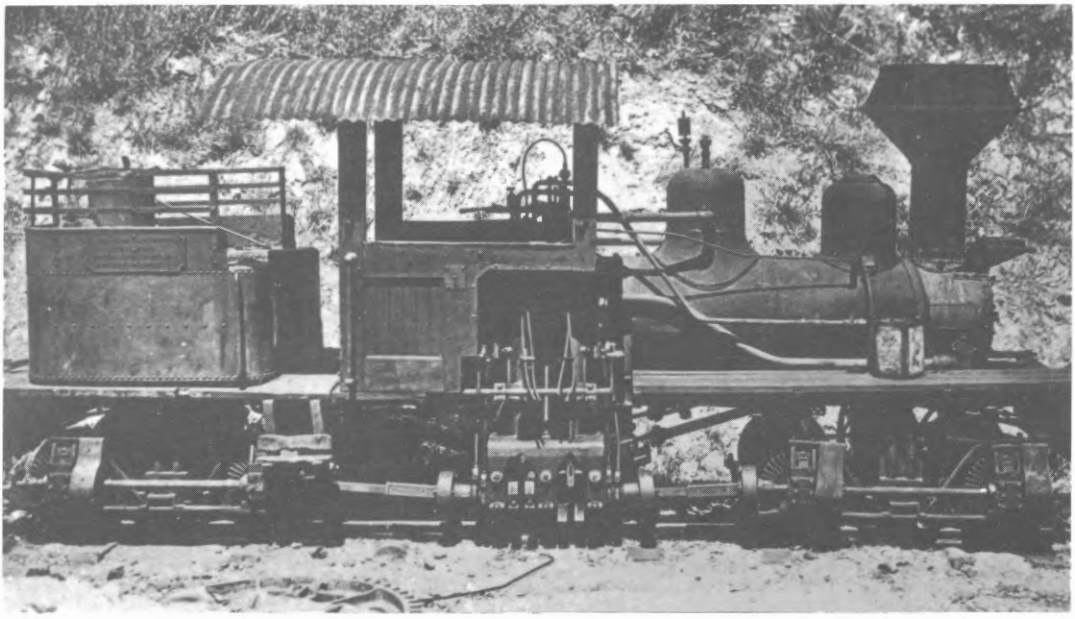
ings on Bomana Plantation, outside Port Moresby and a tramway was constructed to bring the sisal from the fields.[1] Available records indicate that only hand pushed trucks were used. Similar tramways were also constructed on nearby Fairfax Plantation. The crop was not a success and the venture was abandoned in the twenties.

On Daru Island in western Papua, the Administration and the British New Guinea Trading Company constructed a 500 yard 2 ft gauge tramway from the wharf to serve the Government Store, post office and BNG Trading Company store.[2] It was in use until 1963. Apart from the jetty tramways at Rabaul, Port Moresby, Samarai and Madang (formerly Friedrich Wilhelmshafen) described in *LR. 93,* there is also photographic evidence that tramways were used at Kavieng and Malaguna to service wharves.[3]

On New Britain the 70 cm gauge Sacred Heart Mission timber tramway was moved from Toriu River to Kuriendal.[4] In 1928 it was moved again to Ulamona, in the shadow of Mount Ulawan, an active volcano known as 'The Father' (see below).

1920 The Block 10 Misima Gold Mine NL completed construction of a 7.5 mile 2 ft gauge railway to connect its mine at Umuna on Misima Island in the Milne Bay District with the port of Bougauia.[5] A second hand 0-4-2T Kerr Stuart locomotive (B/No. 743/1901) was imported from Australia and was probably the first locomotive to operate in Papua New Guinea. A detailed description of the railway is presented in *LR. 51.*[6] By 1922 the company was facing financial difficulties and the mine and railway closed in September of that year. The locomotive was returned to Australia and continued an active life.[7]

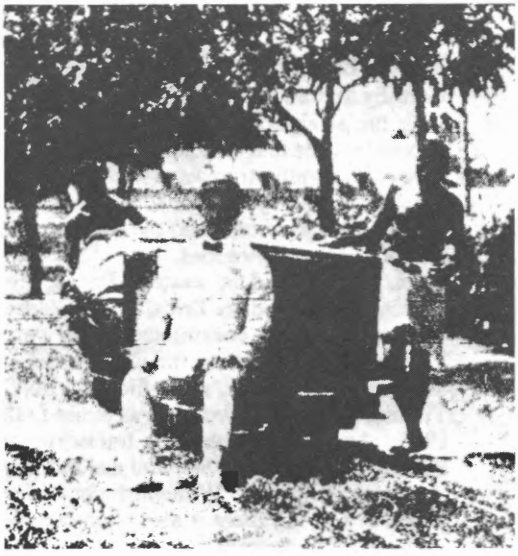
1921 Papua's most ambitious mining venture, the New Guinea Copper Company, opened a



Shay locomotive (Lima 2478/1911) on the Bootless Bay railway. Photo: UPNG Archives

6.5 mile 3 ft 6 in gauge railway to connect their mine at Dubuna, on the Astrolabe field, to smelters and a wharf at Tahira on Bootless Bay near Port Moresby. A second hand Andrew Barclay 0-6-0T locomotive (B/No. 1544 of 1918) was imported from Australia in 1920 to assist with construction and was used to operate the line from 1921. Later a Shay locomotive (Lima B/No. 2478 of 1911) was also imported second hand from Hampton-Cloncurry Mines, Queensland in 1924. The history of the railway was covered in *LR. 47* and *LR. 74*.[8] The railway closed in 1926 and the locomotives were abandoned at Bootless Bay until cut up for scrap after the Second World War.[9]

1923 At Rabaul the tramway system continued to expand. The Administration constructed a 1.5 mile extension to the 2 ft gauge tramway system to connect the Raropindik Hospital at Matupit with the NDL wharf and stores in the town.[10] In 1923 the NDL wharf and its tramline was damaged by fire, but continued in use until 1942.[11] The Administration also built a 2 ft gauge line to service the Malaguna coaling wharf. Another line was built from Ah Tams Wharf to a copra store as Rabaul developed to become the social and administrative hub of New Guinea. Around the harbour WR Carpenters also constructed a



Hand pushed wagon conveying mail to the Rabaul post office, 1914. *Sydney Mail*

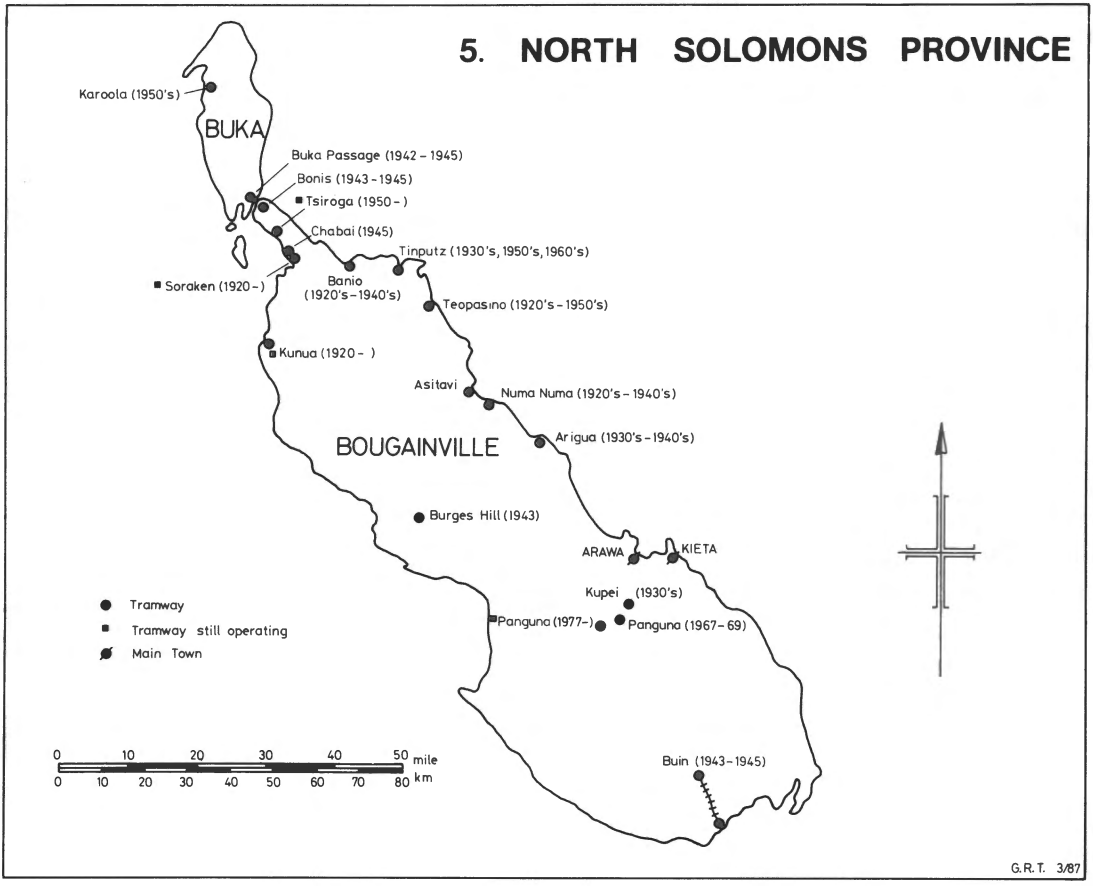
tramline in 1928 to carry copra from the wharf to their new storage sheds at Toboi.[12] Bogie wagons were hand-pushed on the tramway and from 800 to 900 tonnes of copra could be handled per day. In 1930 Ah Tams wharf and tramline were destroyed by fire.[13]

(Ed. A map of the Rabaul tramways is provided on p. 9 of *LR. 93.*)

## Plantation Expansion

Prior to 1920 the British New Guinea Development Company (BNGDC) and Burns Philp and Company were the only significant trading firms in Papua. Trading in German New Guinea had been dominated by the Nieu Guinea Kompagnie (NGK), Deutsche Handels-und Plantagengesellschaft and Hernstein & Company, but the assets of these firms were expropriated by the Australians. WR Carpenters, an offshoot of the NGK from Western Samoa and Fiji, bought out most of the NGK holdings. Burns Philp also sought to expand its activities into the MTNG and was most successful on Bougainville Island where it established plantations through a subsidiary company, Choisal Plantation. The charter of the BNGDC precluded it from taking advantage of expropriation to expand into the MTNG. Australian policies encouraged individual soldier settlers to take over plantations, but most were inexperienced in tropical agriculture and many had to sell out to the larger companies during the Depression. The plantation companies constructed tramways on a number of properties. They included:

Soraken Plantation, Bougainville: a Choisal plantation where a 2 ft gauge tramway system, which eventually totalled 14 miles, was constructed from the 1920s.[14] Originally materials were supplied by Robert Hudson Ltd of Leeds, UK and trucks were hand-pushed on the tramway. The system was used for transporting cocoa and coconuts to the fermentary and driers.



Soraken tramway, Bougainville: Passing loop on the wharf causeway. Photo: M Pearson

Kunua Plantation, Bougainville: this Choisal plantation constructed 7.5 miles of 2 ft gauge tramway. The tramway equipment was originally supplied by Robert Hudson in the 1920s.[15]

Tinputz Estate, Bougainville: a private plantation where a 2 ft gauge tramway was used between the wharf and copra and cocoa stores up to the late 1960s.[16]

Teopasino Plantation, Bougainville: a 2.5 mile 2 ft gauge tramway was in use on this Choisal plantation prior to World War II and subsequently operated until the 1960s.[17]

Banio Plantation, Bougainville: a 3 mile 2 ft gauge tramway was used on this Burns Philp plantation prior to the Second World War.[18] It was destroyed during the War.

Arigua-Kurwina Plantation, Bougainville: this 3 mile 2 ft gauge tramway connected the Burns Philp plantation of Kurwina with the Choisal estate of Arigua prior to the Second World War.[19] The tramway was destroyed during the War.

Boau Plantation, Bougainville: this BPs plantation, has 2.5 miles of 2 ft gauge tramway.[20] Wagons are hand-pushed and the line is still in use.

Numa Numa Plantation, Bougainville: this plantation, owned by Buka Plantations, operated about 4 miles of 2 ft gauge tramway prior to World War II.[21] The tramway was removed after the War.

Lindenhafen Plantation, New Britain: another extensive plantation tramway operated on this Burns Philp property. By 1942 there were 12.5 miles of tramway.[22] The tramway continued operations until 1980.

Iliu Plantation, Gurove Island: this Catholic Mission plantation is located off New Britain. A half mile tramway was constructed from the wharf at Peter Harbour through Burns Philp's Meto Plantation to the copra store at Iliau Plantation.[23] It is still in use.

Bali Plantation, Unea Island: a 1 mile tramway is known to have operated from the wharf to the store at this plantation, off New Britain.[24]

Pondo Plantation, New Britain: WR Carpenter & Coy built a 70 cm gauge tramway from their dessicated coconut factory to the store at the wharf near Rabaul.[25] The tramline was removed in 1963.

Expatriate women being escorted to the wharf on the Pondo plantation railway, New Britain, December 1933.
Photo: courtesy Mrs Ferguson

British and New Guinea Development Company tramway at Itikinumu. Photo: courtesy Al Bovelt

There are reports that other plantation tramways operated at Robinson River, Eilogo, Itikinuma and Koitaki rubber plantations in the Central District of Papua; at Waigani plantation in Milne Bay; at the St Anna Catholic Mission in the Sepik District (1 mile); at Longen and Pelleluka plantations in Manus District; and at Neinduk and Namburg plantations on New Britain. Burns Philp, as a major trading company, also established tramlines at a number of its stations.

In Papua's Northern District there were moves to establish a sugar industry in the 1930s. The most ambitious venture was Sangara Sugar Estates Limited, floated in Australia in 1931 to develop 20,000 acres of Crown Land at Sangara as a sugar plantation. Trial plantings were made over some years and the company planned a £37,000 investment in a 3,000 acre plantation, sugar mill, tramlines, rolling stock and wharf.[26] Although trials were continued until 1935, the backers were unable to gain a sugar quota and the scheme lapsed. By 1934 Lt Governor Murray reported "our hopes of seeing extensive sugar plantations in Papua has by no means been abandoned, but it has unfortunately been deferred."[27]


Kavieng tramway to customs shed.

Samarai tramway to Burns Philp warehouse.

## Gold Fever

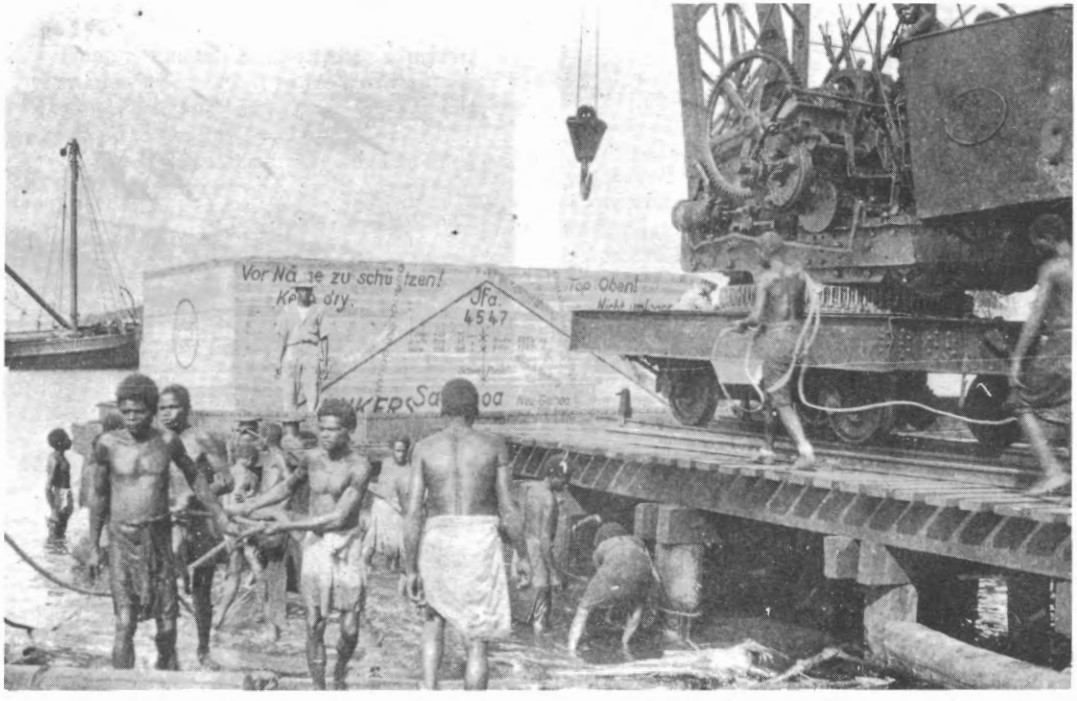
In 1922 a solitary prospector 'Sharkeye' Park found gold on Koringa Creek in the MTNG.[28] Symbolically, the first *balus* (Pidgin for aeroplane) made its historic flight over Port Moresby in the same year.[29]

News of the Koringa Creek gold find sparked a 'gold rush', but miners and their equipment had to travel to the field by foot over inhospitable country. Carriers were able to handle 20 kgs apiece, but it took two weeks for the journey, so half the load of each carried consisted of food for the journey.[30] A carrier line consisted of up to 200 men. Conditions were wet and slippery, while disease and accidents, as well as head-hunting Kukukuku (a local tribe) took their toll on the carriers.[31]

Obviously improvements in transport were of vital importance if the field was to prosper.

1925 CJ Levien, the main driving force on the Koranga Creek field, in a letter to his director, Wells, on 6 April suggested "it should be possible to build a light narrow gauge railway" to overcome the transport problem.[32] He felt that such a railway would not only bring in the equipment needed by the miners, but could also back-load timber from the fine strands of klinki pine in the area. The idea was taken up, but the lack of railway or tramway ordinances presented a legal problem concerning the right-of-way width and freight rates.[33]

1927 Levien, frustrated over protracted legal battles for the right to construct a railway, decided to try aeroplanes to overcome



Unloading a Junker aircraft at Lae, c1931 using 10-ton steam crane. Photo: UPNG Archives


Loading a motor vehicle onto a Junkers aircraft at Lae Airport. Photo: UPNG Archives

transport problems.[34] Other groups settled for donkeys. Both machine and beast were on the same ship from Australia when it ran into a cyclone off the Queensland coast. The donkeys bolted and disappeared overboard, but the plane was securely lashed down and it arrived safely in Lae.[35]

On 18 April the first flight was made from Lae to Bulolo, putting an end to hopes that a railway or road would be built.[36] Guinea Airways proposed that aircraft would be able to handle the transport problems posed by New Guinea's rugged terrain without the expensive infrastructure cost of roads or railways and promoted the catch cry "airways are the cheapest highways".[37]

1928 New Guinea Goldfields commissioned Mr Jensen, a former railway draftsman, to prepare a plan for a railway to link the Bulolo goldfield to the coast. He proposed a 90-mile line down the Buang route at an estimated cost of £250,000.[38] The proposal was criticised as impractical and the company rejected the scheme.

1929 The gold beds at Bulolo were assessed to be suitable for profitable dredging.[39] However, the transport of dredging equipment to the isolated field was a formidable challenge. The Ellyou Corporation, backed by the massive Mining Trust of London, commenced a survey for a railway to the Bulolo field.[40] This was completed in November. The proposed line would be 166 miles in length with many bridges and tunnels. It would have taken three years to build at great cost in money and lives.

Levien backed aircraft to handle the task. He formed the Bulolo Gold Dredging Company, ordered a new all metal Junkers G-31 for Guinea Airways, the largest transport plane of the time, and had a dredge prefabricated into parts of not more than 3-tons, the G-31 payload.[41]

1930 On Bougainville Island a small gold mine opened at Kupei in the mountains behind Arawa Plantation.[42] A short tramline is known to have operated at the mine. However, the gold was difficult to win and was mixed with low grade copper ore.

1931 For the Bulolo Gold Dredging operation, a one mile 5 ft 3 in gauge railway was constructed from the wharf at Voco Point to the Lae airstrip in 5 weeks.[43] Dredge components and other equipment were transported along the line for airlifting to Bulolo in the Junkers G-31. The railway was operated by a 10-ton self-propelled crane and the rolling stock consisted of a number of bogie flat-cars. The airlift was the largest in the world to this time.[44] By November the two G-31s were lifting over 300 short tons a month and some 40,000 tons of material were carried between 1931 and 1942. In August 1932, an earthquake and subsidence occurred at Voco Point resulting in the loss of the wharf, steam crane, 100 yards of railway line and three acres of foreshore.[45] The wharf and railway line were rebuilt closer to the airstrip, opposite the Cecil Hotel, and a 7-ton steam crane replaced the lost unit. There are also reports of a petrol locomotive on the railway. Interviews with 'old timers' suggest this may have been a conversion from a *Ford* motor vehicle. The railway remained in operation until destroyed by Japanese bombing in 1942.[46]

At Salamaua, south of Lae, a small airstrip also serviced the Bulolo goldfields and a tramline was constructed to transport goods to the aircraft.[47]

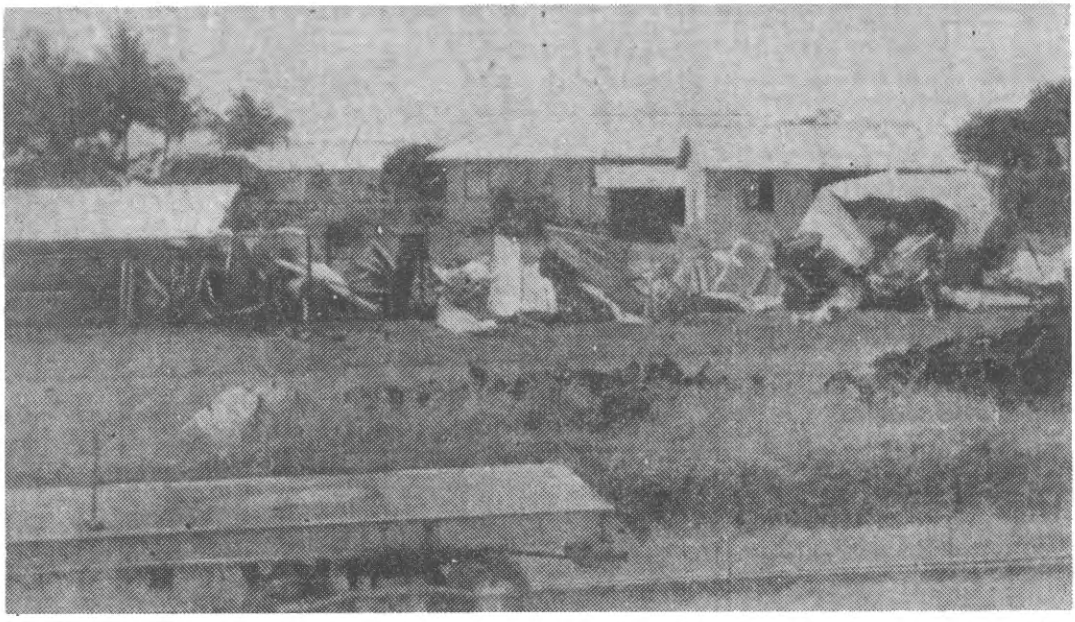
## The Missions

Between the wars, missionary activities expanded as additional organisations joined those which had operated in German New Guinea. By 1940 the missions in the MTNG claimed 410,465 adherents, or 60 per cent of the indigenous population and the missions carried the major burden of education and health services in both the MTNG and Papua.[48] They also had a considerable stake in economic activities, with extensive plantation holdings. Tramways were constructed on a number of the major mission stations.

1928 The Sacred Heart Mission established a sawmill at Ulamona, in the shadow of Mount Ulawan, an active volcano on New Britain known as 'The Father'. They moved their 70 cm gauge tramline from Kuriendal to service the mill.[49] A steam locomotive was introduced to operate the line and in 1938/39 it was joined by an 0-6-0WT locomotive built by Arn. Jung Locomotivfabrik of Germany (their B/No. 8644 of 1938). Both locomotives operated until the War.

1930s On Bougainville the Catholic Mission established a sawmill at Tinputz. A half-mile 2 ft gauge tramway was constructed for the transport of logs and timber.[50] It was later used as a tramway from the wharf to a store.


Symbolising Papua New Guinea's reliance on air transport: the Divine Word Mission aircraft on the Alexihafen tramway. Photo: Nev Nation



Wreckage of Guinea Airways depot and quarters at Lae following Japanese bombing, February 1942. A bogie flatcar is in the foreground. Photo: *Courier Mail*

1935 The Catholic Mission at Alexishafen acquired a light aeroplane for mission work in the Highlands. The airstrip was 2.5 miles from Sek and was linked to the station by a tramline.[51]

Unknown. At Vunapope on New Britain the Catholic Mission built a 70 cm gauge tramway from a wharf to a timber and ship building yard.[52] It is still in use.

## Gathering Storm Clouds

The Depression years saw the prices of plantation products sink to all time lows. As the decade came to a close growing international tensions brought a boom in commodity prices and the plantations began to look forward to more prosperous times. Instead, external forces brought a dramatic upheaval to the colony. But first, nature made its mark.

1937 On 29 May Vulcan and Matupit, two small volcanoes on each side of Rabaul Harbour, erupted showering ash all over the town.[53] There was extensive damage to property and it was decided to move the capital to Lae.[54] This was the beginning of the end for the Rabaul tramways as they were buried under ash. Although the roads were quickly cleared, most of the tramway was abandoned and only the wharf lines remained in use. By 1942 the move to Lae was almost complete.

1939 The outbreak of World War II provided an initial boom to Papua and the MTNG through buoyant commodity prices.[55]

1941 The Japanese attack on Pearl Harbour in December marked the outbreak of the Pacific War.

1942 On 23 January Japanese forces landed at Rabaul. Most Australians had already been evacuated. Nearly all of those who remained were captured and kept in POW camps at Rabaul. The tramway systems in Japanese occupied territory were either ripped up for use elsewhere or were destroyed by Allied bombing. The Lae railway was damaged by Japanese bombing on 25 February.[56]

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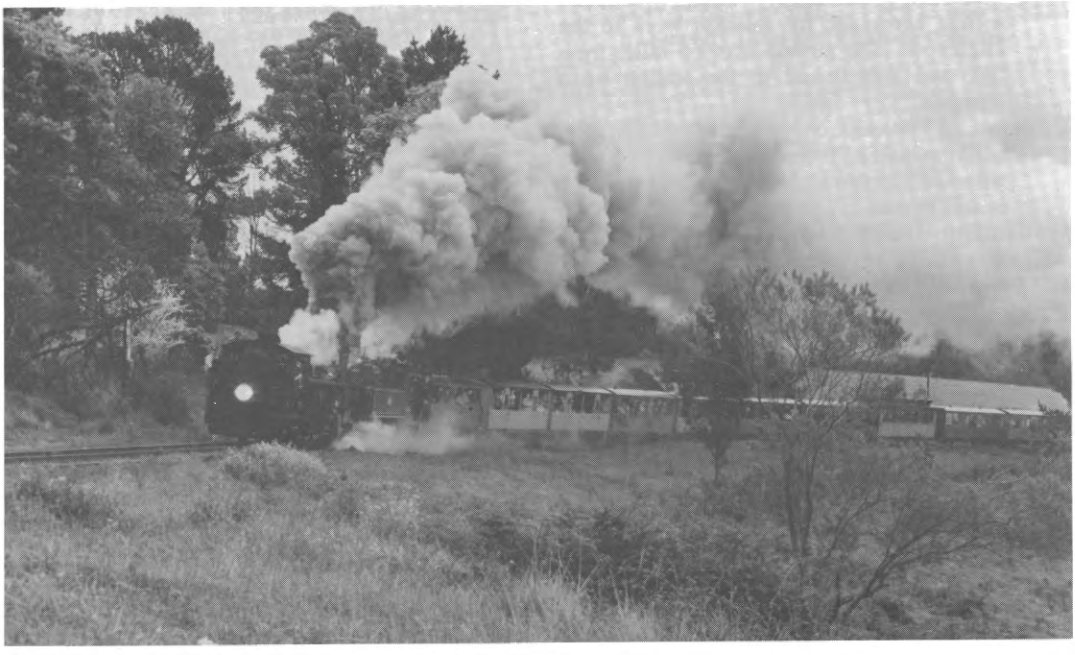


PBPS locomotives 8A and 7A on down ARHS special make a photo run in rain near Clematis of 6 September 1986. Photo: JL Buckland

# HUDSWELL CLARKE UNDERGROUND LOCOMOTIVES, STOCKTON BOREHOLE COLLIERY, NSW

## by John Kramer

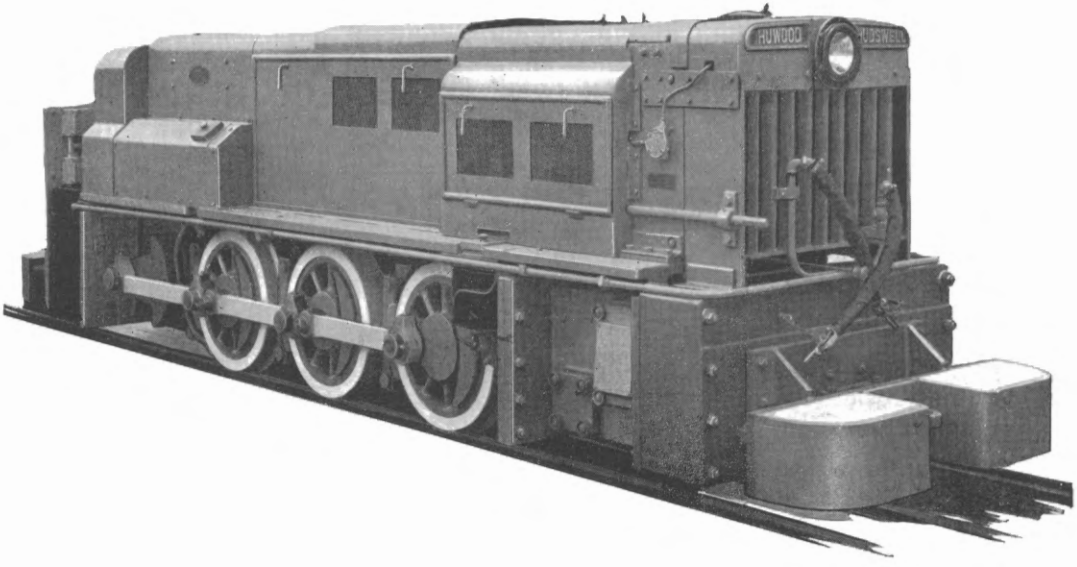
Hudswell Clarke and Company of Leeds, England built three flameproof diesel mechanical locomotives in 1956 for BHP's Stockton Borehole Colliery, situated near Cockle Creek on the shores of Lake Macquarie, New South Wales. These 3 ft 6 in gauge (1067 mm) locos were of the 0-6-0 wheel arrangement and intended for underground use. They were known as the *Huwood-Hudswell* 100 hp type, being constructed as a joint venture between Hudswell Clarke & Company and Hugh Wood & Company Limited of Gateshead-on-Tyne, England.

The Hudswell Clarke-Hugh Wood joint venture was established on 28 September 1944 for the manufacture of flameproof diesel locomotives for use in mines. The first such loco was released by Hudswell Clarke in October 1946. By the time the last flameproof locos came off the production line in 1971, some 227 of this type had been constructed by Hudswell Clarke. The vast majority were built for National Coal Board collieries in Great Britain, although a handful went overseas to India, Australia and Canada.

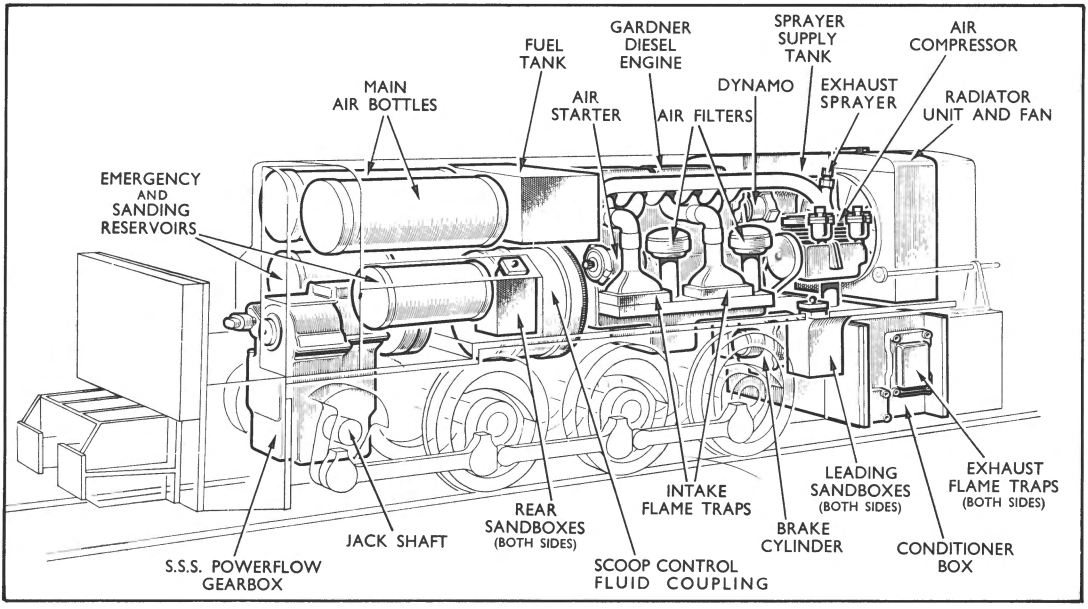
The 100 hp Huwood-Hudswell type was an 0-6-0DMF locomotive powered by a Gardner 6LW engine.[1] Transmission was via a Vulcan Sinclair scoop controlled fluid coupling to a Sinclair synchro-self-shifting powerflow three-speed gearbox. Its greatest speed was 14 mph and the maximum tractive effort was 8,300 lbs. Weighing approximately 15 tons, it was 5 ft 6 in (1676 mm) high, approximately 5 ft (1524 mm) wide and 16 ft 8 in (5080 mm) long without buffers.

The three Stockton Borehole Colliery locomotives were given builder's numbers D1005-D1007 and were numbered 1, 2 and 3 respectively in service.[2] They were dispatched from Hudswell Clarke's works on 16 March 1956 and were probably in service later that year. After delivery to the colliery the three locos had to be lowered down the No. 1 shaft to the Young Wallsend seam, some 720 ft (220 metres) below the surface. It was a very tight fit!

Information on the history of these locomotives in Australia has been provided to the author by the




Hughwood-Hudswell 100 hp flameproof underground locomotive.




present manager of the Stockton Borehole Colliery, Mr GC Gibson.[3] In regard to normal operations, he states that they:

> were used in the seam for hauling coal for a distance of approximately 2.3 kilometres, with a payload of each train of 150 tonnes. Two locomotives were used in tandem, with the third machine being used as a back-up for breakdowns or maintenance purposes. The train was operated by one driver and a shunter, hauling fifteen 10 tonnes skips, tipping the load into an underground bin.
>
> The machines were displaced in December 1976 by a conveyor belt system for hauling coal produced at the face. They have not moved since being put out of service and would be near impossible to recover due to the state of the underground track system.

It seems fairly clear that these three locomotives will remain in their present location for some time. It is interesting to speculate if any other mining locos have been abandoned underground in Australia.

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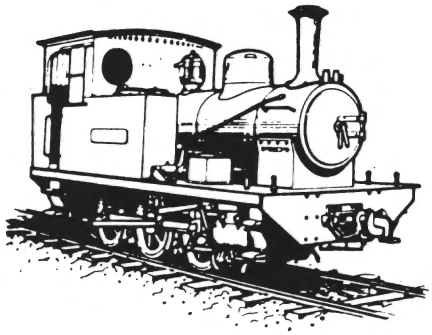


# BOOK REVIEWS

**TASMANIAN HISTORICAL RESEARCH ARTICLES.** The following three articles by Lindsay Whitham have been published in *Tasmanian Historical Research Association: papers and proceedings*. Reprints are available from the author at $2.00 each includig postage. Write to: LS Whitham, 43 Mt Stuart Road, Hobart, Tas, 7000.

**Water Power in the South Heemskirk Tin Field** (*THRA* Vol 27:2, June 1980).

This article begins with a review of the South Heemskirk tin field, which came into prominence following the discovery of tin near Mt Heemskirk in April 1876. Excited prospectors and investors were drawn to the area in the hope that they would share in a similar "bonanza" to that experienced at Mt Bischoft. Unfortunately the field got off to a slow start, as capital was spent on tramways, motive power, crushing and treatment plants, at the expense of underground exploration and development. Expansion was further hampered by the area's isolation, poor transport facilities and the lack of firewood for steam boiler fuel.

The article goes on to cover the expansion of the mining field and the development of various power schemes, starting with the simple waterwheels and ending with the Federation Tin Mines Ltd 700 hp Boving pelton turbine and BTH generator installed on Wakefield Creek in 1927. A brief mention is made of several railways and tramways, including probably the first one in the Zeehan region, albeit a 60 chain tramway, constructed in May 1882 by the Cumberland Tin Mining Company.

The Government's initial doubts as to the value of the field were well founded, as work during the life of the field can generally be described as spasmodic and, in March 1938, the last remaining company, Federation Tin Mines Ltd, ceased operation.

The article is well referenced and includes four sketched location diagrams.

**Where The Four Roads Meet** (*THRA* Vol 29:4, December 1982).

This article is a sequel to "Water Power on the South Heemskirk Tin Field", describing the locality's early history together with subsequent development of the numerous tracks, roads, tramways and railways that transversed the region.

The discovery of the South Heemskirk tin fields (1876) and the Zeehan-Dundas silver fields (1882) brought much pressure on the Government of the day to provide an adequate transport system for the area. This was of prime importance in order to open up the fields and to move hard won ore to a safe all weather port in Macquarie Harbour.

As an interim measure, the manager of the Montague mine instigated a search of the storm swept coast to locate a possible port site. Mr GC Weber, owner and skipper of the 7 ton cutter *Trial* skilfully threaded his boat between some reefs to shelter for the night, only to be beached by a westerly gale. The site became known as Trial Harbour, which was only a fair weather port for small steamers and sailing vessels, yet played a vital role in the development of the Heemskirk and Zeehan areas.

The article describes the growth of the Trial region and the subsequent derivation of the "Four Roads". Four maps provide a clear picture of what was once a maze of tracks, tramways and roads. Of interest to the railway historian is the description of various railway and tramway surveys that were

commissioned to serve the expanding mining fields within the region. Further reference is made to the Comstock and Federation tramways that were constructed to serve the Heemskirk area's immediate needs. The text is well written and fully referenced should further research be contemplated.

**The Latrobe Wharf Railway** (*THRA* Vol 32:1, March 1985).

This article describes the protracted struggle of the Latrobe townspeople to obtain a short rail link between the main line and the town wharves, in the face of Government vaccilation, apparent indifference and even deliberate obstruction.

Latrobe was established in 1856 on the banks of the Mersey River and was the furthest navigable point upstream which could be reached in high tide by small ships. The rich farming areas to the south and east suffered appalling difficulties in moving produce by bullock waggon on the rough tracks and poorly formed roads. Latrobe's busy wharf activities consequently made the town the commercial hub for the region.

The article covers the formation, construction and demise of the Mersey and Deloraine Tramway Company which, from the outset, was beset with financial and labour problems and built only 17 miles of line between Coilers Creek and Latrobe. It opened for passengers and goods traffic on New Years Day, 1872, but closed three and a half months later without the promised rail link between the town and wharves being built.

In May 1885 a Government railway opened between Deloraine and Formby (later renamed Devonport). Despite passing through Latrobe, much of the farm produce was railed directly to Formby, which was conveniently located at the mouth of the Mersey. The Latrobe Chamber of Commerce sought to have a rail link constructed between the station and the wharves to recapture lost business. Between the years 1885 and 1900, despite much agitating and many public meetings, the Chamber was thwarted at every turn by bureaucrats well versed in stalling and stifling procedures.

The article typifies the parochial struggles and intertown rivalries that existed (and still exist) in Tasmania. It includes three location maps, two photographs, appendicies and an extensive reference list.

**LR**

**ALUM MOUNTAIN, BULADELAH, N.S.W.** by Ted Baker, Buladelah District Historical Society.

This publication is a 16-page, A4 sized booklet covering the history of alunite mining at Buladelah between 1878 and 1950. A fair coverage is given to the narrow gauge, man-powered tramways that linked the mountain quarries to the bankhead; the gravity operated inclined tramway; and the short horse tramway from the bank foot to the Myall River wharf.

Copies are available for $5.00 + 60¢ postage from: The Hon Secretary, Buladelah District Historical Society, c/- Crawford River, via Buladelah, NSW, 2423.

**IJM**

**TIMBER TRAMWAYS ON THE ATHERTON TABLELANDS** by Les Pearson; published by the author 1985. 16 pages.

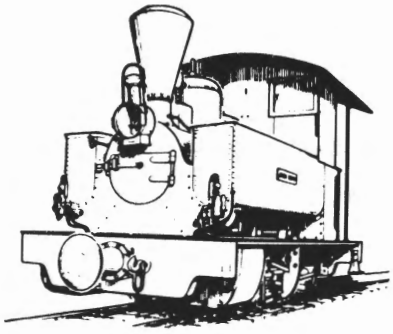
In 1912, with the development of the government rail network in the southern part of the Atherton Tablelands, new timber-getting areas were being opened up. Cairns Timber Ltd saw the opportunity to obtain excellent timber in the Peeramon and Evelyn Scrub areas. Timber tramways were needed to bring the logs to the railway line. The two lines were timber railed and horses and bullock teams were used for haulage. Their stories seem to have been uneventful and short.

Les Pearson's monograph on these tramways is informative and useful, providing details of routes and working methods, and illustrated by a selection of photographs. The author was probably disappointed by the quality of reproduction of text and photos.

Recommended for those interested in timber tramways or Queensland light railways.

Available from Les Pearson, 7 Martyn Street, Cairns 4870. Retail cost is $3.75, so add $1 for postage.

**JB**



# LETTERS

**ANDREW BARCLAY 718/1892, 0-4-0ST, LR.80.** I noted with interest a drawing on the back cover of your bulletin No 80 depicting an unusual winch locomotive built for Brownlee & Co in Havelock, New Zealand by Andrew Barclay in 1892.

Enclosed is a photograph of this machine in action. It is supplied courtesy of the Marlborough Archives, Blenheim. In the photograph the locomotive appears to have been blocked off the rails in order to operate a winch. Also of interest is the hand-powered, belt-driven jigger parked on the left.

Brownlee operated an extensive bush tramway system in the Marlborough Sounds from 1872 to 1916, which totalled over 60 km of track. Over the years he owned a Chaplin locomotive, 5 Barclay

Andrew Barclay 0-4-0ST locomotive with hauling gear on William Brownlee & Sons tramway, Havelock, New Zealand. Photo: NZ Forest Service

locos and a Heisler. It was certainly the biggest bush tramway system in New Zealand in its day.

**Paul Mahoney**
**for Director-General**
**New Zealand Forest Service**
**Wellington, NZ**

## NORTH WEST COASTAL TRAMWAYS, ROEBOURNE, WA: LR. 52

*Light Railways No. 52* (Winter 1975) contained an interesting article by Ian Crellin and Frank Stamford on the Roebourne-Cossack-Point Samson tramway in Western Australia. There are, however, some factual errors (possibly perpetuated by the notes on the line in *ARHS Bulletin* for May 1972 — which are acknowledged in the references) that should be corrected. They are all covered in the chapter on the line in John Joyce and Allan Tilley's excellent book, *Railways in the Pilbara* (J & A Publications, 1979).

The line was opened not "around 1881", but on 21 June 1887, tenders for construction having been called in December 1885, 7 months in advance of the authorising Act! The Point Samson branch was opened in 1909. The line was not converted from 2 ft to 3 ft 6 in gauge in "about 1910". It was, in fact closed in 1926 following cyclone damage in the previous year and was noted as being dismantled in 1933. The Point Samson jetty was rebuilt and reopened in 1938 with a 3 ft 6 in gauge line serving both it and the local goods sheds.

Notwithstanding the finding of a 2 ft 6 in gauge bogie in the sea off Point Samson jetty, there can be little doubt that the gauge was 2 ft gauge. Not only do the official records show this, but the two steam locomotives on the line, O & K 2271/1906 and 2303/1907 were built to, and later ran elsewhere to this gauge. As Ian Crellin and Frank Stamford point out, the transfer of rolling stock from the 2 ft gauge Carnarvon line to Roebourne reinforces this supposition.

A fascinating reference in John Price's book, *Tramcar, Carriage and Wagon Builders of Birmingham* (Nemo Publications, 1982) might refer to this line. He relates that in August 1886 (a month after the Act for the line and while construction was in progress be it noted), members of the British Association visited the Saltley Works in Birmingham of the Metropolitan Railway Carriage & Wagon Co Ltd and saw there "large double-deck horse cars being built for the North London tramways and some liliputian vehicles for a 2 ft gauge railway in Western Australia." One can only wonder whether there were indeed the cars for the WAGR's Roebourne-Cossack line! The photos of them (particularly in *Railways in the Pilbara*) certainly show that they were diminutive, but well-made, with iron dashes and brake handles reminiscent of contemporary horse tram practice.

**Richard Horne**
**South Croydon, UK**

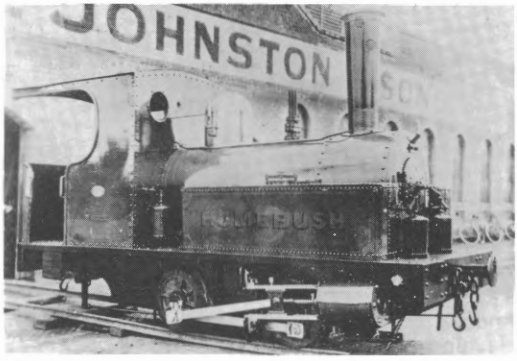
**INDUSTRIAL LOCOMOTIVE "HOMEBUSH".** I was interested to read in the April issue of *Light Railway News* of a locomotive named *Homebush* at the CSR Victoria Mill.

We in New Zealand had an industrial locomotive named *Homebush,* which was built by Johnston & Sons of Invercargill in 1913. It was built for the Homebush Coal Co. who had a three and a half mile line from Coalgate Railway Station on the now closed Whitecliffs Branch in Canterbury on the South Island. The name Homebush came from the name of the Deans Estate nearby. The locomotive was sold to the Marlborough Timber Co at Port Craig (the extreme south of the South Island) where it worked until 1920, when it went to Auckland for the Auckland Gas Co. for two years. It then worked at two sawmills at Mamaku in the North Island for about 5 years and in 1935 was reported idle at Parker & Lamb's Sawmill at Hangatiki which is near the famous limestone caves.

The records show that it had a 9 hp boiler at 160 psi and 7½ inch cylinders.

A photo of the locomotive outside Johnston's works is enclosed.

**Alan Bellamy,**
**Tauranga, New Zealand**



## CONTRIBUTIONS

Our 'Letters' columns are open to all readers to comment on articles, provide corrections and additions, or to contribute information on railway history which does not justify a full article. Contributions are welcome.

**The Editor**

## SECV ELECTRIC LOCOMOTIVES, LR.84.

Thanks to Wolfgang Messerschmidt of Giengen (Brenz), West Germany the construction numbers for the original 90 cm gauge Bo-Bo electric locomotives built in Germany for the State Electricity Commission of Victoria's Yallourn undertaking in 1927-28 by A. Borsig AG, Berlin are now available. They are recorded as:

Borsig B/Nos 12001-12003 delivered 21/7/27 (SEC Nos 21-23)
Borsig B/No 12054 delivered 10/10/27 (SEC No 24)
Borsig B/Nos 12113-12116 delivered Dec 1928 (SEC Nos 25-28)

The electricals in each case were built and supplied by Siemens-Shuckert-Werke (S-S-W), whose B/Nos are not on record, except for No 28, hitherto thought to have been built by Henschel u Sohn. This firm built the car bodies and mechanical parts for SEC Nos 29-34 inclusive (S-S-W B/Nos 2563-2565 of 1928, 2944 of 1933 and 3160-3161 of 1936). In the case of post-war locomotives, Nos 101-113 and Nos 121-123, their builder's plates listed the respective serial numbers for Henschel and Siemens-Shuckert-Werke.

**WA Pearce**
**Kensington, Vic**

## EARLY CANE TRAMWAYS AND THEIR LOCOMOTIVES

The many gaps in the history of the early tramways and locomotives used in the canefields of Queensland and Fiji were partly filled in by the notes I provided on the 'discovery' of the first volume of John Fowler & Co's Locomotive Register (*LR. 81*, p.21). The ensuing correspondence, particularly from John Browning (*LR. 87*, p.22); *LR. 93*, p.23) has added to our knowledge, but some further comments may now be in order.

John Kerr's book *Pioneer Pageant* shows that W Sloane & Co was a southern Queensland company that financed many sugar mills. This enhances the probability that the two locomotives, JF 4710 and 4711/1883, ordered by them, went to Queensland mills.

JF 4923/1884, a 0-4-2ST of 2 ft gauge with 6 in x 10 in cylinders, ordered by AC Macmillan, should be added to the list in *LR. 81*. I failed to make the connection that Macmillan, along with WD Graham, was joint proprietor of the Burdekin Delta Sugar Co's Airdmillan mill. Why this company's earlier locomotive, JF 4368/1882, and its three ploughing engines, JF 3723-4/1879 and 4427/1882, were ordered under its own name and not Macmillan's, I do not know.

John Browning has brought to my attention photos in the Oxley Library of the Bloomfield Sugar Co's Vilele Plantation. These show clearly that the locomotive was a JF 0-4-2T with jackshaft drive, identical to that shown on p.22 of *LR. 87*. If this latter photo is correctly captioned as Airdmillan mill, then it cannot be the same loco as ran at Vilele, for these operations were contemporaneous. It is curious that although in use as early as 1884, the Vilele loco may have been second hand as there is no apparent record of it in the JF Register, which does show Vilele's two ploughing engines, JF 4533-4/1883. The suggestion that the Vilele loco might be JF 4505/1881, second hand from the Kiavea Plantation, Hawaii is incorrect. The photo on p.21 of *LR. 87* is of this loco (as my letter on p.22 shows) and it is entirely different. Similarly, the suggestion from the same source, that JF 5938/1890 was at Habana mill, is now known to be not so. It was *La Maguerita* of Las Palmas del Chaco in South America.

Prompted by Peter Dyer, that indefatigable New Zealand historian of Fijian cane tramways, I have been researching the considerable, but incomplete, records of three Glasgow firms that built sugar milling equipment: A & W Smith & Co Limited, W & A McOnie, Engineers and Mirrlees, Tait & Watson. The last two of these firms underwent changes of names and were eventually taken over by A & W Smith, who (fortunately for us) deposited many old records with the Glasgow University Archives to keep on behalf of the Scottish Records Office. I have limited my research to the period from the late 1870s to mid-1880s, as being the most likely to provide information on early canefield locomotives. The information on sugar

plantations and mills that has been sifted to produce just a few items of railway interest is vast, but fascinating and covers most of the world's sugar countries.

It should be noted that while in the past these firms have been described as "agents" in relation to the ordering of locomotives, although strictly correct this is misleading, for they did build the vast majority of equipment that they supplied and ordered only such items as locomotives from specialist builders, generally when they formed part of a larger package (e.g. a complete mill and/or plantation tramway installation). However, both A & W Smith and W & A McOnie did actually build 5 or 6 locomotives between them.

The Mirrlees, Tait & Watson records show that about August 1882, they received drawings from J Fowler showing details of both 4-wheel and bogie cane wagons, brake wagons, etc for 2 ft gauge lines. In the same year they supplied a complete mill to the Deuba Sugar Co, Fiji and in October prepared drawings for the Deuba Sugar Company showing arrangement of railway round both mill and plantation, with details of portable railway. In view of this, John Browning's suggestion on p.23 of *LR. 93* that Mirrlees, Tait & Watson possibly supplied the locomotive that was in use at Deuba in August 1883, is more than likely correct. It is also possible that this loco was JF 4515/1883, ordered for Mirrlees, Tait & Watson.

There are numerous references in Mirrlees, Tait & Watson records to F Parbury & Co (later Parbury, Henty & Co), who seem to acted in the supply of plantation equipment exclusively to Australia and Fiji. This reinforces the view I expressed in *LR. 81* that JF 4448/1882 and 4529/1883, ordered through them, probably went to Australia or Fiji.

The locomotives built by A & W Smith need not concern us: they were of standard gauge, one being produced in 1869 and the other one or two (the records are not clear) in 1877. The W & A McOnie situation for this period is far more interesting: they built three locomotives and ordered two others, all for use in the sugar industry. All carried builders numbers in the series allocated to mill engines (which included all stationary engines, pumps, etc). There were other number series for the mills themselves and boilers. All equipment had order numbers as well, but these started afresh each year.

The first locomotive built by W & A McOnie carried B/No. 1070 and O/No. 150 of 1881, being a 2 ft 6 in gauge 0-4-0T.OC with 4 x 8 in cylinders, for Holmhurst Plantation, Fiji. It was a diminutive and rudimentary machine, almost home-made in appearance. Luckily a rough sketch of it survives, drawn very much out of proportion, and from this I have prepared the accompanying drawing. Curious features were the smokebox, which sat on a rectangular water tank (through which steam pipes to and from the cylinders must have passed), and the large lever alongside the boiler, the purpose of which is not clear. The boiler was pitched high to allow for as wide a firebox as possible, above the frames. Accompanying this locomotive were orders for portable track, turntables, and 40 cane wagons (4 with brakes), while an order for 4 tipping wagons followed in 1882.

Although not of direct interest to *Light Railways* readers, it is worth noting that the other two locomotives built by McOnie were a charming, but equally rudimentary pair of 1 ft 8 in gauge 0-4-4T.OC's with 4-wheel tenders, B/No. 1124 and 1125/1882, for the Quemado Sugar Estate in Brazil. The O/No. is not known, but they were accompanied by 2844 yards of track, turntable and on LH and one RH 'crossing'.

The next locomotive supplied by W & A McOnie carried B/No. 1183 of 1883 and was also for Holmhurst. Curiously, it carried 3 order numbers: 703 of September 1882, 44 of January 1883 (which also included 2 miles of track) and 289 of April 1883 (which included the additional name of Billyard & Co, Fiji). It was accompanied by a further 60 cane wagons built to O/No. 301. The absence of any other information or a sketch drawing leads to the assumption that W & A McOnie did not actually build this locomotive. Furthermore, Peter Dyer has found and measured at the site of Holmhurst mill two locomotive wheel sets and these are identical to Andrew Barclay 264/1883, a 2 ft 6 in gauge 0-6-0ST.OC ordered through Dempster, Moore & Co "for overseas". There is every possibility that McOnie 1183 and AB 264 are one and the same locomotive, especially when one considers the final McOnie locomotive ordered in this period and its likely link with Andrew Barclay.

This locomotive carried B/No. 1276, O/No. 537 of 1883 and was of 2 ft gauge with 7 in x 12 in cylinders, for Young, Ehlers & Co of Queensland. As with 1183, the absence of any further information leads to the assumption that it, too, was not built by McOnie. In my article on Andrew Barclay locomotives in Australia, New Zealand and Fiji in *ARHS Bulletin* 560 (June 1984), I pointed out that AB 268/1883, a 2 ft gauge 0-4-0ST.OC with 7 x 12 in cylinders and outside frames, ordered by

Dempster, Moore & Co of Glasgow "for overseas" was identical in all other respects to the 3 ft 6 in gauge inside framed locomotive *Mary Anne* of the Pioneer Sugar Mill, Ayr, Queensland, as shown in a photograph in the Oxley Library. I have prepared the accompanying sketch of an AB 268 from A Barclay's own general arrangement drawing for comparison with the photograph of *Mary Anne*. Apart from the change of gauge and brake rigging, the only alteration appears to have been the backward extension of the cab by some 6 in (the break in the running plate can be seen) and the corresponding moving back of the cab roof.

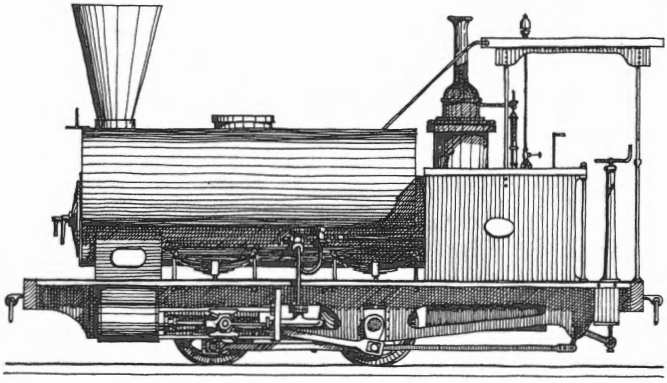
Bruce Macdonald has a rubbing of the builder's plate of *Mary Anne* which reads "W & A McOnie/ Engineers/Glasgow 1883". He also reports that the Townsville boiler records show *Mary Anne* at Pioneer Mill as having 7 in cylinders; being built by McOnie and condemned in 1916 (she was in the yard of the Delta Iron Co, Ayr, in the 1940s). We thus have confirmation of my hypothesis that *Mary Anne* was rebuilt from 2 ft to 3 ft 6 in gauge, for she can be no other than McOnie 1276. As the cylinder dimensions and appearance so exactly match Andrew Barclay 268, I believe there can be no doubt that they are indeed the same locomotive. The common use, with AB 264, of Glasgow agents, Dempster, Moore & Co should also be noted.

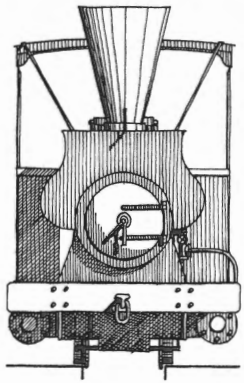
Details of Young, Ehlers & Co are not known. They appear elsewhere in the McOnie records ordering mill equipment for Fiji and Queensland, and in the Mirrlees, Tait & Watson records as having ordered equipment for the Palms Estate, Mackay, Queensland from 1880-1885. There may be a connection with Ernest William Ehlers, referred to in *Pioneer Pageant* as being a member of the syndicate that was one of the partners (as was W Sloane & Co) in the Melbourne Mackay Queensland Sugar Co at its formation in 1881.

**Richard Horne**
**South Croydon, UK**

**Addendum:** Since writing the above, my attention has been drawn to an advertisement for the Falcon Engine and Car Works Ltd of Loughborough in the *Colliery Guardian* for 16 June 1882. The drawing clearly shows that the small 0-4-0T.OC named *Holmhurst* is none other than McOnie 1070. The assumption must be that Falcon built this locomotive and that, as with their locos 1183 and 1276, McOnie only acted as agents. My drawing has been amended to include some of the details shown in the woodcut in the Falcon advertisement.
(Ed. drawings on rear cover.)

Pioneer sugar mill locomotive, *Mary Anne*. Photo: G Bond colln, courtesy John Oxley Library



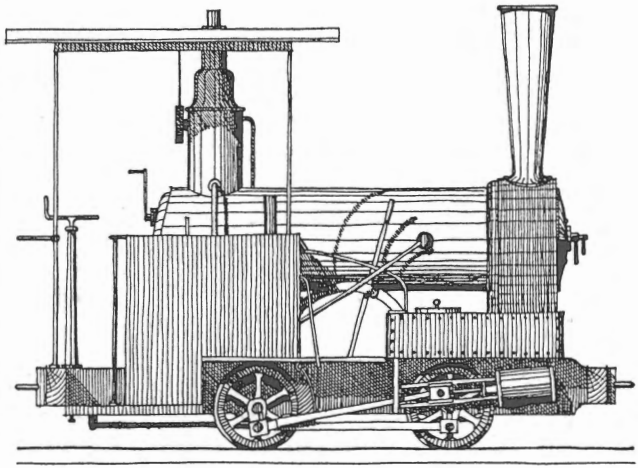


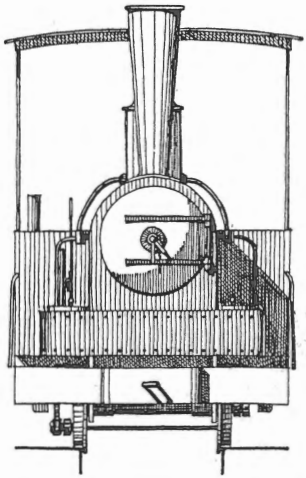
0 5 FEET

R.T. HORNE NOV. 1986

## ORDERED BY DEMPSTER, MOORE & CO., GLASGOW

2'0" GAUGE LOCO BUILT BY ANDREW BARCLAY, 268 OF 1883





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R.T. HORNE NOV. 1986

## HOLMHURST SUGAR MILL, FIJI

2'6" GAUGE LOCO BUILT BY W.& A. McONIE, 1070 OF 1881