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Proposed Industrial Locomotives for Australia
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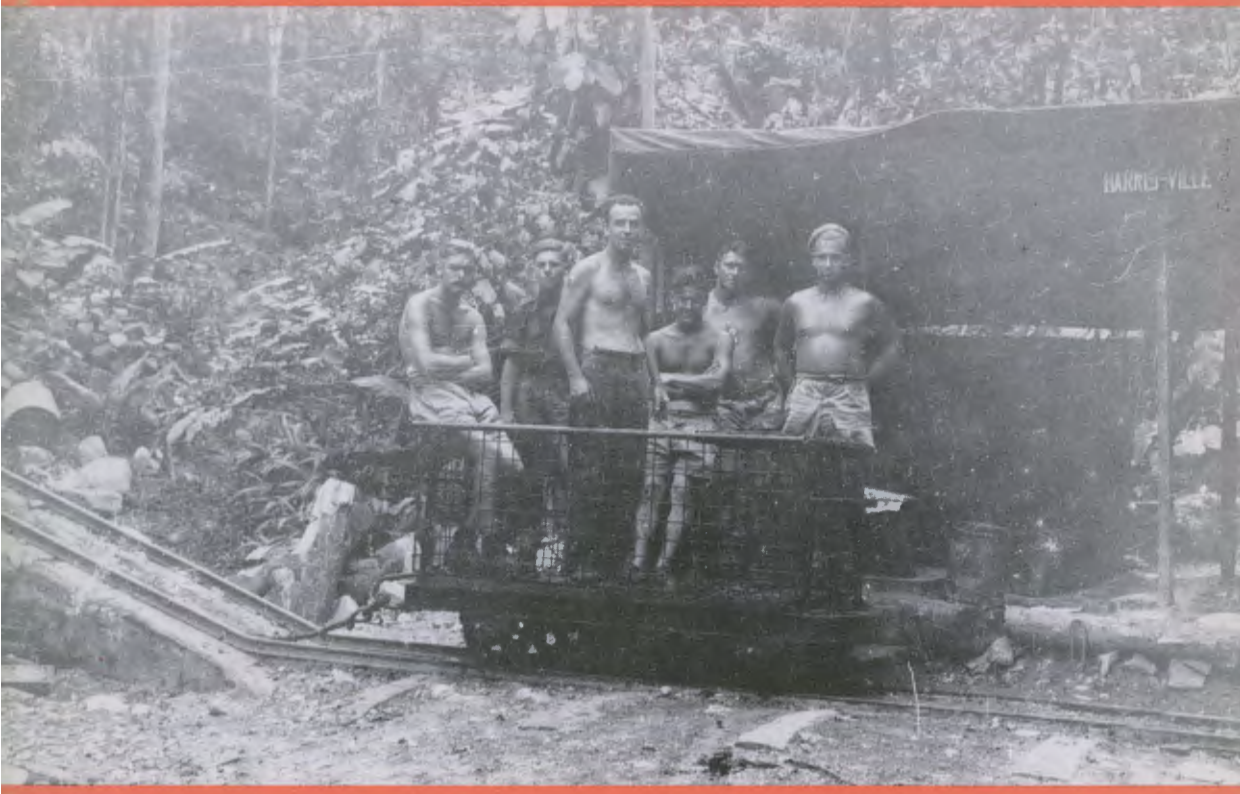

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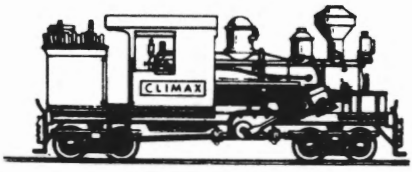

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Editorial

The first recorded railway in Papua New Guinea was operating on Mole Island in 1888. It is therefore fitting that the third part of Michael Pearson's "Chronology of Tramways and Railways in Papua New Guinea" should appear on the centenary of that event. As these articles have demonstrated, there have been a large number of railway operations in PNG over the past 100 years, even though no major lines were constructed. Railways continue to play a minor role in construction projects.

Closer to home, the Bicentennial activities of 1988 need no introduction. The LRRSA has published its *Light Railways Index No. 4* as a small contribution to the spate of historical publishing which has occurred this year. This Index provides very comprehensive subject, locomotive, railway and author indexes for all material which has appeared in *LR* issues Nos. 66 to 92. It provides a valuable reference to railway historical research in Australia. It is available from LRRSA Sales for $3.00

Cover: A group of Australians from the RAAF 5Tac/R Squadron take an illegal ride on the Numa Numa haulage, central Bougainville, Papua New Guinea in 1945.
Photo: JL Buckland

A CHRONOLOGY OF TRAMWAYS AND RAILWAYS IN PAPUA NEW GUINEA

by Michael R. Pearson

PART 3: 1942-PRESENT

Japanese Occupation

The Second World War brought both construction and destruction on an unprecedented scale to New Guinea and, to a lesser extent, Papua. Most of the existing tramlines in occupied New Guinea were ripped up or destroyed by bombing, but new airstrips, roads and tramlines were constructed at a frantic rate. Both sides built numerous airstrips or enlarged existing ones (70 in all)[1]; the Americans built an extensive road system; and the Australians commenced construction of a road over the backbone of New Guinea, from Bulldog to the gold mining centre of Bulolo[2]. The Japanese built numerous tramlines for the construction of airstrips and the exploitation of timber stands. These were constructed by the Japanese Imperial Navy to 2 ft (610 mm) gauge. Those documented so far are:

Buin Naval Railway: On the south of Bougainville island, Japanese Navy units constructed a 2 ft gauge railway from Buin Port (Kanga Hill) to Kara Airstrip (now Buin), a distance of 12-13 km. It was constructed with 12 kg rail for locomotive operation. At least seven locomotives were used on the line.[3]

Rabaul Barge Tunnels: tramway tracks of between 500 and 1000 metres in length were laid into the tunnels. constructed around Rabaul Harbour for storing barges.[4]

Talena Airstrip construction, Bougainville,[5]

Chabai Airstrip construction, Bougainville,[6]

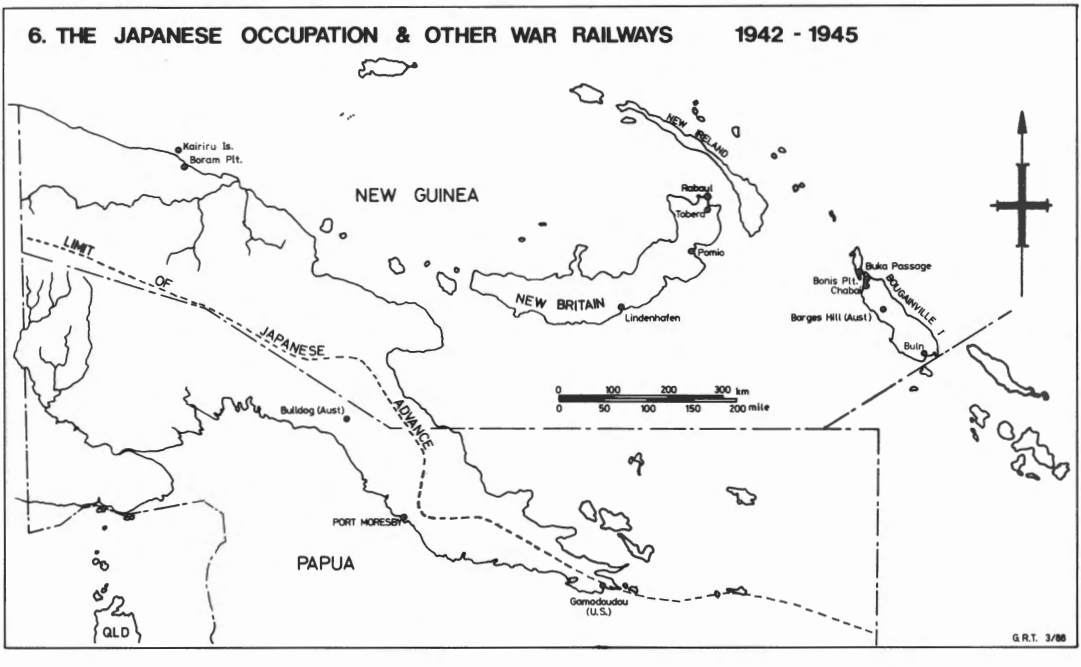
Bonis Airstrip contruction, Bougainville,[7]

Buka Passage Airstrip construction, Buka Is.,[8]

Tobera Airstrip construction, New Britain,[9]

Vuncanau Airstrip construction, New Britain,[10]

Lakunai Airstrip construction, New Britain,[11]



Boram Airstrip construction, Wewak, Sepik,[12]
Kairiru Island Airstrip construction, East Sepik.[13]

Between 1941 and 1943, the Kato Works Company Ltd, Shinagawa, Tokyo, constructed a total of 729 2 ft gauge 4-wheel petrol mechanical locomotives for the Japanese Imperial Navy. Official records indicate that 93 units were dispatched to "Big Harbour" (Rabaul), comprising 5 5-ton, 25 4-ton and 63 3-ton locomotives. It is not known how many of these units actually arrived in New Guinea. The Works No. of the locomotive restored at Buin (22086/1942) does not tally with those on the official Japanese Navy list.

The Allied forces also tried their hand at tramway construction. The following lines have been documented:

1943 Bulldog Trail; Kunimaipa-Base Area Tramline: As part of the Bulldog to Bulolo road construction in 1943, the Australians built a 7 mile section of 3 ft 6 in gauge railway to bypass the heavily silted Tivari branch of the Lakekamu River. The route was only used for 16 days when the fall of Lae rendered the road no longer necessary.[14]

Base of the Numa Numa incline tramway on Bougainville Island, 1945.
Photo: JL Buckland

Japanese Imperial Navy Kato Works 4wDM locomotive at Buin, 1980. Photo: M Pearson

Gamodoudou Naval Tramway: In Milne Bay the Americans constructed a 2 ft gauge tramway for the movement of naval supplies.[15]

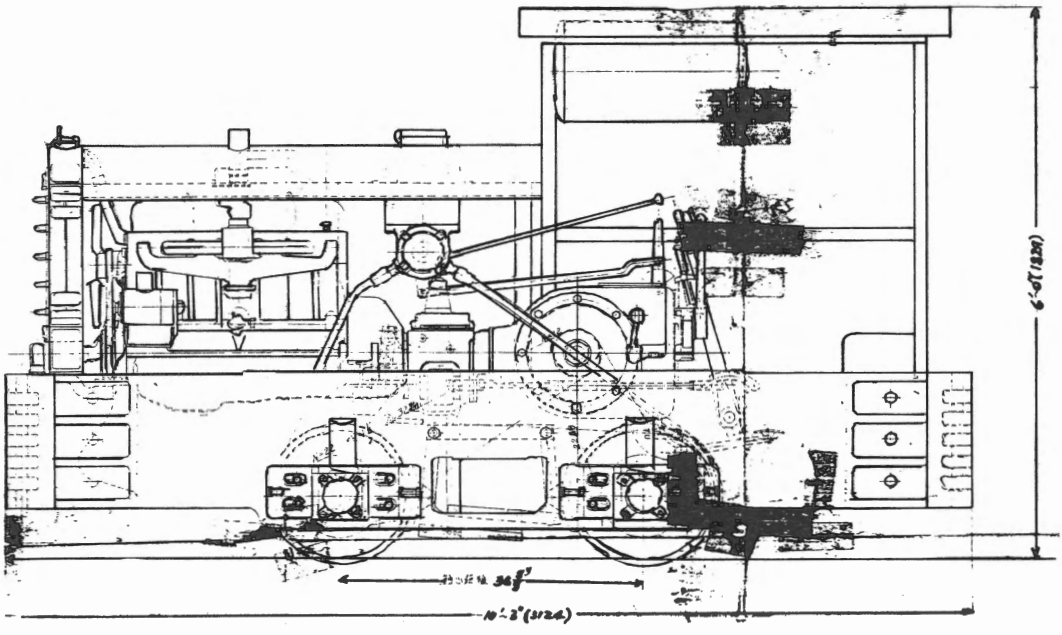
Barges Hill Cable Haulage: In central Bougainville Island, the Australians built a cable haulage to haul supplies up the escarpment to the Numa Numa trail. It rose 894 ft in 2245 ft, with a maximum gradient of 1 in 1[16].

There are reports of tramlines used at bases in Port Moresby, Lae, Milne Bay and Torekina, but these have yet to be confirmed.

Peace and Reconstruction

The commencement of hostilities in New Guinea in January 1942 had seen the cessation of civil administration in both the Mandated Territory of New Guinea and the Territory of Papua. To fill this gap, the Australian New Guinea Administrative Unit (ANGAU) was established in April 1942. Its purpose was:

a. Operational: to organise the native population to be a useful part of the war effort as carriers and soldiers;
b. Production: to continue and increase the production of the strategic products of New Guinea, namely copra and rubber; and
c. Administrative: to, as well as possible, continue



Drawing of Kato Works 4-ton petrol mechanical locomotive as delivered to Japanese Imperial Navy for construction duties, 1941-43.

the administration in Allied held areas, look after the welfare of misplaced persons and, after victory, to repatriate natives to their homes and restore civil administration.

The Japanese surrender on 6 September 1945 meant that ANGAU was fully involved in repatriating Prisoners of War and the local population over the next year. ANGAU continued its control until June 1946, when both territories were embodied in the 'Papua-New Guinea Provisional Administration'. In December 1946 the United Nations granted a Trusteeship over the Territory of New Guinea to Australia. A single administration for the Territory of Papua and New Guinea was established with its headquarters at Port Moresby.

The Australian people had discovered a closer affinity with their neighbours to the north through the fears of war and the post-War era brought a new awareness that colonised people's had a right to independence and self-determination. The Government prepared plans for massive increases in assistance in education and health to prepare the people of Papua New Guinea (PNG) for self-determination. But first, both the Administration and the commercial sector were faced with a massive task of rehabilitating industries and getting the economy back on its feet.[17]

1946 The waste of war provided a field day for scrap metal merchants and rapid fortunes were made collecting material to feed the furnaces of post-War reconstruction. The remains of railways were swept up by the eager metal collectors or were used by all and sundry for copra and cocoa driers, bridges, fence posts and numerous other construction tasks. Some were used for short tramlines from copra sheds to wharves.

1948-52 Burns Philp decided to rebuild tramways on Soraken, Lindenhafen, Tinputz, Boau and Kunua plantations. Salvaged and second-hand railway materials imported from North Queensland were used in this reconstruction.[18]

1950 At the Tsiroge Catholic Mission, Bougainville, Br Pins constructed a 200 yard 2 ft gauge tramline from the wharf to his workshop and included a 6 ft turntable. It remained in use until 1987, when Br Pins returned to German in ill health.[19]

Old bridge on Kunua tramway, No. 1 line.
Photo: MR Pearson

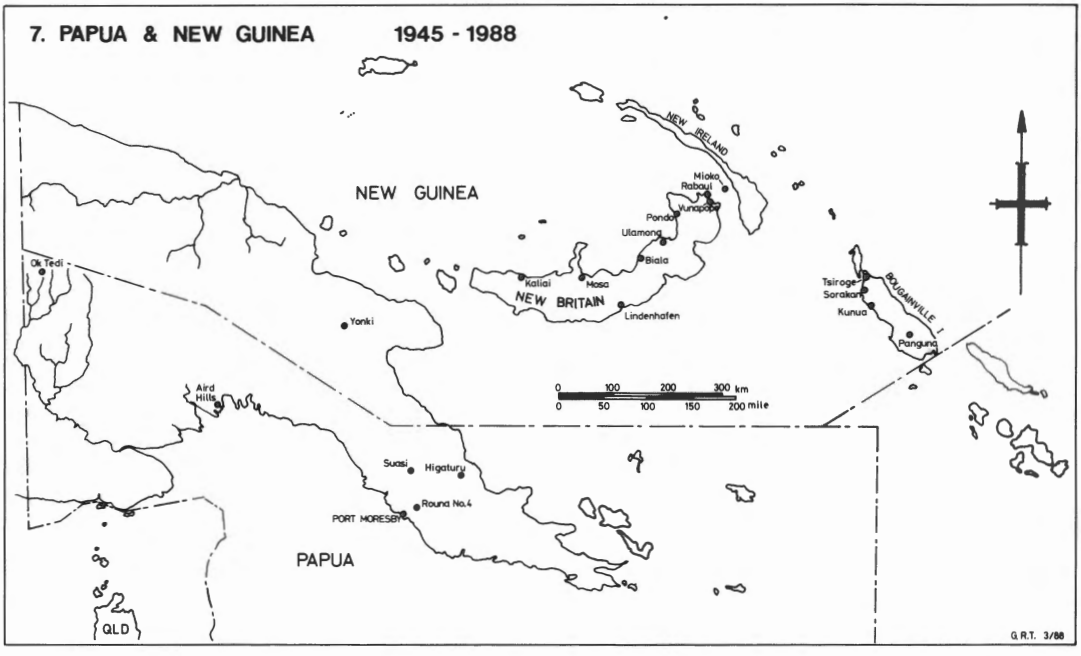
Similar short tramlines built about this time were:
Selapia, New Ireland — wharf to store[20]
Asitavi, Bougainville (Catholic Mission) — sawmill to wharf[21]
Skotlan, Bougainville (Methodist Mission) — wharf to store[22]
Sewa Bay, Milne Bay — wharf to sawmill and return ("U" shape)[23]
Tubiana, Kieta (Catholic Mission) — wharf to store, 2 ft gauge[24]
Bakiwa Plantation, Milne Bay — wharf to store, 2 ft gauge[25]
Wong Yu, Kieta, Bougainville — wharf to store[26].

During the 1950's, the administration developed the light aircraft fields of the country as the basis of inland transport, while flying boat services existed in the island's regions. Air control centres, such as Madang, became the busiest in the world until road links to Highland centres were established in the mid-1960's. Coastal shipping, dominated by Burns Philp Company and Steamships Trading Company, remained the basis of coastal and inter-island transport.

1951 The Railway Ordinance of 1914 and the Port Moresby to Rona Railway Ordinance were repealed as no longer useful. The tramway ordinance was revised.[27]

1956 The New Guinea Mangrove Company established a pioneer factory in the swamps of the Kikori River delta at Aird Hills to extract crutch (a tanning fluid from mangrove bark). A short tramline (about 1300 metres) was built from the wharf to the factory. By 1958 the venture had failed and the equipment was abandoned. Mr Keith Tetley, a local trader, collected rails to build a wharf and copra drier.
Steamships Trading Company (STC) eventually purchased the assets of the NG Mangrove Company from receivers with the intention of using them at their Baimuru sawmill. On arrival to collect their bounty, STC crews discovered its disappearance. Its whereabouts was soon discovered and the Company took Mr Tetley to court: thus commencing the case of PNG's "Great Railway Robbery". Mr Tetley eventually won the case as there was no caretaker at the sight and the rails were not on land belonging to the company, and, therefore, they could be considered abandoned. He is reported to have arrived at the Kerema Hall for the annual Christmas party pulling a toy train, much to the delight of those present.[28] Steamships lost out badly, not only losing the rails and the money paid for them, but also having to pay court costs.
At Suassi in the Papuan Highlands, the London Missionary Society used a short tramway for construction of an airstrip.

0-6-0DM locomotive converted from Arn Jung steam loco at Ulamona sawmill, West New Britain, November, 1984. Photo: Al Bovelt



The local missionary, Bert Brown, arranged for carriers to bring in two sets rails of wheels, weighing 90 lbs each, and eight lengths of rail. A one-ton wooden truck was built by the station using fish tins as bearings. The wagon was pushed back and forth along 60 ft of track, which was moved as the airstrip was made.(29)

1960s The decade saw extensive sales of scrap iron to Japan, including the Bootless Bay locomotives, trucks and rails, together with plantation tramlines.[30]

1962 The Papua Tramlines Ordinance was finally repealed, as there appeared little likelihood that new lines would be constructed in a 'motor age'.[31]

1963 The tramline at Daru was removed after the construction of a new wharf, which was able to take motor vehicles, was completed.[32]

1966 The Catholic Mission moved part of their 70 cm gauge timber tramway at Ulamona in West New Britain to Kaliai. The line runs from the wharf, through a village to a store and is still in use.[33] At Ulamona the Jung 0-6-0WT steam locomotive (*LR.97*, p.20) was converted to an 0-6-0 diesel mechanical locomotive. It is still operating.

Towards Independence

By the mid-1960s the Australian Government began to accept international pressure that PNG should be granted Independence sooner rather than later. In 1966 a World Bank Mission advised the Administration on the need for large infrastructure and agricultural projects to establish the economic base for Independence and, in the following year, exploration commenced for a giant copper mine on Bougainville Island. Political development was stepped up too: in 1972 the Territory was granted self-government status and on 16 September 1975 Papua New Guinea became an Independent country.

Until the late 1950s and early 60s the only substantial roads in the country were from Wau to Lae, from Port Moresby to Sogeri and on the Gazelle Peninsula. (Most of the roads built during the war years had long since disappeared back under the jungle and no longer constituted a useful infrastructure.) The aeroplane served the Administration's needs for a transport link to isolated settlements.

Road construction was begun as feeder links to main centres, with construction mainly by pick and shovel. Along the coast, feeder roads came to ports, while inland they connected plantations and villages

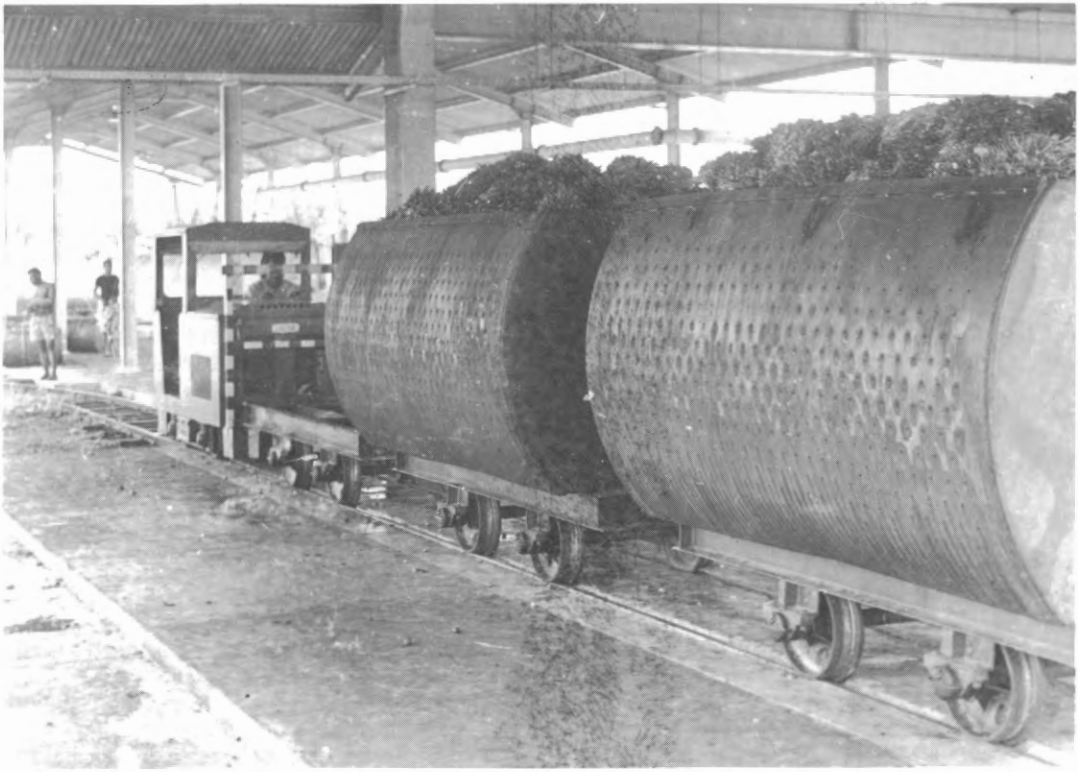
to government centres and airstrips. In 1965, the most ambitious transport infrastructure project was commenced, a road from Lae and Madang up to Goroka, Kundiawa, Mt Hagen and Mendi, to be known as the Highlands Highway. Eventually it would become a tar sealed road from Lae through to the Highlands moving up to 500 tonnes of produce and materials each day. As road construction proceeded, the need for air services to isolated settlements was diminished and many airstrips were either down graded to charter services or closed completely. Railways as infrastructure were not envisaged. Railed transport was to be confined to construction and industrial applications.

1967 In order to test the extent of the Panguna copper deposits on Bougainville, Dillingham Construction drilled mining audits in the hills behind Arawa Plantation. 2 ft gauge tramways were used on this project between 1967 and 1969.[34]

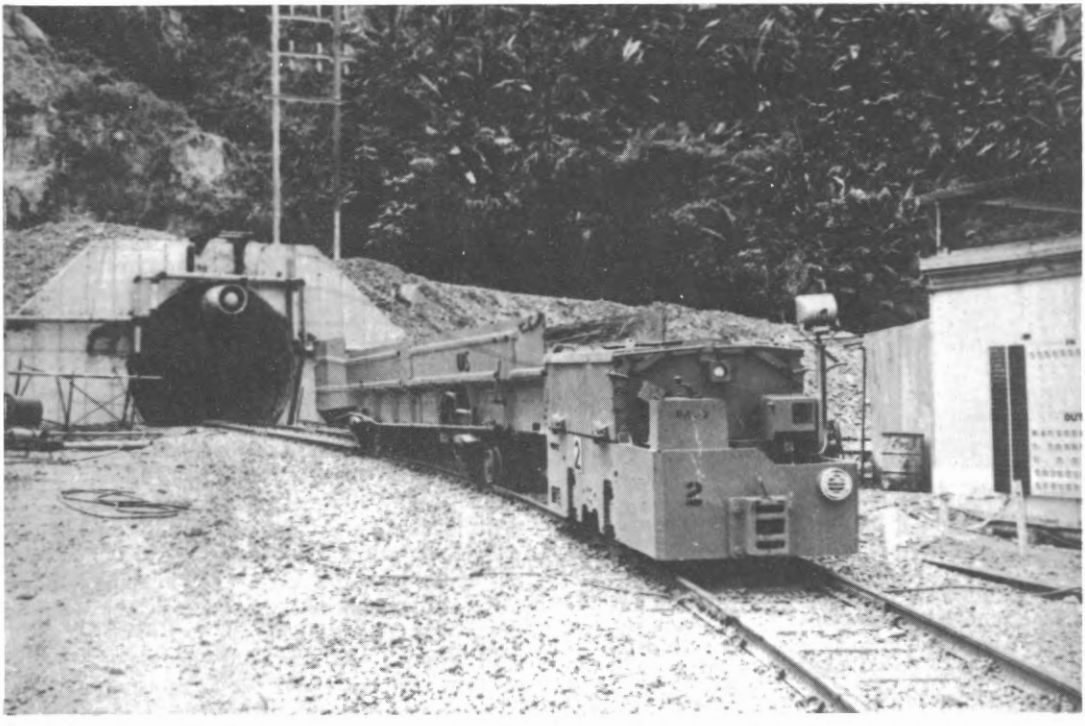
1971 On 14 July, PNG's first oil palm factory was opened at Mosa in West New Britain. Initially 530 metres of 600 mm gauge railway track was constructed for the transport of oil palm bunches through the mill. This railway was operated by a 1.5 tonne 4wDM Lister locomotive (B/No. 56115 of 1969) and there were 40 steel bins of 2.7 tonne capacity. The tramway is described in *Light Railways* No. 69.[35]

1972 Construction of the Ramu Hydro-electric Scheme commenced at Yonki in the Eastern Highlands District. Hyundai Construction was awarded the contract for construction of a 2.4 km tail water tunnel and they used a 914 mm gauge railway and underground locomotives for this work.[36] The tunnel was completed in 1976.

1974 High yields on the West New Britain oil palm scheme necessitated an expansion programme to increase the mill capacity to 10,000 tonnes of fruit per month. The 600 mm gauge railway was replaced with 1.6 km of 700 mm gauge track.[37]



Lister 4wDM locomotive (B/No. 56114/1969) shunts bins of oil palm bunches to the sterilization chambers at the Mosa mill in 1971. Photo: RF McKillop



Bougainville Copper underground locomotive No. 2, with excavator on drainage tunnel work, 1978. Photo: BCL

Conventional wheel tractors now provide the motive power on this railway.

Post-Independence

Following Independence in 1975, a number of large infrastructure projects have been implemented in Papua New Guinea. Railed transport has continued to play a role in construction work.

1976 Exploration work on the giant Ok Tedi copper deposits in the isolated Star Mountains of Western Province resulted in audits being driven. It is understood that tramways were used.[38]

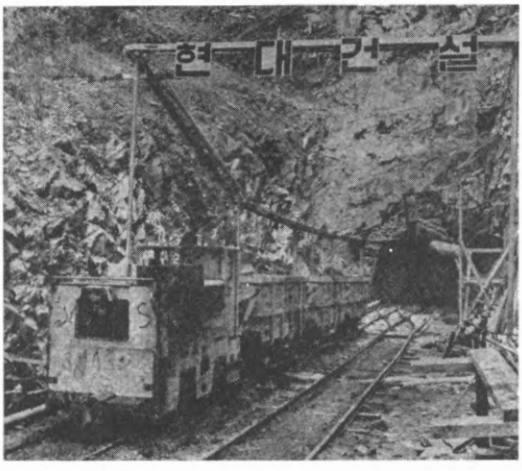
PNG's national airline *Air Niugini* undertook an advertising campaign for their 'Sky Train' DC3 freighter services based on the theme "Who needs trains when we've got planes".[39]

1977 Bougainville Copper Limited commenced construction of a 7 km drainage tunnel at their Panguna mine using a 900 mm gauge tramway. Seven locomotives, including three Gemco battery locos ex-Mt Lyell Mine, Tasmania (B/No. 899, 972 and 2265/6/171/77), two Com-Eng 4wDH, ex-Mt Isa Mines (B/No. EC4585/1964 and HD51102/1967) and two EM Baldwin underground locos ex-John Holland's Molonglo Tunnels project, were imported from Australia.[40]

New diesel locomotives were imported from the UK by Choisel Plantations for the Soraken and Kunua tramways in North Solomons Province. They were standard 43 hp "Hunslet" 4-wheel diesel mechanical locomotives, weighing 3.5 tonnes, being built by the Hunslet Engine Coy of Leeds, UK, Builders Nos. 7531/2 of 1977.[41]

1979 A second oil palm mill, owned by Hargy Oil Palms Pty Limited, was opened at Bialla in West New Britain. The mill has 150 metres of 610 mm gauge tramway and one Lister locomotive to push the wagons into the sterilizer.[42]

1980 A third oil palm mill commenced operations near Popondetta in the Northern Province. Higatura Processing Pty Limited have a short "U" shaped tramway from their bins to the sterilizer.[43] The hopper wagons are



Hyundai Construction mucker train at the Yonki tailwater tunnel in 1973. Photo: *Post-Courier*

pushed into the sterilizers by tractors and are removed by winches.

1981 The development of a sugar industry at Gusap in the Ramu-Markham Valley revived proposals to construct a railway up the Markham Valley. A feasibility study was carried out, but the price tag of K88 million, plus K1 million per annum running costs was prohibitive. Nothing came of the proposal and the sugar mill uses road transport for its cane.[44]

The tramline at Lindenhafen was closed. The locomotive and rolling stock were sent to Soraken.[45]

1983 Boao Plantation, Bougainville, was purchased from Burns Philp by Mr O Bond, who kept the tramline operating until 1987.[45]

1984 Soraken Plantation abandoned the use of its tramline and the equipment was left derelict. In 1987 the tramline was bulldozed out of the way to make way for roads.[47]

1985 Bougainville Copper completed work on the drainage tunnel and the railway was dismantled.[48]

Since completion of the Ramu Hydro-electric power station, the Electricity Commission has completed two more schemes which used railways for construction purposes: at Warangoi, East New Britain[49] and Rouna No. 4 at Sogeri near Port Moresby.[50]

1988 The Kunua tramline, although still used for some hand operations, was being dismantled. The only tramlines known to be operating in 1988 are those at the Mosa, Bialla and Higaturu oil palm mills and the sawmill railway at Ulamona.

Restoration and Preservation

One Kato Works locomotive from Buin and trucks from the War were partly restored by the author with the assistance of Buin High School students during the 1980s. They have now been moved to Kieta, Bougainville where the Lions Club and the local branch of the RSL plan to restore them to working order on a tramline adjacent to the RSL Club premises. Railway tracks have been obtained from the dismantled Kunua system.

Conclusion

The story of transport development in Papua New Guinea centres on the dramatic step from foot to aeroplane. The carriers have gone, but women still carry heavy loads because there are few feeder roads. Today villagers, sometimes in traditional dress, fly to the main centres which link his country with the outside world, but the fares are among the dearest in the world. Loss of life in plane crashes occur all too frequently in the unpredictable weather of the New Guinea Highlands, even though PNG's civil aviation sets some of the highest safety standards in the world. Road transport is also expensive and the cost in loss of life from accidents is extremely high relative to vehicle registrations.

There are no public railways in PNG, nor are there plans to build any. However, many Papua New Guineans have had an association with small railway or tramway operations, but it was generally

Hunslet 4wDM locomotive (B/No. 7531/1977) hauls copra on the Soraken tramway, North Solomons Province. Photo: MR Pearson

as a labourer pushing wagons. Those locomotives which were introduced pre-War were always driven by the *Masta.* There never was any passenger carrying railway or a line to anywhere that people wanted to to.

To the present generation of Papua New Guineans, their country is a land without railways. Any railway development will have to await further economic and social development. As people demand cheaper, safer transport, public railways may yet have a role.

Acknowledgements

Many people and organisations have been generous with their assistance in building up information on the many railways which have operated in PNG. In particular I would like to thank the following individuals for their assistance: J Allen, A Batze, Fr Birkmann, T Bishton, G Bond, O Bond, F Bougin, A Bovelt, J Browning, S Campbell, J Carter, B Chalpari, ED Cleland, JL Costelloe, Inu Dai, C Disley, RB Duncan, J Dwyer, RE (Ray) Ellis, RF (Bob) Ellis, BE Fairfax-Ross, J Feltham, Mrs M Ferguson, Mr Fukuchi, Dr W Gammage, R Giddings, MB Harter, ET Hammermaster, J Horne, R Horne, P Howley, B Hoy, Fr E Kiessler, A Laugher, L Low, D Manton, RF McKillop, Mrs S Marsh, F Mihalic, Fr J Momis, N Nicklason, K Parker, A Pia-afu, R Randolph, ED Ryan, B Sheehan, CS Small, S Small, Hon MT Somare, J Stokes, Mrs B Stuart, I Stuart, G Tabua, K Tetley, NA Threlfall, K Tuvi, Dr I Willis, A Wyborne and S Wynett.

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Kato Works 4wPM locomotive under restoration at Buin, December 1987. Photo: MR Pearson

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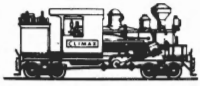


SOME PROPOSED INDUSTRIAL LOCOMOTIVES FOR AUSTRALIA

by Richard Horne

Introduction

It is always of interest to consider things that might have been and, had they, how they might have changed the course of history. In relation to the history and development of locomotive design, the engineering drawing offices of the major railways are full of proposals that never saw the light of day. These may show various options to deal with changing volumes or types of traffic, improvements to track and infrastructure or better locomotive utilization due to changing technology.

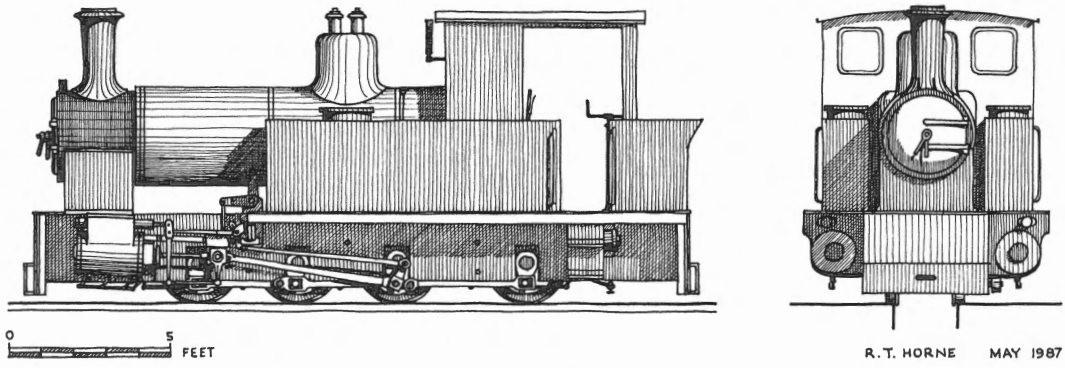
The smaller light and industrial railways, often secondary to the main function of the owning business, rarely possessed drawing offices geared to preparing sketch designs for locomotives. Instead, details were sent to locomotive builders, sufficient for them to either prepare sketch proposals or offer standard products that would meet these requirements. Thus, it is among the records of these locomotive building firms that many such interesting proposals can be discovered.

In my article on Andrew Barclay locomotives in the *ARHS Bulletin* for June 1984, I showed that many proposals for standard or near standard types were sent to Australian customers, but for which orders did not eventuate. The same would be true of other locomotive builders, although the records of the North British Locomotive Co and its constituent companies show unbuilt Australian proposals mainly for the state railway systems.

Beyer Peacock

The first Beyer Peacock Garratt locomotives were the famous pair built in 1909 for the 2 ft gauge NE Dundas tramway. However, prior to that in 1907, Beyer Peacock had produced a design for a 0-4-4-0T Mallet for the line (not surprisingly, as the Magnet tramway, also on Tasmania's West Coast, had purchased its first Mallet in 1901), but the Garratt design clearly showed its advantages.

More surprisingly, Beyer Peacock produced designs in 1907 for a 0-4-4-0T Fairlie and in 1908 for a 0-4-0+0-4-0T Garratt, both on 2 ft gauge and for the New South Wales Government Railways. The drawing for the latter even showed a typical Trow cab with porthole side window. One cannot but wonder what proposed line these locos were intended for; probably not the Goondah-Burrinjuck railway as its first Krauss locos were ordered in March 1907. Also, before the first Garratt had actually been built, Beyer Peacock produced a design for a 72-ton standard gauge 0-6-0+0-6-0T Garratt for the Commonwealth Oil Corporation's Wolgan Valley railway. In the event, the line used Shay locomotives.

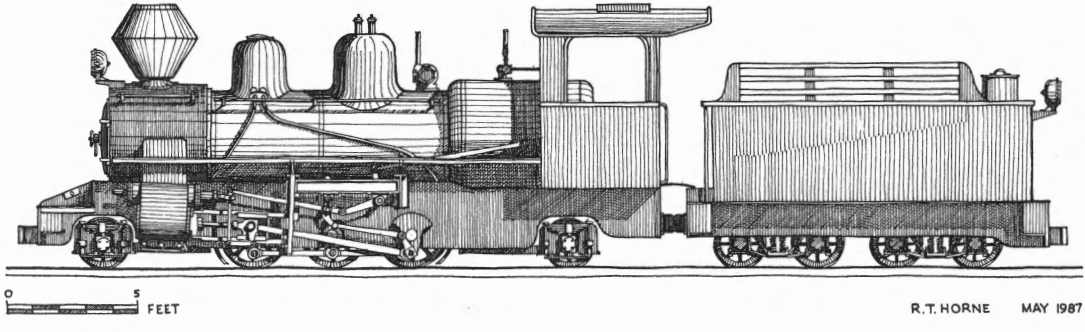


UNDERHILL, DAY & CO. PTY. LTD., BRISBANE
1940 PROPOSAL BY ANDREW BARCLAY FOR 2'0" GAUGE 0-8-0T

Australian Canefield Locomotive Proposals

The motive power on the 2 ft gauge Australian canefields developed little in size beyond the John Fowler and Hudswell Clarke six-coupled steam locomotives of the early years of this century. After World War I, even the purchase of War surplus locos with leading bogies or fore and aft pony tucks, did not set a trend for new construction. In fact, the most radical breakthrough was in the 1970s when Com-Eng and EM Baldwin produced their Bo-Bo diesel hydraulic locomotives.

I have prepared from builders' sketches two drawings showing unbuilt proposals that would have represented a further stage in canefields steam locomotive design. The first is an 0-8-0T design prepared by Andrew Barclay in 1940 for Underhill, Day & Co Pty Limited, Brisbane agents. It is not known for which mill it was intended. The second is a more revolutionary design produced in 1952 by Hudswell Clarke for a thoroughly modern 2-6-2 tender locomotive. This was to have been a replacement for their standard 0-6-0 as used on the Colonial Sugar Refining Co's lines and would have given an increase in tractive effort of approximately 50 per cent to nearly 8000 lbs. It would have been a superb finale in the history of sugar cane steam power, but was overtaken by developments in diesel traction and so, alas, remained a might have been.



COLONIAL SUGAR REFINING CO. LTD.
1952 PROPOSAL BY HUDSWELL CLARKE FOR 2'0" GAUGE 2-6-2

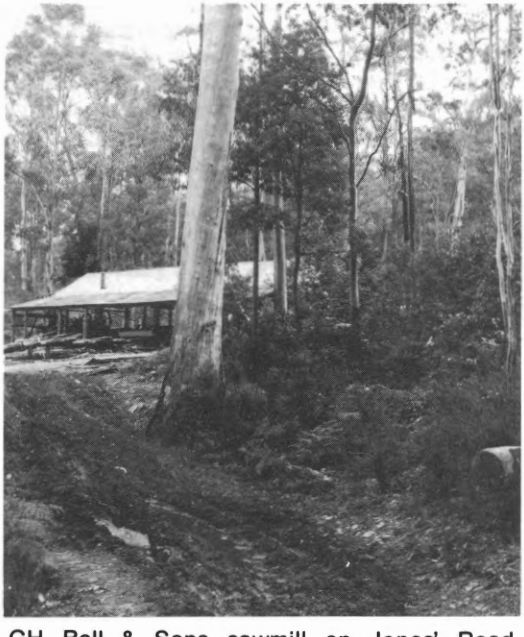
THE GH BELL & SONS TRAMLINE, HOLLANDS CREEK, TATONG, VICTORIA

Hollands Creek rises in the hills around Tolmie and flows in a north west direction for some 48 km until it joins the Broken River at Benalla. The district around Hollands Creek was noted for its timber resources and exploitation began in 1874.

GH Bell & Sons

George Bell operated a sawmill in the Noojee district, until burnt out by the 1926 fires. He shifted to Tatong and purchased a licence to log the upper reaches of Hollands Creek near Fern Hills from Don Stronick in 1930. George Bell established a sawmill and continued in the industry until his retirement in 1952.

The sawmilling tradition ran deep in the Bell family. George's son, Arthur, commenced working at the Hollands Creek sawmill as soon as he was old enough. Arthur married Rene, daughter of Dick Jones, who owned a farm at Fern Hills. Their son, Brian, also became a sawmiller and today operates a mill at Jamieson under the name of the Bell Sawmilling Company.



GH Bell & Sons sawmill on Jones' Road, Holland's Creek, c1930-35.

The Hollands Creek Sawmill

George Bell established his sawmill in the Fern Hill area alongside Jones' Road (leading to Dick Jones' farm) and Hollands Creek. It was powered by a *Marshall* portable steam engine, which drove a twin saw on the breaking-down table, a docking saw and a bench rip saw. Buildings comprised the mill proper, blacksmith's shop, stables, two three-bedroom houses, a four-bedroom house and three single men's huts.

Mill employees were two fallers, one or two sniggers, two 'truckies', one tram-repairer, one mill 'yardie', one in the yard breaking down, one engine driver, four on benches (a sawyer, puller, leadman and tailer out), a stacker and a sawduster. George Bell did all the cooking on site, and he was said to be a champion scone maker. The average pay for mill workers in the 1930s was £3.10.0 per week.

The mill produced house and bridge timbers. The price received was 14 shillings per hundred super feet.

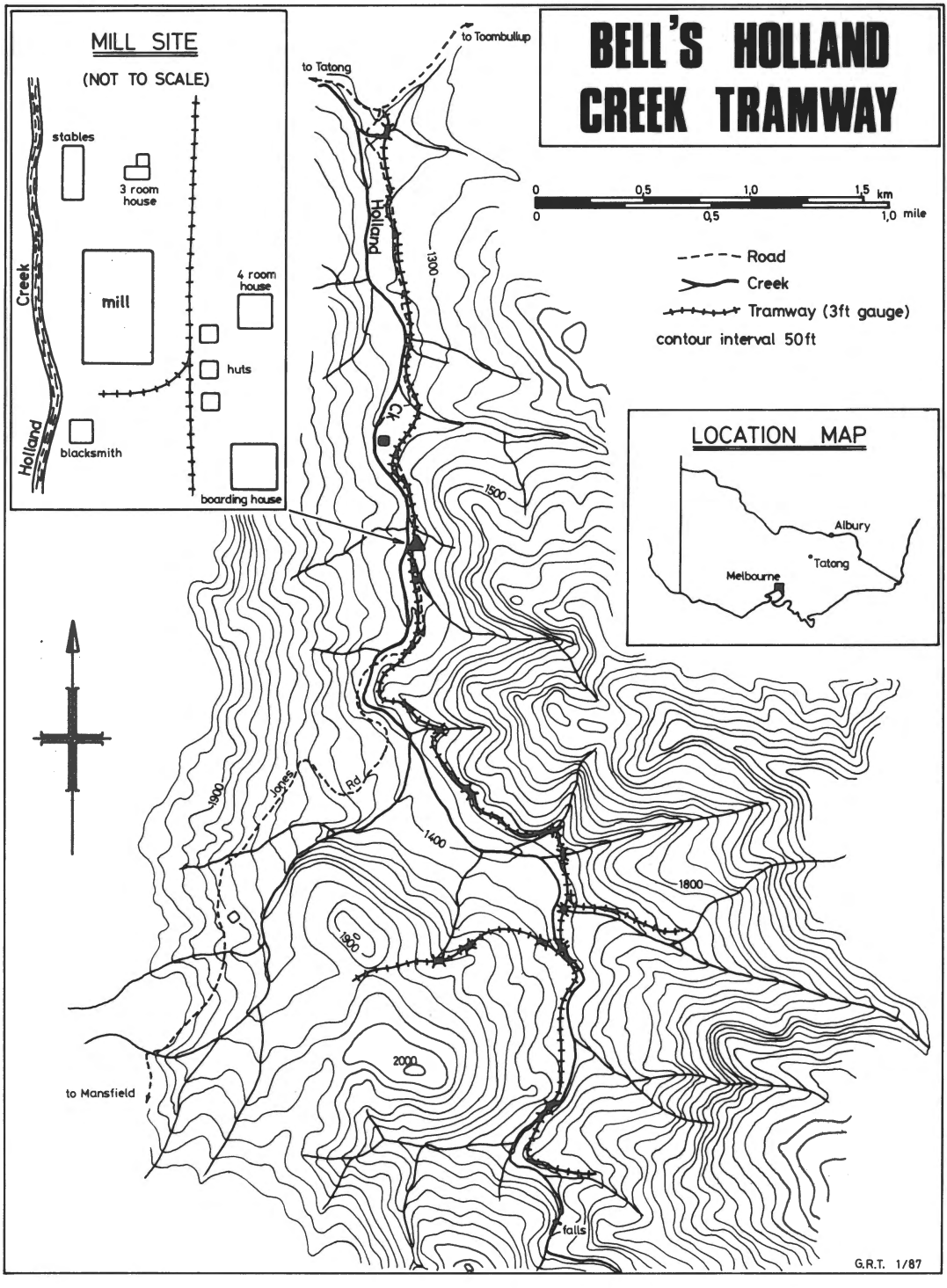
Tramline Construction

A horse-operated tramline was constructed to haul logs from the forest to the mill. The first stage ran south from the mill for about 1.5 miles. This section included two spur lines: one in an easterly direction for about 300 yards and the other to the west for some 1000 yards.

The second section from the mill to the Tatong-Tolmie Road, a distance of 1.5 miles, was constructed in 1933. Initially Bell used an old *Chevrolet* truck to cart sawn timber from the mill, but it cut up the road so badly in winter that it became impassable. This prompted the tramline extension. The third section was an 800 yard extension from the bridge crossing south of the mill, up and around the waterfalls.

The tramline was constructed of sleepers of about fence-post size (6 ft long), placed about 2 ft apart. The space between was filled with dropper-sized split timber and covered with a thin layer of earth for the horses to walk upon. The rails were 4 x 3 in white gum, eighteen feet long. These were placed in position and any high spots were adzed down until the rails lay flat. A gauge was used to ensure that the rails were kept exactly 3 ft 4 in apart and they were nailed down.

Curves on the line were achieved either by selecting naturally curved rails, or by using crow-



bars to bend and form the curve. Hoop iron was nailed to the tighter curves on the inside top edge of the outside rail. This prevented the bogie wheels cutting through the rails.

The first bridge built across the "Hollands" was of "pigsty" construction. This bridge and the one built to replace it were washed away by floods. A third bridge was then built with logs laid directly on the river bed and sleepers and rails laid directly on top. This construction allowed flood waters to flow over the bridge without damage. When the water receded, all that was required was to clean the mud and sand from the line.

Operations

The main woods cut were peppermint, blue gum, messmate and stringybark. The trees were felled with cross-cut saw and axe. Logs were then hauled to a landing by two teams, each of six horses. After loading onto the log bogies, the logs were hauled to the mill by two teams, each of five horses. Sawn timber was hauled out to the loading ramp on the Tatong-Tolmie Road. Here it was off-loaded onto a motor truck for transport to Tatong railway station or direct to Benalla.

During extended periods of wet weather, conditions for logging on the "Hollands" made it impossible to bring in logs for the mill. At such times, logs which had been cut and stockpiled further up the Tolmie Road were loaded onto motor trucks and brought to the loading ramp. They were then hauled over the tramline for milling.

Social Incidents

Because of the proximity of Dick Jones' house to the mill, his children were regular visitors to the site. One of their favourite tricks was to dig a hole in the sawdust heap, place a thin piece of wood over it and cover it with a layer of sawdust. When the sawduster wheeled his barrow down the heap, the front wheel would break through the wood, throwing the sawduster over and into the heap and down the eight foot high pile of sawdust.

While Arthur Bell was working at Hollands Creek, the mill was often visited by a rogue horse called Paddy. This horse would descend the hills to the stables and kick in the door to get into the feed boxes. During one visit Paddy was caught by Ron Jones and Arthur Bell, who tied a tin filled with stones to his tail.

Carting logs on the Holland's Creek tramline of GH Bell & Sons.

Log bogies used by GH Bell & Sons on display at Tolmie, 1986. Photo: Greg Kirk

Around the corner of the line, George Wilson and Bob Owens had set up their billy on a fire and opened their lunch pails. They were sitting on a rail on the embankment when the horse was released. It immediately raced away around the bend with the tin clattering wildly. In its run the horse cleaned up billy and lunches and sent both men rolling down the embankment!

Closure

The Bell's sold their mill to Carter's and Company of Benalla in 1935. This company worked the area for another six months, before closing the mill and shifting the equipment to Merrijig.

All that remains today to mark the site of Bell's mill is a large flattened area of sawdust overgrown with grass and bracken fern, the sawdust pit and two sleepers. Around the hills, many fine bridges and sections of track can still be found. These may be walked along among towering trees beneath which, in Spring, is a wonderful carpet of wildflowers.

Acknowledgements

The author wishes to thank the following: Arthur and Rene Bell, George Wilson, Laurie Jones and the Mansfield Historical Society for their assistance in the preparation of this article.

Remains of a bridge on Hollands Creek tramline in November, 1984. Photo: G Thorpe

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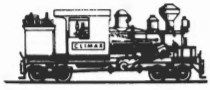
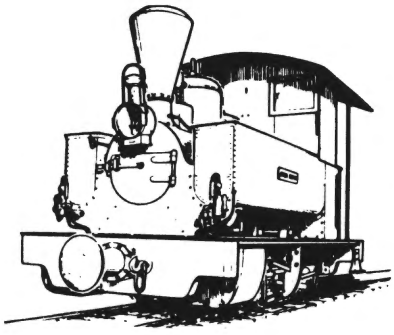


OBITUARY

The death of LRRSA member Glen Johnston occurred at Mitcham, Victoria on 27 December 1987 at the age of 68. Glen was a long time railway enthusiast, modeler and keen photographer. In response to a request for cover photographs for *Light Railways,* Glen kindly provided six outstanding studies of light rail operations which made a significant impact to the appearance of our magazine. Sadly, Glen did not live to see the last of these appear on the cover of our January 1988 issue. The Society expresses its condolences to the Johnston family.



LETTERS

EARLY JOHN FOWLER LOCOMOTIVES, LR.87 and 93 Further information has come to light which appears to confirm that *LORD HOPETOUN* was John Fowler 0-6-0T 8374 of 1896 of CSR's Hambledon Mill.

Chris Hart sent me a copy of an article which appeared in the Hambledon State School Centenary booklet. This tells the story of Herb Petersen who was born in 1887. It relates that when Herb was 15 (the year commencing 3 December 1902) he was present and in fact read a speech at a ceremony when the first steam locomotive was introduced at the mill. The loco was called *LORD HOPETOUN,* and the Governor General Lord Hopetoun (apparently a frequent visitor to Hambledon) was in attendance. One presumes that this was the occasion shown in the photograph on p.24 of *LR.87.*

John Fowler 8734 was consigned to CSR's Childers mill in March 1900 and is of the same type as *LORD HOPETOUN* (drawing 42549), the only one of this type recorded at Hambledon. It was certainly at Hambledon by 1930 and was recorded by Chrles Small as carrying this name.

Charles Small also listed Fowler 0-6-0T 7245 at Hambledon, named *LORD ROBERTS.* This loco was of a different design to 8734 (drawing 40027) and was also dispatched to Childers mill, in 1894. The similarity of names, the period (just after the Boer War) and the need for the mill to have two engines in case of failure, all point to the likelihoood that these two were sent to Hambledon for the 1903 season.

John Browning
Mackay, Qld

EARLY CANE TRAMWAYS, LR.97 I refer to Richard Horne's interesting letter on early Queensland cane tramways.

The erection of a large sugar mill at The Palms was announced in the *Mackay Mercury* of 5 June 1880. It was described as a 1500 ton mill purchased by Sloane & Company from Mirrlees, Tait & Watson. Its first crushing was in 1881. Sloane & Co was a Victorian, not Queensland company.

The Melbourne Mackay Queensland Sugar Company was registered in Victoria in June 1881 with its office at 50 Collins Street, Melbourne. It was established to acquire the Queensland business and properties of Robert Jonathan Jeffray, John Sheriff Hill, Ernest William Ehlers and John Ewen Davidson. The company was formed out of a four-part agreement made between Jeffray, Hill and Ehlers; Davidson; William Sloane and Company; and the new company. Ehlers was described as a merchant of London. This company was dissolved in 1883 after its assets were acquired by the Melbourne Mackay Sugar Company, another Victoria Company registered on 23 April 1883.

In recent research I learned that CSR was in 1891 interested in purchasing extra portable tramway for its Homebush mill, and considered material for sale by the Victoria Mill (near Eton, not the CSR mill on the Herbert River) and at The Palms. The former was rejected as in poor condition, and the latter because of its price. It was stated that Davidson had an exalted idea of the value of his tramway, and that in October 1891 after 7 or 8 years depreciation, it was worth £200 not £400 *per mile.*

Palms was the centre of the Melbourne Mackay

Sugar Company's plantations, and the interest by CSR in its tramway seems to prove its tramway was of two feet gauge. The tramway at Palms may well have been ordered after it was known that CSR was establishing an extensive network of two feet gauge tramway at Homebush with both loco operated and portable tramway. It is quite possible that a locomotive was purchased for Palms, but unfortunately I have no evidence to support this. Research on the Sloane and Company records may throw further light on this question, but it will be some time before I have such an opportunity.

John Kerr
St Lucia, Qld

McKENZIE AND HOLLAND COLLECTION

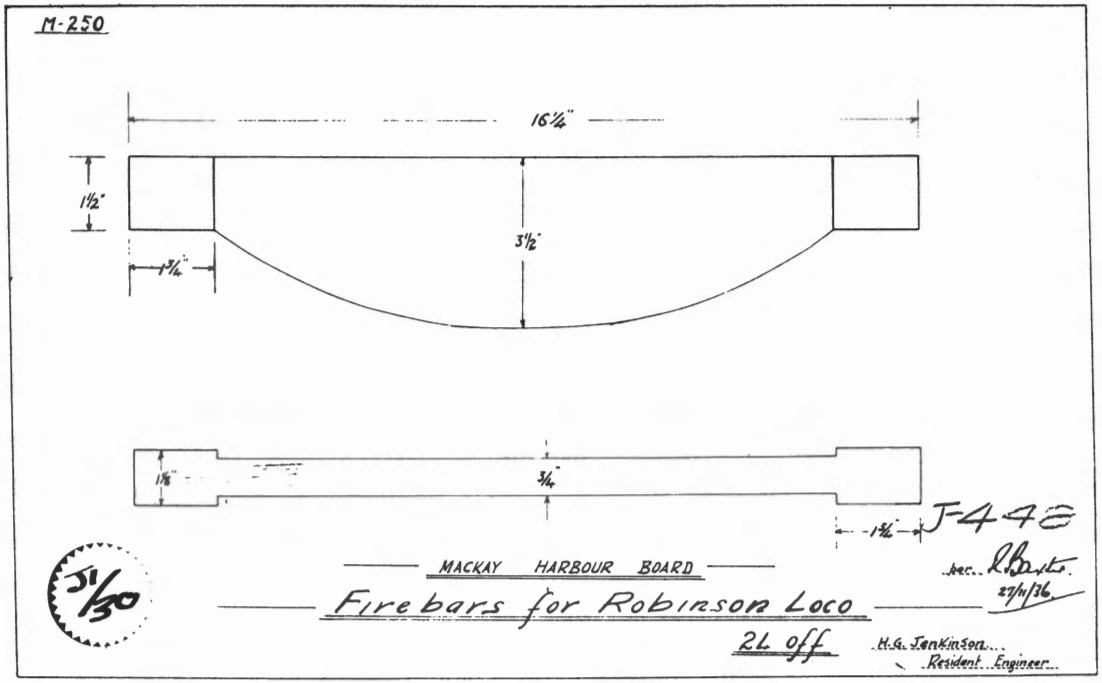
With the closure of the Westinghouse Brake and Signal Company (McKenzie and Holland) plant in Brisbane — just short of a century of operation — a great amount of significant material from the company drawing office was saved from destruction in the nick of time. This material includes track plans and pointwork for some sugar mills and other light railway systems in Queensland and of some surprising gauges.

The material is now in the hands of the newly emerged Queensland steam restoration and preservation company, 'The Steamworks' (Prop. Graham W Chapman). It is 'The Steamworks' that has been offered to the proposed Queensland Division of the LRRSA as a permanent home. Once Graham and I have sorted out and filed the hundreds of drawings, in what will become known as the 'McKenzie and Holland Collection', they will be made available for research purposes to LRRSA members.

In the meantime, I enclose a locomotive firebar drawing from the collection in the hope that a *LR* reader may be able to provide a clue as to the identity of the 'Robinson locomotive' referred to in the drawing.

Terry Paton
Lawes, Qld

PHOTO SECTION: SUGAR TRAMWAYS, LR.92 I would like to correct several anomalies occurring in *Light Railways No.92*. First, the photograph at the bottom of p.20 was taken by R James of the SRI on the Wallaville track as stated by John Browning (*LR.95*). The lead locomotive was *OAKWOOD,* with *GIVELDA* as slave unit.



The photograph at the top of p.21 was taken during the 1985 slack at Crowley's Road in the Racecourse mill area. The locomotive is from North Eton mill. The Sugar Research Institute was using a mockup of a large bin at Racecourse for testing purposes. This consisted of a "H" girder frame with the proposed wheel sets attached. The weights that were carried on this frame were to similate a loaded bin and were moved along the length of the structure in order to check the various loadings. The test unit was operated behind a Clyde 18 tonne locomotive. In order to carry out testing at higher speeds, the Baldwin was borrowed from North Eaton, as the two tramways were interconnected. The carriage at the rear is the SRI computer wagon.

Four prototype wagons were tested on the Marian system during the 1986 season with limited success.

LE Heaton
Marian, Qld

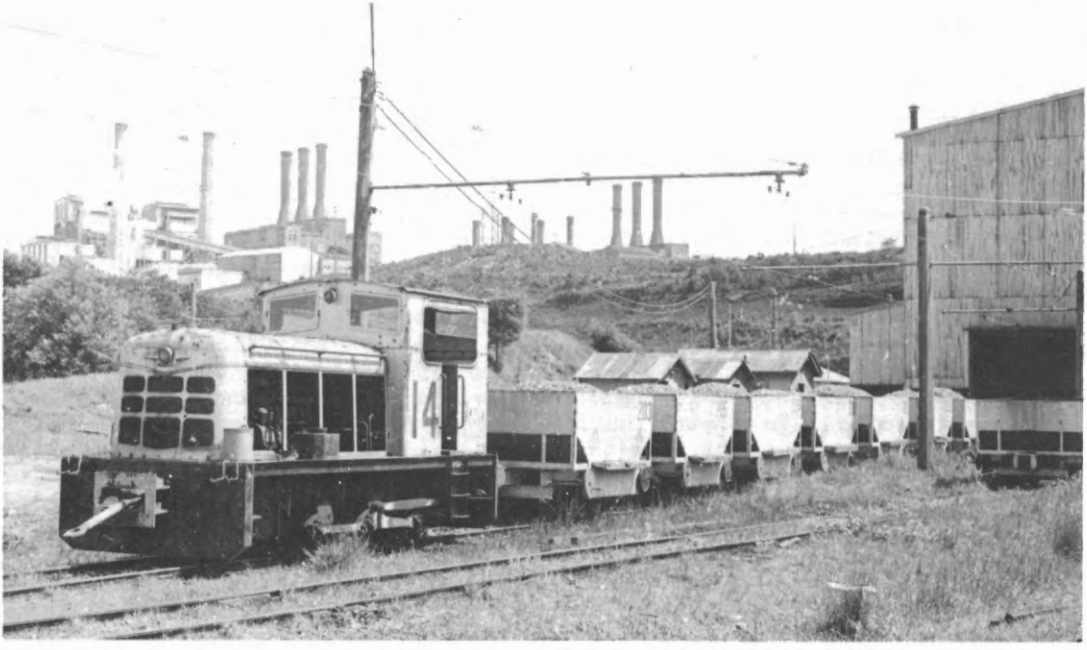
CLIMAX LOCOMOTIVES IN AUSTRALIA

From additional research, we have found Allen Taylor & Co's *Aleda* to be Climax No. 1297. I think you will find that the steel frame engine No. 1676 is the one that went through the bridge and was wrecked, not the wood-framed *Aleda* (ed. *LR.74* p.45). Photos I have seen of the wreck clearly show No. 1676's steel frame.

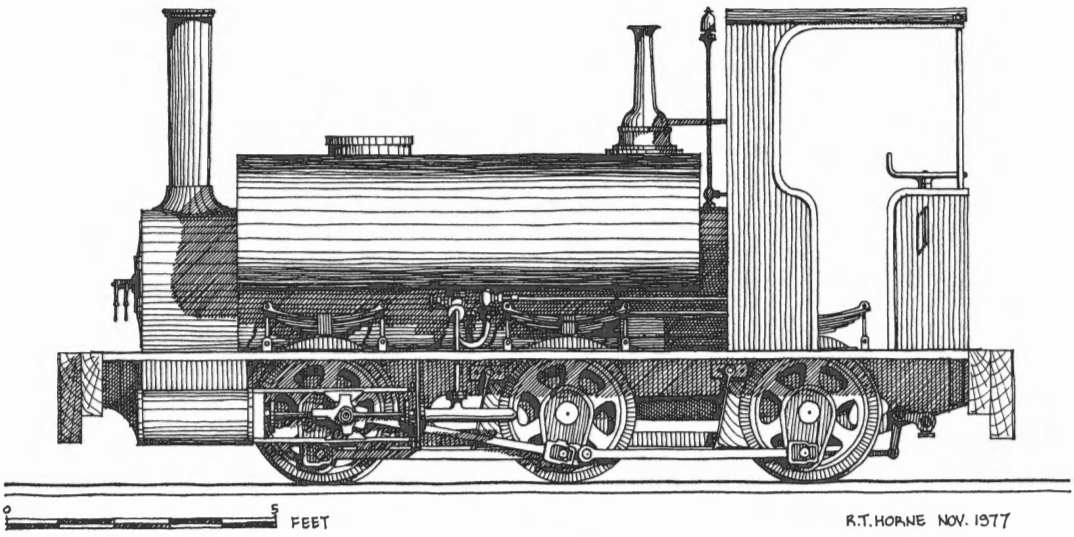
The Australian Climax locos which can now be definitely identified are:

No. 1265 Class A — Pines & Hardwoods Ltd
No. 1297 Class A — Allen Taylor & Co, *Aleda*
No. 1375 Class B — W&T Longworth (30 tons)
No. 1653 Class B — Pines & Hardwoods Ltd, *Soward* (30 ton)
No. 1676 Class A — Allen Taylor & Co, *Carrie Pa*
No. 1694 Class B — Forests Comm of Victoria (25 ton)

Richard V Dunn
Castro Valley, Ca, USA
(via JL Buckland)



SECV John Fowler 0-6-0DM No. 14 (B/No. 4210051/1951) with ballast hopper wagons, Yallourn open cut 4 November 1975. The locomotive depot and servicing facilities are located on a reclaimed area in the NW of the open cut. Photo: John L Buckland



THE AUSTRALIAN KEROSENE OIL & MINERAL CO., N.S.W.

FIRST LOCOMOTIVE, BUILT BY ANDREW BARCLAY, SONS & CO. LTD. Nº 180/1878

IMPERIAL AND METRIC UNITS OF MEASUREMENTS In your editorial in *LR.97,* you invited comment regarding the use of Imperial and metric units in articles. I support the policy adopted by you and endorsed by the LRRSA Council. I am quite convinced that no practical engineer in his right mind would have adopted a gauge of 1067 mm for the back country lines of South Australia, if we had been using metric measurements when these lines were laid and I have yet to meet the ganger who would line up his section of track to the nearest mm.

I also wish to take up another matter of historical fact with you. Could you please record somewhere, so that it does not get overlooked in the future, that the Government Department administering ports and harbours in South Australia was the SA Harbors Board and is now the Department of Marine and Harbors. The spelling of harbors without the 'u' in the names of the two departments is laid down in the statutes and this becomes the correct spelling.

Arnold Lockyer
Dover Gardens, SA

It is appreciated that there are sound reasons for retaining Imperial units when referring to items built to these measurements. However, by using solely such measurements, our journal is unintelligible to an increasing number of present-day readers. Furthermore, if we take seriously the view that *Light Railways* is a journal of record, we should be very conscious of the readers of future generations who have no practical knowledge of Imperial units and who will (hopefully) refer to its pages. Surely this demands that, although it will use up valuable space, we should provide metric equivalents when referring to Imperial measurements.

John Browning
Mackay, Qld

EARLY AUSTRALIAN ELECTRIC LOCOMOTIVES, LR.92 The article on "Early Australian Electric Locomotives" was of interest to me. Some years ago I came across a paper on the Waihi Goldmine in New Zealand, printed in 1910, that contained an advertisement for G Weymouth Proprietary Ltd, electrical engineers, Neptune Street, Richmond, Victoria, Australia. It contained

the same photograph of an electric locomotive as shown on p.23 of *Light Railways.*

The advertisement went on to say that these locomotives were manufactured and supplied to most of the largest mines in Victoria, also New Zealand and Tasmania. I have not been able to locate where this locomotive was used in New Zealand. The Waihi Goldmine was the largest in this country and ran an extensive 2 ft 9 in gauge railway with seven steam locomotives. It had its own hydro plant.

I would be grateful if any reader could supply additional information about these locomotives.

Alan Bellamy
Tauranga, New Zealand

ARIGUA PLANTATION RAILWAY, BOUGAINVILLE, LR.97 Further details of operations on the Arigua railway are given in Robert Stuart's autobiography of plantation life on Bougainville between 1925 and 1969 (*Nuts to You!,* Sydney, Wentworth Books, 1977, p.131-3). Stuart was manager of Arigua and the adjoining Kurwina Plantation between 1939 and 1942.

At this time the railway was operated by a "small diesel engine", which hauled several flat-top wagons. All green copra was brought from the field to the railway by bullock drays or truck and loaded on the wagons for hauling to the driers located on the beach. The loaded train usually included the labourers who had finished their task for the day. The availability of rail transport meant that this task was four bags of copra per day on Arigua, compared with three bags elsewhere. Derailments were common and some spectacular arrivals at the drier added considerable interest to the routine of plantation life. Stuart describes these incidents:

> Sometimes the brakes failed and when this happened, the train would career down at great speed, and if not derailed would eventually be stopped and derailed by buffers, installed near the driers. When this occurred there would be utter chaos, bags of copra and boys (*sic.*) would be thrown in all directions but, curiously enough, no one was ever seriously injured.

The plantation was producing 80 tons of dried copra per month which translates to a loading of about 6.5 tons of green copra (120 bags) as the railway's daily haulage. It appears that the railway did not service Kurwina Plantation (*LR.97* p.16).

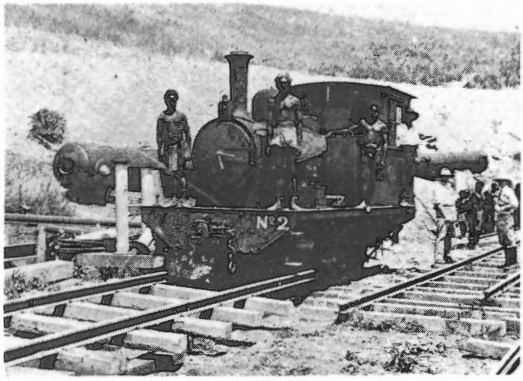
Bob McKillop
Port Vila, Vanuatu

BOOTLESS BAY RAILWAY, PAPUA NEW GUINEA: LR. 20, 47, 48, 97 Because the New Guinea Copper Company's railway at Bootless Bay included one of 'our' South Australian locomotives — *Polygon* ex the Broken Hill Associated Smelting Company at Port Pirie — I started to make inquiries about the line from various sources in the early 1950s and I offer the following comments and additional 'facts' which may be of interest to readers.

Firstly, regarding motive power, I believe that the line had three locomotives, although I must admit that there have been times when I had some doubt. In *Light Railways* No. 20 Ray Pearson stated (p.21) "(r)egarding the locos, apparently there were originally three, although I saw only two . . ." A little further on, after mentioning the Shay and *Polygon,* he adds "(t)he third loco is said to have been an English built 0-6-0T, no other details are known." Unfortunately Ray did not give the source of his information.

Moving onto *Light Railways* No. 47 and Bob McKillop's article "Papua New Guinea's Bootless Bay Railway", he stated (p.11) "(s)ome reports have suggested that there was a third locomotive. This was definitely not so. Confusion may have arisen as some official reports list *Polygon* as being built by BHAS while others, correctly refer to it as an Andrew Barclay product." In the same article Bob stated (p.9) "(t)he Company's rolling stock formed a modest inventory in 1922. There was one locomotive describved as '1 18¾ tons locomotive — roadworthy'." The fact that the locomotive was described as 'roadworthy' makes me wonder if there could have been another loco, not roadworthy, that was not considered worthy of being included in the inventory.

In *Light Railways* No. 48 a follow up letter by George Bond stated (p.16) "I have in my notes, some cuttings from the *Brisbane Courier,* one dated 30 July 1921 shows the Barclay loco virtually being manhandled on to the rails. Another cutting from the *Courier* in January, 1929 shows this loco with No. 2 painted on the front buffer beam, incidates that the Shay may have been No. 1?" No one appears to have taken up the question raised, with the result that the recent article in *LR.97* refers to two locomotives (p.14). When I was doing my bit of digging, the late Eric Bowes, an early South Australian rail historian sent me a photostat of an illustration from the Adelaide *Observer,* dated 25 June, 1921, showing *Polygon* in Papua with No. 2 plaintly visible on her front buffer beam. This was long before the Company acquired the services of



Polygon at Bootless Bay in 1921 with the No. 2 clearly displayed on the buffer beam.
Photo: Adelaide *Observer*, 25 June 1921

the Shay in 1924. Personally, I can see no reason why the Company should number a locomotive No. 2, if they have not got a No. 1.

Moving on, the following information on the line was obtained from various sources during my investigations. The English, Scottish and Australian Bank were receivers of the New Guinea Copper Co. In reply to a request to the Bank they replied on 11 May 1950 with information based on the memory of a retired officer "who had knowledge of the Company's liquidation" and "scanty information we now have on permanent record". Unfortunately the writer of the letter did not indicate what came from records, but included in the information supplied was the statement "The Shay engine was on loan from the Hampden Cloncurry Mines at £50 per annum". Another letter from the Acting Government Secretary, Territory of Papua New Guinea, dated 22 March, 1950, contained the following information:

> The line was... purchased by the Commonwealth (probably 1923) as a measure of assistance, and leased to the Company on the 7th June 1923. The Company went into Receivership in September, 1926, and apparently no train ran on the line after early 1927, although maintenance work continued on the line for another two years or so. As soon as maintenance work ceased, the fires of the dry season burned out many culverts, bridges and sleepers, and at the time of the last official inspection, August 1931, the line was passable only to the 1½ mile peg. The line was 6 miles 35 chains long, being laid with 60 lb rails to the 4 miles 5 chains mark, and from there to the terminus with 30 lb rails. The gauge was 3'6".
>
> There was an open sided engine shed, with an ash pit at the wharf end of the line, and there were three watering points, one at each terminus, and one about the half way point. In 1931 there were 12 waggons, most of them hoppers of 4 cubic yard capacity, although there were some flat top waggons made by placing a plank on the undercarriage of the hoppers . . .
>
> This (the locomotive *Polygon*) was included in the purchase of the railway by the Commonwealth. When the railway ceased operations the locomotive was laid away carefully, and seems to have last been under steam about 1931, when the Commonwealth Railways had it tested when considering its removal as an asset... Enquiries have shown that both engines were still in position in the former yards up to Sunday, 12th instant (12 March, 1950) . . .

Following receipt of this letter I wrote to the Commonwealth Railways, who stated that they had no record of any loco inspection in Papua and suggested that it would have been done by or for the Department of Works & Railways "now part of the Department of the Interior". The Department of the Interior eventually advised that all files concerning Papua had been sent to Port Moresby.

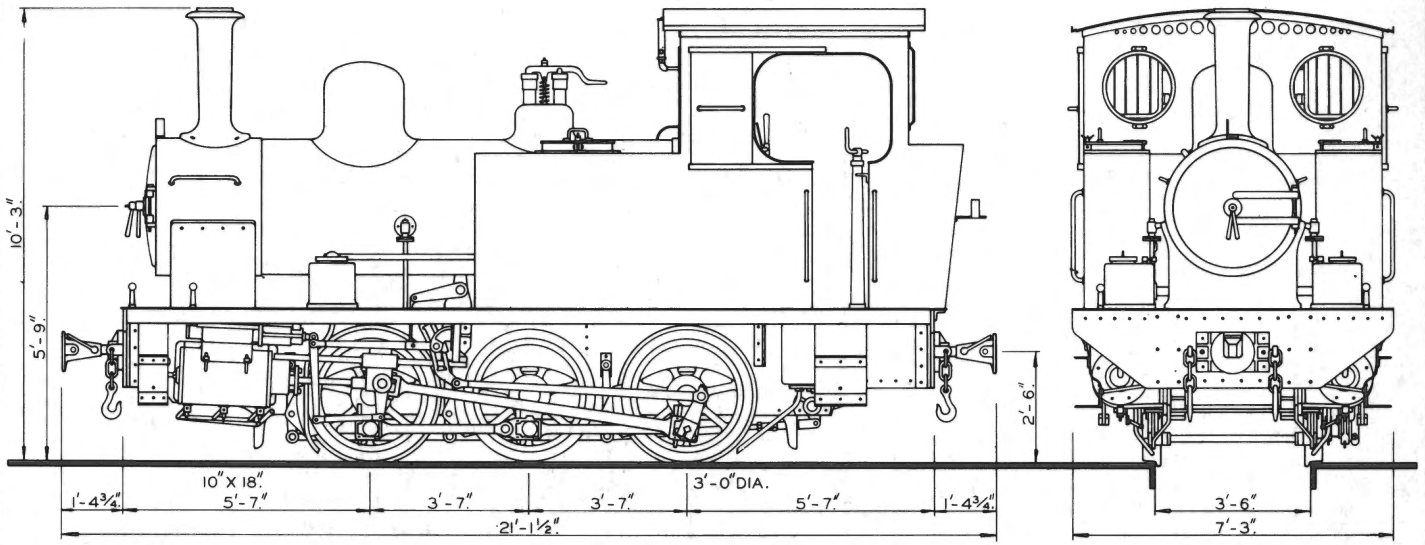
I also received a very interesting letter from Mr Robert Hayes who described himself as "a one time executive of the New Guinea Copper Mines". His letter, dated 23 May 1949, would appear to be based on memory rather than contemporary records. According to him, "(t)he line was built and maintained by a Mr T Dwyer, engineer and a staff of 40 natives . . . The General Manager was Mr EW Hursley and the A.G.M. Mr AD Smith and the Chief Engineer, Mr T Cooper. I was Compound Manager and we had a staff of 116 Europeans and 2,300 natives."

I do not think there is anything more that I can add to what has already appeared in *Light Railways*.

Arnold Lockyer
Dover Gardens, SA

Rear Cover: Peter Dyer's drawing of *Polygon* as operated on Papua New Guinea's Bootless Bay Railway.

NEW GUINEA COPPER MINES LTD., NEW GUINEA,
"POLYGON", BUILT BY ANDREW BARCLAY (1544) IN 1919.



HEATING SURFACE, TUBES	253 SQ.FT.	GRATE AREA	6 SQ.FT.	TANK CAPACITY	350 GALS.
" " , FIREBOX	30 SQ.FT.	PRESSURE	160 LBS/□"	WEIGHT IN WORKING ORDER	20·25 TONS.

P.F.D.