LIGHT RAILWAYS

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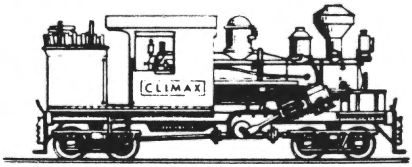

Light Railway Research Society
of Australia

No 69
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Editorial

With this issue of *Light Railways*, the first of its third decade (issue No.1 appeared in June 1960), I take up the position of editor. *Light Railways* has attained its present standard and stature largely under the guiding hand of Frank Stamford who edited 51 of the first 56 issues. Since then the journal has been produced by the efforts of a number of members, but the position of editor has been vacant leaving the future of the magazine in doubt. Council have decided to concentrate the Society's resources on the production of *Light Railways* and I have accepted the position of Editor. I hope to maintain the journal's high standards and lead it to an improved security.

To me the main strength *Light Railways* is its policy of presenting a total historical account which considers 'the place each light railway held in its community, why it was built in the first place, and its effect on the life of the area.' (LR32). It is my intention to maintain this policy and to encourage the development of *Light Railways* as a link between railway enthusiasts and professional historians, among whom there is a growing interest in the role of railways in shaping the settlement patterns and society of to-day's Australia.

In accordance with this policy I am making an initial request for articles which present the local histories of light railways. One notable area which has received little attention in *Light Railways* , apart from the overall introduction in LR66, are the various sugar tramways of Eastern Australia. Readers who are undertaking research into specific railways should advise me of their interest and progress in order that I might gain some idea of the material which we may have available for future issues.

This and the next few issues will be of a 'standard' 24 page size and will cover a wide range of shorter articles. Letters and book reviews will be encouraged as regular features. The letters section has been one of the strengths of *Light Railways* and those appearing in this issue maintain the interest and high standard we have come to expect.

Whilst every effort is made to ensure the accuracy of articles published in *Light Railways* errors may creep in. Additional information is being discovered all the time, and this sometimes contradicts previous information.

If you see any errors, or can add information, please contact the editor, and so help us to record the full history of Australia's light railways.

Historical references to sums of money in *Light Railways* are in Australian pounds (£). One pound equalled two dollars on changing to decimal currency in 1966.

Articles and news items are always welcome. It greatly assists the editors if they are typed or written on one side of the paper only and double spaced.

Cover photograph: Krauss locomotive 5945 of 1907 Jack hauling former Melbourne cable tram trailer No. 110 on the Goulburn Museum light railway, 18 May 1973.
Photo. K.McCarthy.

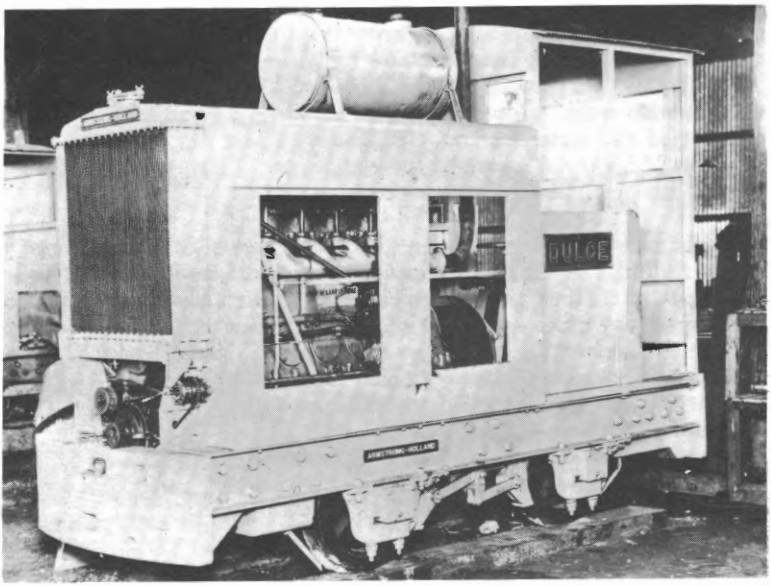
Some Early Australian Diesel Locomotives

by Anthony Weston

In 1930 Armstrong Holland Ltd., of Mascot in Sydney, supplied three small four-wheel diesel locomotives to the Water Conservation and Irrigation Commission of New South Wales. These were the first locomotives built by Armstrong Holland, who secured the order against other tenderers by a small margin. The diesel engine, clutch and radiator were imported and the balance manufactured in Australia.[1]

The locomotives were each powered by a 90 bhp 6-cylinder *McLaren-Denz* diesel engine made by J.H. McLaren Ltd., of Leeds, England. This drove through a conventional clutch, gearbox and roller chains to the rear axle, and then by roller chains to the front axle. The gauge was 3ft 0in and total weight 12 tons.

It is not known whether Armstrong Holland allocated serial numbers to these locomotives, but they did receive the names of *DULCE, ARCHIE* and *JACK*. These were the names given to three of four 2ft 0in gauge steam locomotives used on the construction of the Burrinjuck Dam. This suggests



DULCE believed to have been photographed at the Armstrong Holland Ltd. Works, Mascot, c1930.
Photo. Armstrong Holland Pty. Ltd.

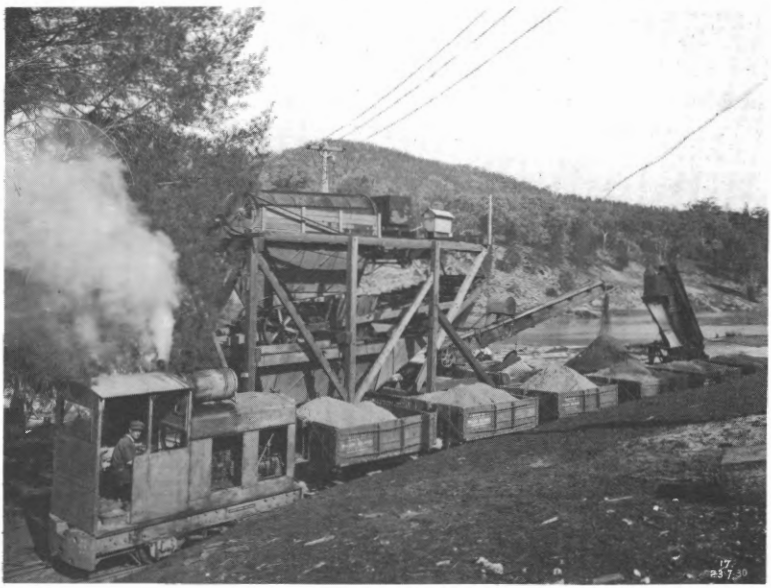
that the nameplates carried by the steam locomotives were transferred to the diesel locomotives, though it is possible that new nameplates were cast. Each diesel locomotive carried only one nameplate.

Wyangala Dam Construction

The locomotives were used on the construction railways at Wyangala Dam, on the Lochlan River, near Cowra, in central-western New South Wales. Construction commenced in December 1928 and early photographs show that the works were originally served by narrow (probably 2ft 0in) gauge railways, with a combination of winch and horse haulage, and handtrucking of small four-wheel side tipping trucks. Around 1930 3ft 0in gauge railways replaced most of the 2ft 0in gauge track.[2 3]

The diesel locomotives were delivered in May 1930 and were in use at the dam by July 1930. At least four other locomotives were used at Wyangala Dam. These were small 3ft 0in gauge 0-4-0 petrol-mechanical locomotives built using *Fordson* tractor components. Although no direct reference to the builder of these locomotives has been found, one is depicted in an Armstrong Holland outline drawing dated 1930.

There were at least three separate sections of 3ft 0in gauge light railway at the dam site. Several miles of track led upstream to the sandwashing and screening plant and sand dump. This connected with a short line to the aggregate crushers, both lines meeting at the aggregate and sand bins above the concrete mixers and adjacent to the dam wall. A short section of track on a higher level, served the aggretate quarry and crushers. On the oppoiste bank



A diesel locomotive on a rake of trucks at the sand washing and screening plant, Wyangala Dam, 23 July 1930. Photo: Water Resources Commission.

another section of track served for the excavation and construction of the spillway, some distance from the main dam wall.

Photographs show diesel locomotives on rakes of six 3 cubic yard side tipping sand trucks. Diesel locomotives were also used on the spillway excavation.

Subsequent History

Main construction work on the dam was completed by June 1935. A large portion of the plant was dismantled during the latter half of 1935 and sold to the Stanley River Works Board. Included in this plant were the three diesel locomotives. The Stanley River Works Board was responsible for the construction of the Somerset Dam on the Stanley River, north-west of Brisbane.[4]

At the Somerset Dam a section of 3ft 0in gauge railway was used to transport coarse aggregate 2000 feet from the crusher to the concrete mixing plant adjacent to the dam. The locomotives *JACK* and *ARCHIE* provided the motive power on this railway, hauling 6 cubic yard capacity trucks. The first permanent concrete was laid in October 1937.[5] Work on the dam was slowed down by World War II, suspended in 1942 and resumed in 1948. In August 1946 *JACK* was the only locomotive capable of use, spare parts having been taken from *ARCHIE*. The locomotives were sold in 1949 to a Mr Boone, a sawmiller at Mount Hallon.[7]

Mr Boone intended using the diesel engines to power the mill, but never did

A diesel locomotive adjacent to the compressor house at Somerset Dam, c1937-38.

Somerset Dam, p.28.

JACK and ARCHIE stored at Mt. Hallon, November 1958.
Photo: G. Bond.

so, and the locomotives lay derelict in his yard until 1964, when they were cut up by scrap metal merchants.[8]

REFERENCES

1. Request for increased duties on Locomotives and Power-Driven Road Rollers, including Scarifier Attachments, *Tariff Board Report and Recommendation,* Melbourne, 1931, 12 pp.
2. The Wyangala Dam, Irrigation supply from the Lachlan River, NSW, *Commonwealth Engineer,* December 1, 1932, pp. 131-136.
3. Lachlan River Water Conservation Scheme, Volumes I-IV, photo albums held by Water Resources Commission.
4. Water Conservation & Irrigation Commission, *Annual Report* for Year Ended 30th June, 1936, p.7.
5. Nimmo, WHR, Water Conservation and Flood Protection, Problems of Brisbane River Valley, Construction of Stanley River Dam, *Commonwealth Engineer,* January 1, 1940, pp. 197-203.
6. *Somerset Dam*, Bureau of Industry, Brisbane, 1938, 48 pp.
7. George Bond, records.
8. George Bond, records.

Acknowledgements

Thanks are due to Max Pritchard of Armstrong Holland Pty. Ltd., Les Trott of the Water Resources Commission and George Bond for their help in supplying material.

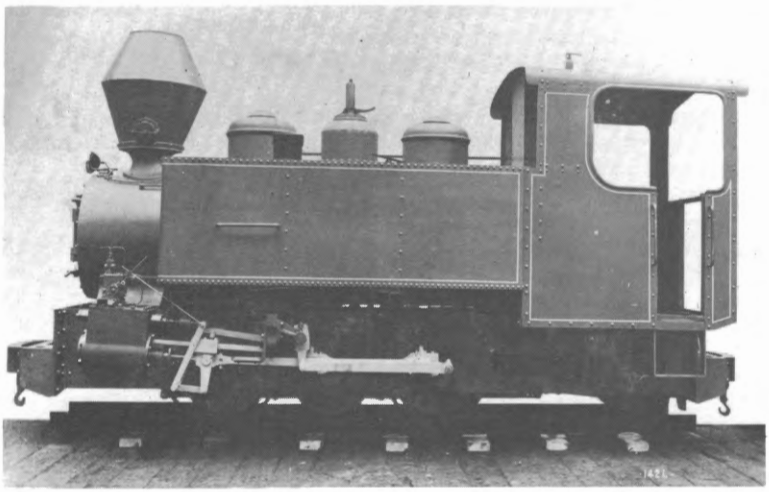
John Fowler 20277

John Browning

It was 46 years ago that a 2ft gauge 0-6-2T locomotive was outshopped from John Fowler's Leeds Works to the order of the Marian Central Mill. Perhaps it would have been a surprise to Fowlers, who built their last steam locomotive the following year, if they could have known that this machine was to be one of the last two steam locomotives in regular service in Queensland.

Fowler 20277 is now used at Marian Mill during the season to haul ballast wagons in connection with the mill's programme of track upgrading. During the week, this has sometimes meant the stationing of the locomotive away from the mill, and naturally, coal and water supplies have had to be arranged. The engine periodically returns to the mill for maintenance, and this has meant the occasional rake of cane has been hauled. The locomotive was not used for a number of years during the 1970s, but was retained for emergency use. Since returning her to service in 1978, Marian has been the envy of other local mills which disposed of steam locomotives in working order and found that Simplex diesels cannot cope very well with the modern high-capacity ballast hoppers. New diesels are very expensive, and Marian find the Fowler ideal for these comparatively light duties. In the late 1960s, it was used around the mill yard, but this work is now the sole responsibility of its stablemate, a Perry 0-6-2T.

The locomotive no longer carries an identification, but in 1968 it carried the number 9 and name *MARIAN*. Previously it had been numbered 5. A green livery is now carried, with red lining, motion and buffer beams, though



John Fowler builder's photograph 142.L.Photo: Fowler Collection, Museum of Rural English Life, Reading.

in the 1960s, it was painted grey. A new boiler was fitted in 1952. Vital statistics are listed below:
Cylinders: 10" diameter x 14" stroke
Driving wheel diameter: 28"
Weight in working order: 19 tons.
Boiler pressure: 180 lbs/sq inch
Tractive effort at 80% boiler pressure: 7200 lbs.

Acknowledgements

My thanks to George Bond, who allowed me to consult his records while preparing this item, and to Brian Webber, without whose photographs the whole thing would have been impossible.

Above: Marian Mill's Fowler 202277 awaits a light-up while stabled on the Narpi line for the week-end in 1977. It's mobile water tank is handy.
Photo: B.J.Webber

Left: The Fowler runs light on the Devereaux Creek line during ballasting duties, 14 August 1979.
Photo: B.J. Webber.

Marsden Museum of Historic Engines — Goulburn Steam Museum

Goulburn NSW

Compiled by K. McCarthy

Over the past decade progress details of the Goulburn Steam Museum have appeared in *Light Railways, NSW Digest, Trolley Wire* and, in more recent times, *Light Railway News*. This account attempts to summarise this material and to fill in some gaps in the general story.

Besides the 2ft gauge steam railway and the majestic Appleby beam pumping engine, the Goulburn museum has displayed an interesting collection of stationary steam engines, portable engines, traction and ploughing engines, steam rollers and a steam waggon, while a rare collection of photos and steam models as well as early "O" gauge Bing, Hornby and Bassett Lowke trains completed the exhibition.

This account is limited to the 2ft gauge steam railway and the historic waterworks site on which the museum is established.

The Waterworks

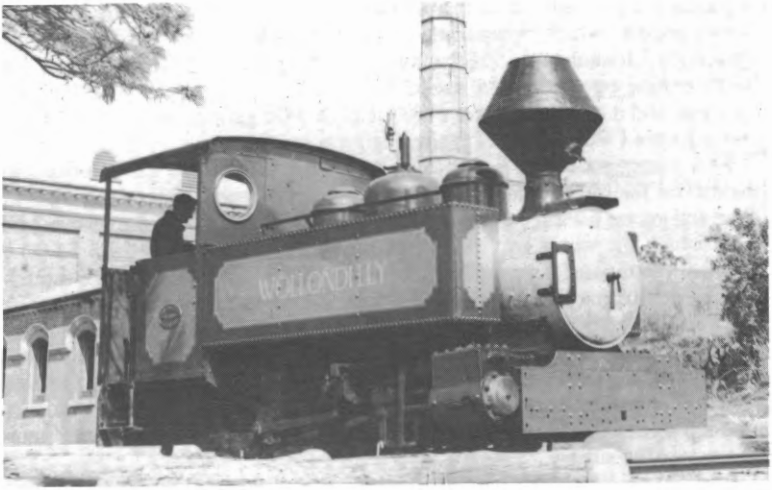
When the Goulburn population approached 5,000 in the early 1880's, the Municipality requested the Public Works Department to design and construct a water supply scheme for the town. The cost of this project was expected to amount to £25,000 but on completion in 1887 the Municipality was saddled with a debt of £71,034 for the pumping plant, reservoirs and some 26 miles of water mains.

This liability was expected to cripple the council for many years as the basic scheme would finally cost £179,000 over the 99 year period of the loan. This situation was not helped by the fact that ratepayers were able to avoid payment of water rates due to a deficiency in the municipal laws, but a special Act soon rectified this difficulty and several deputations to the Minister for Works resulted in the debt being reduced to £55,000.

Several sites were considered for the Goulburn Waterworks and the one selected was situated on the banks of the Wollondilly River, upstream from the Crookwell road crossing. The beam engine and pump were erected in an ornate brick building above the pump well. H. Evans of Wagga Wagga were the contractors for the engine house, but when the beam girders were later anchored to the walls by Ball & Stubbs of Goulburn, it was discovered that windows were located at some anchor locations necessitating in a frame of cross girders being fabricated to enable the erection of the beam engine to proceed.

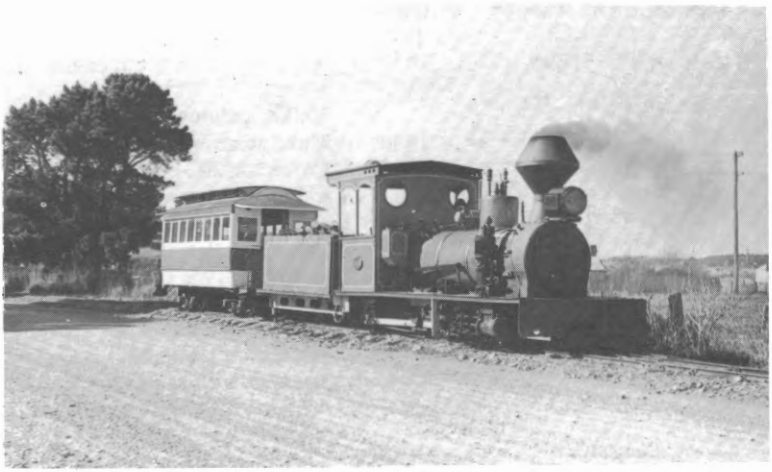
Mr J. Bastable performed the ceremony of laying the last brick in the chimney on the last day of 1885, but a year was to pass before the Department of Works handed over the undertaking to Goulburn Council. For the next 27 years Mr E. Woodhart held the position of Water Supply Engineer.

The steam beam engine was fabricated in 1883 by Appleby Brothers of London. Two Lancashire type boilers fitted with Galloway tubes and



Above: Fowler 16089 of 1923 at the Goulburn Waterworks during a open day 'steam up', September 1963.
Photo: K.McCarthy

Below: Hudswell Clarke locomotive 1098 of 1915 hauling former Melbourne cable tram trailer No. 110 at the Goulburn Museum, 8 May 1971.
Photo: K.McCarthy



working at a pressure of 60.lbs per sq inch, supplied steam to the 120 horse power engine, which functioned on the compound principle through two cylinders of 26 inch and 15 inch diameters with a stroke of 5 feet 6 inches. The beam engine operated at a speed of 18 r.p.m. with an 18 feet diameter flywheel and it could lift water at a rate of 30,000 gallons per hour through a pump located 40 feet beneath the engine room floor.

This pump forced the water to a reservoir of 2,788,000 gallons capacity located on the hill behind the station, from where it next moved through two sand and gravel filters (constructed in 1889) before passing to the service tank from which the water gravitated into the town mains.

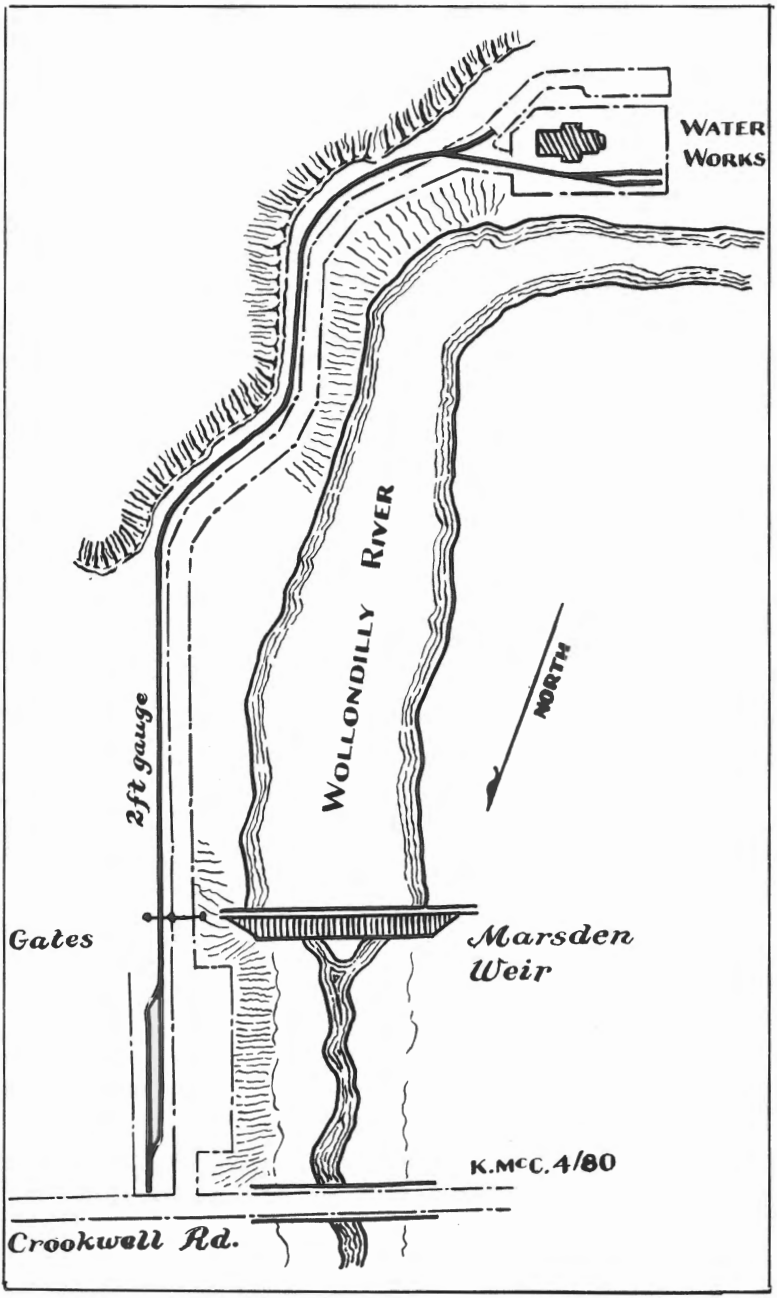
From the time of completion until 1889, NSW suffered a severe drought and the pump pond, from which the Appleby engine drew water, ran dry. This had never failed before and to save the situation two horse driven chain or belt California pumps were pressed into use to draw water from an unexhausted waterhole. To prevent further failures an additional weir was rapidly constructed one mile upstream at Rossiville in 1889 at a cost of £8,000. This enabled some 60,000,000 gallons to be impounded, which in 1893 amounted to six months supply.

By 1893 the average water consumption for Goulburn, then a town with a population of 11,000 was 300,000 to 400,000 gallons each summer day and 100,000 to 240,000 gallons per winter day. To pump this volume of water the Appleby engine operated for 44 hours per week in winter and from 80 to 90 hours per week in summer. One man operated the beam engine and fired the boilers. He no doubt welcomed cool summers to lighten his working load!

An unusual task was added to the engineman's work load during March 1900. During the bubonic plague scare the town area was thoroughly cleaned of any accumulated rubbish and rats. The waterworks' boiler fires were used to destroy the dead rats and some household rubbish.

The table below lists the pumping facilities at the Marsden Weir since 1886. It can be seen that each apparatus has passed through a period of prime activity, followed by standby service until withdrawal. The Blake steam

In service	On standby	Withdrawn	Details
1886	1896	1918	Appleby steam beam engine and pump. 30,000 gallons per hour.
1896	1918	1932	Blake steam pump.
1918	1932	1947	Crompton AC 80hp motor-Kelly & Lewis pump. 50,000 gallons per hour.
1932	1947	1969	Crompton Parkinson AC 300 hp motor. - Clyde pump. 180,000 gallons per hour.
1947	1969		AGE AC 320 hp motor - Thompson pump. 180,000 gallons per hour.
1969			AEI AC 350 hp motor - Harland pump. 180,000 gallons per hour.



pump installed in late 1896 was officially commissioned at a ceremony during 1897 when the Mayor 'turned on the steam'. Contemporary reports state that the steam was turned full-on with such a jerk that the spectators thought themselves lucky to be spared, to enjoy the refreshments which followed!

Initial Museum Development

During the 1950's Mr Bruce MacDonald, the founder of the Goulburn museum, was fully occupied with other members of the Steam Tram Preservation Society restoring former NSWGT Baldwin steam tram motor 103A. This motor was obtained from Commonwealth Engineering Coy of Granville NSW in April 1953 where it had worked as a shunting loco since the closure of the Sydney Ferries Ltd. Parramatta Tramway in 1943.

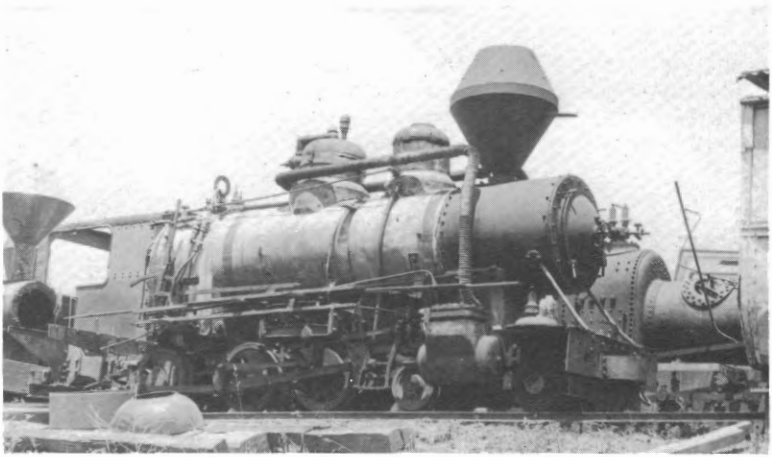
This tram was manoeuvred with great difficulty into the MacDonald's back yard at Homebush, and over the next four years this relic was restored to operating condition, a task which culminated in steam trails at the Society's museum site in Parramatta Park during June 1957.

With the development of the Parramatta project well under way, Bruce MacDonald next turned his energies towards the Appleby beam engine which had stood disused at the Goulburn Waterworks since 1918. Permission was granted by Goulburn City Council to restore this historic engine as a weekend hobby occupation and it was a proud moment in October 1958 when this engine was demonstrated under steam power.

During 1956 the 2ft gauge Davenport loco which had stood in the Pikes Hill engine shed at Kiama since 1941 was transported to Kiama Harbour for static display during a festival weekend and then transferred to Parramatta Park steam tram museum on 5th November. To enable this loco to leave the Pikes Hill shed the Fowler engine had to be hauled out into the quarry yard where it stood during January and February 1957. Mr Bruce MacDonald obtained this engine (Fowler 16089 of 1923) in July 1958 with rails and two waggons and the item was transported to Goulburn during August 1958 were it was initially used as a portable boiler for the Appleby beam pumping engine.

These two items, the beam engine and the 0-4-0T 2ft gauge locomotive, formed the bases for the Goulburn Steam Museum. The "moment of decision" was reached in 1968 when it became apparent that the work entailed in operating the museum's exhibits at weekends as well as the task of maintaining the machinery and searching out clues to new exhibits was fast outgrowing the spare time and the voluntary resources available. After negotiations, the Goulburn Council took the pioneer step in employing Bruce MacDonald on a full time basis as the museum's curator-engineer and agreed to finance the expansion of the undertaking into a seven day a week exhibition.

With the future now assured, labours were accelerated during 1969 aimed at an official museum opening during April 1970, the month of the Captain Cook Bi-Centenary. During September 1969 work commenced on laying half a mile of 2ft gauge railway track linking the Crookwell Road Gates with the pumping station and exhibition area along with the four locomotives which were by now at the museum could operate. In addition, the static exhibits were prepared for display and the exhibition hall prepared to take models,



War Department Baldwin 4-6-0 locomotive 42155 or 45215 at Goulburn Waterworks, 24 January 1973.
Photo: K. McCarthy

engine parts and photographs.

At 2.50 pm on Saturday April 4th 1970, the museum was officially opened by Mr R. Brewer MLA. The formal ceremony, witnessed by about 150 people, was performed at the Crookwell Road gates and at the conclusion of the speeches, the ex Kiama 0-4-0ST Davenport locomotive (1517/1596) departed as the pilot engine hauling the bogie tender from 0-6-0 Hudswell Clarke 1098 of 1915. The official party joined the open carriages and were carried to the Waterworks behind 0-6-0T Krauss locomotive (3423/1896) *Stella*.

Museum Expansion

From the accompanying lists the expansion of the museum can be clearly seen. The exhibits were not limited to light railway equipment. The traction engines, ploughing engines, steam rollers and steam waggon have already been mentioned. Bruce MacDonald also arranged a display of very interesting stationary engines and boilers.

One remarkable exhibit was the horizontal Hick Hargreaves & Coy. horizontal steam engine manufactured in Bolton England in the 1860's. This was used at Bell's Creek gold mine near Araluen NSW between 1864 and 1870 and was then transferred to Wright and Bruce at Botany NSW where it worked between 1870 and 1963. After being stored at the Baldwin factory at Castle Hill for 7 years it arrived at Goulburn during 1970. This exhibit featured a 12ft diameter fly wheel and Inglis & Spencer valve gear. The other large stationary exhibit was the compound steam engine from the former Sydney ferry *Kara Kara*. This vessel served as a vehicular ferry between 1926 and 1932. It became a boom defence vessel with the Royal Australian Navy during World War II and served at Darwin. *Kara Kara* returned to

List of Locomotives of Goulburn Steam Museum

A. Locomotives at Goulburn

Locomotive	Type	Builder	Number/Date	At Goulburn Arr.	Depart	Notes
"Stella"	0-6-0T	Krauss	3423/1896	1967	--	ex. Gin Gin Sugar Mill Openend Museum 4/4/70 Still at Goulburn
Isis Mill No.5 (a)	0-6-0T	Fowler	1885/1909	14/3/72	1978	Stored at Yarralumla Brickworks, ACT.
Fairymead Mill No.1	0-4-2T	Baldwin/ Forney	10533/1889	14/3/72	1977	Now owned by Steam Trains P/L St. Ives.
Gin Gin Mill No.7	0-6-0 Tender	Hudswell Clark	1098/1915	1969	1978	Stored at Yarralumla Brickworks, ACT.
PWD 65/ 23 (b)	0-4-0ST	Davenport	1596 + 1517 1917/1915	1967	1977	ex. Quarries Ltd. Kiama. To Illawarra Light Rly.
"Jack"	0-4-0T	Krauss	5945/1907	2/3/72	1978	On loan to B. Macdonald from EM Baldwim. Stored Yarralumla Brickworks.
"Perry"	0-6-2T	Perry	5643/51/1	30/4/74	28/7/77	ex. Bingera Sugar Mill. Privately pres. Sydney.
--	0-6-0T	Orenstein & Koppel	4241/1910	12/73	late 1976	ex.Lake View & Star Mine WA. To Wodonga
"Billy"	0-6-0WT	Maffei	3677/1911	1974	1/6/77	ex.Plane Ck. Mill. Pres. in Sydney.
--	4-6-0T	Baldwin	42155/1916 45215/1916	6/72	Early 1974	ex.Racecourse Mill No.5 Reconst. for Gold Coast pleasure railway.
Mulgrave Mill No.9	0-4-2T	Decauville	455/c1904	12/72	1975	On loan to Museum while in transit to Victoria.
[illegible]	0-4-0T	Fowler	16089/1923	1958	1974	[illegible]

Wollondilly (c)	0-4-0T	Fowler	16089/1923	1958	1974	ex.State Quarries, Kiama. Privately pres. Sydney.
--	0-4-0WT	Krauss	6611/1912	6/72	1975	ex. Mt Bauple Sugar Mill. To Illawarra Light Railway 22/5/76.
Tully Mill No. 5	0-4-2T	Fowler	16341/1925	9/72	3/74	To Lachlan Valley Museum Forbes, NSW.
"Ralf"	0-6-2T	Bundaberg Foundry	4/1952	2/73	3/74	ex. Bingera Mill. To Lachlan Valley Museum.
-- (d)	0-4-0WT	Krauss	6927/1914	12/71	16/3/74	ex.Corrimal Coal Coy. Privately pres. Sydney.
S. Johns. Mill No.10	0-4-2T	Fowler	17881/1929	1975	6/76	To Steam Trains P/L, Forrestors Beach, NSW.
-- (e)	0-4-2T	Fowler	4667/1881	9/76	12/77	To Sugar Industry Museum Mourilyan, Qld.

B. Locomotives Obtained by Museum but Never at Goulburn

Oanaba Mill No.1	0-4-2T	Fowler	20284/1935	--	--	Delivered to ILRMS for private pres. Now in Sydney.
Tully Mill No.3 or 4	0-4-2T	Fowler	16339 or 16340/1925	--	--	To Lachlan Valley Museum Forbes, c1975.
Macknade Mill No.5	0-6-0T	Fowler	12271/1910	--	--	At Timbertown, Wauchope NSW.

Editors Notes:

Detailed histories of the locomotives listed below are given in previous issues of Light Railways as follows:

(a) Isis Mill No.5, LR.37
(b) PWD 65/23 LR.63.
(c) "Wollondilly" LR.64
(d) Corrimal Coal Coy. Krauss locomotive, LR.60
(e) Fowler 4667 features on the cover of LR.64.

In October 1977 the Goulburn Steam Museum was the subject of a television program prepared for the ethnic service. The photograph shows Leonard Teale interviewing the Museum Proprietor, Bruce MacDonald.

Photo: R. McKillop.

Sydney to join the "moth ball fleet" and was offered for sale in 1971. After the hull was stripped of its engine and other valuable gear this ship was sunk in target practice on 30th January 1973 in 3,000 fathoms off Jervis Bay. The main triple expansion engine, as well as the steam steering engine, was preserved.

A total of 18 locomotives were at the Goulburn museum. Of these, three were incomplete, while of the other fifteen only 10 were known to have been steamed. Five of these locomotives were observed in regular passenger service at the museum. In addition, a further three 2ft gauge steam locomotives were initially reserved for the Goulburn venture but were never delivered to the Waterworks. Details of the locomotives are given in the accompanying table.

Passenger Cars

For the first year of museum operation passengers were carried in an assorted collection of open mine-man cars. On Sunday August 23rd 1970 former Melbourne saloon cable tram trailer number 110 arrived at Goulburn from Rushworth Victoria. This tramcar had stood in the open with No. 131 since c 1928. On arrival at Goulburn the vehicle was in reasonable condition and still carried 42 year old condemnation notices issued by the Melbourne Council!

The car was removed from its single four wheel standard gauge truck and mounted on two four wheel bogies obtained from the North East Dundas Tramway in Tasmania. After restoration it was painted blue and white to

match the 0-6-0 Hudswell Clarke tender loco (1098 of 1915) and underwent trials on 25th April 1971. On Friday April 30th car 110 was ceremoniously returned to traffic, by the then Chief Secretary of NSW Mr Eric Willis MLA.

In 1972 the saloon body from a c1918 vintage International bus arrived at Goulburn. This body had been used as a shed near Douglas Park NSW for many years and although once fitted to a motor vehicle chassis it had been designed to railway appearance with clerestory roof and crown light windows. No work was carried out on the restoration of this relic at Goulburn and it was eventually sold to the Illawarra Light Railway Museum, being transferred to Albion Park NSW on May 29th 1977.

During 1973 two open toastrack cars were built at Goulburn on four wheel cane truck underframes. Each were fitted with four benches and a canopy roof. By May 1976 these had been transferred to the Lachlan Museum at Forbes NSW. The release of these vehicles was made possible by the arrival of the body of former NSWGT Sydney tramcar D117. This single truck California electric tramcar joined the Sydney fleet in August 1899 but in 1913 it was renumbered 112S in the service stock roster. In this role the tramcar remained in active service scrubbing tracks until the closure of the tramways in February 1961. During September 1961 D117 was sold complete for static preservation and it lingered in a Sydney back yard until 1975 when it was transferred on lease to the Goulburn museum.

At Goulburn the enclosed end platforms were restored to their original open condition, the electrical gear and additional resistors were removed and additional cross benches (unfortunately not to the original design) were fitted in the open section. The underframe was rebraced and the unit mounted on the Tasmanian bogies from the Melbourne cable car. This latter vehicle (former 110) was then placed on a pair of lighter bogies obtained from Condong NSW.

Track Layout

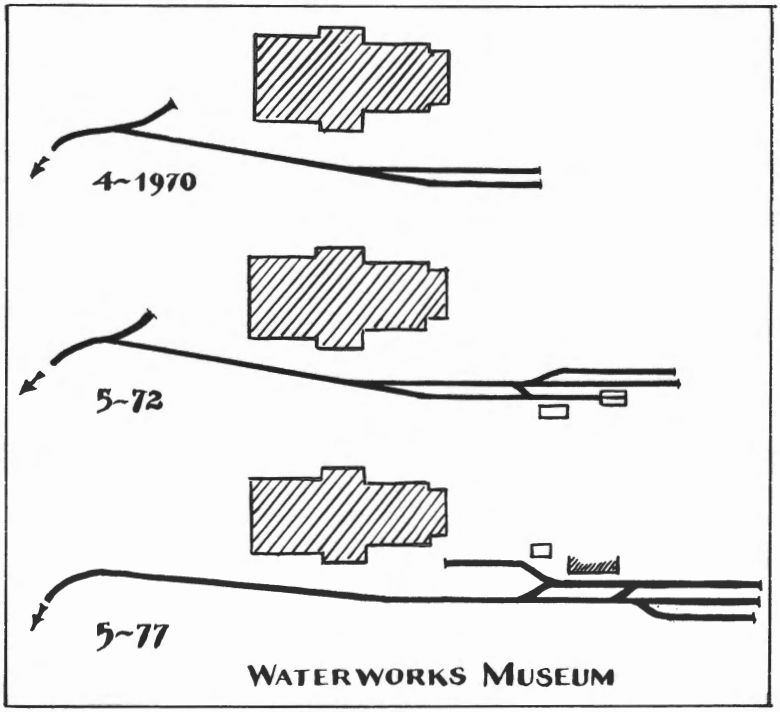
The accompanying maps give some idea of the changes made at the Waterworks end of the railway during the 1970's. At the opening, the terminal arrangement consisted of a two track dead end served by a set of primitive stub points. The cars had to be man-handled or tail rope shunted to enable the loco to run around at the museum end of the tracks.

The terminal tracks were expanded over the summer months of 1971-1972 and by May 1972 the original two dead ends had been extended beyond the Waterworks building, a facing crossover laid in to enable the locos to run around the cars and a third siding road constructed.

During September 1976 the terminal was further amended to provide an additional storage road and to remove the shunting operations from the entrance of the old pump house. By May 1977 a loading platform had been built in the museum yard and the souvenir and book shop, as well as the ticket office, housed in a portable building, had been transferred to this location.

Museum Administration

The museum functioned as the Marsden Museum of Historic Engines with the Manager-Curator and his assistant receiving salaries from the council until January 31st 1974. Owing to rapidly rising costs, and, one suspects, the pressures of some unsympathetic aldermen, the council withdrew their direct



patronage of the museum project.

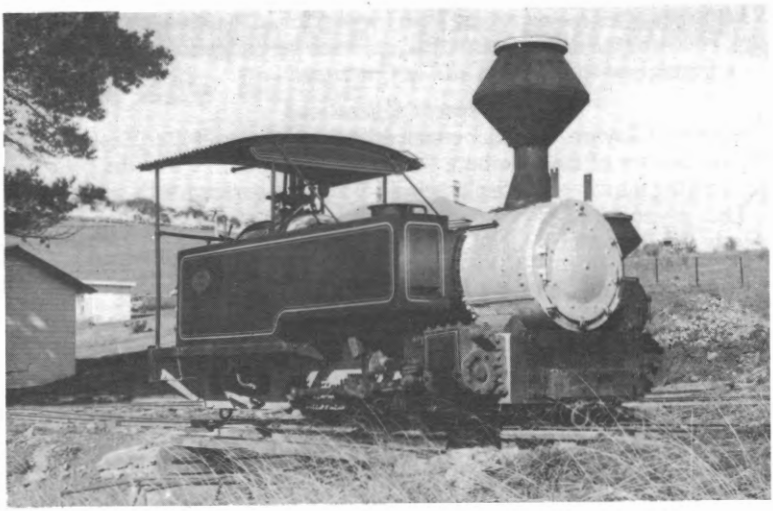
The Museum closed after the Australia Day weekend in 1974, but on April 8th 1974 details were released of the reconstruction of the undertaking as a public company. The museum and railway reopened as the Goulburn Steam Museum later that month with Mr Bruce MacDonald as manager.

After the initial successful establishment of the museum it seemed possible that the railway would be extended further northwards under the Wollondilly River bridge and along the eastern bank of the river. As inflation escalated museum and preservation costs, this major expansion programme was put aside. In time, only minor expansion could be contemplated, and it was difficult to budget to a set job timetable.

By October 1974 the decision was reached that although the museum would continue to function, there would be little prospect of further major development of the railway. It was decided that the railway aspect of the museum would have to be pruned.

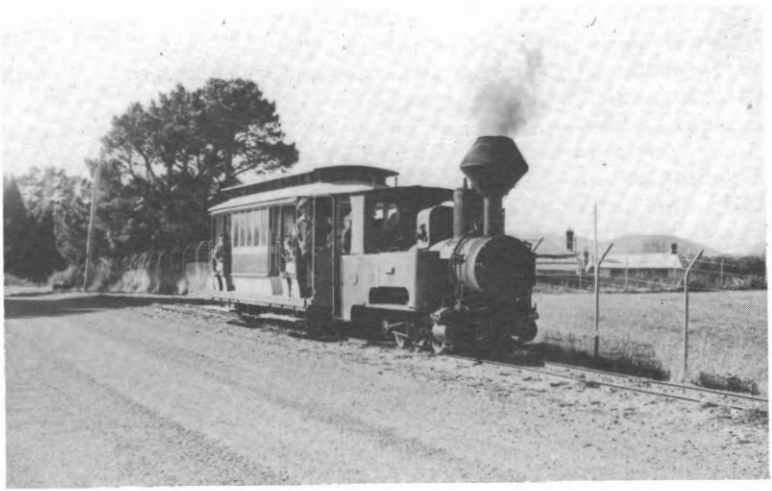
Disposal of Items

Many of the railway exhibits were the personal property of Bruce MacDonald while some stationary and road bound items were on loan to the museum. These were returned gradually to their owners while locomotives in excess of the needs of the museum, or those which would require alterations or considerable restoration before being operated at Goulburn, were gradually sold.



Above: 'Domeless' Fowler 11885 of 1909 after restoration at the Goulburn Steam Museum, 29 May 1977.
Photo: K. McCarthy

Below: Stella, Krauss 3423 of 1896 hauling former Sydney electric tramcar D.117 at the Crookwell Road entrance to the Goulburn Steam Museum, 29 May 1977.
Photo: K. McCarthy.



Mr Bruce MacDonald retired from his position at the Museum on January 30th 1978 and the three locomotives, on which the museum did not have title, were transferred to a storage site in Canberra.

Present Operations

Mr Bruce Krylott, a former engineer at the Cobargo Butter Factory took over as curator of the Goulburn Steam Museum in 1978 and the policy of diversifying into smaller displays has since been pursued with success.

The only locomotive remaining at Goulburn for steam operation was the elderly 0-6-0T Krauss *Stella*. This continued in service until July-August 1979 when the annual boiler inspection revealed that a heavy overhaul would be necessary before this engine could return to museum service.

During May 1979 the 2ft gauge *Planet* loco (F. Hibberd 4wDM 2380 of 1941) and a 16 seat bogie passenger car arrived at the Goulburn museum on hire from the former Southern Highland Transport Museum (ex Colo Vale). These vehicles took over operations from the Krauss locomotive and saloon car combination. A visit in September 1979 revealed that the small *Planet* locomotive was hauling the Melbourne cable saloon trailer during the school vacation period, a combination which presented an incongruous sight!

By April 1980 the overhaul of the Krauss boiler was progressing, but the project had developed into one of major magnitude. Beside retubing, a considerable amount of renovations were needed to the tubeplates and fire box. To enable the light railway to continue operations the *Planet* locomotive was purchased on 11th February 1980 while a major project was being planned which would result in the now rapidly decaying cable tram trailer being overhauled for further service.

The 16 seat bogie car is due to return to Menangle by the end of 1980 while it is possible that the Sydney *D* class tramcar may also leave Goulburn soon after that date. Current progress indicates that the Krauss locomotive and the cable tram trailer will be ready by then to enable the operation of the light railway at Marsden Weir to proceed through its second decade.

Sources

Trolley Wire - June 1970, October 1970, April 1972, August 1971, April 1972, October 1972, October 1973, August 1974, February 1975, April 1975, August 1976.
Light Railway News:- No.3, p4; No.10, p4; No.13, p9; No.15, p10.
Sydney Morning Herald:- p5 Sep 2nd 1893; p7 Feb 11th 1903.
Detailed interviews conducted with Mr Bruce MacDonald on 22nd Aug 1970, 13th Nov 1971, 31st Dec 1978.

1. It must be emphasised that the items listed in this article as being in store or under private ownership are not available for public inspection.
2. Although photos are available of many of the exhibits prior to preservation and since their disposal from Goulburn, the illustrations accompanying this article have been limited to those views showing the material at Goulburn.

Mosa Oil Palm Mill - West New Britain, Papua New Guinea

Bob McKillop

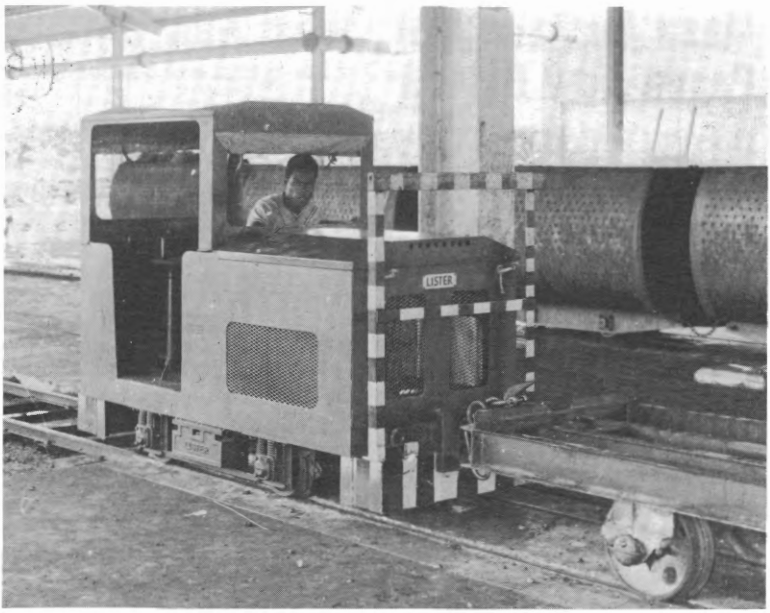
Previous articles have described Papua New Guinea railways of the 1920's. Railed transport continues to have an application in Papua New Guinea to-day, although on a modest scale. One such application is the small industrial railway system operated by an oil palm factory in West New Britain.

The Oil Palm Industry in PNG

On 14th July 1971 the Australian Minister for Territories, Mr C.E. Barnes officially opened Papua New Guinea's first oil palm factory at Mosa Plantation. The factory is owned by New Britain Palm Oil Development Ltd, a company jointly controlled by the Administration of Papua New Guinea and the English firm of Harrisons and Crosfield Ltd who had wide experience in oil palm development in Malaysia[1].

Although oil palm was known to thrive in many areas of Papua New Guinea the development of an oil palm industry was not undertaken earlier because of the high capital cost involved. In 1963, however, the International Bank for Reconstruction and Development mission to Papua New Guinea recommended that oil palm plantations be established. By 1965 Harrison and Crosfield had begun investigations into the feasibility of such an industry and in February 1967 an agreement was signed between the Administration and

Loading hoppers at Mosa oil palm factory, November 1971.
Photo: R. McKillop.



The Lister locomotive at Mosa factory in November, 1971. The bins in the background are on the track to the sterilisation chambers.

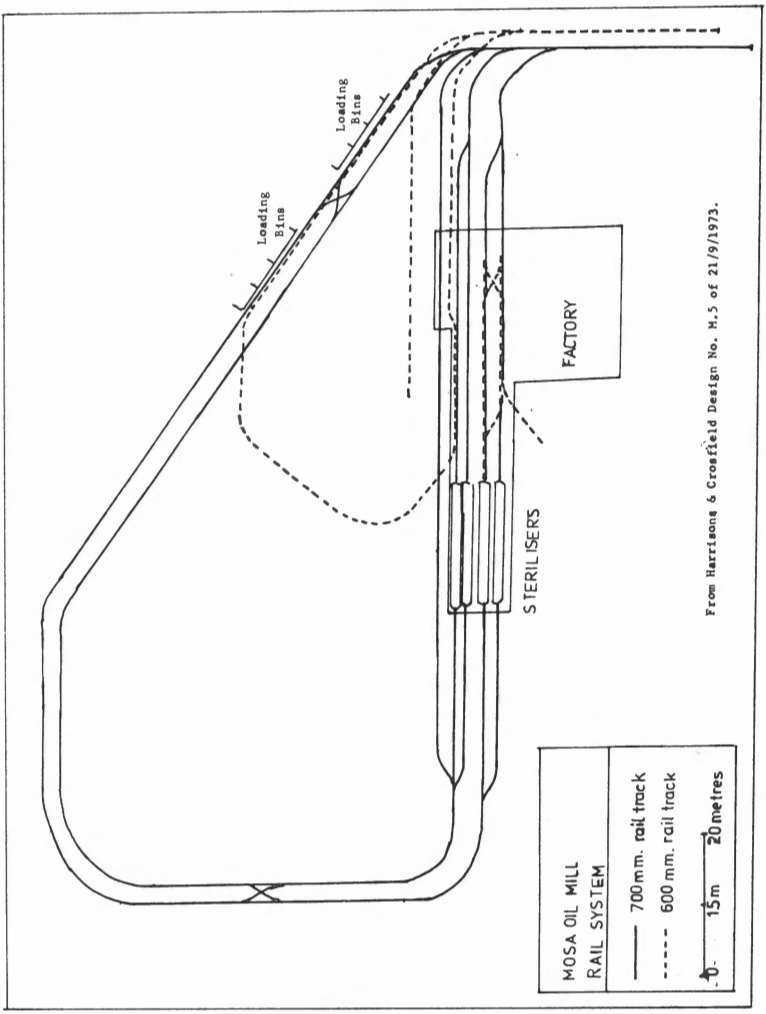
Photo: R. McKillop.

Harrison and Crosfield Ltd to develop an oil palm industry in the Talasea-Hoskins area of the north coast of New Britain[2]. The agreement called for the setting up of a 1200 ha plantation and factory complex under the combined control of the Group and the Administration, and bringing in 500 Papua New Guinea smallholder farmers and their families to settle on 1600 ha. The pilot project was successful within two years and the plantation oil palm plantings were increased to 2600 ha and the smallholder plantings to 4000 ha.

The Mill Tramway System

The freshly harvested oil palm fruit is brought to the factory by road transport. Here, as with sugar milling (LR66), the capacity of a tramway to hold and move the harvested fruit at a regular rate to meet the requirements of the processing factory has been found to be an advantage. The fruit is transferred from road vehicles to rail mounted steel bins which can be run directly into the sterilization chambers.

Stage 1 of the factory complex was opened in 1971 and was built at a cost of K1.8 million ($A2.3 million). Some 530 metres of 600 mm gauge railway track was constructed consisting of a baloon-loop to the loading bins and a number of tracks within the factory complex (see map). There were some 40 steel bins of 2.7 metric tonne capacity which were designed especially for the sterilization chambers. The bins were shunted around the baloon-loop for



loading and then into the factory by a small diesel locomotive. Once in the factory the loaded bins were transferred to the sterilizer roads by an overhead crane and moved into the chambers by winches. After the fruit had been sterilized the bins were lifted to overhead hoppers by crane and the fruit tipped in and fed to the crushers.

The 600 mm gauge system was operated by a small Lister locomotive supplied by Hasings Deering. It carried the makers number 56115 spec. 119745 of 1969, it was rated at 12.75 hp and weighed approximately 1½ tons[3]. The locomotive displayed a poor adhesion on a track usually smeered

liberally with oil from the fresh fruit and it was regarded as unsuitable for the task by local officials.

The high yields achieved on the Hoskins scheme and the rapid extension of plantings soon resulted in a production of fruit in excess of the factory capacity. An expansion programme costing some K4.2 million ($A5.3 million) was initiated in 1974 and this increased the factory capacity to 10,000 tons of fruit per month[4]. In this expansion programme the original 600 mm railway system was replaced by a more extensive 700 mm gauge system which eventually totalled 1620 metres of track. It includes a much larger double tracked baloon-loop to the loading hoppers and an enlarged network of sidings within the factory area. With the change-over to the 700 mm system the Lister locomotive was set aside and replaced by conventional wheel tractors as the source of motive power. It is understood that the task is an arduous one for such machines and they have a short working life.

Rail transport thus continues to have a small but important application in Papua New Guinea. The Hosking oil palm scheme has been followed by others at Bialla in West New Britain and more recently by a K35 million project at Popondetta in the Northern Province. It will be interesting to see if rail transport will be used in the factories for these projects when they are constructed.

REFERENCES

1. 'Oil Palm Industry' in Ryan, P. (ed) *Encyclopaedia of Papua and New Guinea*, Melbourne Univ. Press, 1972.
2. *Our News*, Port Moresby, Vol. 17:11, June 15, 1975.
3. Details from New Britain Oil Development Ltd. stock cards.
4. *Our News*, 15 June, 1975.

BOOK REVIEW

JOHN MOFFAT'S EMPIRE
By R. S. Kerr

Authoress Ruth Kerr explains in the early part of her interesting book that there have been few instances in Australian mining history where a man whose career spanned and sponsored the development of the base metal industry in Eastern Australia has all but disappeared from recollection. Such a man was John Moffat of Chillagoe Mining Company fame. Ruth has certainly rectified this omission in a book based on research she has done for her University thesis and published in partnership with her well known author/historian husband, John Kerr.

Ruth has managed to gather together a wealth of carefully researched material which vividly describes the empire which the modest Scotsman John Moffat managed to build in the years 1872 to 1918 and encompassed a number of the major North Queensland mining fields, as well as minor ventures into other areas and industries. In these early days of the mining industry there were certainly many difficulties and as the story continues, it is

interesting to read how they were realised and overcome. John Moffat emerges as a man of unquestionable honesty, compassion and foresightedness, and a man of such calibre in the world of mining was then, and is today, unusual.

Each chapter of the book is concluded with a well compiled list of references which will enable future researchers to pursue a certain matter with ease. The maps and photographs ably illustrate the story and an index is provided for locating a particular subject. The reviewer found the facts a little overpowering at times, particularly in the middle sections of the book. One factor which it is felt could have been expanded upon is an overall interpretation of the man and his empire and its effect upon the industry and areas which it encompassed. Moffat's private life is barely mentioned, but it is understood that this will form the subject of a biography to be published at some later date of which Ruth will also be the authoress.

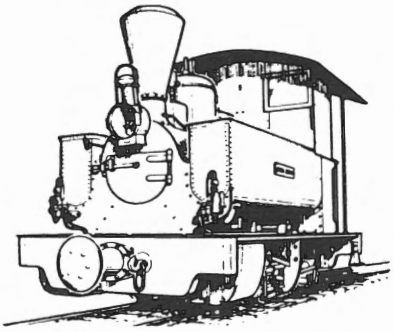
The book is overall a clear and concise history which will have great appeal to anybody interested in history. The railway and tramway side of the empire, which covers the Chillagoe Railway, Mt. Garnet Railway, Stannary Hills and Irvinebank Tramways, is given adequate attention in the context of the story as well as in the illustrations. The reviewer was disappointed in the rather poor presentation of the maps and the lack of imagination and information in the photo captions. It is also unfortunate that some of the photographs have been poorly reproduced, and having seen the 'originals' of some of these illustrations, the reviewer feels that they were worthy of more care and attention on the part of the printer, bearing in mind the cost of printing blocks these days. These faults, whilst not affecting the excellent study, do detract from the overall appeal of the book. One does wonder at the use of the title 'entrepeneur' to describe a man of Moffat's calibre, although it is a term which is widely accepted in today's sense to describe a person so involved.

Copies of the book are available from the publishers, J. D. & R. S. Kerr, 11 Camira Street, St. Lucia, Qld 4067. Costs, including postage (Australia only) are $10.00 for the hardback edition, and $6.00 for the soft cover edition.

HIGHLY RECOMMENDED **RFE**

LIGHT RAILWAYS INDEX

Light Railways Index No. covering material published in issues 13 to 40 is now available. The Index offers a comprehensive subject/title list and a locomotive list. Available from LRRSA Sales, PO Box 382, Mt. Waverley, Vic. 3149 at $1.60 including postage.



LETTERS

INCLINE AT MOUNT VICTORIA (LR 63)

I visited the site of the incline at Mount Victoria on 20th December, 1975, and walked down the hill from the top of the incline to the cliff where the main trestle commenced. From the remains of the trestle it appears that at this location there were three rails laid at a spacing of 2ft 6in. This suggests that the incline was worked as a funicular (balanced incline) with three rails for most of the distance and a four rail passing loop in the centre.

There is a brief reference to the incline in the Annual Report of the Department of Mines for 1924 (p. 35).

> The Chert Road Metal & Timber Co. Ltd. commenced development work at a quarry at Mount Victoria and are erecting storage bins, constructing a tramline and railway siding and installing machinery. It is expected that the quarry will be producing early in the new year.

Unfortunately subsequent Annual Reports contain very few details, apart from annual production figures for chert.

A.J. Weston,
Mt. Isa, Qld.

SOUTH AUSTRALIAN JETTY TRAMWAYS LR64, pgs 4-10

Further to the notes on these lines, I can add a few points that may be of interest.

I have a drawing from the South Australian Engineer-in-Chief's Office, dated 6 February 1882, entitled *Standard Jetty Truck*. The drawing has a later addition to the title reading *Kingscote Bay Kangaroo Island* which in turn has been over-written *Streaky Bay Jetty* and, indeed, the wagon is much the same as those shown in the photos on pages 8 and 9 of LR 64. Principal dimensions were: tray 10'0" x 6'6"; height from rail to tray 2'11"; length over dumb buffers 11'6"; wheelbase 5'6"; unsprung 2'6" diameter, 6-spoke, cast iron wheels on 3" diameter, wrought iron axles of 3'6" gauge. All iron work, strapping etc. was painted black; all timber (Baltic Red Deal) was painted *lead colour.*

Some other jetties, additional to those mentioned in LR64, which had 3'6" gauge tramways were at Port MacDonell, Second Valley, Normanville, Franklin, Kingscote and Milang (or Lake Alexandrina). The Milang line

acted as a link between the terminus of the SAR's 5'3" gauge branch line and the river boats.

At both Beachport and Kingston the 3'6" gauge tracks were left on the old SAR jetties for local use after the connecting railways were withdrawn. The jetty at Beachport had been shunted by two steam locomotives belonging to S. J. Stuckey & Sons (taken over by Goldsbrough Mort & Co. Ltd. in 1938):

Kitson 4374/1905 2-2-0WT or Motor portion of ex SAR steam railcar No.2.

Kitson T.97/1884 0-4-0WT or Ex Dalgety & Co., Beachport (formerly used at Kingston) and orginally new to SAMB Port Germein Jetty (Note builder's number. This is the low referred to on page 7 of LR64.)

The SAMB (which became the SA Harbours Board during WWI and is now known as the Dept. of Marine and Harbors) also used locomotives at Franklin and Price jetties. The former jetty had two Fordson 4 w PM locomotives of c1926, one ex Adelaide Cement Co., Kleins Point, SA and the other ex SAR (presumably from the Port Broughton-Mundoora line). The ex SAR locomotive was transferred to Price jetty in 1964 where it joined another Fordson 4w PM locomotive of c1940 (Malcolm Moore built?) and a 4wDM, Ruston Hornsby 244869/1946.

Sub - 3'6" gauge jetty lines existed at Penneshaw Brickworks on Kangaroo Island (c1910) and also on the Glenelg jetty. This jetty had originally been served by the 5'3" gauge tracks of the Adelaide, Glenelg and Suburban Railway Co but when mail steamers ceased to call there in the 1880s the line became disused. A photo taken in the 1920s shows a narrow gauge line on the jetty which, by then, was used for pleasure purposes. In view of the proximity of the 2'6" gauge line used on the Glenelg breakwater construction (see LR31), the jetty line may also have been of this gauge.

On the 5'3" gauge, apart from jetty lines of the SAR and the Kadina and Wallaroo Railway and Pier Co, the wharf at Goolwa, on the river Murray, had an isolated line with crane wagons for transhipment of goods from the boats to railway wagons or the freight shed. Photos of these appear on pages 4 and 5 of the ARHS Bulletin for January 1976. Similarly, further upstream at Murray Bridge there was another isolated line on the wharf where transhipment was carried out by two electric railway cranes. They were fitted with trolley poles and used tramway-type overhead. Unfortunately, this line was not shown on the map of the wharf in the same ARHS Bulletin, nor do either of the photos on page 11 show it. However, the SA Archives do have a good photo of these cranes in their collection. On page 247 of Fenner's *South Australia - A Geographical Study* (published in 1931) is a photo of SAR Q and Rx class locomotives double-heading a train over the new river bridge, while in the foreground is the upturned chassis of one of the electric railway cranes. This might suggest that they were out of use by then.

The SAHB have used their own rollingstock or railway cranes on jetties or wharves also used by the SAR. On the 5'3" gauge Wallaroo jetty, in the late 1960s, were to be found a SAHB Perry Engineering - built crawler crane mounted on a bogie wagon converted from the tender of SAR *pacific* 603 together with an unsprung timber frame 4-wheel flat wagon, the wheels of which were dated 1886. Chambers, Scott and Co of Motherwell, Scotland

built two large Co-Co 5'3" gauge 10 ton steam railway cranes for the SAHB in 1925. One was on the wharf of Port Pirie in the 1960s, while the other was at Outer Harbour, Port Adelaide. This latter had been adopted during WWII to power a 50 ton traversing crane, running on a short length of track. It could lift 60 tons in emergencies and had been installed to compensate for the removal of a 60 ton floating crane.

5'3" gauge locomotives used by the SAHB in the Port Adelaide and Outer Harbour areas were a mixed bunch with complex histories and can briefly be summarised:

- Neilson 1798/1873 0-4-0T 0C Ex SAR I 48 in 1906. Originally Christchurch Railway NZ, 9. Condemned 1909.
1 R. Stephenson 1177/1858 0-4-0WT 0C. Purchased 1908. Originally Melbourne and Hobsons Bay Railway. *Pier Donkey*. Scrapped c1910.
- G. England 46/1858 2-4-0 1C. Purchased 1908. Originally VR 2-2-2 1C, 12 Rebuilt to 2-4-0 1892. Scrapped c1910.
- Beyer Peacock 2980/1888 0-4-0ST 0C. Purchased 1908. Originally Hoffman Steam Brick Co, Boxhill, Vic. Sold to SAR, I 161, in 1910. Scrapped 1929.
205 Andrew Barclay 1253/1911 0-4-0ST 0C. New. Numbered in sequence with, but never part of the SAR fleet list. Scrapped 1950.

The BHP Co's limestone quarry at Rapid Bay did indeed use electric traction (enclosed is a photo of the two 3'6" gauge Perry Engineering built locomotives taken c1960 after the rail system had closed). The 3'6" gauge line on the jetty was totally separate from the quarry lines and by 1960 had

Perry built electric locomotives EL1 and EL2 stored at the Rapid Bay limestone quarry, c1960.
Photo: R.T.Horne.

been replaced by a conveyor belt system. By this time there was no evidence of jetty motive power and the sole remaining item of rolling stock was a derelict 4-wheel wagon, originally owned by the Silverton Tramway Co.

R. T. Horne
Croydon, Surray
England.

I was interested to read the article by D. Estell and K. McCarthy in LR64 and was rather surprised that they had not included a sketch of the rather interesting lay-out of the jetty tramway at Port Broughton.

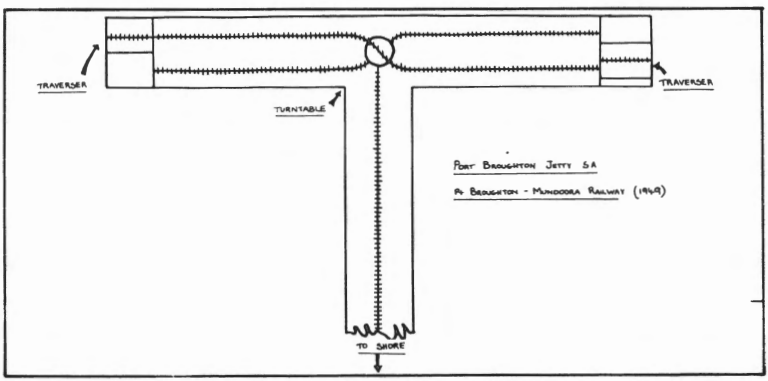
To fill the gap I have enclosed a sketch to illustrate the track arrangement as it existed in 1949.

In 1949 the railway from Mundoora to Port Broughton was still intact but out of use. As stated in LR64, the single 3ft 6in track from Mundoora ran down the centre of the main street of Port Broughton and on to the jetty. At the head of the jetty, at the junction of the Tee was a turntable to allow full trucks to be placed on the seaward line of the Tee. At each end of the tee, there was a traverser which allowed the empties to be placed on the return line located on the landward side of the tee and return from there to the turntable and to the *main line.*

In 1949 there were still a few derelict flat top trucks stored on the main line adjacent to the main road level crossing on the outskirts of Port Broughton. An interesting sidelight on the demise of the line occured in the late 1950's or early 1960's when a scrap metal merchant was taken to court charged with having stolen a railway. Apparently the line was lifted and sold for scrap without authorization!

Congratulations on the current high standard of the magazine.

Ian Goff,
Victoria



Back cover: The sand and aggregate bins at Wyangala Dam showing a diesel locomotive on a rake of sand trucks and a small petrol locomotive on the parallel track. In the background are the cableway towers and the foundations for the dam. Taken March, 1931. (see page 4).
Photo: Water Resources Commission.