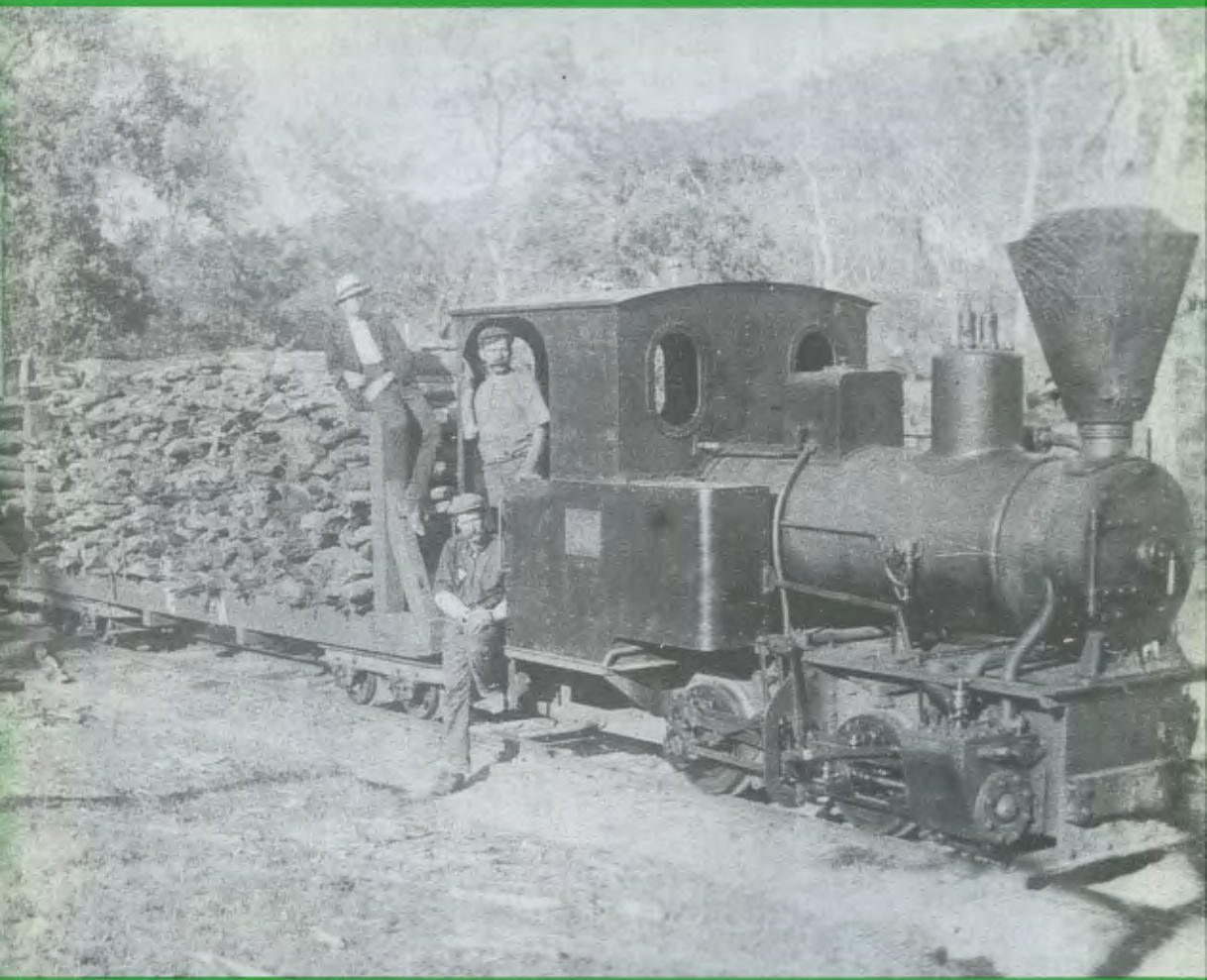
LIGHT RAILWAYS

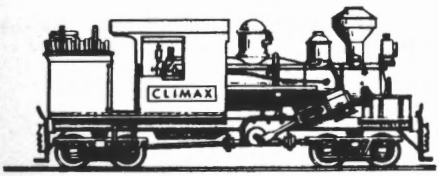
Number 134 October 1996

The Cangai Railway
Port Gregory Salt Tram

ISSN 0 727 8101



The Light Railway Research Society of Australia Inc.



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Light Railway Research Society of Australia Inc.

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Subscriptions: $33.00 per year covering 4 issues Light Railways, 6 issues Light Railway News and information on Society activities, publications, etc. Airmail rates on application. To Membership Officer, PO Box 21, Surrey Hills, Vic 3127.

Sales: Back numbers Light Railways and other publications from LRRSA Sales, 6 Chalmers Grove, Upper Ferntree Gully, Vic 3156. Phone (03) 9758 7516.

Cover Photo:

Orenstein & Koppel loco on a wood train at Cangai. Photo: Clarence River Historical Society per Jim Longworth.

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The Light Railway Research Society of Australia was formed in 1961 and caters for those interested in all facets of industrial railways in this country and its off-shore territories, past and present.

Members are actively involved in researching light railways in libraries and archives, interviewing knowledgeable first-hand participants and undertaking field work at industrial sites and in the forests.

Who knows what lies hidden in the forest? Members have uncovered tramway formations, sawmill sites, winches, steam boilers, bridges, log landings and more. The Society has been instrumental in preserving many sites through Heritage Classification so that future generations can enjoy glimpses of the past.

CONVERSIONS:

1 inch (in)	25.40 millimetres
1 foot (ft)	0.30 metre
1 yard (yd)	0.91 metre
1 chain	20.11 metres
1 mile	1.60 kilometres
1 super foot	0.00236 cubic metre
1 ton	1.01 tonnes
1 pound (£)	$2.00 (in 1966)
1 pound (lb)	0.454 kilogram
1 acre	0.4 hectare
1 horsepower (hp)	746 Watts

THE CANGAI RAILWAY: Grafton Copper Company Firewood Tramway

by J.W. Shoebridge

INTRODUCTION

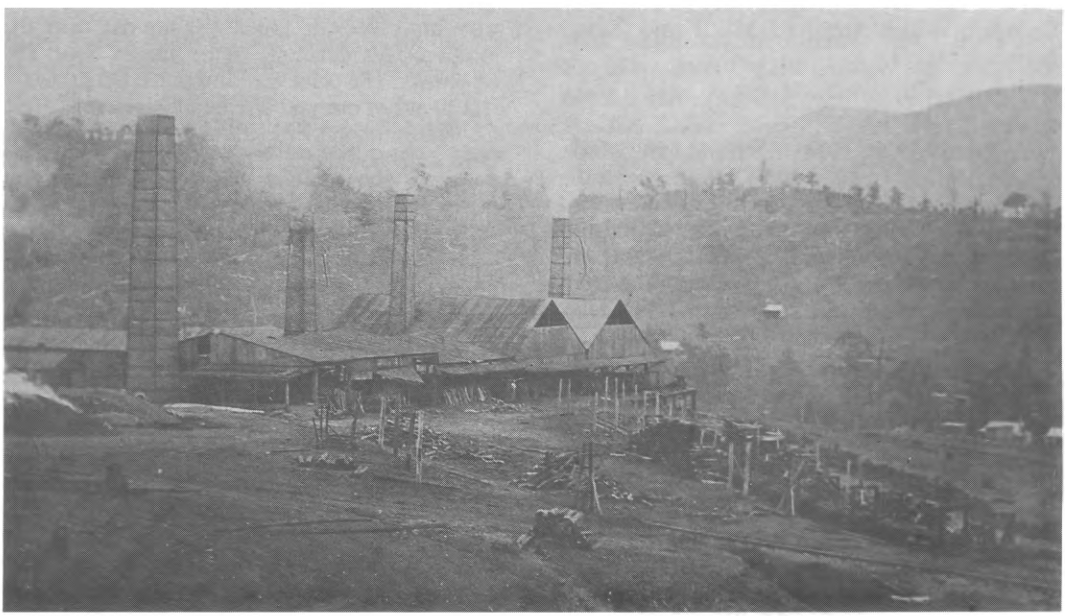
Cangai, inland from Grafton on the mid-north Coast of NSW is said to derive its name from the Celtic for 'Men of the Riverbranch'. The name was given by Briscoe Ray to the 8,000-acre cattle run which he took up around 1845. The village of Cangai, Parish of Kyloe, lies at the foot of the Gibraltar Range on a pleasant hillside in the valley formed by Stockyard Creek close to the junction with the Mann River. The small settlement is now virtually deserted but for just over a decade it was the centre of an active mining and smelting industry. And it had its own railway, a short-lived, isolated, narrow-gauge timber tramway, the story of which is inextricably bound up with the story of the Cangai Coppermine.

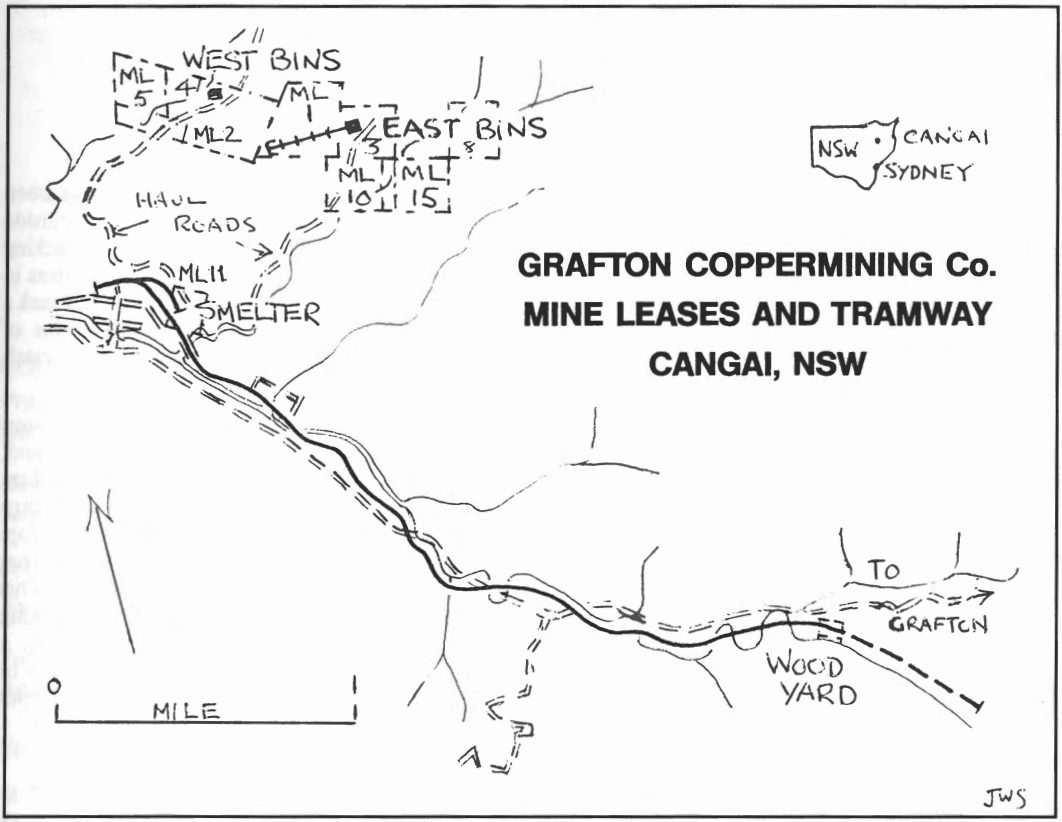
COPPER AT CANGAI

Copper was discovered on Cangai Station in 1903 (some say 1901) when stockman J. Sellars, whilst wallaby shooting, noted significant blue and green copper carbonates in the rocks high on the hillside in the valley of Cangai Creek. With the backing of W. Zeitsch (who owned a tailoring business in Grafton), Sellars took up a lease (ML 1) and sank a 40-ft-deep shaft and raised some five tons of oxidised ore which was despatched to Waratah for assay.

A return of 22% copper in the first five-ton sample attracted the attention of prospectors and, shortly, P. Kritsch and Party had taken up ML 2 on the western extension of the lode, whilst Corry and Party pegged out ML 3 on the eastern outcrop. The latter sold its holding to the Melbourne-financed Cangai Coppermining Company. This company raised 300 tons of ore for trial smelting in Newcastle and Melbourne but made only a desultory attempt at mining. In 1904, a group of Grafton businessmen floated the Grafton Copper

Cangai Smelter looking south-east. There is a line of timber trucks on the siding between the (depleted) woodheaps. To the left, smoulder the roast heaps. The distant building on the far right is the sawmill. Photo: Clarence River Historical Society Collection.



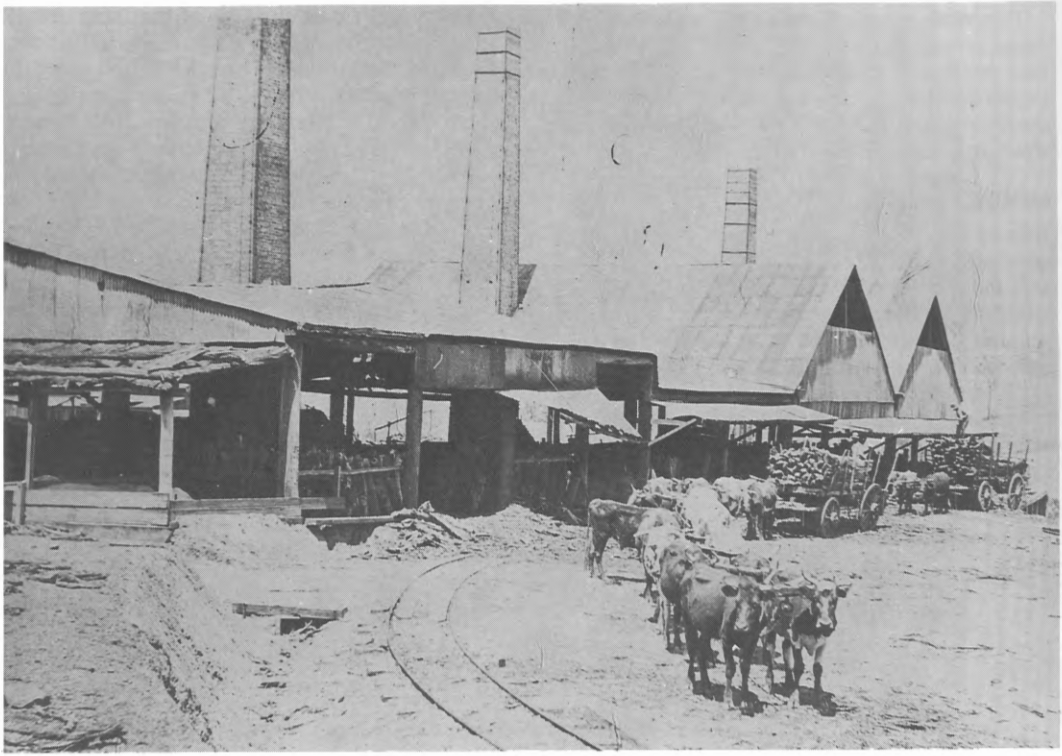


Company which acquired ML 1 and 2 and eventually ML 3.

The directors of this Company were Messrs S. See (Chairman), W. Zeitsch and P. Kritsch, E.R. Woodward, Legal Manager, and J.H. Gibson the Company Secretary with W.J. Mulligan as the General Manager. With a local directorate and registered office in Prince Street, Grafton, the principal shareholders were able to visit the mine site and, unlike many other Australian mining ventures, were well acquainted with the day-to-day operations of the mines.

Initial capital expenditure was minimal. The rich surface ores averaging 27% copper were raised from three shafts and despatched to the smelters without any treatment. The Company paid a handsome dividend in its first year. With 100 men employed at the mines and finance available, it was decided to commence local smelting. In September 1905 work on two 40-ton wood-fired reverberatory furnaces was commenced. Smelting commenced in January 1906 but the operations were not successful initially as the nature of the local ore caused damage to the furnace floors and brickwork. The plant was shut down until the correct blend of ore was arrived at, silica sand from Copmanhurst was brought in for the furnace bottoms and the nearby Sir Walter Scott gold mine was acquired so that its ore could be mixed with the basic copper ore. The No 3 furnace of 70-ton capacity was commenced in June 1907 and by May 1908 the No 4 was under construction.

In 1908, Government Geologist Carne reported that the eastern and western sides of the leases were being worked as two mines, with ore from the 300 ft level on the eastern side trucked along mine tramways to daylight. On the surface, high on the hillside, the ore was dumped into a 200-ton hopper feeding two small rail trucks running on a self acting incline. This incline, with a centre passing loop, lowered the ore down the steep terrain to a 300-ton wooden bin. The western leases were exploited by two underlay tunnels, the ore being dropped down ore passes from the top level to the lower then trammed out of the tunnel and into a 200-ton bin.



A closer view of furnaces 3, 2 and 1 at Cangai Smelter. Bullock teams are delivering firewood and, judging by the excavated earth, the rail track has not long been laid. Note the firewood billets stacked on end under cover, ready for firing. Photo: Clarence River Historical Society Collection.

From these two bins, horse drays hauled the ore along a specially constructed haulroad to the smelter.

Some two miles of haulroad were constructed, following the contours of the hill to provide an even gradient in favour of the loads. To allow operation in wet weather the road surface was metalled with slag from the smelter. The smelter furnaces were located on ML 11 on a small promontory between Stockyard and Smelter Creeks and roughly centrally located between the ore bins. A small village grew up just west of the smelters and when it was subdivided in 1904 the Company, and individual Company Directors, purchased a number of the town lots. The finished product, copper refined to blister stage, was hauled by horse team over indifferent Council roads to the Copmanhurst wharf then moved by drogher down the Clarence River for transhipment to the North Coast Steam Navigation Company's ships at Grafton. Slag was dumped down the creek bank adjacent to the furnaces. Initially firewood for the roast heaps and the furnaces was abundant on the hills adjacent to the property and water came from a dam on Smelter Creek. It was not long before firewood had to be carted from further up the valley. This caused some concern but, according to the Mines Department Report for 1906, the Manager 'by careful attention to detail' was able to reduce the fuel consumption to 20 tons of wood per ton of copper produced.

This year, 1906, also found the local roads inadequate for the shipment of the increased tonnage of blister copper and from that time on there are frequent reports of the smelter output being stockpiled at the mine, to the detriment of the Company's cashflow. In particular the Lilydale crossing of the Clarence River was regularly closed by floodwaters (at one time there was no passage for teams for over three months) and supplies for the town had to be ferried across. Eventually after repeated fruitless representations to Dorrigo Shire, the Company itself financed a major cutting on the Rocks Road via Jackadgery.

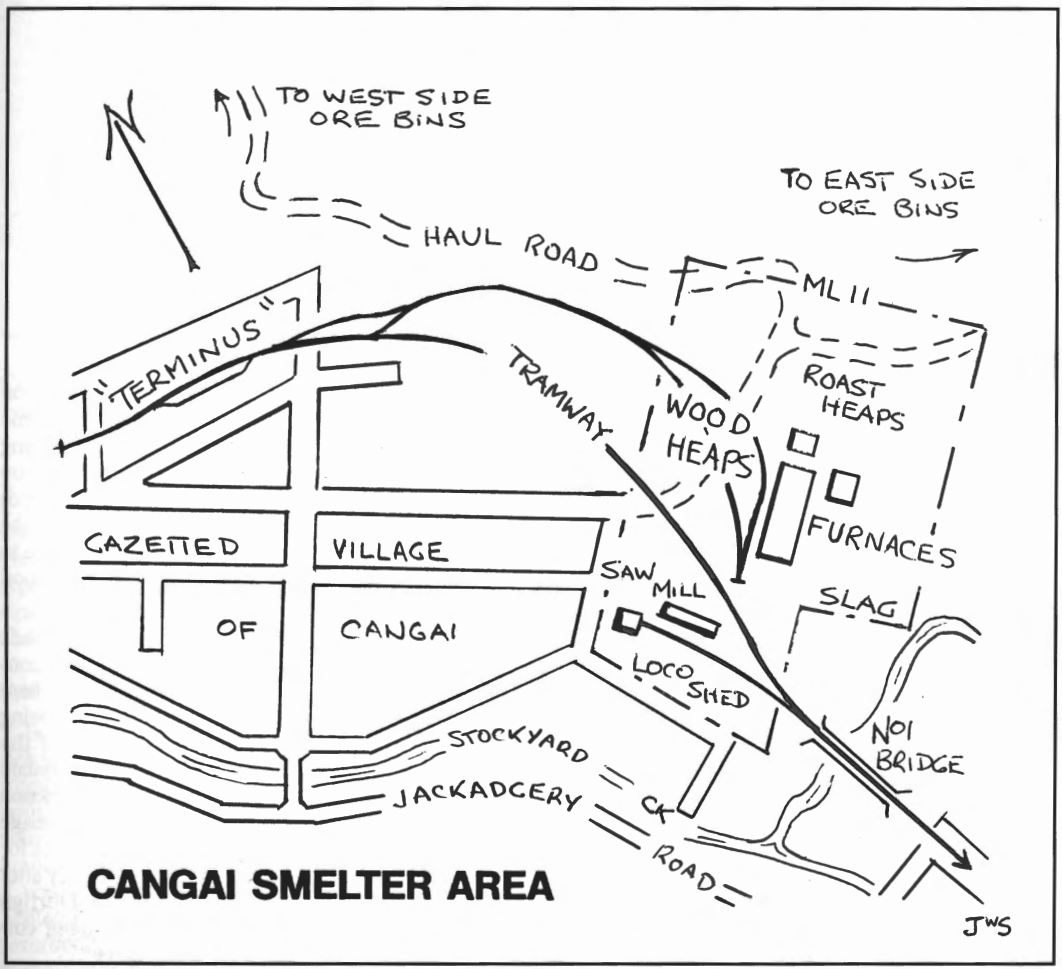
This work removed the need for three of the minor crossings but despite this work the access road remained a problem. From time to time the Directors attempted to interest local politicians in the provision of a railway from Cangai to the deep water at Copmanhurst.

MINING BOOM

Results from the first full year of smelting were considered by the Directors to be most satisfactory and the second year (1907) even more so. The company was lauded in the technical and financial journals as a notable success, the smelter construction had been financed from mine income, good dividends were being paid and there had been no calls on the shareholders. The property was the most productive mineral venture on the NSW North Coast and one of the most notable mines in the State. 'Cangais' were said to be at one time the most closely watched shares on the Sydney Exchange. Basking in the glow of this reporting, the Directors at their 1908 Annual Meeting, mooted numerous 'enormous developments' including hydro-electric power, having been recently pioneered at Hillgrove, and the construction of a light railway, perhaps electrified, to Copmanhurst and even on to Grafton!

In truth there appears to have been the barest minimum of the mine income re-invested and the Grafton Copper Company was always reluctant to spend its hard won income.

As the mine prospered so the village expanded. In 1905 the Company constructed a school and, soon after, a police station. There was a post office



CANGAI SMELTER AREA

Trestle bridge over Smelter Creek, recently completed with the locomotive making a crossing. The photographer faces west. Although Cangai village is shrouded in mist, it is warm enough for the driver's jacket to be hung on the rear cab sheet. Could this be the trial run?
Photo: Clarence River Historical Society Collection.

and a resident doctor whose salary was subsidised by deductions from the employees' pays. By 1909 the mine employed 217 men and there were 477 residents in the village, a further 138 in the surrounding district all 'depending on the mine for a living'. In that year the Company's wages bill averaged £2,000 per month.

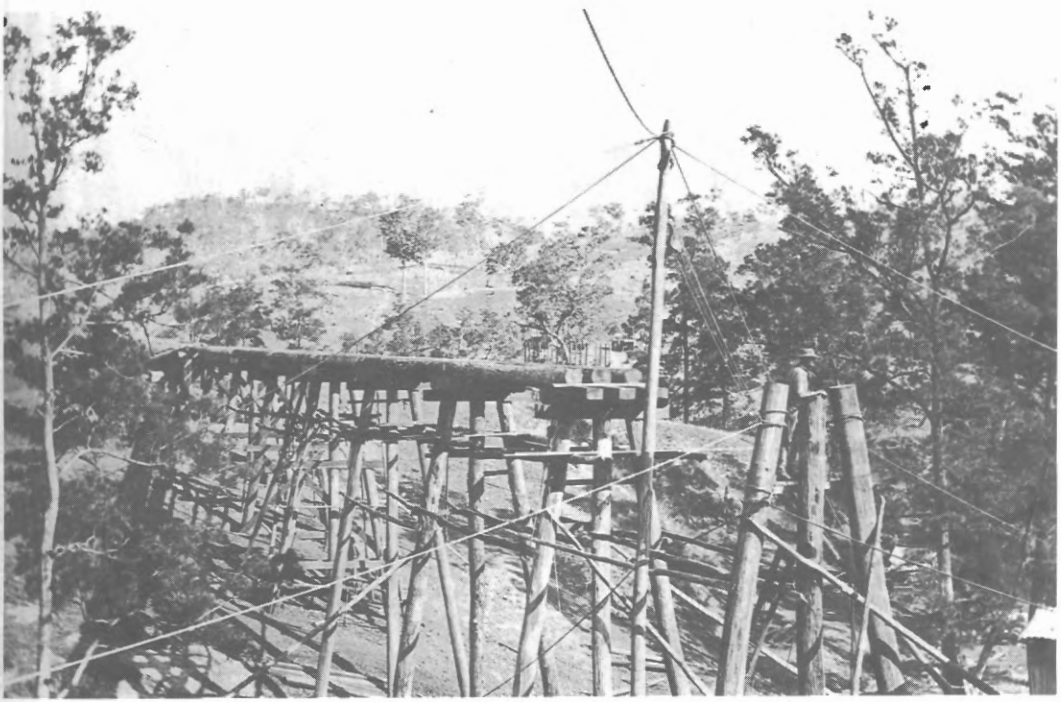
Cangai was accessed from Copmanhurst by Hegney's four-horse coach which met the steamer *Pearl* on her arrival from Grafton every Tuesday and Friday. The coach trip occupied six hours, the fare was 12 shillings and 6 pence one way and 20 shillings return (when a labourer would earn 10 shillings per week).

In 1910 Dorrigo Shire Council transferred responsibility for the Parish of Cangai to the Nymboida Shire, whose Councillors proved to be more in sympathy with the mining company and soon improvements to the local roads were commenced although the Lilydale Crossing remained an unbridged obstacle for many years. The port of Copmanhurst was a hive of activity, shipping the district's timber and butter as well as the Cangai copper. It is of interest to read in a petition to the Government, requesting that common land be set aside for grazing, the statement that there were 48 bullock teams and 12 horse teams utilising 924 oxen and 48 horses, operating into this head of navigation.

A breakdown of the occupation of the copper-mine employees shows that in 1909, there were 64 men winning the ore, 83 men on ore haulage and at the smelters and a further 70 men cutting and carting firewood. Fuel was essential to keep the smelter in operation and slowly but surely the scarcity of firewood became more evident.

Reporting to the Board in 1909, Mr Mulligan proposed a steel tramway be constructed along the valley to reduce the haulage distance of the firewood teams. He stated there were 20 bullock teams on firewood haulage travelling an average of four miles per trip. Shortly afterwards, Company Secretary McNeill, placed an advertisement in the local paper stating: "20 or more teams can find employment at the Company's works at Cangai to haul wood to the smelters and metal from the smelters to Copmanhurst, abundance of grass and water. 50 men can be given employment woodchopping".

Erection of the trestle bridge over Smelter Creek. The photographer is facing east. Photo: Clarence River Historical Society Collection.



The bridge site in 1990. There is no trace of the bridge and only one house remains in Cangai village. The mine haul road is still evident, running level around the foot of the hill on the right. Photo: Author.

Mulligan stated he had organised the line survey and estimated that the cost for four miles of track would be £5,000 with a further £1,200 for rolling stock. He also recommended the erection of a water jacket blast furnace, provision of electric lighting at the surface works and that an air compressor and rock drills be installed at the mine for ore breaking, involving in all an expenditure of £20,000. The Board decided that a second opinion was required and engaged H. Blakemore, late of The Great Cobar coppermine, as a consultant to report on the proposal. Some money was spent, new sawmilling plant was installed and a small brickworks was established close to the smelter and at the same time Messrs Mulligan and Zeitch (accompanied by their good ladies) visited Mt Morgan in Queensland to look at the latest copper smelting techniques. Local bricks were used to build the fourth furnace and for the reconstruction and enlargement of the original two.

THE TIMBER TRAMWAY

By 1910 the Company's production had risen so that, after The Great Cobar, it was the second largest copper mine in NSW. It was now evident that the limiting factor in the treatment of the ore was a shortage of firewood fuel.

Towards the end of the year the new No. 4 furnace had to be shut down, and the opportunity was taken to modify it. With increasing frequency, fuel shortages allowed only two furnaces to be maintained in production and frequently several thousand tons of ore were stacked at the smelter site. At last the Board approved the recommended expenditure on the timber tramway and in November 1910 it was reported that:

"The Directors of the Grafton Copper Company have accepted the tender of The Australian Metal Company for the supply of five miles of 2 ft 6 in gauge track, with a complete equipment of wood wagons and locomotives (sic) for the purpose of hauling wood to the mine and for connecting up the mine with the furnaces".

In the same report, the earthworks for the line were said to be "well under way" and the line was to be ready for the arrival of the locomotive in February 1911. The track was well engineered,

although the line never amounted to more than a short firewood tram when it was built, but there were high hopes that the line would be the genesis of a light railway connecting the mines with the smelter and the smelter with the outside world. The following extracts from the Mine Manager's reports provide an unusually detailed narrative of its construction and opening:

27.8.1910 – Good progress being made with the tramway. Cleared to 80 chains. Culverts constructed to 70 chains. Forming to 60 chains where there is a ten foot cutting. I have 51 men working on the tramway.

3.9.1910 – Earthworks on the tramway are proceeding satisfactorily. Clearing completed to 108 chains. Most culverts to 100 chains. Earthworks complete to 90 chains.

17.9.1910 – Excellent headway is being made with the earthworks in connection with the Company's fuel tramway which is nearly complete to 110 chains. Culverts complete to 115 chains and clearing to 130 chains. Two of the heaviest cuttings have also been put through.

27.9.1910 – Work on the fuel tramway is progressing very well. Rock has been met in two cuttings but is not hard. Clearing is complete to 187 chains. Culverts to 157 chains and forming to 150 chains. The bridge gang are working on No 4 bridge. Over 70 men are now employed on the tramway.

18.10.1910 – Tramway earthworks are now complete to 180 chains. Clearing and culverts complete to 212 chains. Nos 4, 5 and 6 bridges are complete and No 7 is well forward.

29.10.1910 – Tramway clearing and culverts complete to 220 chains. Earthworks to 200 chains. Bridge gang erecting No 2 bridge over Yantalla Creek.

5.11.1910 – Tramway clearing and culverts complete to 227 chains. Earthworks to 205 chains. Good headway is being made on No. 3 bridge. The telephone line from Copmanhurst is within a few miles of Cangai and is expected to be open within a fortnight.

12.11.1910 – Tramway earthworks and underground culverts now nearly complete to within a mile of the terminus. Bridge gang working on the fourth span of No. 3 bridge; Nos 4, 5, 6 and 7 bridges are complete; 2,000 tramway sleepers have been delivered. Mr Blakemore arrived at Cangai this week and spent several days inspecting the mine and the smelter.

19.11.1910 – Only a small gang at work on the tramway earthworks. Work has been suspended on account of heavy rain; remaining work will now be left till the bridges are complete.

3.12.1910 – Tramway earthworks nearly completed for 3½ miles. Bridge gang driving piles for No. 9 bridge.

10.12.1910 – Tramway gang commenced the last heavy embankment near the terminus. The culverts are complete up to that point.

7.1.1911 – Tramway work suspended. Mine shut down over Christmas. Only a small bridge gang and some sleeper cutters and timber getters at work.

2.2.1911 – (From Manager's Report to Company Annual Meeting): A fuel tramway has been constructed five miles from the smelters to the centre of timber country. So far, £2,585 has been expended on the tramway works. Locomotive and rails have been ordered and are expected to be delivered in February.

25.2.1911 – Tramway gang worked only three days this week, filling in approaches to bridges and platforms and levelling the terminus yard.

4.3.1911 – Tramway progress suffered on account of wet weather. All embankments have consolidated and have been made up to the required levels. Bridge gang have completed pile driving all the bridges that can be driven. Foundations are being prepared for No. 1 bridge. About three miles of line are ready for rails.

11.3.1911 – The tramway gang are now making up embankments that have consolidated. The bridge gang are putting the girders on No. 12 bridge. The foundations are being cut for No. 1 bridge.

25.3.1911 – Good progress was made with the fuel tramway earthworks; The platform and the yard filling is complete, only the metalling of the yard remains to be done. The bridge builders are working on No. 1 bridge. Fine weather last week, the road has dried up although bogholes remain plentiful, the third furnace has been lit.

1.4.1911 - About three miles of tramway cutting, embankments and bridges are ready for the rails and sleepers and little more can be done to this length until they arrive. Some of the rails have been landed at Copmanhurst. Nos 1 and 2 bridges are being built. First teams for three months crossed the Clarence and there is hope of getting tramway supplies across without boating.

8.4.1911 – Good progress made with the last two tramway bridges. Three spans of No. 1 bridge have been erected and the piles are in place for the

fourth span. The approaches to all the bridges from No. 3 to No. 13 are complete. Some of the ironwork for the line has arrived.

15.4.1911 – Tenders have been called for the carriage of rails etc. When these arrive, no time will be lost in completing the line which will overcome the fuel difficulties. The building of No 1 bridge is proceeding satisfactorily, four spans being complete. The building of No. 6 pier has given the most trouble, the rock dipping to 11 ft below the creek. Loose gravel and water has been troublesome and seven feet of concrete has been put under this pier. The piles for three spans of No. 2 bridge are in position. The formation gang are making up the embankments near the furnaces which have consolidated. The sawmill is now cutting full time. There are 70 cords of wood in the yard and 26 bullock and 3 horse teams are hauling wood and supplies.

22.4.1911 – The tramway gang are metalling the terminus yard and crossings. The bridge gang are working on the sixth pier of No. 1 bridge. The carpenters are putting the roof on the loco shed and the engineers' shop.

29.4.1911 – The tramway rails have arrived at Copmanhurst and the locomotive is at Grafton. A contract has been let for the carriage of this material to Cangai. Ten tons of this material has arrived at Cangai including one load of rails. I expect to be able to commence laying the rails within a fortnight. Except for some bracing, seven spans of No. 1 bridge are complete, five spans more to be erected. The loco shed is being covered with iron and is nearly complete; The timber for the trucks is being cut at the mill. NSW PWD engineers are to report on proposed tramway route from Copmanhurst to Cangai.

6.5.1911 – The tramway rails are commencing to arrive. Three loads were delivered on the line by contractors. The line gangs have completed metalling the terminus yard and platform. The rails are being stacked on the platform where the platelaying will commence; The bridge gang are working on the eighth span of No. 1 bridge. The locomotive shed and engineer's shop have been erected, a branch line is to be brought into the shed.

13.5.1911 – Tramway material is being delivered satisfactorily and as some of the more important parts come forward platelaying will commence. Good progress is being made with No. 1 bridge, the piles are all in position and the girders are on eight spans. The cutting and approaches of this bridge

A train crosses the bridge (heading east) with a load of passengers balancing on the timber trucks. The engine is clean and shiny, the good folk are in their Sunday attire and no doubt this is the occasion of the shareholders' inspection of the newly laid line. Note the second truck numbered No. 16 and the bogie on the far right fitted with a handbrake. Photo: Clarence River Historical Society Collection.

are complete, the branch line to the sawmill and loco shed is also nearly ready for the rails. Truck building has commenced.

20.5.1911 – The fuel tramway was advanced another stage during the week when platelaying was commenced. The teamsters conveying the locomotive are within a day's stage of Cangai. As soon as it arrives it will be put together and used for hauling the material for platelaying. The whole length of earthworks including the branch line to the sawmill is practically ready for the rails. Bridge building is also well forward, nine spans of No. 1 bridge are erected and except for some bracing the bridge will be finished next week.

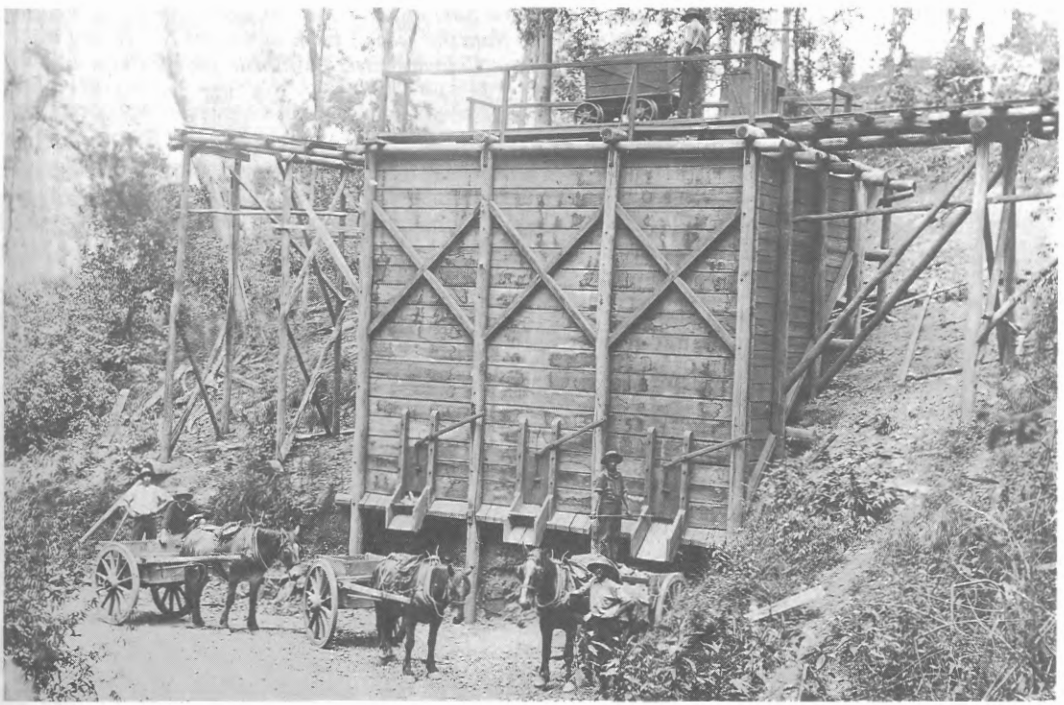
3.6.1911 – Good progress has been made with platelaying, over a mile of tram line being laid down and fastened. The locomotive has been put together and is ready for work. Over 100 tons of rails have been delivered. Twenty new men have arrived at the mine and have been distributed over the various departments. Others are expected, when they arrive the labour situation will be relieved.

10.6.1911 – Good progress is being made with the fuel railway, two miles have been linked in and fastened. The finishing gang have lifted and straightened one mile. The materials are being delivered satisfactorily and 41 tons beside stores were delivered during the week.

17.6.1911 – Platelaying is going on satisfactorily, nearly two miles of line are down and the locomotive running on that length daily hauling sleepers and rails for the platelayers. Four road crossings have been put down and ballasted. Sleepers are being fastened down on No. 2 and No. 3 bridges.

24.6.1911 – Over 200 tons of rails, trucks, wheels etc. were delivered during the month. Two miles of line is complete except for some ballasting. The locomotive is working on that length. The sleepers are being fastened on No. 1 bridge In three weeks I expect to be able to haul fuel over the line. Active work is going on in the engineers' shops where 18 five ton waggons are under construction. The new chimney stack for No. 1 furnace has been commenced. A tramline has been cut and an underlay tunnel commenced to connect the Melbourne block to the west bins.

The east-side bins at the foot of the self-acting incline which lowered the ore from the main adit. Horse transport (as shown) then hauled the ore down the haul road to the smelter.
Photo: Clarence River Historical Society Collection.



The bush terminus. Photo: N.S.W. Department of Mineral Resources.

The bush terminus. Photo: Clarence River Historical Society Collection per Jim Longworth.

The incline tramline. Photo: Clarence River Historical Society Collection per Jim Longworth.

1.7.1911 – The fuel railway is being laid down as quickly as possible and will cross No. 1 bridge early next week. The locomotive is working on the finished section and it is running smoothly. The line will not be finished a day too soon, the delivery of wood by teamsters is very unsatisfactory.

8.7.1911 – The fuel tramway reached a most important stage on Thursday last when the first train was run for wood. About 18 cords is being brought in daily by the train as that amount is required in addition to that hauled by teamsters to keep three furnaces smelting. A short length of temporary line has been laid from the sawmill junction to the furnaces and trucks are being shunted up to the furnaces. But for this temporary supply two furnaces would certainly have to go out. Three more trucks will be completed next week.

10.7.1911 – Work in connection with the fuel tram for the last week has been chiefly lifting and fettling. Points were put down at the loading station and crossings for teamsters made good. Five 3-cord trucks and a ballast truck are at work with three more to follow. Any shortage of fuel can now be made up by the tramway and a reserve will now be laid up in the furnace yard.

29.7.1911 – The fuel supply is being kept up by the tramway, about 30 cords daily is being hauled over the line. The tramway gangs are working at the furnace yard. Some excavating and levelling has been done and several lines laid to serve the furnaces and carry a reserve. Twelve 3-cord trucks have been completed.

12.8.1911 – The fuel train is running smoothly and over 40 cords of wood being hauled each day.

9.9.1911 – The tramline has been completed to the furnaces and the roadway around the north end of the furnaces is nearly complete. Box drains are all ready to put in to carry water from the tramline under the wood dumps. Wood supply has been ample for the furnaces and a supply is being stacked along the tramline.

When the railway line began operations it saved the day and allowed smelting to continue. Despite Company proposals only one locomotive was actually purchased and neither the extension to the mines nor the line towards Copmanhurst was proceeded with.

DESCRIPTION OF THE LINE

The line commenced in the village of Cangai (marked on the Company plan as the "Terminus") with a short branch of 220 yards climbing the sidling of the hill to the smelting works. The Company owned a number of residential blocks adjacent to the end of the line and a Company plan indicates a run-around loop at this point. This plan, initialled W.J.M., has the main line captioned: 'Tramway to Grafton'!

At the smelter photographic evidence indicates that one siding served the furnaces and another

passed through the wood stacks; these joining to form a loop siding, the headshunt being on a short trestle. The main line to the bush descended to the south-east and crossed Smelters Creek (No. 1 bridge) then ran up the gully of Stockyard Creek. On the boundary of the smelter lease area (ML 11) and shortly before the line reached the Smelter Creek trestle, was the short siding to the locomotive shed, workshop and sawmill. By chance, the engine shed adjoined the Cangai School yard and no doubt there was much juvenile interest in the work in 1911. From the bridge the line continued in a cutting, parallel with and slightly higher than the Jackadgery Road, then descended and crossed the main Stockyard Creek (No. 2 bridge), turned to the south-east and again crossed the creek and its tributary several times, and descended to cross the road on two occasions. The line dropped into the valley floor and moved to the other side of the creek. It turned to the south as the valley narrowed and crossed and recrossed the creek.

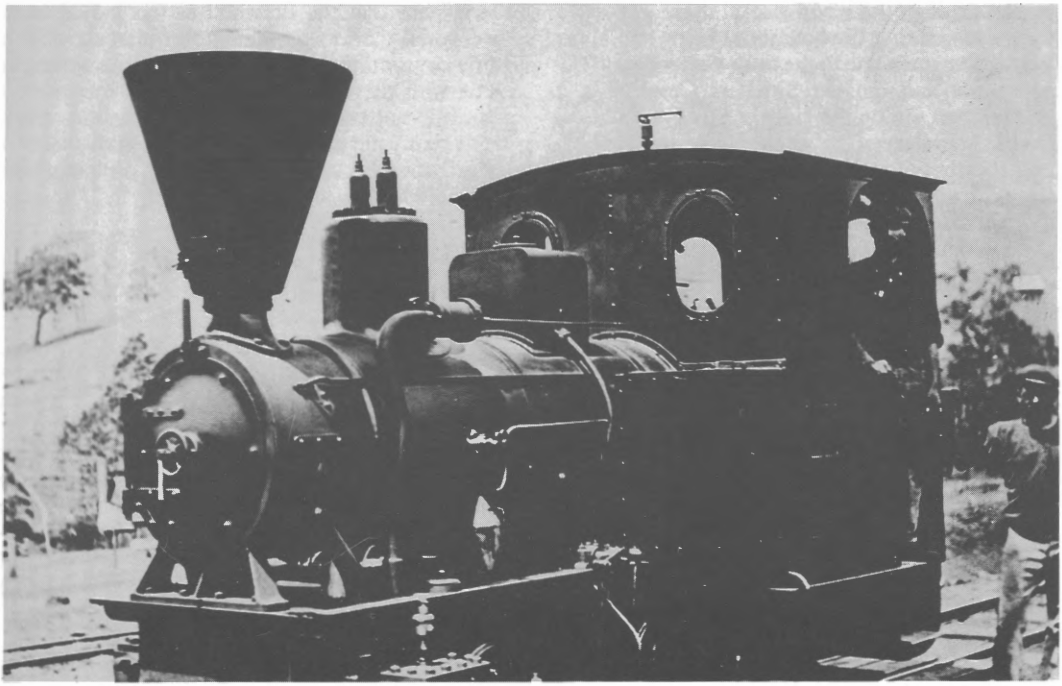
The main line ended at the Loading Station or wood yard where there was a run-around loop at the point where the road commences its climb out of the valley. In this vicinity was the village of Campbellville which was of sufficient size in 1907 to have a school site gazetted. There is evidence here of an earth loading bank (platform), a flat area for wood stacks and possibly a dead-end siding. It is here that the firewood carters would have delivered their loads. The parish plan shows the line continuing some 500 yards up the valley, in line with the Company reports, but site investigation indicates that although some track apparently did exist, the earthworks in this section were much less substantial and probably not suitable for the locomotive.

RAILWAY PLANT

The locomotive, supplied new, was an Orenstein and Koppel 0-4-0 WT locomotive, Builders No. 4631 of 1911, with outside cylinders of 7 in by 12 in. Also supplied by the Australian Metal Company were a number of standard O & K steel bogies which were used to construct 18 bogie timber wagons suitable for the transverse stacking of billet timber. The wagons carried three cords (five tons) of firewood. As noted above, the bodies were made locally from sawn timber, with diagonal-braced longitudinal solebars and massive fixed end bolsters. Photographic evidence indicates that one bogie on each wagon was fitted with a screw-operated hand brake.

From a contemporary catalogue it can be seen that either braked or unbraked steel bogies were available as stock items. As noted in the manager's reports, during the construction period at least, there was also a ballast wagon.

The official party pauses at the trestle bridge to "christen" the locomotive. Note the champagne bottle on the ribbon draped over the cab. Photo: Clarence River Historical Society per Jim Longworth.



The O & K locomotive, in pristine state, standing on the main line just west of the trestle bridge. The siding to the right leads to the engine shed. Photo: Clarence River Historical Society Collection.

THE TALE CONTINUES

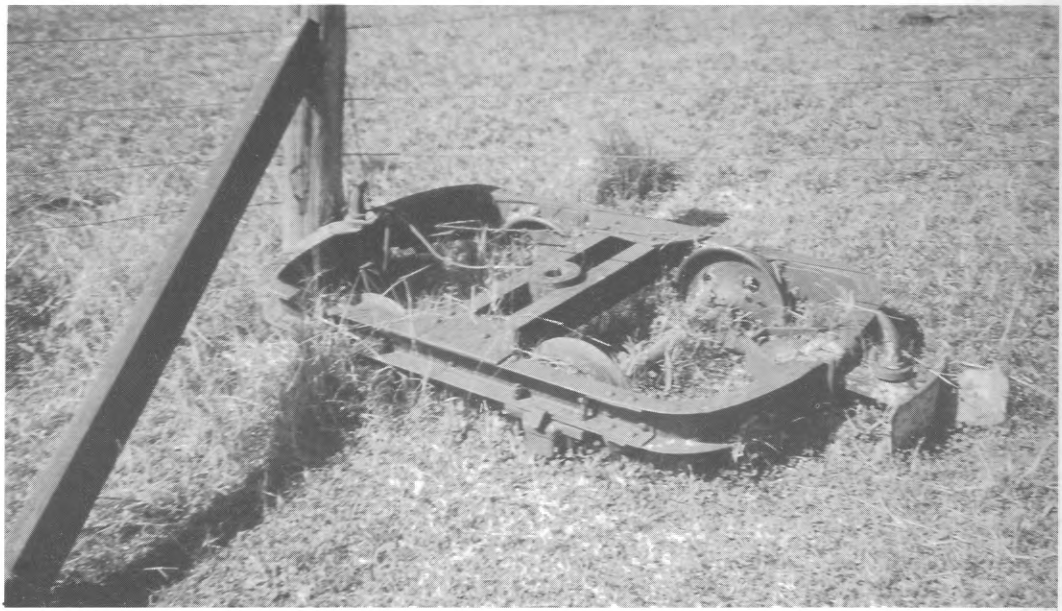
Mining and smelting proceed apace throughout 1912. The Directors reported a satisfactory year although the manager with some dismay had to advise that the construction of the tramway had not reduced the cost of smelting. Early in 1912 J. Armstrong from Cobar, previously employed as a consultant, was reported to be in charge of operations.

In the next year, 1913, there were several developments at the mines. The underlay tunnel was completed beneath the eastern orebody and a second self-acting tramway was constructed although little is reported of the timber tramway operations. Ore of more variable quality was being won from the mine requiring the substitution of water concentration for the roast heaps, with a consequent reduction in the firewood requirements. A new dam was constructed on the creek to augment water supplies; a steam pump was installed to raise the water to the plant.

At the end of the year Armstrong left to take up the position of manager at Lloyd Coppermine at Burraga and was replaced by J. Tilly. In 1913 despite rising production costs and falling copper prices the mine again paid a dividend and hopes were raised by the proposal to drive a new lower-level tunnel to tap a 'rich and easily won orebody'. Before this could be commenced, the need for more modern means of ore breaking could no longer be avoided and rock drills and the associated air compressors were purchased and installed at the mine.

THE LEAN YEARS

On the outbreak of war in 1914 world metal prices fell suddenly and the Grafton directors advised that they were not prepared to keep the mine in production for the prevailing returns. There was said to be ample ore remaining but despite a decade of good dividends and minimal capital expenditure the mine was closed although the smelter continued to treat ore from stockpiles until the end of the year. In 1915 the metal price trend reversed, there was a shortage of copper for munitions and the improved prices allowed the mine to re-open. Wartime labour shortages permitted only 33 men to be employed and operations were restricted to extraction from easily won orebodies and no development work was carried out. The smelter



Close up view of an intact O & K steel bogie. Photo: Author.

also operated on a reduced scale with only one furnace in use.

The mine output was increased in 1916 but the labour position became more difficult and by the end of the year the smelter was finally shut down. It is unlikely that the tramway was used to the end of operations as the need for firewood declined. It is more than likely that the locomotive was laid aside, the train crew put to other work and animal teams used to secure the firewood required.

CLOSURE

By the end of 1917 the Mine Manager W.F. Harris advised the Mines Inspector that the Grafton Coppermining Company had exhausted its main orebody and had laid off all but 15 men who would be engaged in prospecting. Three new shafts were sunk and the lower-level drives were extended but no payable ore body was discovered. There is no report of any production in 1918, 1919 or 1920.

The epitaph of the mine came as a brief note in the Mines Department Report of 1921 advising that the Company had applied to have its labour conditions suspended. It is not known when the plant was dismantled. There is a photograph of a North Coast Company ship loading scrap metal at Grafton which, by appearance, could well have come from the mine.

Over the following years there were a number of parties interested in re-opening the mines. Most recently, in 1974, the North Coast Copper Company examined the area. Press statements wooed local opinion with extravagant forecasts regarding the eventual employment of 30 to 40 persons, all to be drawn from the Grafton district. The investigations came to naught and all they accomplished was to destroy the chimneys of the old smelting works.

The O & K locomotive reappeared in Tasmania on the Bridport Tramway, then owned by the Tasmanian Timber and Tramway Company. The loco was reconditioned and used to haul logs to the mill. Later the owner's title changed to Forester Timber and Tramway Company and the engine was used on the extension to the IXL Mill at Warrentinna. (LR Spring 1969.) The steel-framed bogies used on that line resembled those at Cangai so perhaps they were also sent there. It was out of use by 1941 and cut up in 1950. (LR Summer 1969.)

CANGAI TODAY

One house remains in Cangai village where once there were over 100 dwellings. The parish plan indicates that the public school reserve was extended as late as 1955! The haul-road crosses the hillside and indicates the way to the mines,

The bush terminus 1990. Photo: Author.

although so far the author has not been able to research that area. Broken bricks and slag heaps clearly delineate the smelter site. The formation of the line down the hillside, over the creek and along the floor of the valley is clearly discernible. Both ends of the line, the smelter and the timber yard, are easily accessible. The large trestle bridge stood until the mid 1960s when it was thought to be a danger to local children and was burnt. Of the smaller creek openings, erosion has removed all traces, bushfires have destroyed all the sleepers and there are no rails. Today it is difficult to reconcile the sites of the ten bridges.

A lone point lever, marked O & K, was found near the site of the locomotive shed and several of the bogies have survived, one complete with wheels was noted 1990. The location is easy to access, just five minutes drive off the Gwyder Highway and well worth a visit in dry weather.

In less tangible form, the current Kaloe Parish plan clearly indicates the tramway and associated leases.

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ACKNOWLEDGMENTS

Grateful acknowledgment is made to The Clarence River Historical Society, especially Mesdames N. Mackey and K. Grieves, for provision of photographs and information, to Bruce McDonald for photographs and to the late Ken McCarthy who assisted me with field investigations.

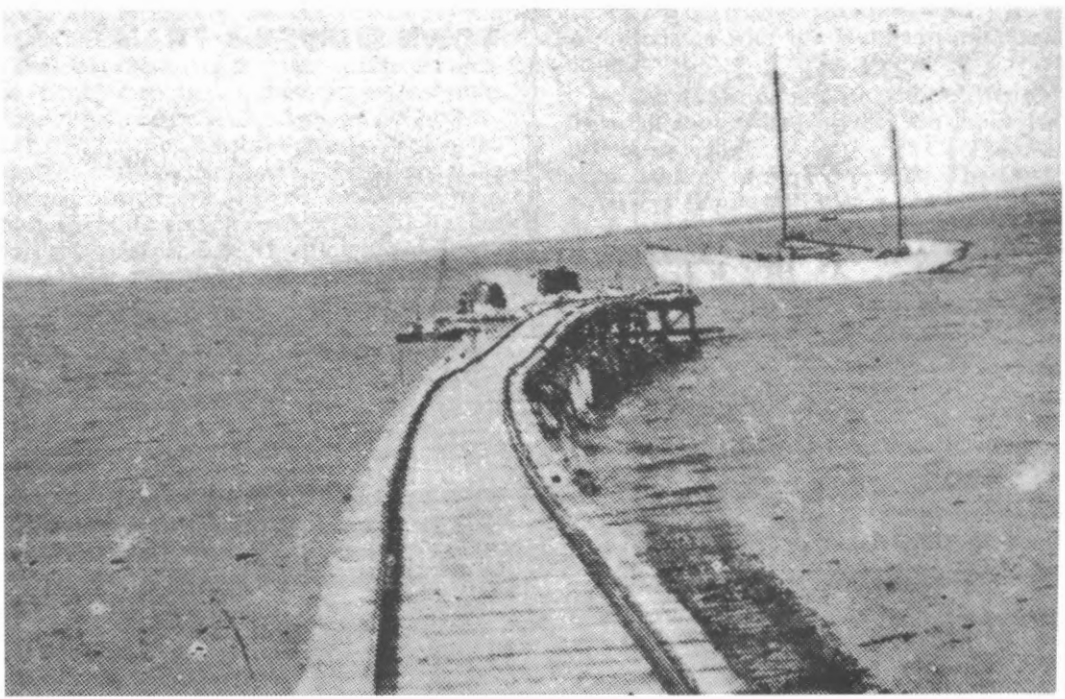
SALT, SEA AND SAND – TRAMWAYS OF PORT GREGORY, W.A.

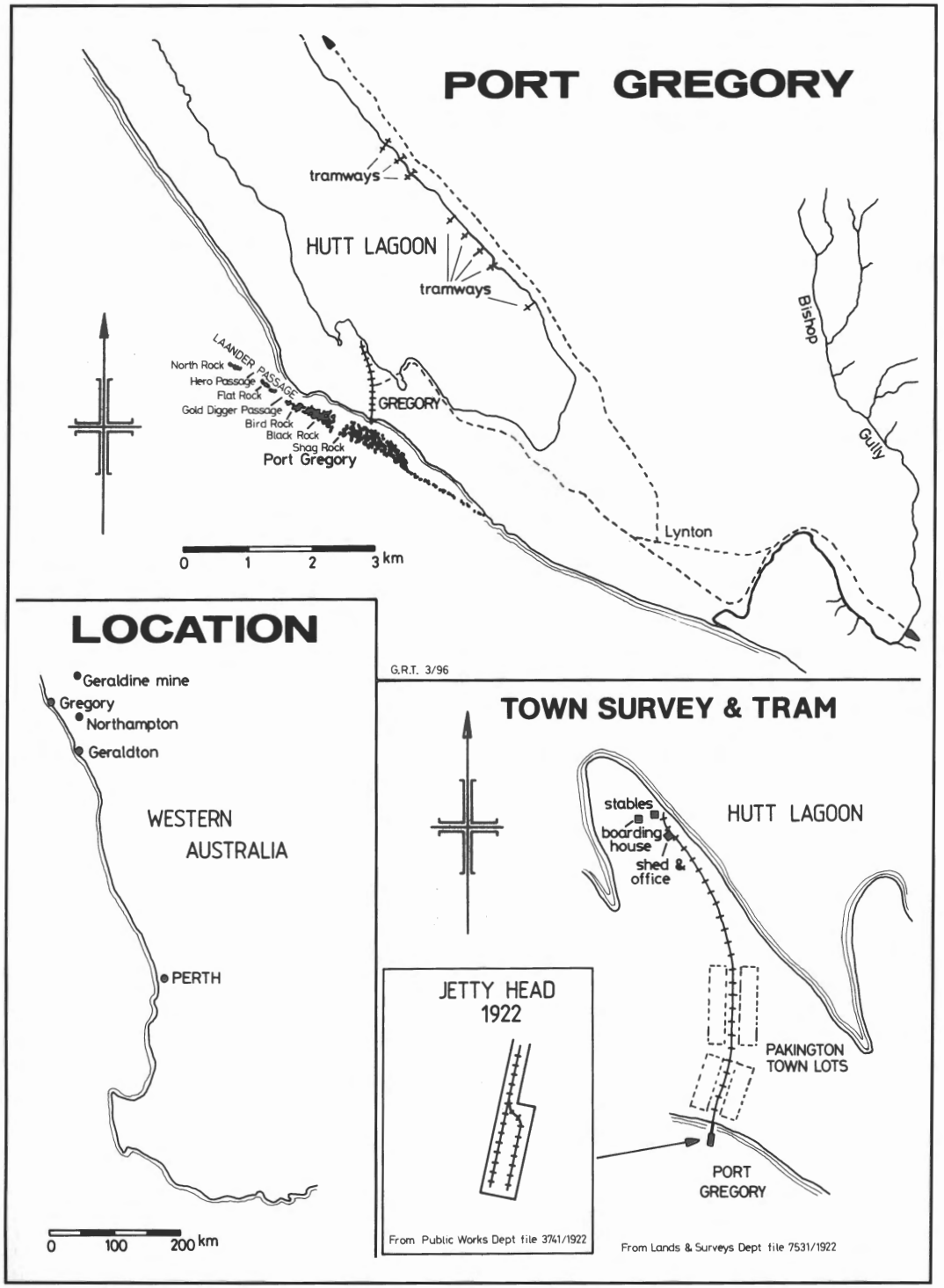
by David Whiteford

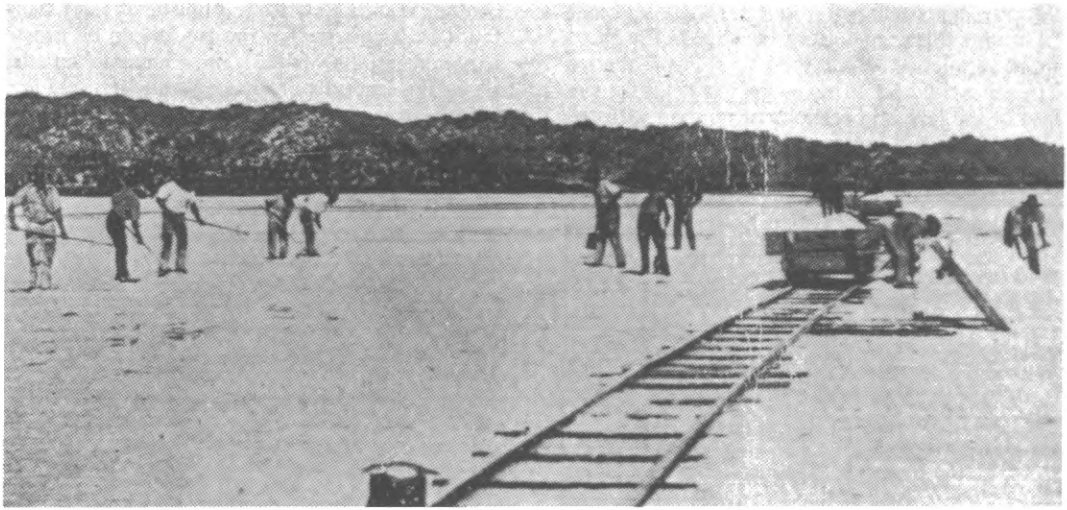
Port Gregory is near the mouth of the Hutt River, 520 km north of the Perth and 100 km by road north-west of Geraldton. The port was originally developed in the 1850s to serve the Geraldine copper and lead mine some 60 km inland. The 30 sq km Hutt lagoon provides a picturesque entrance to the town and was the reason for the revival of Port Gregory in the second decade of this century. It is about 14 km in length and about 2 km wide and was cut off from the sea by the formation of sand dunes running parallel with the coast. The bed of the lagoon is about 2 metres below sea level at low tide and the 1 km of sand dunes between the lagoon and sea allows capillary action which keeps brine flowing through the bed of the lagoon and replenishes the salt surface. The lagoon is usually dry during the summer and presented great industrial promise with its covering of near-pure salt available for collection. Tramways were laid in association with this industry and are the theme of this article. In an interesting modern twist, the lagoon is now likely to be developed for its algae and a pilot plant is in place to harvest the protein and vitamin-rich algae for stock food.

The *West Australian* newspaper of 9 February 1918 contained a description of the works at Hutt Lagoon, operated by the Hutt Lagoon Company. "There is a large deposit of salt of about 7,000 acres in extant at Hutt Lagoon . . . one mile from a natural harbour, Port Gregory, a safe port for vessels drawing 12 feet of water . . ." The "means of communication between the lake and the port in the shape of substantial tramway and haulage plant have been provided . . . Company has own jetty and lighter and grinding works now in course of erection . . ." [and] "claims that salt from Hutt

Port Gregory Jetty 1922. Note how the end has sunk from the weight of salt loading. Photo: Cheetham Archives.







Lifting salt on Hutt Lagoon. Photo: Cheetham Archives.

Lagoon is the highest grade lake salt found in Australia."[1] Directors of the company were William Padbury, Cornelius McManus and Robert Spaven, all Western Australian businessmen. Although harvesting, processing and transporting were taking place and the company had leases over the lagoon to cover the salt reserves, there were no leases of land for the tramway and other structures. There was also a lack of information about changes to company structures reaching Government agencies from this outpost as the following sequence of events shows. On 24 October 1919, J. Lefroy, District Surveyor, Perth noted that "The existing tram line was constructed at the expense of a former lessee, and had, I believe, been acquired by the present lessee of 945/152. It is not available for general use. These improvements are the subject of a special lease granted to Messrs McManus, Spaven and Padbury." The Surveyor General responded "As the route of the tram line is the only practical outlet from the salt deposits, I think a provision should be made on the renewal of the lease that the lessee should carry salt for other lessees at rates to be approved by the Hon. Minister."[2]

In spite of the above wording, a letter of 29 April 1920 from the Acting Under Secretary for Lands to McManus, Spaven and Padbury seems to indicate that such a lease was not finalised. "With reference to your application on the 10th May 1918 [for special lease for jetty, tram lines etc.] two leases are provided for: 1) Buildings etc. — £1 per annum; 2) Tramway £1 per annum" subject to the right of access to other holders of salt leases; and the tramway to be made available for the carrying of their products on such conditions and at such rates as may, from time to time, be approved by the Minister." A third lease, to cover road and town lot reserves within the Pakington Townsite (the original gazetted name for the Gregory townsite — the 'Port' is not used for the town) would have to be negotiated with the Northampton Roads Board.[3]

McManus, Spaven and Padbury received the above letter but advised that they had disposed of all interests to the Port Gregory Salt Co of Meekatharra (which was formed in 1918). The Lands & Surveys Department then wrote to the Port Gregory Salt Co and received a response dated 15 May 1920 that the issue would be raised before the next Directors' meeting. As no further response was received on 15 July 1921 a letter was sent to the company seeking progress on the matter and when there was still no reply by early December "I think the only way to make them come up to the mark is to give the company notice to remove their tramways and shed."[4] The Department had created Pakington Town Lot 58 to cover the jetty and high water mark and the issue was finally resolved through an initial lease at £2 per annum from 1.10.1922 to 31.3.1928.

The Port Gregory Salt Company had some success during its period of operation. Surveyor M. Minchin visited the area in 1919 to undertake surveys for the lease mentioned above and he reported that a large galvanised-iron shed on the

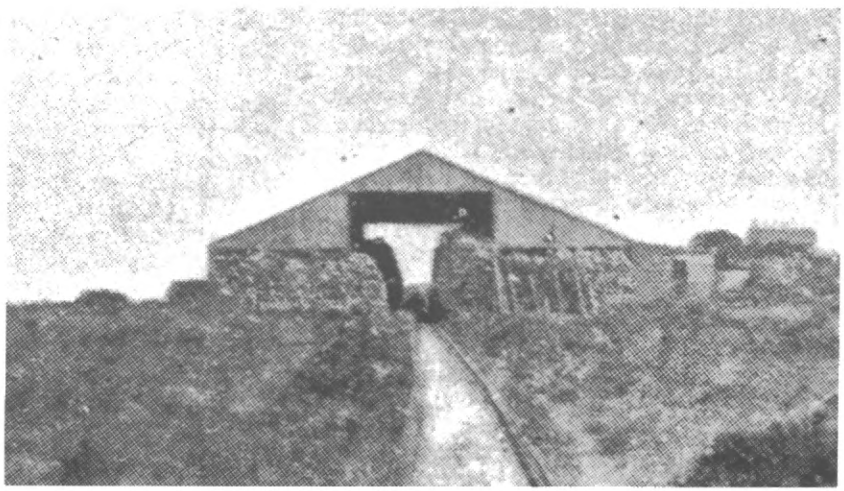
lagoon edge contained about 3,000 tons of salt. "Through this shed & from the edge of the lake a wooden rail road runs to the jetty at Port Gregory. The salt is collected in heaps and rows over the surface of the lake and sections of railroad with ties attached are laid out on the surface of the salt as required & removed to any position suitable. Small trollies bring in about 1 ton of salt on these rails at a time being pushed by hand." Minchin confirmed the earlier statement that "present rail road or close to it is the only suitable route from the lake to a suitable shipping point."[5]

The company's success prompted a call for a larger jetty at Port Gregory and in April 1920 it wrote to the Minister for Industries "As the jetty stands at present only small vessels can load there. If the jetty were extended another 308 to 40 ft (sic) I'm told any boat would be able to get up alongside."[6] The company had prospective orders for two 100 ton parcels of salt.

A report from the Engineer for Harbours and Rivers said that "Captain Cutler informed me that Hutt Lagoon was about 10 miles in length and 3 in width and was covered with about 3" to 5" of salt. If these figures are correct, then the quantity of salt available from this source runs into very large figures. He said that the present arrangement was to run the salt in trucks from the lagoon through the sand hills to the top of a sand dune about 30 ft above the water on which was erected a shed in which salt is stored. This shed is about 150 ft back from the top of the beach at the present temporary landing stage . . . It is anticipated that a double line tramway be built from the shed down the slope to the top of the beach and from there continued on a jetty to be built having a T head 150 ft in length so that the trucks can be run to either end of the vessel."[7] The Captain's statistics about the lagoon were not entirely accurate and neither was his description of the tramway. The shed was at the lagoon end of the line from where the salt was transported along the tramway for about 1.2 km to the jetty.

A Public Works Department supervisor, E.S. Woods, inspected Port Gregory in May or June 1920. "Existing facilities: about five chains from the lagoon a shed 68 ft x 110 ft is erected—this shed is full of salt partly in bags and partly loose. Was told it contained about 300 tons of salt at present. This shed is about 60 chains from the jetty and both are connected by a wooden tram line 2' 6" gauge. The jetty itself is built on private property—the structure is very frail . . . overall length 200 ft by 4 ft, at the sea end on the easterly side a platform out of off sizes of sawn timber is built about 66 ft by 9 ft for double tram line."[8] The Engineer for Harbours & Rivers estimated a minimum cost of £3000 for a new jetty.

A Harbour & Light Department register of shipping throughout the State records a rather poor account of Port Gregory's official shipping figures.[9] Only February 1918 to February 1919 inclusive is recorded. A total of 10 vessels handled 541 tons inwards and 621 outward cargo and all but one vessel (which had no outwards cargo) were recorded as bound for interstate on departure from the port. May to September 1918 was a low period with no vessels listed. Unfortunately the volume does not indicate what categories of freight were handled and it is possible that the Salt Company's



The salt storage shed with tram through centre.
Photo: Cheetham Archives.

own vessels are not included, although the company is quoted as saying only about 7000 tons were shipped between 1918 and 1922. But the figures are certainly indicative of the low levels of freight handled at Port Gregory and of a reason for the eventual decision by the Government to not authorise the construction of a larger jetty.

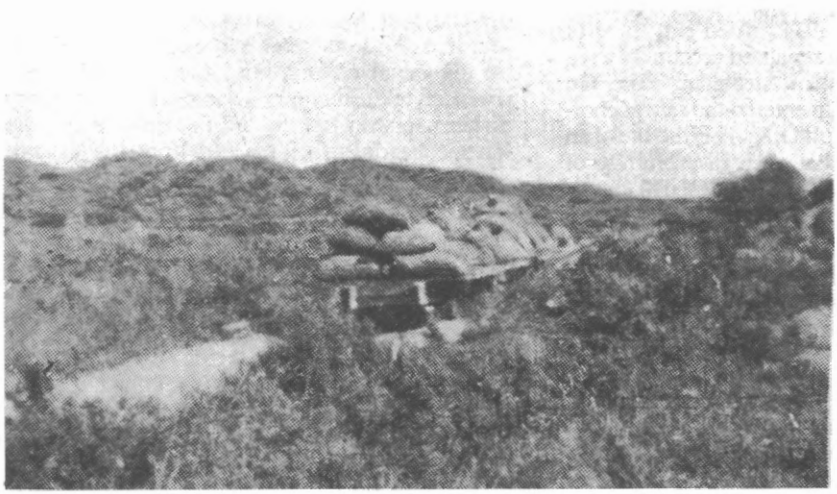
The company issued information in the form of a prospectus following an Extraordinary General Meeting held in Perth on the 26th October 1922. "The originally subscribed capital to the extent of £8,966 has been expended upon purchase of leases, with a storage shed, workman's quarters, trucks and other plant, tramway from lake to jetty, construction of jetty working expenses during the past four years. The deposits belonging to the Company have not been worked in a satisfactory manner for various reasons; the principal one being the want of working capital and the difficulty experienced in obtaining cheap and expeditious freight, owing to the lack of shipping facilities. About 3,000 tons of salt have been gathered, of which only about 700 tons have been marketed, this being all that freight could be obtained for. The balance the Company has on hand at Port Gregory in the shed and is available for immediate disposal after treatment by crushing machine."

"The experience gained in working this salt has prove that the present jetty is inadequate as a shipping facility, as it is only suitable for ketches and other small craft, loading about 80 tons per day. Also the installation of a suitable grinding plant at the works is necessary to reduce the cost of production." 360 tons of salt had been shipped to Fremantle during the previous season as only one ketch was available despite company efforts to secure additional freights. "The present jetty is a light timber structure carrying a 2 ft tram line. The structure is so inadequate that the salt stacked at the end caused it to settle down two feet; also the 7 ft 6 in depth of water at the end is not sufficient for steamers capable of loading even 400 tons. A new wharf if urgently required which will carry at least 400 tons without settlement and provide at least 12 ft of water along its face.

"Port Gregory is formed by a reef of rocks, which stands some 3 ft above high water. The reef runs parallel to the foreshore for a distance of two miles and is about 400 yards from the foreshore forming an area of water which is a safe anchorage in any weather. The entrance to the Port is through a passage in the reef, 24 ft of water being available, and off the site of the present jetty some 18 ft of water is available, whereas at the end of the present jetty the depth of water available is only 7 ft 6in."[10]

The gauge of the tramway has been stated as both 2 ft and 2 ft 6 in but from the photograph in the prospectus, the latter would appear to be correct. The prospectus states that the tram line totalled 68 chains from lagoon edge to the end of the jetty with portable sections for lagoon surface work as required. Twenty trucks were recorded.

There has been no mention found of other harvesting companies using the Port Gregory Salt Co tramline or jetty but the problems besetting this largest of operators on the Hutt lagoon must surely have meant that little, if any, other production occurred. The Prospectus also conflicts with the earlier record of shed, tram line and jetty being established by the Hutt Lagoon Farming Co



A load of bagged salt en route to jetty for shipment. Photo: Cheetham Archives.

Machinery foundation remains at salt work site, 1990. Photo: Glenys McDonald Collection.

which sold out to the Port Gregory Salt Co in 1918 but no doubt a considerable part of any payment made was for these facilities.

The Port Gregory Salt Co continued until 1928 or 1929. The "Lot 58" jetty lease was renewed from 1 April 1928 but cancelled on 30 June 1932 when arrears had reached £5. The *West Australian* newspaper of 1 March 1934 carried part three of 'Cruise of Silver Gull', a serialised account of a sea voyage along the Western Australian coast. On 11 February 1934 the ship entered the safe anchorage of Port Gregory. "Port Gregory is the site of an abandoned salt mine that once gave promise of becoming a thriving industry. Today 6,000 tons of salt, ready bagged for delivery to heaven knows where, are merging with the years into their own element. A ruined jetty of considerable size, a salt crushing works with valuable machinery, including a Crossley suction gas engine of which the purchase price and transport must have cost thousands, residential quarters and three quarters of a mile of tramway mostly obliterated by the sweeping sand, are fast rusting into decay . . . From an ancient mariner of Greek fishermen alone on the sandhills, who had worked for the Port Gregory Salt Company with his schooner, we learned that it had not been in operation since the war. its enterprise was the exportation of coarse salt, and many schooners and ketches were employed in the transport, in the first stages, with some success. Nearly 100 men, many of them Italians and Jugo Slavs, were employed, but with the difficulty of finding a profitable market the work was relinquished. For some years a caretaker was in charge of the valuable plant, but since his death it has been left to the mercy of occasional picnickers and fishermen who have ratted the timbers and the engine bearings filching lead from the balance weights for sinkers. Today the foundry is in a state of almost complete ruin."[11]

A further reference to the abandoned tramway has appeared in a 1993 publication "Seeking Sydney" by Glenys McDonald. Port Gregory was shelled by the Japanese about midnight on 28 January 1943. At least ten shells are believed to have been launched from Imperial Japanese Navy submarine 1-165. A January 1992 examination of the area by a Mr Kolman revealed that shell holes could be found around what still remained of the tramline including "a bent piece of tramline".[12]

Remains of T-head on jetty 1954. Photo: Glenys McDonald Collection.

And so ended a brief period of industry and associated railway activity for Port Gregory. Surprisingly the Australian 1:100,000 Topographic sheet map 1741 (Hutt) of 1980 shows eight "tramways (disused)" on the eastern shore of Hutt Lagoon. A very cursory inspection from the rear seat of a vehicle in 1993 failed to locate any sign of these lines but I presume that the map reference is to old portable salt recovery lines, possibly from other companies who worked the deposit.

Remains of salt stack at Hutt Lagoon on the storage shed site. 1956.
Photo: Glenys McDonald Collection.

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11. 'West Australian' newspaper 1 March 1934 p. 8, 'Cruise of Silver Gull: (3) Tragedy of Port Gregory'.
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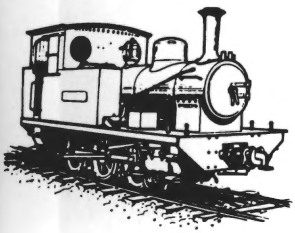
Thank you to Norm Houghton for supplying a copy of the 1922 Prospectus and sparking further research on Port Gregory and to Glenys McDonald for research assistance.



REVIEW

RAILS TO WEALTH

The story of the Silverton Tramway Company 1886-1972 – Broken Hill's Railway Service

by Lew Roberts

286 pages. Hard cover including black and white photographs and diagrams, and colour photograph section. Limited edition published by the author.

This excellent volume is written by a past general manager of the Silverton Tramway Company and tells the complete story of the railway from its inception to the closure of its 3 ft 6 ins gauge operations in 1970. It will delight aficionados of light railways, giving full treatment of the social, industrial, political and commercial context of the line's history. The author succeeds in this task with a deftness of touch and a readability which has rarely been surpassed.

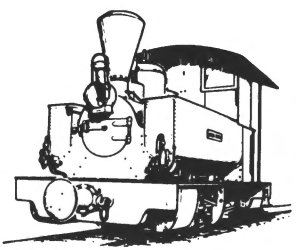
The railway handled millions of tonnes of ore during its life, but remained essentially a light railway operation only 35 miles in length. Although periodically modernised to a degree in terms of locomotives and rolling stock, investment was always inhibited by the reality that state acquisition, or a requirement to 'standard gauge' the line, could take place at any time according to the provisions of its enabling Act.

The Silverton Tramway was a product of intercolonial rivalry. It existed because New South Wales was not able to provide a link from the Barrier mineral region to the South Australian border, and was unwilling to allow the SA government to do so. It provided a welcome role in 'quarantining' the special industrial regime of Broken Hill, including the generous 'lead bonus', from the State Railway systems, and indeed today, as the standard-gauge shunt operator for the mines, it still does so to a certain extent. The demise of the Silverton main line, as part of gauge standardisation, came about because of government rivalry, with no one willing to provide the compensation which had been laid down in the line's enabling Act, even if the alternative was more expensive. Perhaps also, the line's private enterprise success was not well regarded by State Railway systems which haemorrhaged public funds on a massive scale. Ironically, the new Silverton company is now poised to become the haulier of Broken Hill – Port Pirie mineral traffic under the Hilmer reforms.

The book provides a comprehensive coverage of all aspects of the railway's operations; the writer's expertise means that no aspect, including the technical, is neglected or clumsily dealt with. A series of delightful vignettes shows the human side of a railway's operation, with pen pictures of some of the line's 'characters' and their foibles.

Although some of the photographs (grouped together on certain pages) are too small and a few are rather brutally cropped, this book is a delightful read and a 'must' for the shelf of those interested in private railway operations in Australia. My copy cost $42.95 from the ARHS bookshop in Sydney, but perhaps the Society will stock a few copies.

J.B.



LETTERS

Dear Sir,

Anthropomorphism (LR 123 and 126)

The work that Bruce Belbin and his late father put into the restoration of Baldwin 10533 must have required an extreme level of commitment and dedication. The result is magnificent. To achieve that level of commitment must require an enormous amount of respect for the item being restored. I am sure the Belbins saw Baldwin 10533 as being more than a machine, and that comes out in Bruce's writing.

Though they may not admit it, I suspect that many people involved in major restoration projects see the object of their work as being more than a pure machine. This was surely the case in the Puffing Billy preservation project in the 1950s and early 1960s when an almost religious commitment was needed to see the project through.

Preserved steam locomotives may be mere machines, but they are also the embodiment of generations of human commitment and toil. It is this human connection that makes them worth preserving. Far from eradicating anthropomorphism in the way it was used in the article in LR 123, I think it should be respected.

If people are only allowed to see locomotives as nothing more than machines, then they are unlikely to be preserved.

Powelltown Tramway – two train operation (LR 122)

Peter Barry's item on two train operation is interesting but I feel he is thinking too much in terms of Victorian Railways' logic and operating practice, rather than Powelltown Tramway logic. His only evidence is the published timetable in Bradshaw's Guide to Victoria. It was probably wrong.

He is only referring to the period January 1930 to April 1934. That covers the height of the depression when the Victorian Hardwood Company was trying to save as much money as possible. I cannot imagine why they would want to keep two locomotives, two train crews, and two carriages occupied at this time, particularly as passenger and freight traffic was steadily falling. More likely explanations are:

(a) the published timetable was wrong, e.g. the first train may have departed Powelltown at 5.20 am, not 6.20 am. An error like this could easily continue, since all the locals would have known the actual running times.

(b) the published timetable was theoretical, or indicative, and actual operations approximated those in the timetable. That sounds like Powelltown Tramway logic to me.

(c) On these days (Mondays and Saturdays) the second train left Powelltown late, but it was too much trouble to indicate this in the timetable. That also sounds like Powelltown Tramway logic.

(d) the first train was not a train at all, but a car to carry the mail and any passengers who could be accommodated. By this time the road had been upgraded to an 'all-weather' status, and the Company had been known to use a car when trains had broken down.

When I was interviewing people associated with the tramway, three of my standard questions relating to the main line were:

1. Was there ever more than one train on the line at once?
2. Did one train ever pass another train between Powelltown and Yarra Junction?
3. Was there ever more than one train at Yarra Junction?

The answer to 2. was always NO. There were cases where a loco was sent out to rescue another that had broken down, and cases where one train followed another into Yarra Junction, though the second train was never a publicly timetabled train. It was either a 'special', or a timber train usually hauled by a Shay loco.

Withdrawal of second passenger carriage: The most likely date for the withdrawal of the second passenger carriage is about 1928, since by that stage traffic had fallen to such a level that it was not needed. I have not seen any photographs taken in the 1930s in which it appears.

Speed limits on the main line: The official speed limit on the main line was fifteen miles per hour, and the length of the main line was 10 miles, not twelve miles. So, if 15 mph were maintained start-to-stop this would imply a running time of 42 minutes. However there were at least four stops on the way, and there was also a speed limit of three miles per hour where the tramway ran down the centre of the Little Yarra Road at Yarra Junction. Fortunately, the locos were not fitted with speed recorders, and these speed limits were interpreted rather broadly. Speeds of over 30 mph were certainly achieved in emergencies.

Frank Stamford
Canterbury Vic.

* * *

Dear Sir,

Krauss Locomotive *Moreton*

The origins of Moreton Central Sugar Mill's first locomotive, Krauss 0-6-0T 4687 of 1900 have long been a mystery. Conventional wisdom has been that the locomotive was obtained from a 'German New Guinea plantation' in 1904.

Further research here in Papua New Guinea by Michael Pearson and myself has established a possible scenario for the origins of Krauss 4687, although we have not located definite proof of its presence in New Guinea. As reported in my article in LR81, the Berlin backers of the Neuguinea Kompagnie were reluctant to abandon their vision of a tobacco industry in the colony despite the failure of the Stephansort venture.

They initiated a new venture at Jomba, 5 km south-west of Friedrick Wilhelmshafen (now Madang). A 600 mm gauge railway was constructed from the wharf to Jomba in 1900. It was planned to extend this line a further 23 km to link up with the existing railway system at Erimahafen. We have now found evidence that the Germans also planned to extend the railway from Stephansort to potential goldfields on the Lower Ramu flats. With these plans to establish an extensive 600 mm gauge light railway system some 80-100 km in length, the introduction of locomotives seems plausible.

Two historians have reported photographs of a locomotive among German New Guinea records, although we have been unable to locate these. Peter Hodge reported to Charles Small in 1964 that Krauss locomotive 4679 of 1900 was shipped from Hamburg to Neu Guinea on 10 April 1901. It is speculated that Krauss 4687/1900 was also shipped about this time for the planned railway at Friedrick Wilhelmshafen. The tobacco growing venture at Jomba collapsed in 1903. Plans for expansion of the railway were put on hold and the locomotives were no longer required. Shipment of No. 4687 to Moreton in 1904 fits in with this timing. Our hypothesis is that 4679 may have been the locomotive which is reported to have operated at Numa Numa plantation on Bougainville Island.

I would be grateful if any reader could provide any further information on these two locomotives.

Bob McKillop
Boroko PNG.

* * *

Dear Sir,

Ballast Wagons (LR 105)

In LR 105, p.20, Ray Ellis describes the axlebox covers of ballast wagons used by contractor Baxter & Prince on the North Mt Lyell Railway in Tasmania. During recent research on the activities of these contractors I found a newspaper reference to some of their plant. The *Morning Herald,* 21 February 1896, reported that the South Australian Railways had sold 40 old wagons to Baxter & Prince for the Mullewa-Cue Railway. They had also been sold an engine (ex SAR) for ballasting work. The locomotive and wagons were shipped to W.A. on board the *SS Buninyong.* This ship left Fremantle for Geraldton on 22 February 1896.

The locomotive mentioned was the ex SAR W43 (Beyer Peacock B/No. 2141/1881), which was named *Day Dawn* by the contractor. It would appear that after this railway was completed some of the ex SAR wagons were sent to Tasmania. I hope these notes may be of some interest.

Jeff Austin
Forrestfield WA.

* * *

Dear Sir,

What is a Light Railway?

What is a light railway? Now that is a good question. Here in Queensland our sugar mills are getting to a time when they could be called heavy railways with locomotives up to 40 tonnes, trains up over 1500 tonnes, double headed 40 ton locos up front or a 40 tonne loco in the front, ¾ of the way down the train a radio controlled 40 tonner or 32 tonne Baldwin and at the rear a radio controlled brake truck and speeds of 20 to 30 km/h. Around Mackay there is over 1000 kms of 2 ft gauge.

The track work at Queensland sugar mills on new and main lines is equal to Q.R. main line standards using 80 lb rail on main line, 60 lb on branches and 42 lb on sidings. I have seen 90 lb rail being laid on a uphill section to aid adhesion, on a dual section of track the loaded train runs on 80 lb rail down hill, the empties on 60 lb rail uphill. Rail for the mills comes from many locations; a lot from the old Ghan line and I have been told trailer loads are coming from south and west.

Rolling stock is being increased in size, 6 tonne bins being the standard 4 wheel wagon, the older 4 tonne bins being retired or scrapped or used on short hauls only. Larger 4 wheel wagons are being tested (for some years now) these are Grover bogie type having the capacity of two normal bins, quite a big comparison to the older whole stick wagons from days past and roller bearings replace white metal bearings.

I think in the future the light railways as we know them may only be seen in museums. Even then this leaves room for conjecture, for example, the railway I am involved in has locos from 6½ ton, 15 ton diesel, 20 ton steam from Bundaberg Foundry, 30 ton steam locomotive and tender which has been tested with 1000 tons of sugar cane running on 60 lb main line rail and 42 lb in passing loops.

In our collection we have a Malcolm Moore Ford V8 1943 hauling a 4 wheel flat wagon of ½ ton loading and on 24 lb rail, could this be classed as true light railway?

Then I would dare to say that there could be some who would debate that any railway or gauge below standard gauge is a light railway or could we say any railway smaller than Brunel's broad gauge?

Bob Gough
Yeronga Qld.

* * *

Dear Sir,

What is a Light Railway?
(LRs 126, 129, 131 and 132)

I think Frank Stamford is being just a little cute in his recent letter.

Frank points out an effective lack of difference between the Silverton Tramway and most country branch lines, but does not point to the obvious and major difference: ownership type.

To say that all railways are industrial is as pointless as saying that all street tramways are railways, or that whenever wheeled vehicles are guided by rails we have a railway. It is true that the words are capable of carrying this meaning. We can choose to use them in this way, but out in the real world, language is used to facilitate understanding and clarify useful distinctions between concepts, not the reverse.

The LRRSA has never involved itself much with urban street tramways (or their derivative light rail transit systems), or with government railway system branch lines. Put simply, it is not possible to define Light Railway in any useful way; to say that a definition of a 'Light Railway' is a railway in which the LRRSA takes an interest is not helpful. This restricts knowledge to the *cognoscenti.* As implied in the survey distributed with the mailing with LR 132, this is a very poor marketing tool when we are looking at expanding our membership. The term Light Railway has served the Society well in the way that Frank explains, but perhaps now that we have in practice more clearly defined our area of interest, it is time to reconsider the terms we put before the public.

Our main area of interest can usefully be embraced by the terms Private, Industrial, Tourist and Narrow Gauge Railways. I know they are not exclusive or totally clear terms, and I agree that they are overlapping. (They are also easier to apply in the current than in the historical context.) An explanation follows:

Private Railways will include light and heavy cross-country transportation operations which are not state or federal government owned (including Emu Bay, Silverton, South Maitland, BHP Coffin Bay, Comalco [Weipa] and Hamersley Iron). By extension (althought admittedly hardly private), we can include local government tramways, now all effectively defunct.

Industrial Railways will include operations which are an integral part of primary or secondary industrial processes (including mining, cropping, timber extraction, manufacturing and construction). This term will include construction and other railways used by (non-railway) government instrumentalities, and must be stretched to include some now defunct service operations such as the North Head quarantine station and various corrective institutions and military applications.

Tourist Railways will include those found at a whole range of theme and amusement parks, zoos and other attractions.

Narrow Gauge Railways which are not already included are the 2 ft 6 ins gauge and narrow government railway system lines (adopting an Australian rather than British definition of narrow gauge, meaning narrower than any of the 'standard' government railway gauges [5 ft 3 ins, 4 ft 8½ ins, and 3 ft 6 ins], and so including 'Puffing Billy' [Vic], North East Dundas Tramway [Tas], and Innisfail tramway [Qld]. None of these exists in government ownership today.

As one responsible for drawing the lines of inclusion and exclusion as editor of *Light Railway News,* I hope that it has become obvious that preserved government railway system lines (not included above) and preserved government railway system rolling stock (not also used as above) have been included, mirroring the approach of *LR* (This does cause some difficulties at times, but my interest/expertise does not extend into this area, which is a very large one.) Also excluded are *privatised* government railway operations (the track still belonging to the government?) The Pilbara heavy haulers of Hamersley, Robe River and BHP (Newman/Goldsworthy) get little attention in *LRN* not because of policy, but because of lack of material and expressed interest.

So we come to names. I would not suggest radical change to the Society's name. It has served us well for 35 years, and is part of our heritage which many long-standing members would be unwilling to jettison. For most members, their introduction to the Society will be through its publications, and the names of these are therefore far more important than that of the society itself in a marketing sense. I suggest that these be changed to be more appealing to the casual eye.

John Browning
Rockhampton, Qld.

Dear Sir,

Langley Vale Loco (LR 133)

I wish to make additions to the caption regarding the Langley Vale A class Climax that featured on the cover of Light Railways LR 133. The locomotive was delivered in the latter part of 1912 being reported in the 'Gloucester Advertiser' of 27.9.1912 and also in the same month the 'Manning River Times' and 'Dungog Chronicle' reported a steam engine in use on the Langley Vale tramway. The Climax was burnt in a mill fire (its lean to shed was attached to the mill structure) in October 1925.

The appearance of the locomotive is the same as in the movie clips (video) in my possession when it was used to haul a train of converted logging bogies. These carried some of the 56 delegates of the Empire Forestry Commission on 25.9.1928.

A film called 'Tall Timbers' (which pre-dated the famous film of the same name) was made by Master Pictures in the Langley Vale forest during the early part of 1926. It was first shown to the governor-general on 21 April on his visit to the district and released at the Boomerang Theatre, Taree in May 19 – refer 'Manning River Times' advertisement.

William Langley had a film made prior to 1920 called 'Timber Getting in NSW', showing the engine in original condition with spark arrestor chimney. This film was shown with 'Forest Wealth' and 'Timber Getting on North Coast' before State Governor Sir Dudley Le Chair on 16.6.1926 (MRT) and reveals the engine with stovepipe chimney and roughly clad boiler. I believe the number 2229 is a catalogue one used for reference only. The actual builder's number of this A type Climax is not known. During my research time at Langley Vale and Lansdowne during 1988-90, elderly former employees could not recall the engine having a 'plate' attached to it anywhere. In the film clips and photographs no plate can be seen attached to the smokebox door. The locomotive was re-boilered by Morrison and Bearby in 1930.

Leonard King
Chiswick NSW.

* * *

Dear Sir,

Caillet Monorails

In my article 'The Loxton Farming Company Monorail and Light Railway, Taldra, S.A.' L.R. 112, April 1991 I queried whether the monorail was a genuine Caillet Bros unit or a locally built imitation. Recently, I found an item in the A.R.H.S. Bulletin No. 451 of May 1975, headed 'A Monorail at Loxton, South Australia', by Gifford Eardley. This article reveals that the four cars used at Loxton were made by A.D. Ehmoke of Hyde Street, Hobart. It also states that the rails used on the line were from "over-seas". This information has raised several queries in my mind and it is hoped that some readers may be able to supply the answers.

What is known about A.D. Ehmoke and his business activities? If, as stated, he manufactured these units, did he do this under the auspices of Caillet Bros. as their Australian agent or licencee? This could explain how cars for use at Loxton, South Australia, were made in Tasmania. It would also be interesting to know if he built the cars the remains of which are at Bumbunga Lake, South Australia. See article 'The Cheetham Chronicles – Part IV' by Norm Houghton, LR 118, October, 1992. These cars closely resemble the original Caillet pattern and, if he was the agent/licencee, did he supply cars etc to other Australian monorail operators? It is also interesting to note that both the monorails at Loxton and Lochiel (Bumbunga Lake) came into being at about the same time c. 1910.

Arnold Lockyer
Dover Gardens SA.

* * *

Dear Sir,

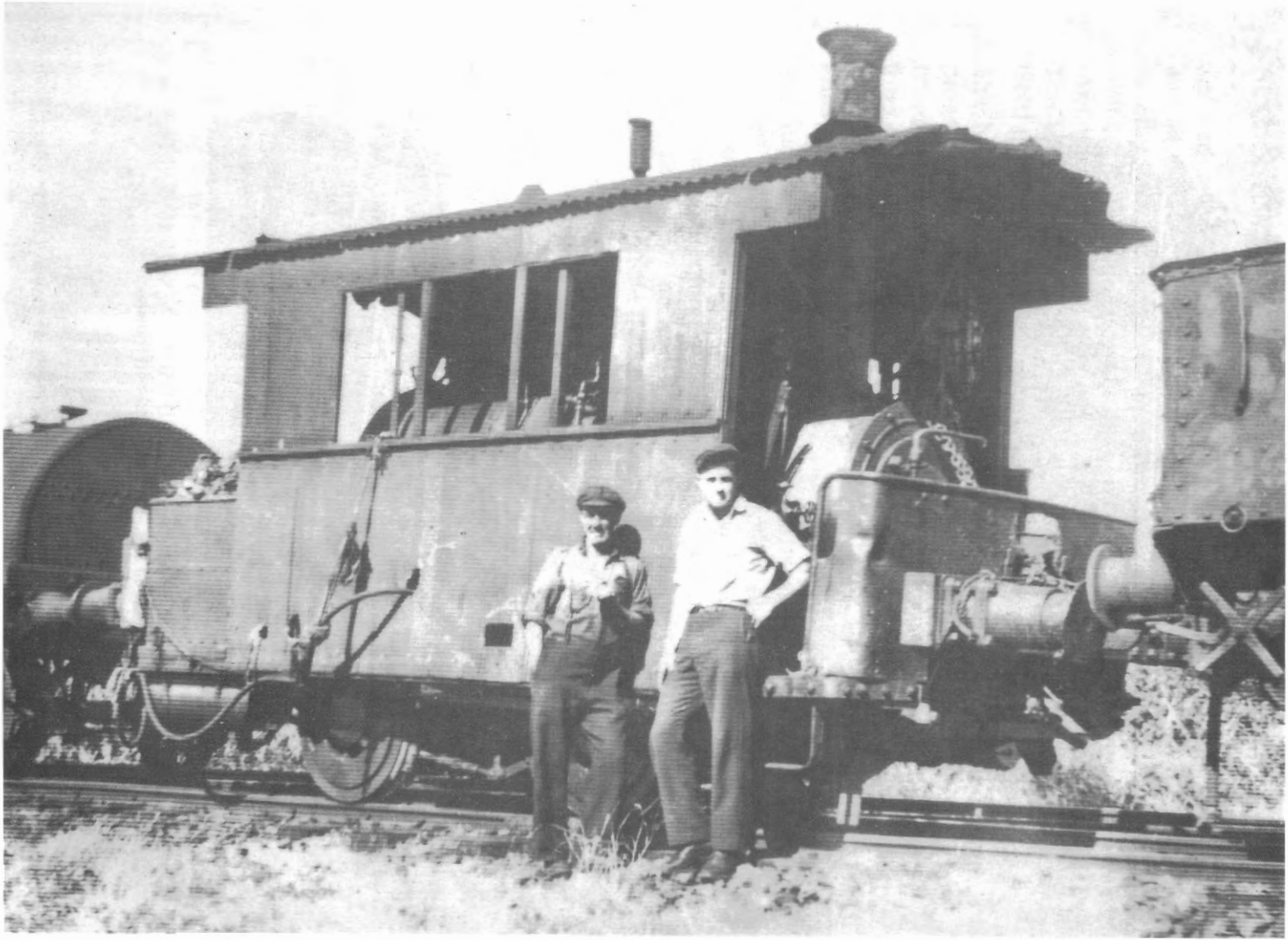
The attached print of a Baldwin tram motor comes from the SRA files in Sydney. Legend on the original indicates it is No. 40 steam motor from the "purgatory" mill on the NSW North Coast. According to steam tram records, No. 40 was an eleven-inch cylinder diameter Baldwin product of 25 August 1882. It worked on the Sydney suburban tramways until August 1903 when sold to Pt. Stephens Hardwood Co. On 24 September 1905 it went to Hebburn Colliery, Weston. It was scrapped in October, 1929. As articles and letters in LR frequently deal with the North Coast lines, the above might be of interest, when linked to the photograph.

David Burke
Burradoo NSW.

* * *

ERRATUM

LR 133 p.14, line 1, should refer to the lakes being west of Wellington, not east. The Editor's compass was upside down in the word processor.



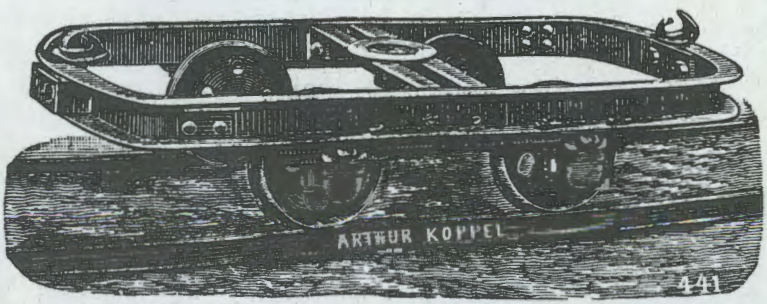


Fig. 441

Standard Light Bogie Truck with dead centre buffers and couplings built to any size and gauge usually for loads up to 3 tons per bogie.

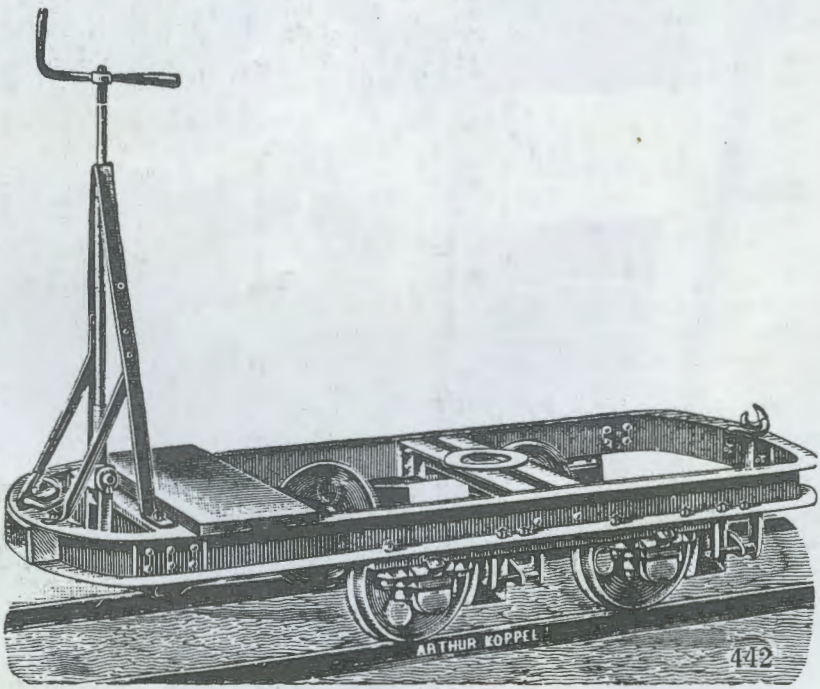


Fig. 442

Similar to Fig. 441 but fitted with powerful screw brake.

From the Arthur Koppel Light Railway Catalogue. Steel bogies as supplied to the Cangai Tramway. Illustrations supplied by Author.