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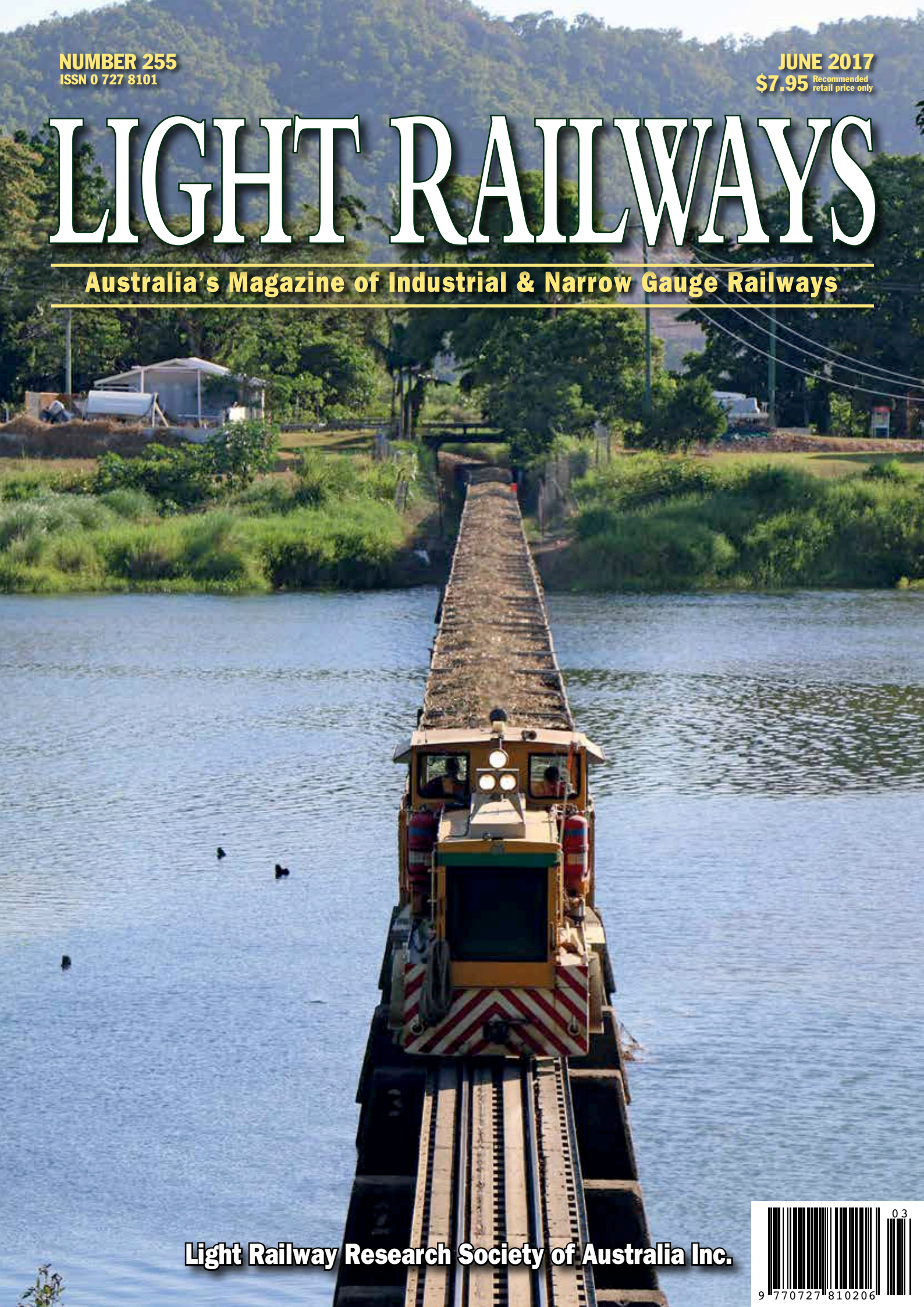
LIGHT RAILWAYS

Australia's Magazine of Industrial & Narrow Gauge Railways



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Imperial to metric 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 ton	1.01 tonnes
1 pound (lb)	0.454 kilogram
1 acre	0.4 hectare
1 horsepower (hp)	746 Watts
1 gallon	4.536 litres
1 cubic yard	0.765 cubic metres
1 super foot (sawn timber)	0.00236 cubic metre

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No 255 June 2017

Contents

Editorial

The editorial team does a huge amount of preparatory work to get the magazine ready for publishing each edition. This includes reviewing documents and scanning and improving historical photos and preparing the layout.

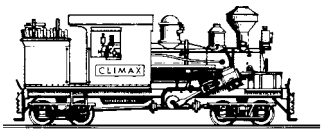
We always strive for the best possible quality of the final magazine to reflect on the efforts of our authors and contributors who put so much work into it, and to offer our members and readers a high-quality product. Also, having paid their subscriptions, or paid the cover price members and readers are entitled to receive a high-quality magazine.

As members and readers will have noticed, the final quality of LR 254 was far too dark and below our expectations – the printer has acknowledged this and has agreed to put processes in place to maintain the previous quality and ensure that it does not happen again.

The editorial team is of the view that we should keep using the same printer, provided it continues to offer value for money and maintain the high quality that it has provided previously in our books and *Light Railways*.

On a brighter note, the feature article in this edition is part 3 of Ian McNeil's excellent series on the tramways associated with the construction of the river training works on the Clarence River in northern NSW. I already have in hand parts 4 and 5 of the series and they will be published at a future time. *Richard Warwick*

Front Cover: *Macknade Mill's EM Baldwin B-B DH 20 (7070.4 4.77 of 1977) is near the end of its journey with cane from the Hamleigh area as it crosses the Herbert River adjacent to the mill late in the afternoon of 6 November 2016. Photo: Luke Horniblow*



Light Railway Research Society of Australia Inc. A14384U
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The Light Railway Research Society of Australia Inc. was formed in 1961 and caters for those interested in all facets of industrial, private, tourist and narrow gauge railways in this country and its offshore territories, past and present.

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

Light Railways is the official publication of the Society. All articles and illustrations in this publication remain the copyright of the author and publisher. Material submitted is subject to editing, and publication is at the discretion of the Editor.

Articles, letters and photographs of historical and current interest are welcome. Contributions should be double spaced if typed or written. Electronic formats accepted in the common standards.

Material is accepted for publication in *Light Railways* on the proviso that the Society has the right to reprint, with acknowledgement, any material published in Light Railways, or include this material in other Society publications.

Blue Pool quarry pit operations at Angourie Quarry c1899. Steam cranes are lifting stone out of the 60ft deep excavation seen behind the trestle. The PWD's 1897 railway into the quarry curves away behind the crane in the background. All stone from the Blue Pit had to be produced in sizes small enough to be manually thrown off punts to construct the Goodwood Island Training Wall. Photo: Port of Yamba Historical Society

The Clarence River Breakwater Story

Part 3 – The Angourie Quarry Railway

by Ian McNeil

Introduction

The Clarence River is the largest river system on the NSW North Coast. For over 100 years it was a busy maritime highway for the movement of people, goods and produce. However the river entrance was a problem for shipping. It was obstructed by an off-shore bar, a reef and inshore sandbanks, and the channel through these obstacles could shift unpredictably. Successive NSW Governments strove to improve the navigational safety of the entrance in order to foster trade and encourage development.

The first improvement scheme was proposed in 1860 by Edward Moriarty, Engineer-in-Chief of the NSW Harbours and Rivers Branch (H&RB). He recommended two ocean breakwaters to fix the position of the entrance channel across the off-shore bar. Similarly, river training walls inside the entrance were to focus the river and tidal currents to maintain a deep water shipping channel by natural scouring action. For over 25 years Moriarty's engineers strove to implement his scheme but they were hampered by Government delays, inadequate funding and the unstable nature of the river entrance. They were unsuccessful, and the history of their struggles was told in Parts 1 and 2 of the Clarence Breakwater Story in *Light Railways* Nos 245 and 248.

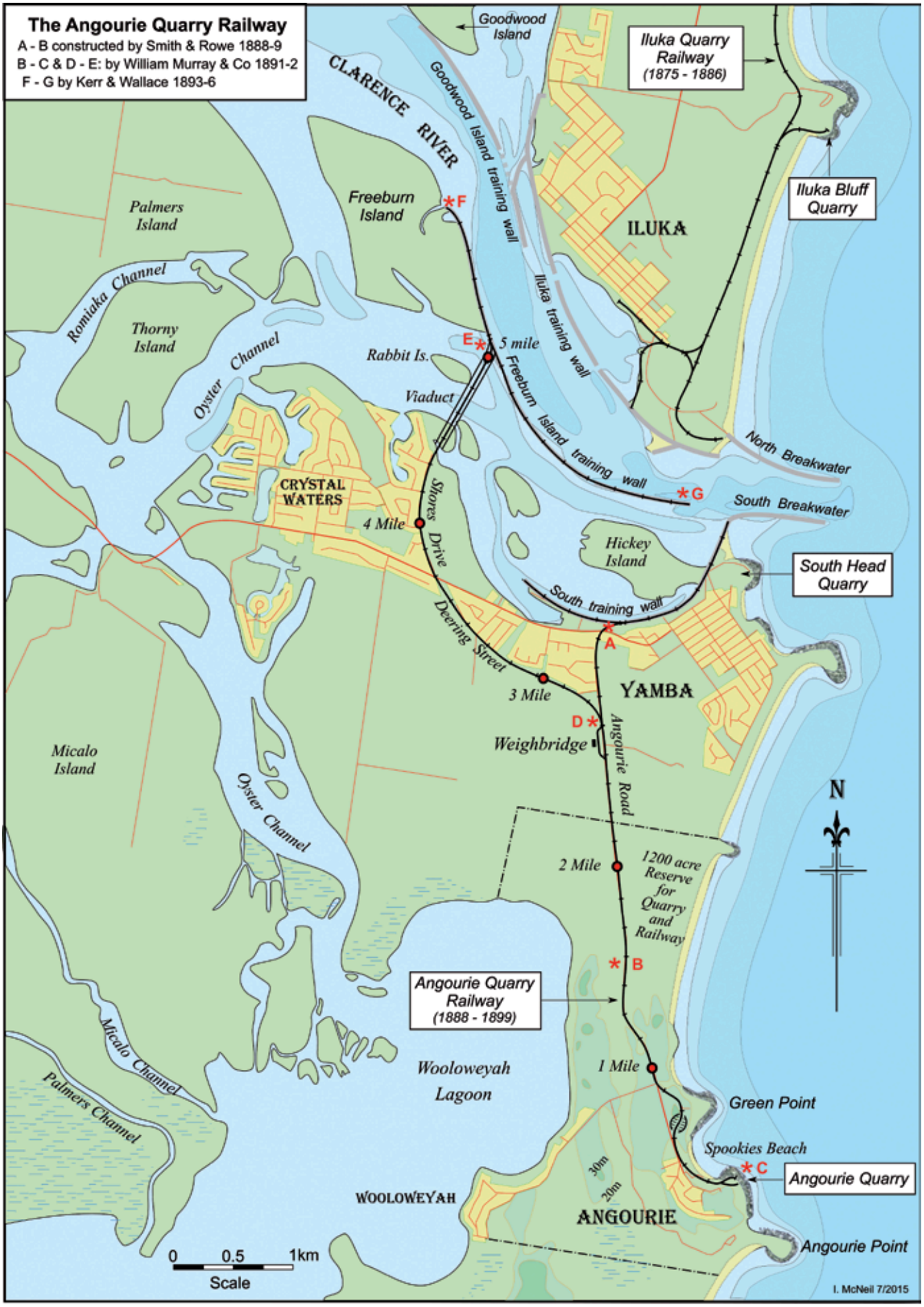
In 1885 Sir John Coode, the pre-eminent 19th century British harbour engineer, was requested by the NSW Government to recommend a replacement improvement scheme for the Clarence River entrance. This Part 3 continues with the history of Sir John Coode's scheme and the role played in its construction by the Angourie Quarry Railway.

Sir John Coode's Visit to the Clarence River.

Sir John Coode[1] was arguably the most distinguished harbour engineer of the nineteenth century. He was born in Cornwall, England in 1816, educated at Bodmin Grammar School and studied civil engineering in Plymouth. He consulted on many English harbours and rivers and was in charge of the huge Portland Harbour works in England. His most famous colonial works were the harbours at Table Bay in South Africa and at Colombo in Ceylon. He was knighted for his achievements in 1872.

He first visited Australia in February 1878 at the request of the Melbourne Harbour Trust[2] to recommend works to improve that port. Sir John's services did not come cheaply; his fee was 5,000 guineas all round. Nevertheless the Victorian Government thought it worthwhile to further engage his services to inspect and report on the Gippsland Lakes entrance and the harbours of Geelong, Portland, Port Fairy and Warrnambool.

It was during that visit that the NSW Government first contacted Sir John to engage his services to report on North Coast river entrances. Sir John's asking fee was £1,500 plus £300 per river. Responding to questions in NSW Parliament, the Minister for Public Works Mr. Fitzpatrick replied: "*The Government put itself in communication with Sir John Coode, but the remuneration asked appeared to them so excessive that they reluctantly felt compelled to decline accepting his services.*"[3]



Over 500,000 tons of quarried stone was steam-hauled over the standard-gauge Angourie Quarry Railway during the construction of the Freeburn Island and Goodwood Island river training walls.

In 1885 Sir John returned to Australia. He had been engaged by the British Admiralty to advise on the selection of dry dock sites at Singapore, and at Triconmalee in Ceylon, and also by the Indian Government to select a dry dock site at Bombay. The Australian Colonial Governments took advantage of his presence in the southern hemisphere to request his services to recommend harbour works for Freemantle, Adelaide, Mackay, Townsville and Normanton, and to inspect progress at Melbourne

This time the NSW Government swallowed its pride. It had sunk over £170,000 into improvement works at the Clarence River entrance and had little to show for it. It asked Sir John to recommend improvements for the entrances to the Clarence and Richmond Rivers and to Lake Macquarie.[4]

Sir John Coode arrived in Sydney by express train from Melbourne on 10 October 1885. A few days later he embarked on the coastal steamer *Bega* on a tour of inspection of the northern rivers together with H&RB's Engineer-in-Chief Edward Moriarty, Moriarty's assistant Cecil Darley, and members of the NSW Marine Board. The *Bega* visited Lake Macquarie, Trial Bay, the Macleay River, Port Macquarie and Bellinger Heads before arriving off Clarence Heads on 19 October. Sir John inspected the entrance and was shown Moriarty's breakwaters and training walls. The *Bega* then continued upriver to Grafton where he interviewed several experienced coastal steamer captains who regularly sailed the river.[5]

Before departing for England at the end of the year, Sir John requested the NSW Government to furnish him with up-to-date charts of the Clarence River and specified a comprehensive set of depth soundings, river-bottom borings, river flow and tidal current measurements to be made. These tasks were entrusted to Commander Frederick Howard, a British Navy surveyor employed by the H&RB.[6] Howard and his staff arrived at Yamba in February 1886[7] and for the next eight months took measurements up and down the river from Clarence Heads to Maclean. The results were despatched by mail steamer to England.

In November 1887 the H&RB received Sir John's report and it was tabled in the NSW Parliament early in the New Year.

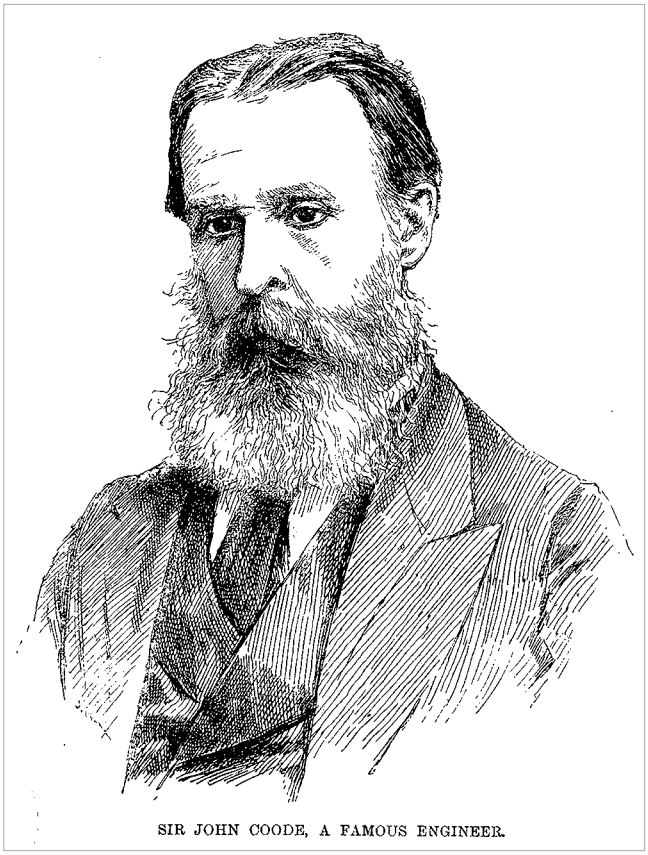
Sir John Coode's Scheme to Improve the Clarence River Entrance.

Sir John Coode's plan[8] for improving the Clarence River entrance differed significantly from the scheme Edward Moriarty had been trying for over 25 years to implement. Moriarty wanted to keep the shipping channel on the southern Yamba side of the river, but in doing so encountered severe engineering problems with the unstable North Sand Spit on the northern Iluka side.

Both Moriarty and Coode specified a pair of ocean breakwaters to permanently fix the position of the entrance channel across the off-shore bar. Coode's breakwaters ran more directly out to sea in order to focus river currents and tidal flows to best advantage in maintaining a navigable channel across the bar.

The biggest differences were inside the estuary. Sir John Coode recommended that the main navigation channel should be diverted from its course along the Yamba shore to run down the centre of the river. He would achieve this by constructing a 2-mile long training wall down the centre of the river from Freeburn Island to the Black Buoy Reef. On the northern side, a shorter training wall would define the northern boundary of the shipping channel and protect the Iluka foreshore. A third training wall a short distance up river at Goodwood Island would direct the main river flow into the new shipping channel.

Sir John's scheme made allowance for the extraordinarily high flows of the Clarence River during major floods which,


SIR JOHN COODE, A FAMOUS ENGINEER.

A woodcut of Sir John Coode made after his death in 1892.

among other things, caused serious problems as far upriver as Grafton. His mid-river training walls were 'half-tide' walls, which were submerged at high tides and allowed flood waters to overflow them without undermining the stonework. His river training walls and breakwaters were optimally aligned to facilitate the free discharge of floodwaters straight out to sea.

His respect for the power of Clarence River floods was well justified. Three years later the dredge *Clarence* was swept out to sea by flood waters and sank off the bar. She had been anchored in the lee of Rabbit Island when she broke adrift after snapping no less than eight cables. The crew were able to take to the boats and make it safely to Yamba. There was a tremendous current running, and the dredge was rapidly swept out across the bar with all her lights still burning. They suddenly disappeared, and a subsequent search by the tug *Comet* found no trace of her.[9]

The Coode scheme came with a high price tag. His two long ocean breakwaters, the southern one utilising Moriarty's partly-constructed breakwater, were estimated to cost £375,000. The two long mid-river training walls and the protective wall along the Iluka river bank added another £183,000, bringing the total to £558,000. Sir John acknowledged that his recommended works were expensive but concluded by saying:

> "I would like to remark that it would have been much more satisfactory to me had it been possible to recommend for adoption at the Clarence River entrance, work of less extent, and consequently of less cost, than those hereinbefore described, and shown upon the accompanying drawings, but it has not been practical to do so, having regard to the object to be accomplished."

In view of the high cost involved the NSW Government referred Sir John's proposals to the NSW Parliamentary Standing Committee on Public Works. It was the Committee's task to weigh the potential benefits in terms of regional development, trade, and safety of navigation against the costs to be incurred, and how much of the scheme should be proceeded with.

The Committee conducted hearings in Sydney and Yamba. Expert witnesses were called and Cecil Darley, the newly appointed Engineer-in-Chief who had succeeded Moriarty following the latter's retirement, was the subject of several sessions of intensive questioning. After due deliberation the Public Works Committee recommended the construction of the less-expensive inner training walls and deferred construction of the more costly breakwaters until it became clear they would be necessary.[10] This decision went against the express recommendations made by Sir John, who had stated that it was important that the breakwaters should be constructed first. It was a decision that would prove very expensive in the long run.

On 16 September 1890 the NSW Parliament passed a bill entitled "Entrance to Clarence River Improvements Act of 1890 (54 Vic, No.13)" authorising an expenditure of £254,300 for the works recommended by the Standing Committee. The Act provided, for the first time, proper funding for works to be carried out on a large and economical scale. Moriarty, by comparison, had been greatly hampered by the small sums of money allowed him which were quite inadequate to successfully promote his scheme. Sir John Coode did not live to see his Clarence River Improvement Scheme works implemented. He died on 2 March 1892 in Brighton, England at the age of 76.

Angourie Quarry Railway Construction.

There was a credit balance of £46,619 still standing from the funds voted for the Clarence River Works when work was suspended in mid-1886. Following the receipt of Sir John Coode's recommendations in late 1887, and pending the Standing Committee's report, the Government decided to allow work to resume until these funds were exhausted.[11] Work was to be restricted to the extension of the South Breakwater, in line with the priorities recommended by Sir John.

William Smith, one of the partners from the railway contracting firm of Rowe and Smith, was the contractor who had been employed on the south side works before they were suspended in 1886. In August 1888 he was invited to resume his contract for the extension of the South Breakwater. After inspecting South Head Quarry he declined to start work and declared that, as there was only two month's supply of stone available, he would "*not embarrass himself by setting a number of men to work for such a short job*." This may have been a tactic to renegotiate conditions because next month Smith had 25 men at work in South Head Quarry.[12] Large blocks of stone were quarried for the breakwater while small stone and waste were used to begin construction of the first section of a railway line to the replacement quarry at Angourie Point, four miles south of Yamba.

The supply of stone from South Head Quarry was extended by excavating the rock platform in front of the quarry face down to sea level. By October 1889 this supply was exhausted and Smith was issued with a notice of termination of his contract. By then his workforce had completed the first 1½ miles of the standard-gauge Angourie Railway. It branched off from the line along the top of the Yamba training wall, near the present-day intersection of Angourie Road and Yamba Road. A 750ft radius curve on a rubble stone embankment crossed the embayed water between the training wall and the river bank. The line then headed due south and finished at the foot of the low hills north of Angourie Point. This section, which is now under Angourie Road, was dead level, built on a low embankment across flat terrain described as "*marshy flat sand ridges covered in heathy undergrowth with open ti-tree, honeysuckle and pine*."

When the Clarence River Improvements Act of 1890 was enacted, it authorised the construction of Sir John Coode's river training walls but not his breakwaters. Consequently Freeburn Island was selected as the rail terminus of the Angourie Quarry Railway.

In November 1890 Engineer-in-Chief Cecil Darley signed off on the survey[13] for a 5-mile railway from Angourie Quarry to Freeburn Island. Next month tenders were invited for its construction and for repairs to the existing line at Yamba. Plans and specification were put on display in the Resident Engineer's office in Yamba for inspection by potential contractors. Twelve tenders were received with the contract going in January 1891 to William Murray & Co who put in the lowest bid of £11,769 18s. 2d.[14]

Scottish born William Murray was a NSW railway contractor who had previously completed station buildings at Petersham, Summerhill and Tenterfield. In 1889 he won a large contract to supply thousands of ironbark piles to the Melbourne Harbour Trust. He sent his two sons, John and William junior, up to the Clarence River to source supplies. They established themselves at Lawrence as William Murray & Co and began a highly successful business supplying hewn and sawn hardwood timber for Australian and New Zealand public works. They created the private saw milling village of Murrayville near Maclean with its own 12-mile wooden-railed tramway to bring in logs, piles and girders, and wharf facilities where punts were loaded with export timber.[15]

Within two months the Murrays had 80 men, twelve drays, and an earth scoop engaged on the Angourie railway earthworks. Towards the end of the year they advertised for "*stonebreakers*" and "*men accustomed to railway work*."[16]

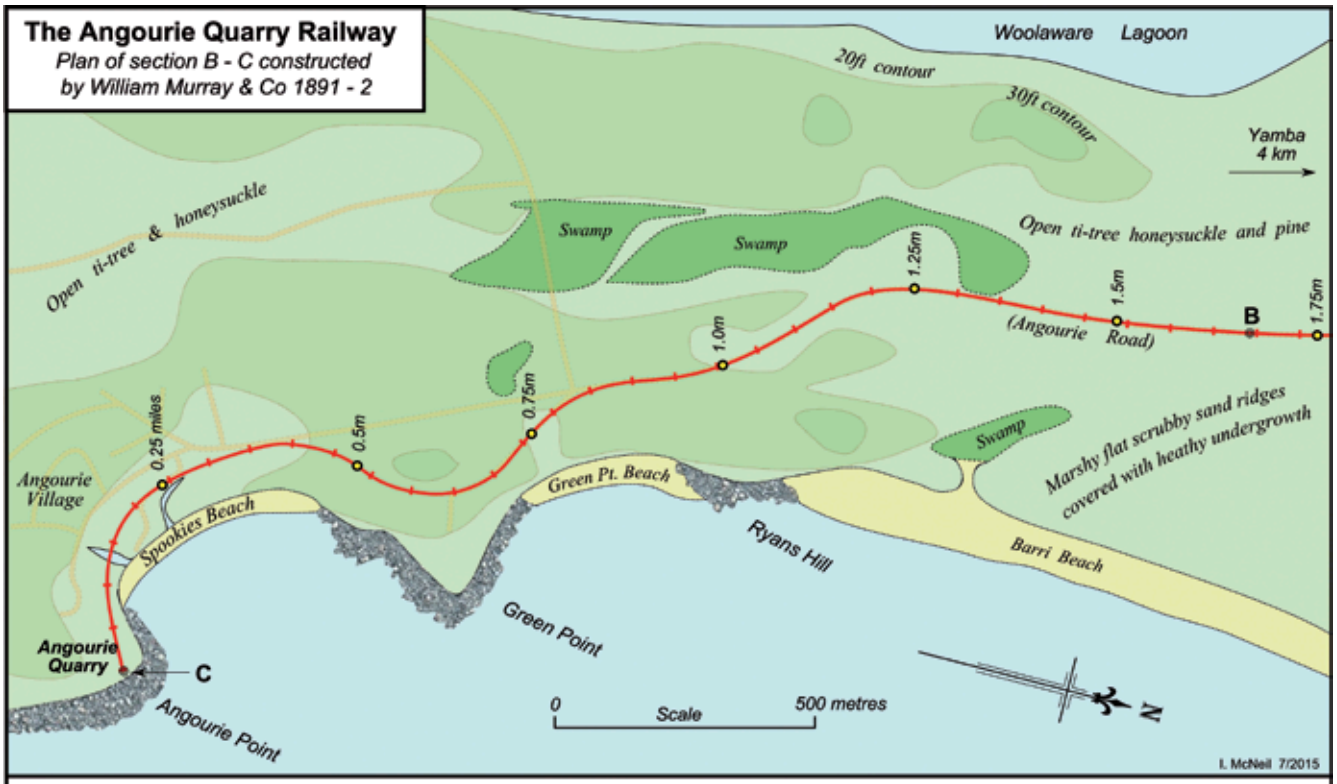
W Murray & Co extended the line begun by William Smith two years earlier from where it had stopped 1¾ miles short of Angourie Quarry. Its extension climbed a short succession of 1:50, 1:135 and 1:125 grades to the summit of the low hill behind Green Point, describing a set of wide curves through shallow cuttings and over low embankments. On the Angourie side of the summit it descended a half-mile long 1:50 grade down to the quarry entrance.

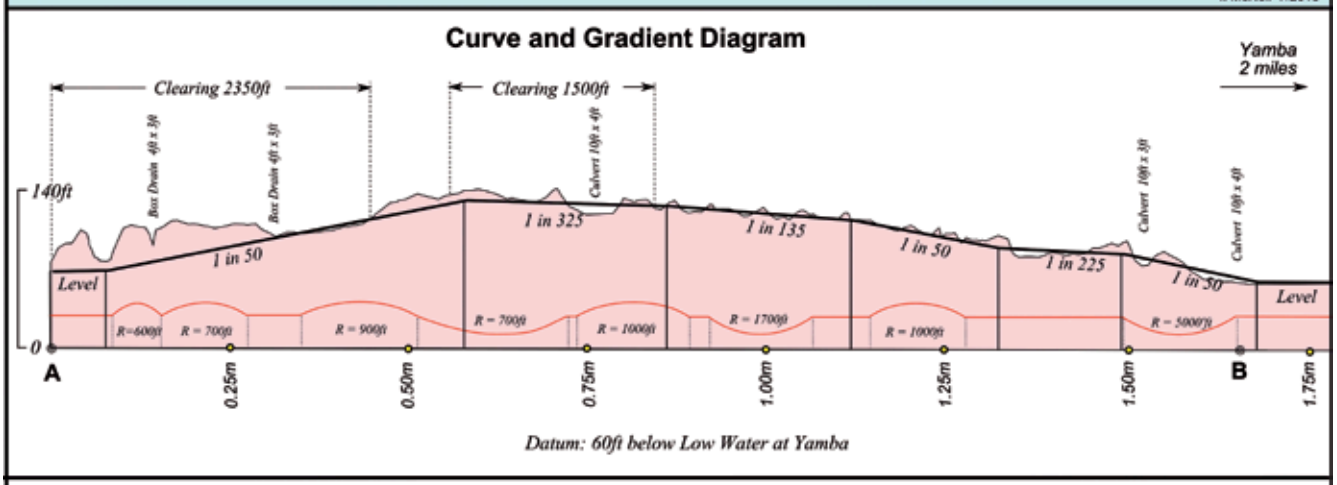
The Murrays also constructed a 2¼ mile branch line to Freeburn Island across more flat sandy and swampy terrain on a series of low embankments. It branched off from the long straight south of Yamba, near the present day intersection of Angourie Road and Deering Street. From there it curved to the northwest, following the line of today's Deering Street, Cox Street and Shores Drive to the river bank. A 400 ft loop siding for the Government weighbridge was constructed on the Angourie side of the junction.

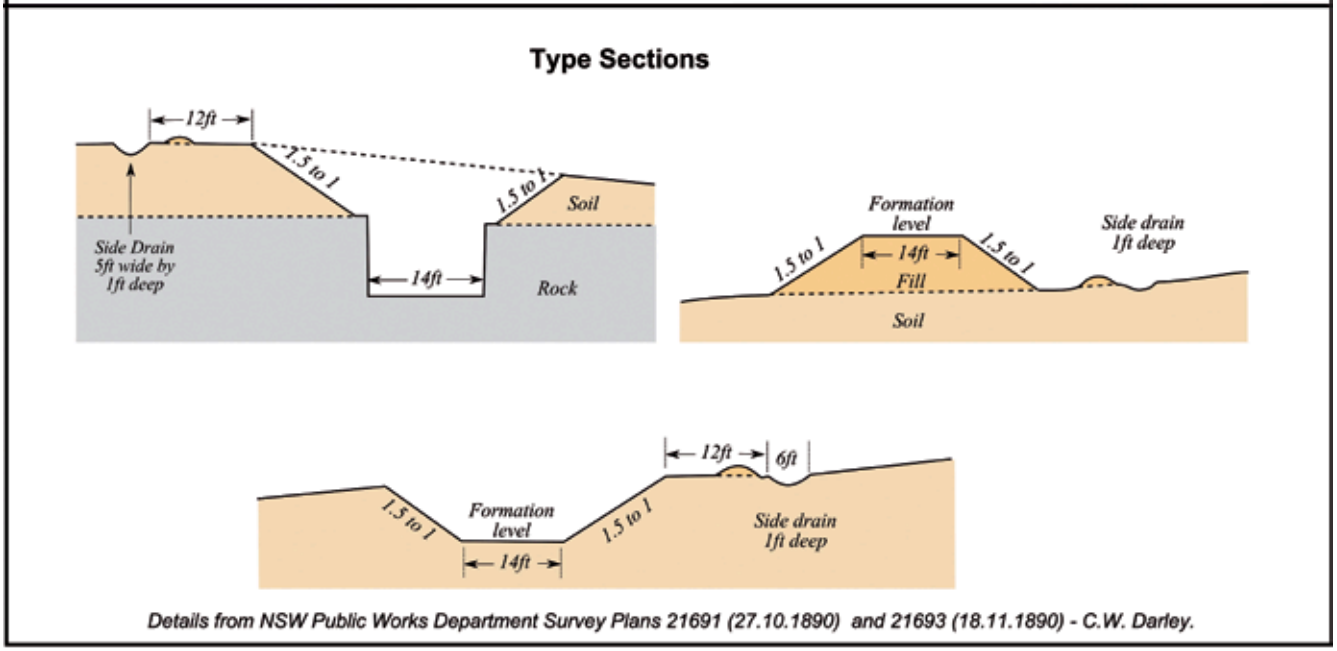
Cecil Darley's original 1890 survey plan specified two timber viaducts to take the railway across the shallow waters of the Oyster Channel to Freeburn Island.[17] His 1269 ft long No. 1 Viaduct was to have crossed to an embankment built on the Rabbit Island sandbanks, followed by the shorter 603 ft No. 2 Viaduct over to an embankment on the Freeburn Island sandspit. When the line was built however, the terminal and intermediate embankments were dispensed with, and a single 3,431 ft long viaduct was substituted in their stead.

The Murrays supplied the piles and timber for the viaduct but sub-contracted its construction to a local bridge builder, David Johnson. It was a solidly built structure with pairs of 18 in diameter piles sunk into the river bed to support a double row of 18 ft x 12 in x 12 in hardwood girders. There were over 200 pairs of piles spaced 18 ft apart. It was a low level structure with the rails being only 6 ft above high water level.

In spite of a complaint aired in the local paper at the time; "*The piles of the bridge to Freeburn Island have not been protected with copper against cobra, so that in a few months it will probably be useless*," the viaduct was still substantially intact over 40 years later.







The Angourie Quarry Railway was surveyed in 1890 and built by William Murray during 1891-92. The only gradients of any consequence were located in the hill section north of the quarry. The steepest grade was the half - mile, 1 in 50 climb against the load out of the quarry.

The Murrays commenced work in February 1891 and finished their contract in March 1892.[18] The PWD supplied the rails, fittings and sleepers in line with its practice for previous contracts. A local newspaper correspondent commented in January 1891, before the contract was awarded, that:

> "A local contractor has also been inspecting the route of the tramline at the Heads, with a view to tendering. The latter will be constructed on piles from the mainland to Rabbit and Freeburn Islands, and in itself will be a rather costly undertaking. We understand that if the Department will consent to give, for a small rental, the unused locomotive at the Clarence Heads, the cost of constructing the line would be materially reduced".[19]

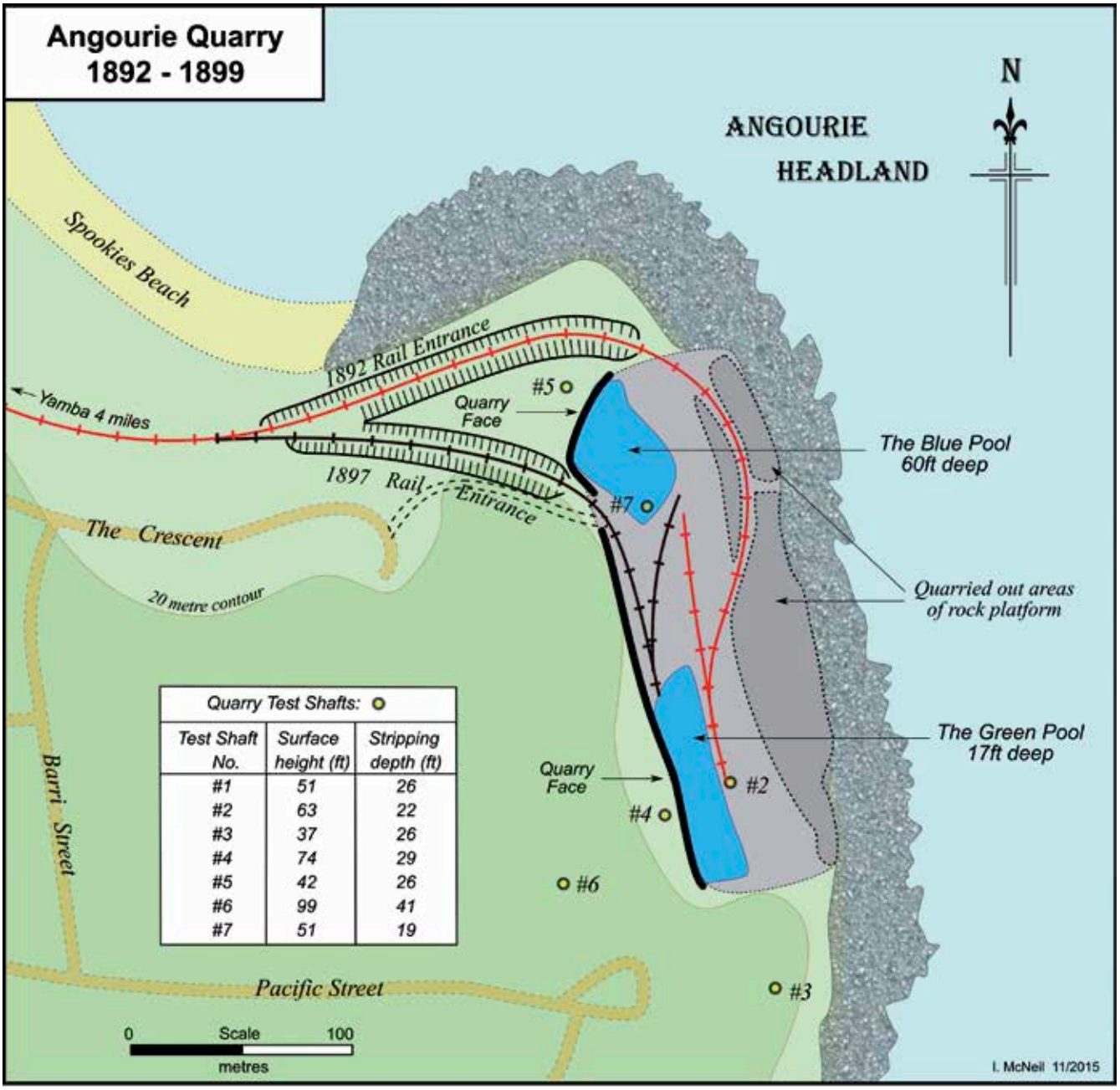
To date, no record has been found to indicate that the Murrays were able to hire this 'unused locomotive', which is believed to be the ex-Iluka Quarry Railway Manning Wardle 0-6-0ST (163/1865) then housed in the Yamba Engine Shed, to assist with railway construction.

Angourie Quarry

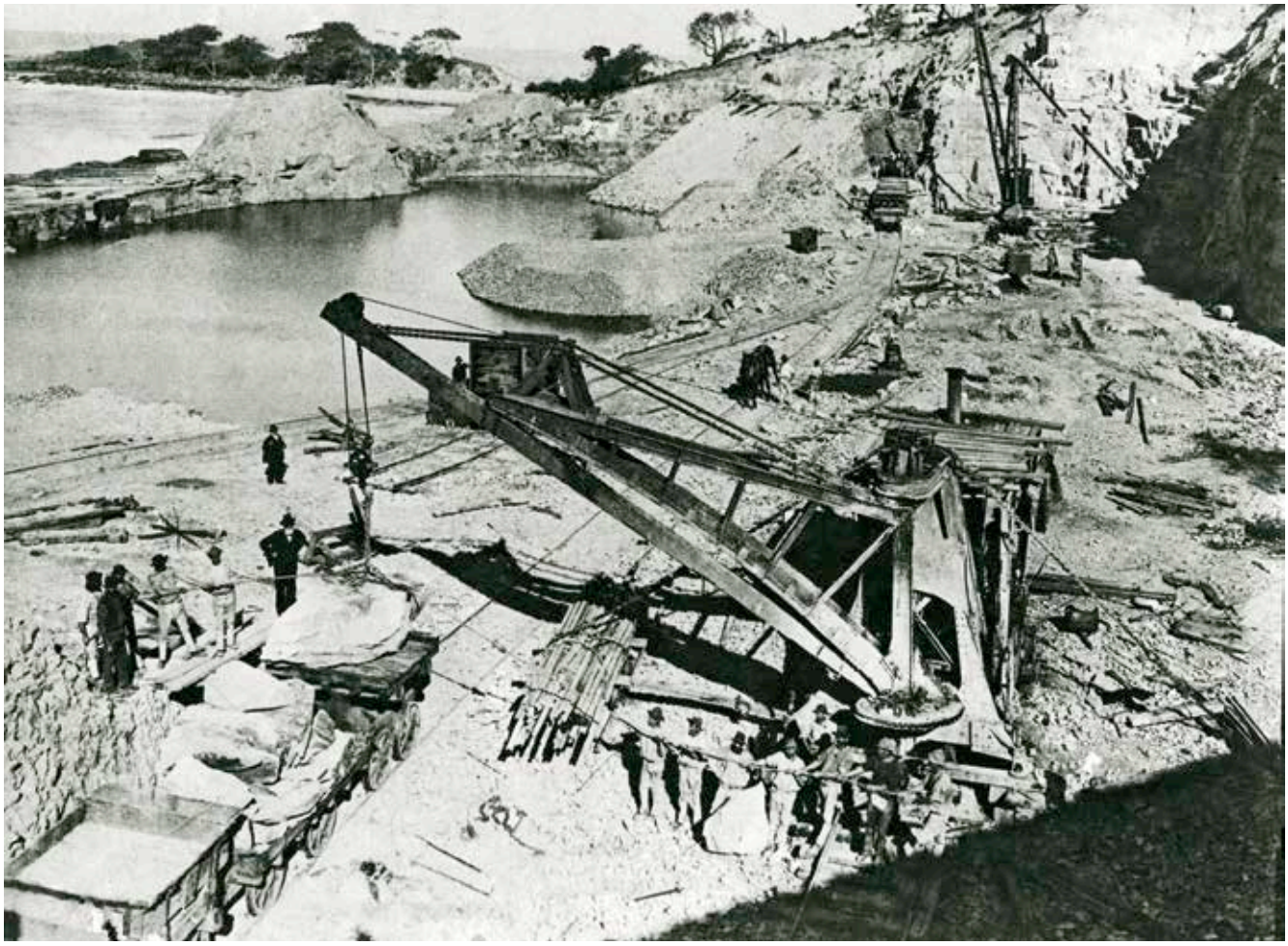
Test shafts sunk at Angourie Point, 3½ miles south of Yamba, in May 1888 found hard blue sandstone overlain by 19 feet of overburden. The headland was selected as the replacement for South Head Quarry to supply the stone to construct Sir John Coode's river training walls. In April 1890, 1200 acres of land south of Yamba were reserved for quarry and railway purposes.[20]

Like the north-side quarries at Iluka Bluff and Middle Bluff, Angourie Quarry was located at the base of a rocky headland. A steep hillside came down almost to the water's edge with the hard blue sandstone required for the walls overlain by layers of soil and weathered rock.

Tenders for the construction of the Freeburn Island Training Wall were invited in July 1892 and in December the contract was awarded to A Kerr and Co[21], a partnership between Alexander Kerr and John Wallace. Alexander Kerr, with 48 years experience in quarry work, was the resident partner at Clarence Heads.



There were two separate quarrying phases at Angourie. Kerr and Wallace (1893 – 96) quarried back into the hillside and excavated the rock platform down to sea level in the process. The PWD (1897 – 99) worked Angourie as pit quarries and left the modern day Blue and Green Pools as mementos of its work.



Above: *Kerr & Wallace's large steam crane loading tip wagons in Angourie Quarry c1896. The rail siding skirting the water led to the northern rail entrance to the quarry. Angourie Point can be seen in the left background.* *Photo: Port of Yamba Historical Society*

Below: *The same location in 2013 is a very different scene. It is occupied by the 60ft deep Blue Pool quarry pit which was worked by the PWD between 1897 and 1899.* *Photo: Rob Knight*

In February 1893 he put on 30 men[22] to start stripping overburden off a 600 ft long section of hillside at the water's edge. He extended William Murray's rail line into the quarry on a sweeping right hand curve along the outer edge of the rock platform. Reverse sidings were laid to the quarry face to handle full and empty stone trucks.

Kerr used steam drills to bore vertical holes down behind the quarry face. They were packed with gunpowder to blast out blocks of stone. Most of these had to be broken down into smaller sizes suitable for the Freeburn Island training wall.

A steam derrick crane loaded quarried stone onto standard-gauge side-tipping and end-tipping rail wagons which were locomotive hauled to the Clarence River. By October 1893, 2000 tons of quarried stone was being produced weekly.[23] This had increased to nearly 3000 tons a week by February 1895 with two quarry faces operating and a second steam derrick crane installed.[24] The rock platform itself was quarried down to sea level leaving only a narrow rim of rock to keep the sea out.

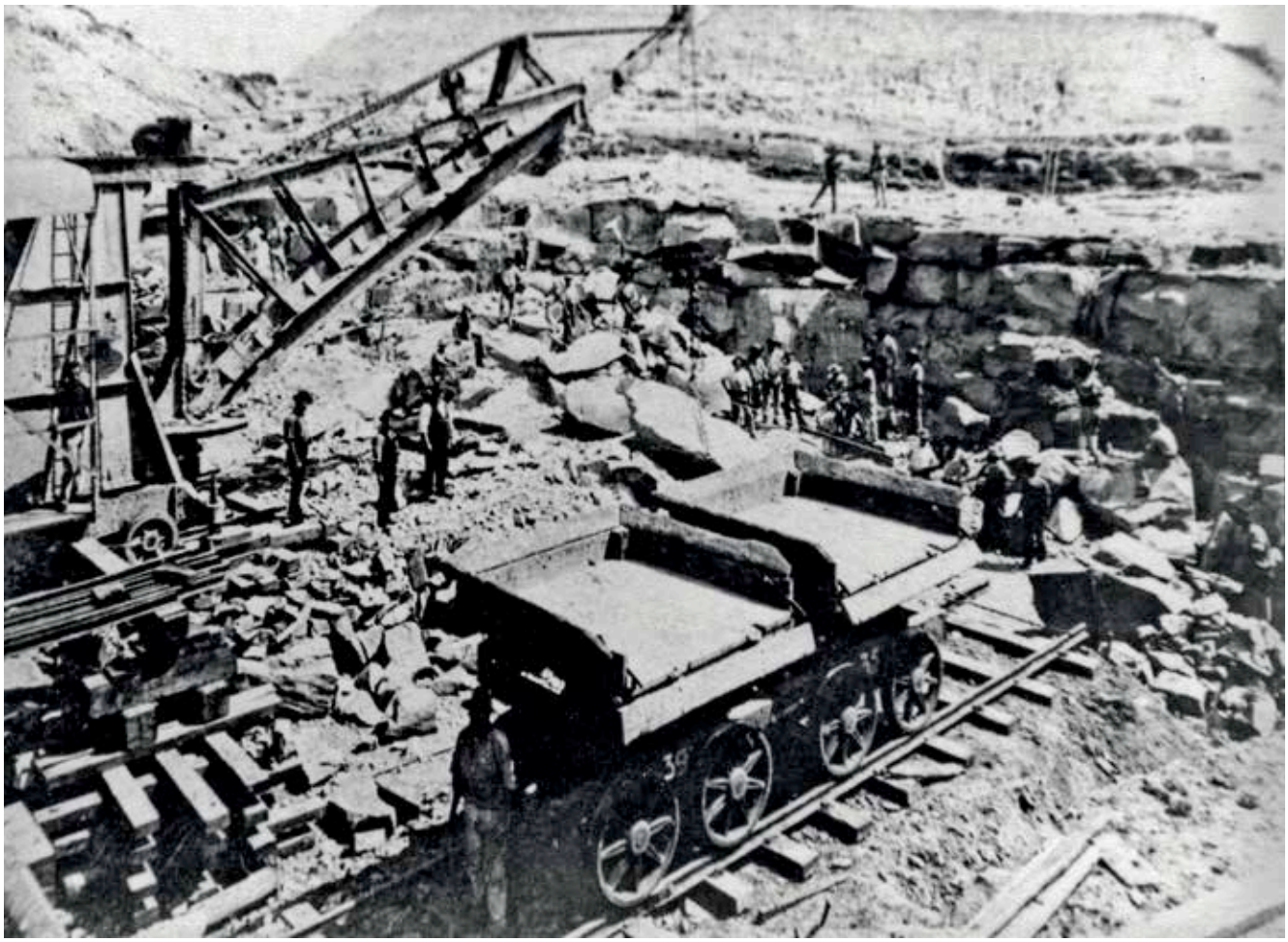
The site was exposed to the full force of storms blowing in from the sea and on several occasions work had to be stopped when heavy seas washed into the quarry. One particularly heavy storm in September 1895 not only filled the quarry with water but also destroyed 300 ft of railway line on the rock platform, twisting and bending the rails and strewing the sleepers in all directions.

The workforce at Angourie peaked at around 80 men who together with their wives and children made up a small settlement of about 160 souls. They lived in tents and small home-made wooden shacks near the quarry. The temporary nature of the dwellings led to tragedy on two occasions. William Fitzhenry's youngest child died while asleep when a spark from the chimney set the hut ablaze in a matter of seconds while his mother was a few yards away talking to a neighbour. Another toddler drowned in a rain-filled hole his father had dug to get clay to make a floor for his hut.

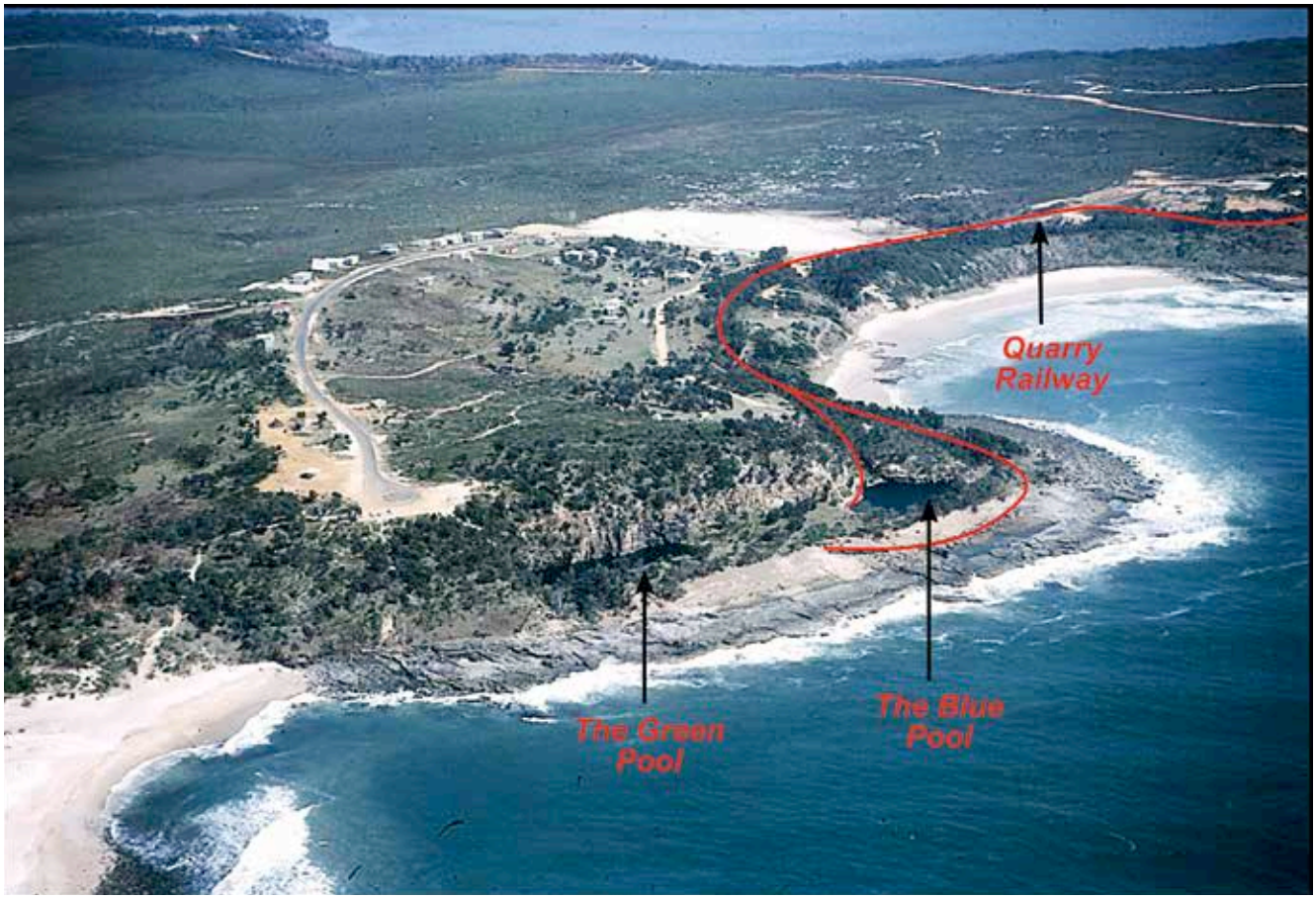
Education facilities were non-existent at first but the quarry workers were resourceful. They successfully petitioned the Department of Public Instruction to establish a Provisional School at Angourie. In June 1895 they built and furnished a school-room and in September the Department appointed Mr. William Wallace to teach 12 boys and 9 girls. Enrolments increased and in 1897 the Department spent £ 80 to build a larger weatherboard school at Angourie. School furniture from the closed Provisional School at Esk was shipped to Yamba on board the Woolwich and brought to Angourie on the quarry train. The old school room was used as a community hall for social events and church services.

In October 1897 a postal receiving office was opened at Angourie with the mails being delivered three times a week via the Angourie Railway.[25] Next year, in March 1898, Angourie was declared a polling place for the Clarence electorate.

Apart from the quarry railway, the only access to Angourie was a 4-mile bush track from Yamba. For special events in Yamba such as evening concerts and speeches by electoral candidates, a locomotive was made available and the populace packed into empty stone wagons for a festive trip into town.



Angourie Quarry circa 1898 when the PWD was in the early stages of excavating the 60ft deep Blue Pool quarry pit. The rail-mounted steam crane appears to be partially supported by a pig-sty of sleepers during stone loading operations, a practice that wouldn't be allowed under modern OH&S regulations. *Photo: Port of Yamba Historical Society*



This 1960s aerial photograph shows Angourie Quarry with its cliff-like quarry face and iconic Green and Blue Pools clearly visible in the foreground. Angourie village consisted of a few scattered houses back then, a far cry from today's (2015) popular holiday resort.

Photo: Norm Brown collection

Relations between Kerr and his workforce appear to have been reasonably good apart from a strike over wages in February 1895. Kerr reduced the pay rate from seven shillings a day to six. The quarrymen struck to have it put back up. Kerr said he would bring up men from Sydney to take their places whereupon the enginemen and smiths threatened to walk out as well. A compromise was reached, on a vote of 40 to 5, with the men accepting 6s 6d a day. A newspaper report of the affair gave an interesting breakdown of the number of employees and their occupations at the time:

> At the time of the strike there were employed in connection with the whole of the work some 90 odd men, and their occupations, as far as can be ascertained, as follows – 45 quarrymen, 2 gangers, 2 crane drivers, 2 steam drill drivers, 2 water tenders, 2 horse drivers, 2 blacksmiths, 2 strikers, 2 locomotive drivers, 2 firemen, 1 shunter, 1 pumping engine driver, 1 engine cleaner and boy assistant, 1 fitter, 1 waggon builder and labourer, 3 fettlers, 2 tip-men and one timekeeper. The remainder are employed in connection with the bridgework, and consist of 5 carpenters, 6 labourers, 1 winch driver, 1 launch driver, 1 deck hand and a foreman.[26]

Alexander Kerr completed his contract to build the Freeburn Island training wall in November 1896.[27] His employees hoped that he would be awarded the next contract for the construction of the Goodwood Island training wall. The PWD however decided that all future work could be more economically carried out by day labour under its direct supervision. Quarry operations stopped and the men were paid off in December.

The PWD's Engineer-in-Chief, Cecil Darley, said that Kerr had left Angourie Quarry in a practically worked-out condition. However by making a new rail approach into the quarry, they were able to recover another 171,000 tons of stone that was previously inaccessible or covered by the former approach and quarry sidings.[28]

The new approach involved the excavation of a large railway cutting through the hill on the eastern side of the quarry. It cost £4,200 and took 25 men three months to construct but resulted in an easier railway gradient out of the quarry. The new rail entrance, now occupied by Spookies Beach Walking Track, was completed in June 1897. Quarrying operations began three months later in September.

The layers of overburden behind Kerr & Wallace's quarry face increased to over 40 feet in thickness which the PWD deemed would be too expensive to strip off. Instead it elected to work Angourie as a pit quarry. Two quarry pits were excavated, now known as the Blue and Green Pools.

The largest workings were at the Blue Pool, which was excavated down to a depth of 60 ft. It was worked to supply 160,000 tons of small stone for the construction of the Goodwood Island Training Wall. This wall was formed by men throwing stone overboard from punts and the stone had to be in sizes small enough for them to handle.

By contrast the shallower 17ft deep Green Pool excavation was worked to supply 10,000 tons of large stone blocks to repair and strengthen the South Breakwater. They were produced in the largest sizes the cranes could handle, typically around ten tons.

The PWD knew that Angourie Quarry had limited reserves of economically recoverable stone when it took over in early 1897. In May 1898 the unwelcome news broke at Angourie that the Department had selected a site for a replacement quarry on Woodford Island, 18 miles up the Clarence River near Maclean.[29]

The 60ft deep 'Blue Pool' at Angourie Quarry in 1899 (above) and in 2013 (below). It was excavated by the PWD and used to supply the small stone needed for the Goodwood Island training wall. *Photo: Rob Knight collection*

While preparations were being made to open up the Woodford Island site, stone production continued at Angourie until its closure in late December 1899.

The Goodwood Island training wall had not been finished when Angourie Quarry was closed, and the first three months production from Woodford Island Quarry was sent downriver to complete it. Some local oral history suggests that the PWD encountered increasing difficulties with groundwater inflow into its deep Blue Pool quarry pit which led to an earlier than planned closure of Angourie.

During January 1900 the plant and machinery at Angourie was dismantled and taken by rail to Freeburn Island wharf to be shipped up river to Woodford Island.[30] The house belonging to quarry manager James Ellis also went there and a number of quarry employees together with their families and furniture were similarly transferred. Angourie Public School was closed and the building sold to the Sisters of Mercy for their convent school at Yamba. The school teacher, Mr. Watson, was transferred to Ginni Ginni on the Manning River. A few weeks later Angourie was practically deserted.

The 1st Angourie Locomotive: Vale & Lacy 0-6-0T No 74 of 1875

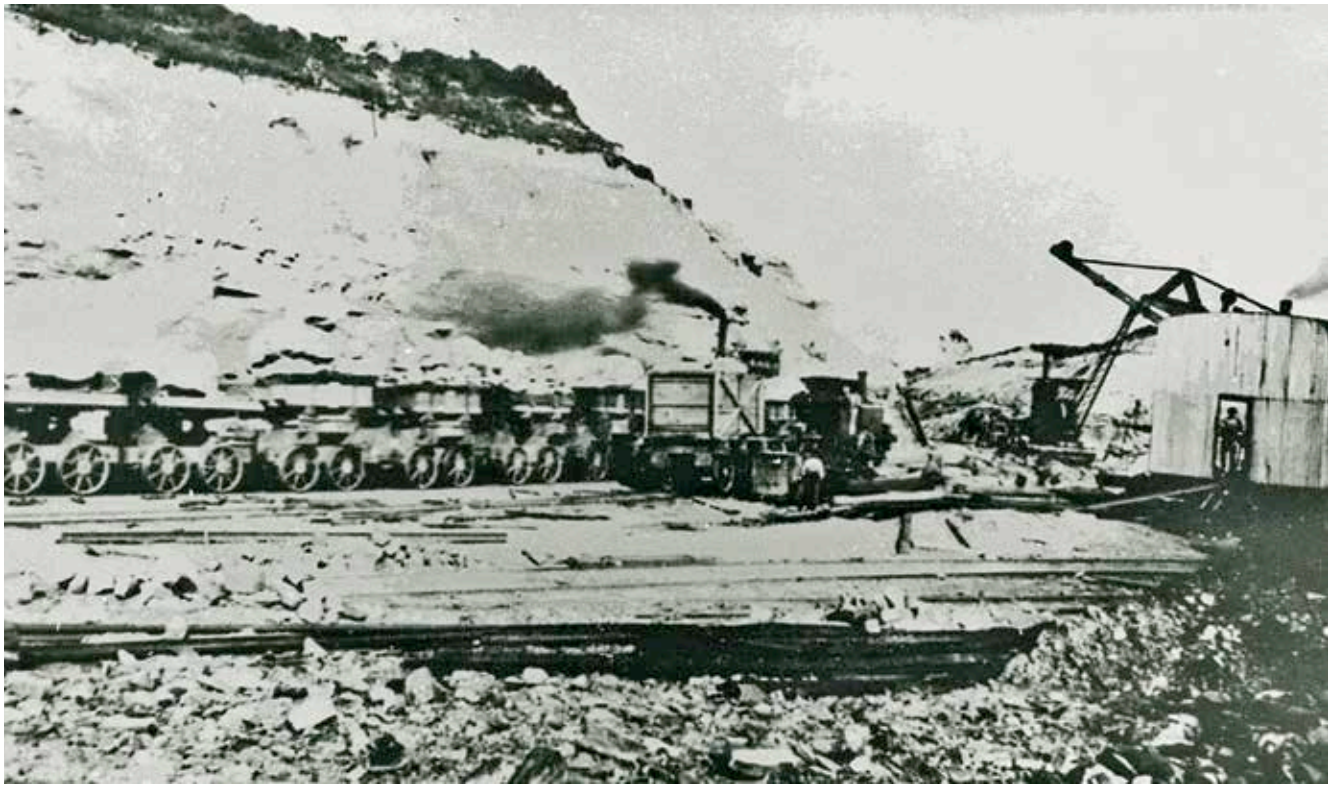
Kerr and Wallace was the successful contractor for the construction of the Freeburn Island training wall. To haul stone from Angourie Quarry to Freeburn Island it purchased a second-hand steam locomotive, Vale and Lacy (V&L) No 74 of 1875. It was one of a batch of four 0-6-0T steam tank locomotives built by the Sydney engineering firm of Vale and Lacy in 1875 to the order of the NSW Government Railways for suburban passenger work. Vale and Lacy did not assign them builder's numbers; they were known by their NSWGR road numbers, 71 – 74 and designated as the N67 class. They weighed 24.6 tons in service, had 13 in x 20 in inside cylinders, 48 in diameter driving wheels, and developed a tractive effort of 7400 lb at a maximum boiler pressure of 130 psi. With the introduction of more powerful suburban tank engines in the mid-1880's, the N67 class were demoted to shunting duties, some being converted to coal cranes and grabs in later years.[31]

V&L 74 entered service in August 1875. It was withdrawn from suburban service in 1887 and sent to Bathurst as a shunting engine. It was withdrawn from there in 1890 and sold on 9th February 1892 to railway contractors, Kerle and Kerle, who were working on Contract No 2 for the construction of the Lismore to Tweed Railway on the NSW North Coast.

When Kerle and Kerle began plate-laying its section in October 1892 it did not use V&L 74 for the task. Instead they purchased another N67 class locomotive (Mort & Co 15/1875, road No 67) in September 1892 and landed it at Lismore in October 1892.[32] They sold V&L 74 to Kerr and Wallace for use on the Clarence. The locomotive was dismantled and delivered to Darling Harbour for shipment in February 1893[33] and arrived at the Clarence next month. Its arrival was noted by the local newspaper: "*A large locomotive for the use of the contractors at the Clarence Harbor Works was landed at McLean a few days ago.*"[34]

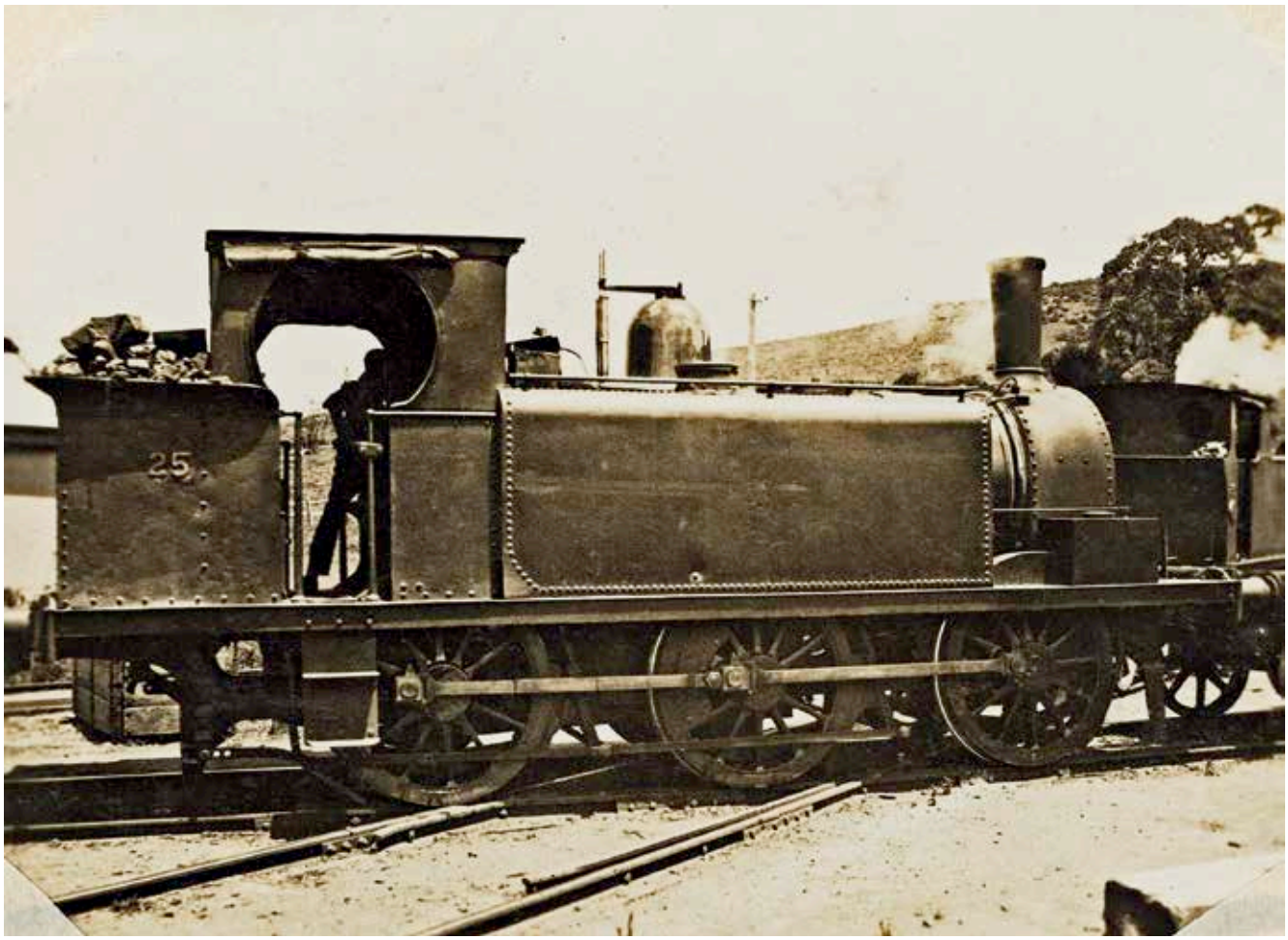
Kerr & Wallace completed its contract in November 1896, and the PWD took over to construct the remaining training walls by day labour. It acquired V&L 74 from Kerr & Wallace and shipped it to Cockatoo Dock in Sydney to be re-boilered. The locomotive was returned to Yamba in September 1897[35] to begin hauling stone from Angourie Quarry to the Freeburn Island stone wharf for the construction of the Goodwood Island training wall

V&L 74 remained at Yamba after the closure of Angourie Quarry in December 1899, probably in anticipation of approval being given to start work on the construction of Sir John Coode's breakwaters. This did not eventuate and all work at Clarence Heads finished up in August 1903 after the last of Sir John's training walls was completed. The PWD transferred the locomotive to Port Kembla Harbour Works in 1905 where it was employed to haul stone from Reid's Hill quarry to the breakwater construction site.



V&L 74 hauls a loaded stone train out of Angourie Quarry through the new entrance cutting excavated by the PWD in 1897. The Blue Pool quarry pit is off camera behind the crane on the right. *Photo: Richard Horne Collection*

The PWD transferred V&L 74 to Port Kembla in 1905 to haul stone from the newly-opened Reid's Hill Quarry to the Port Kembla breakwater works. In 1916 it was re-numbered as PWD No 25. ***Above:*** *JLN Southern photo per Richard Horne.* ***Below:*** *CC Singleton*



Prior to 1916, locomotives in PWD service were not numbered in any particular order, and were often just referred to by nick-names bestowed upon them by the running staff. In 1916 the PWD renumbered all its locomotives, with V&L 74 becoming PWD No 25. As PWD No 25, it soldiered on for another 35 years at Port Kembla before being withdrawn from service in July 1940 and scrapped in October 1940.

The 2nd Angourie Locomotive: 0-4-0ST '*Hercules*' or '*Ironbark*'

In 1895 Kerr and Wallace increased stone production at Angourie Quarry to nearly 3,000 tons a week, which was more than one locomotive could handle. Train loads on the quarry railway were limited by the 1:50 ruling grade against the load; trains ran during day-light hours only, and the return journey to the tip face on the advancing Freeburn Island training wall had increased to over 12 miles.

It acquired a second steam locomotive, an inside cylindered 0-4-0ST which went by the mighty name of *Hercules*,[36] to assist with the haulage task. Unfortunately nothing yet is known of its previous history, who built it, or who Kerr and Wallace acquired it from.

It was fitted with large hardwood brake blocks which earned it the name of '*Ironbark*' in later service at Port Kembla on account of the type of wood used. It had very long injectors which were 'layed parallel' and which were so loud it was said that they could be heard up to a quarter of a mile away when forcing water into the boiler.

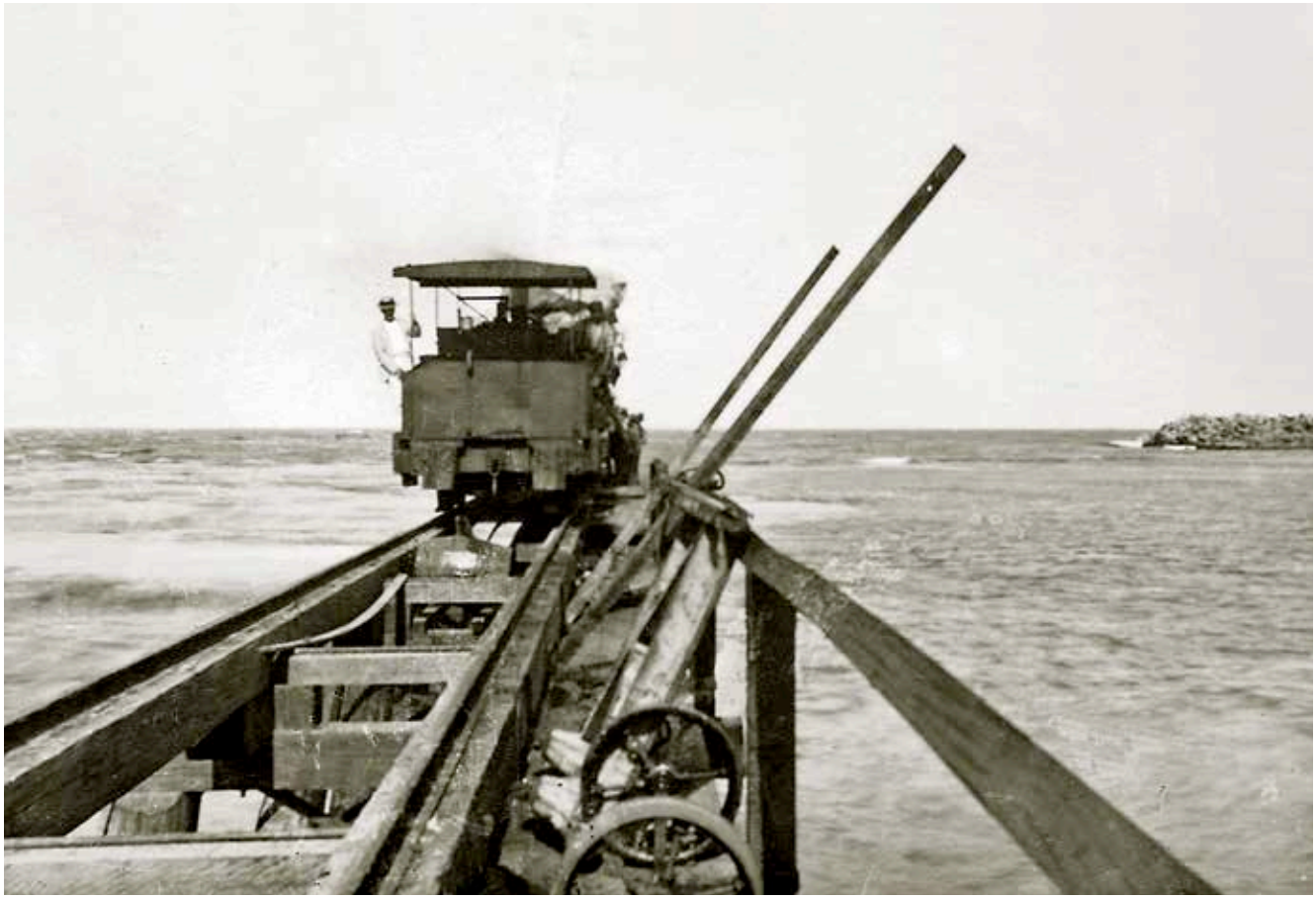
According to oral history passed down at Port Kembla there was too much weight on the back of the locomotive, which tended to lift the front wheels off the track and "*she was always hopping off the road*." Bogie wheels were fitted at the back to overcome this annoying habit, and the cab was also lengthened at the same time. Accounts differ as to whether this was done at Yamba or at Port Kembla.

The PWD acquired *Hercules* when it took over operations from Kerr and Wallace after it finished its contract in November 1896. It is doubtful if it saw much, if any, service under PWD ownership on the Angourie Quarry Railway. The task of hauling stone from Angourie Quarry to Freeburn Island stone wharf, where it was tipped into punts, was relatively light and well within the capabilities of one locomotive. V&L 74 was the logical choice as it had just been re-boilered, while *Hercules*' boiler was "very old and gave a lot of trouble with tubes". During *Hercules*' later short career at Port Kembla, its boiler was only permitted to carry 80lb of steam.

After the Angourie Railway ceased operations in December 1899, *Hercules* is believed to have been stored in the PWD Locomotive Shed at Yamba. When the second Port Kembla breakwater quarry at Reid's Hill was opened up in 1906, *Hercules* was transferred to Port Kembla to join the two other ex-Clarence locomotives, Manning Wardle (163/1865) *Iluka* and V&L 74, hauling stone to the breakwaters.

Hercules is thought to have been the locomotive for which the PWD invited tenders in July 1906 to convey from Yamba engine shed over the railway viaduct to Freeburn Island wharf and load onto a punt.[37]

It saw little use at Port Kembla due to its boiler problems and by 1909 it was out of service. The PWD stripped the injectors, valves and any brass or copper pipes of value off the locomotive before selling it to a scrap dealer named Styles in early 1916.



"Hercules" propels a loaded tip wagon to the end of the elevated timber stage down the centre of the Clarence River during construction of the Freeburn Island training wall c1896. The end of Moriarty's short south breakwater is seen in the right background.

Photo: Clarence Valley Historical Society

Quarry Railway Operations.

Period photographs indicate that locomotives worked funnel first between Angourie Quarry and Freeburn Island. There were no locomotive turning facilities on the line, and it is not known what, if any, engine run-round facilities were provided at each end. An incident recorded in April 1893, the first month of operation, indicated that empty stone trucks were propelled into Angourie Quarry. Empty trucks became uncoupled from the locomotive and ran away down the half-mile long 1:50 descent into the quarry:

> "An accident that might have been attended with much more serious consequences occurred at Yamba on Monday. Some empty trucks got uncoupled from the engine, and ran down the incline near the quarry, with great speed. Messrs Pegus, Purdue and a youth named Follow were in them. Mr. Pegus jumped out, and sustained little or no injury. Mr. Purdue had his face and head cut severely, and Follow had a severe scalp wound which had to be stitched. Only that young Follow noticed that the trucks had parted, the accident would have been more serious, as they would have been taken down to the quarry and dashed into the loaded trucks."[38]

There was a 400ft loop siding at the Government weighbridge half a mile south of Yamba, which may have been employed to cross trains when two locomotives were in operation during Kerr and Wallace's tenure.

Kerr and Wallace had a locomotive shed where presumably their engines were coaled, watered and maintained. Their railway staff included two locomotive drivers, two firemen, one shunter, one engine cleaner and a boy assistant. The shed is believed to have been situated near the Government weighbridge at the junction of the Freeburn Island line. The PWD removed it in 1897.[39]

Stone was the bread and butter commodity on the Angourie Railway and nearly 500,000 tons was carried during the railway's seven year life. There was a little back loading in the form of coal for locomotives and steam cranes. Every month or so, coastal steamers unloaded 100-ton cargoes of coal at Freeburn Island Wharf for this purpose.

From time to time the locomotives and trucks were used for other purposes. Both Alexander Kerr, and later the PWD's resident engineer Harold Blomfield were amenable to allowing them to be used to transport employees and their families to Yamba for concerts and community meetings. The locomotive was called on to transport injured quarry workers to Freeburn Island Wharf to go by boat upriver to Maclean Hospital. Some of the quarry workers' children used the railway as a sort of de-facto school train. When the District Inspector for Education visited Angourie in April 1895 he found:

> "… upwards of 20 children there who can attend no school, as Yamba is about four miles distant and although a few go irregularly on the Engine which hauls stone to the Harbour, the majority stay at home, and those that go are not free of danger."[40]

This unsatisfactory state of affairs strengthened the quarry workers' case for a school and led to the establishment of a Provisional School later that year.

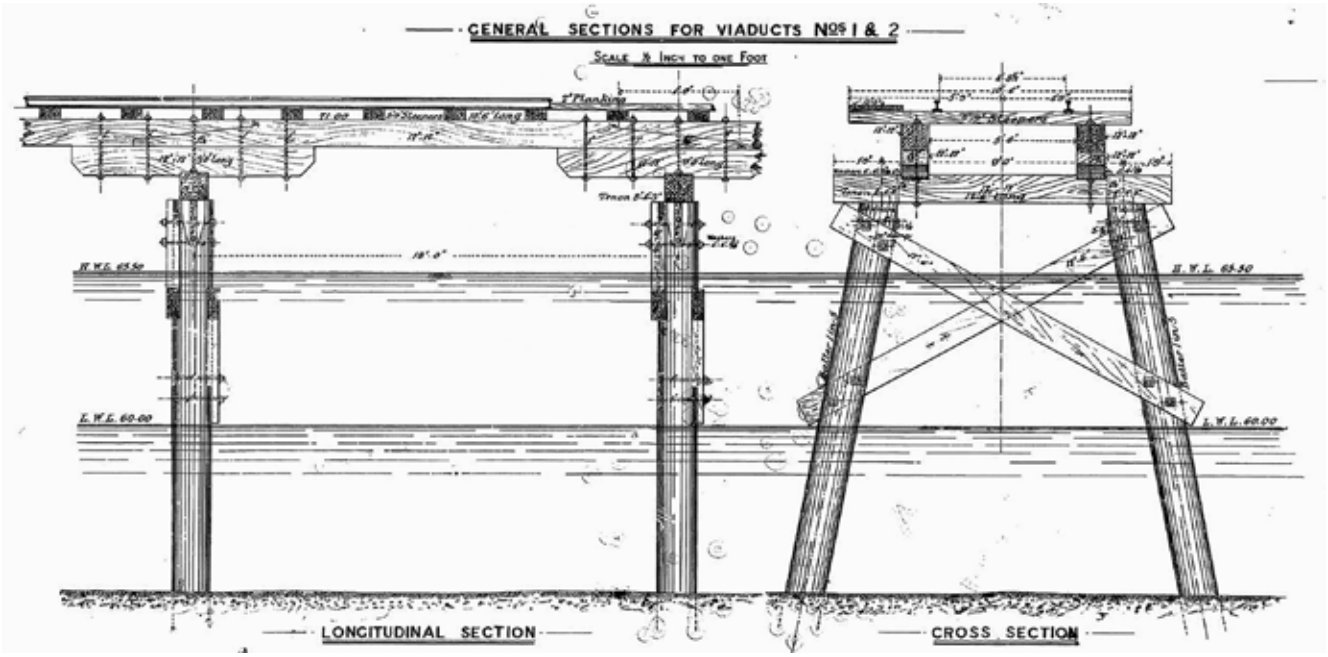
The Freeburn Island Training Wall

The first major contract let under the Clarence River Improvements Act of 1890 was for the construction of the Freeburn Island training wall. Tenders were invited in July 1892[41] and in December it was awarded to A Kerr and Co,[42] a partnership between Alexander Kerr and John Wallace.

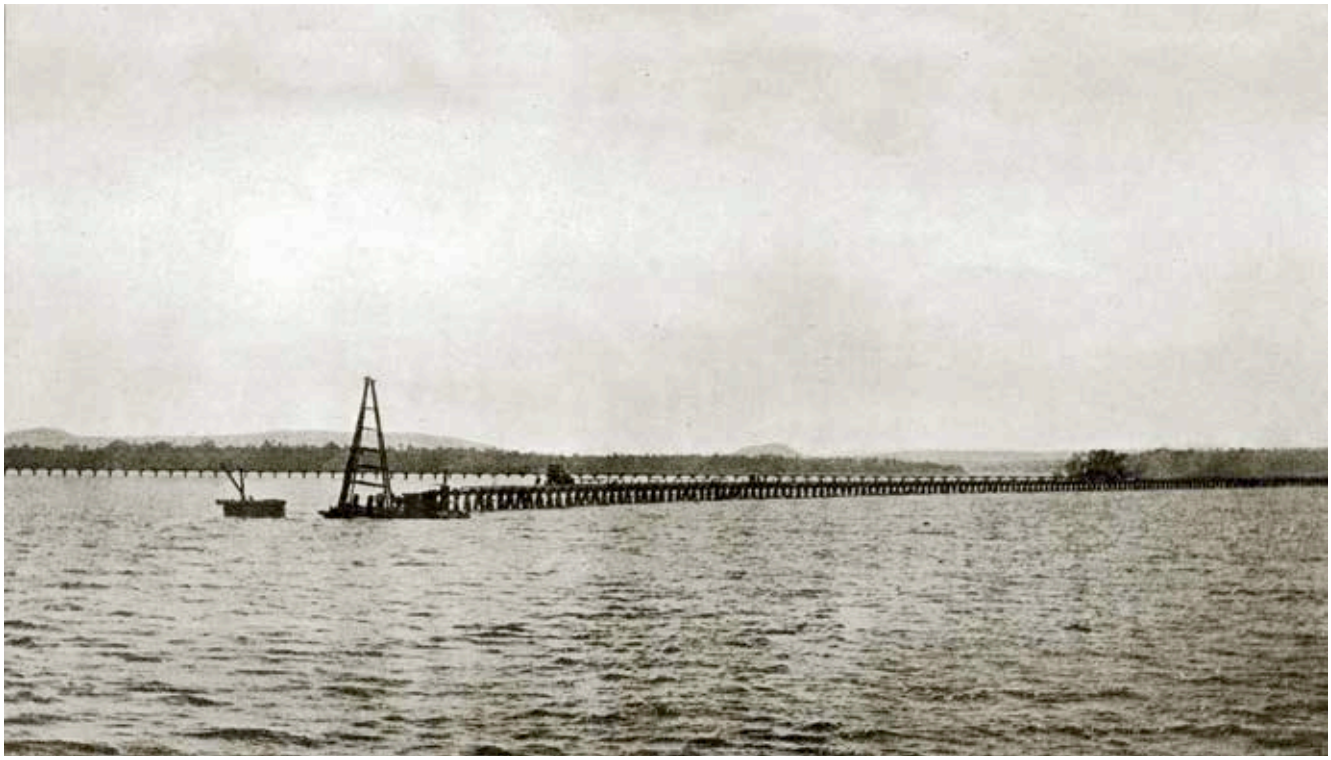
The Freeburn Island wall, also known as the Middle Wall, was the longest and arguably the most important of Sir John Coode's river training walls. It was a 12,200 ft long rubble stone wall which stretched in a long concave curve from the north bank of Freeburn Island, down the centre of the river, and terminated just short of the Black Buoy Reef at the river entrance.

The wall's primary purpose was to divert the main river current away from the southern Yamba shore and redirect it down the centre of the estuary. The re-directed current scoured out a navigable shipping channel along the inside curve of the wall. It was built as a low 'half-tide' wall, designed to be under water during high tides so that the scouring action would not become excessive and undermine the wall. Its low height also meant it would not impede the discharge of the huge volumes of floodwater that poured down the Clarence River from time to time.

Murray's contract to construct the Angourie Quarry Railway finished where his 3431 ft long timber viaduct terminated on the sand spit on the southern tip of Freeburn Island. Kerr began his contract by constructing a 500 ft long, 6 ft high rubble stone



Pile and girder detail for the 3431ft long railway viaduct between the mainland and Freeburn Island. *PWD Survey Plan 21692*



Timber staging carried the railway used to deliver stone for the construction of the Freeburn Island training wall. Kerr & Wallace's pile driver mounted on a pair of punts is seen at the end of the bridge. It was used to drive 50ft long turpentine piles into the river bed. The long railway viaduct from the mainland to Freeburn Island is visible in the background. Photo: PWD 1894 Annual Report

embankment from the curved end of the viaduct back to solid ground on Freeburn Island. The embankment was continued for another 2000 ft along the north shore of the island to form a protective bank. Construction was straight forward; loaded stone trucks arriving from Angourie Quarry were shunted along an advancing rail siding laid on top of the bank to discharge rubble at the tip face.

The 'Hollow-Stage' method was used to construct the 10,200 ft length of the primary wall down the centre of the river. A railway on top of the wall was not feasible as it would have been under water at high tide. Instead timber bridgework supported on turpentine piles sunk deep into the river bed carried the elevated line a few feet above high water level. In November 1893 Kerr invited tenders for 300 turpentine piles, 45 feet long, to be delivered at Freeburn Island.[43] The contract was won by Thomas Duncan & Son who sourced them from Coffs Harbour and Woolgoolga, and shipped them up to the Clarence. They were off-loaded onto log skids on the north side of Freeburn Island, a location still known today as 'The Skids'. Some were huge specimens over 50 feet long and weighing 2½ tons each.

Kerr employed a crew of 15 men to construct the bridgework; five carpenters, six labourers, one winch driver, one launch driver, one deck hand and a foreman. At first the turpentine piles were driven into the river bed by a steam pile driver mounted on a pair of punts, a process that worked well in the shallow protected waters near Freeburn Island. Further down the estuary the water deepened to over 30 feet where stronger currents and rough water precluded the use of punts. To cope with these conditions the pile driver was mounted on a large frame overhanging the end of the bridgework.

The work was not without incident. Part of the newly-constructed bridgework was swept away during a violent gale in June 1893. Kerr's pile-driver was swept from its moorings and rammed into the railway viaduct connecting the mainland to Freeburn Island. Both punts sank and the derrick toppled over onto the bridge.[44]

When the steamer *Karoola* was being towed out through the Heads in March 1895, her stern collided with the end of the bridgework. She lost her starboard mizzen rigging and a portion of her bulwarks. One of the bridge piles snapped, several others were knocked out of position, and part of the pile driving derrick was damaged. A half dozen workmen who were having lunch under the derrick, saw the impending collision and made a quick stampede back along the bridge to get out of harm's way.[45] On another occasion one of Kerr's punts loaded with timber sank on its way to the work site.

The timber staging was constructed up to 300 feet in advance of the tip face. Loaded stone trucks were propelled by Kerr's steam locomotives along the timber bridgework to the tip site where the stone was dropped down between the girders into the river. At first stone had to be broken into pieces small enough to be dropped down between the rails. Cecil Darley soon modified the construction method to allow stone also to be tipped off one side of the bridgework. This was a more flexible arrangement under which stone of any size could be used. It also had the effect of off-setting the wall partially to one side of the bridgework and evidence of this arrangement can still be seen today. The inclined tops of the northern-most line of turpentine piles project a few feet above the wall in many places. The southern-most line of piles was not protected by the stonework and has long since rotted away.

The first stone was tipped in April 1893.[46] Brisk progress was made constructing the Freeburn Island wall in shallow waters but slowed down as the water deepened. By the half-way point the river was 18 ft deep at high tide and considerably more stone had to be tipped for each foot of wall. The strong cross-current flowing out of Iluka Bay near the North Sand Spit impinged on the wall nearly at right angles and scoured out a depression some 50 ft deep. This caused considerable subsidence at the time of construction and required thousands of tons of additional stone to make good.

The last few piles for the timber bridgework were driven in September 1895. The final 50 ft length of stonework was raised above high tide level to make the end of the wall visible for shipping. Stone tipping continued until the end of 1896,[47] with the last few months' work consisting of topping up sections that had subsided and levelling the top of the wall.

Kerr's contract took three years to complete with over 330,000 tons of stone being tipped to construct the Freeburn Island training wall at a cost of £69,852. The PWD recorded in its 1897 annual report that: "*The result of this work has been very satisfactory, there being over 30 feet of water along a good portion of the wall, the bar carrying very seldom less than 12 feet at low water.*"

The Freeburn Island training wall however had some unwelcome side effects. River steamers coming down river from Grafton to Yamba now had to make a tight 180° turn in the narrow gap between the end of the wall and the Black Buoy reef. This was a difficult and risky manoeuvre in rough seas with a strong tide running.

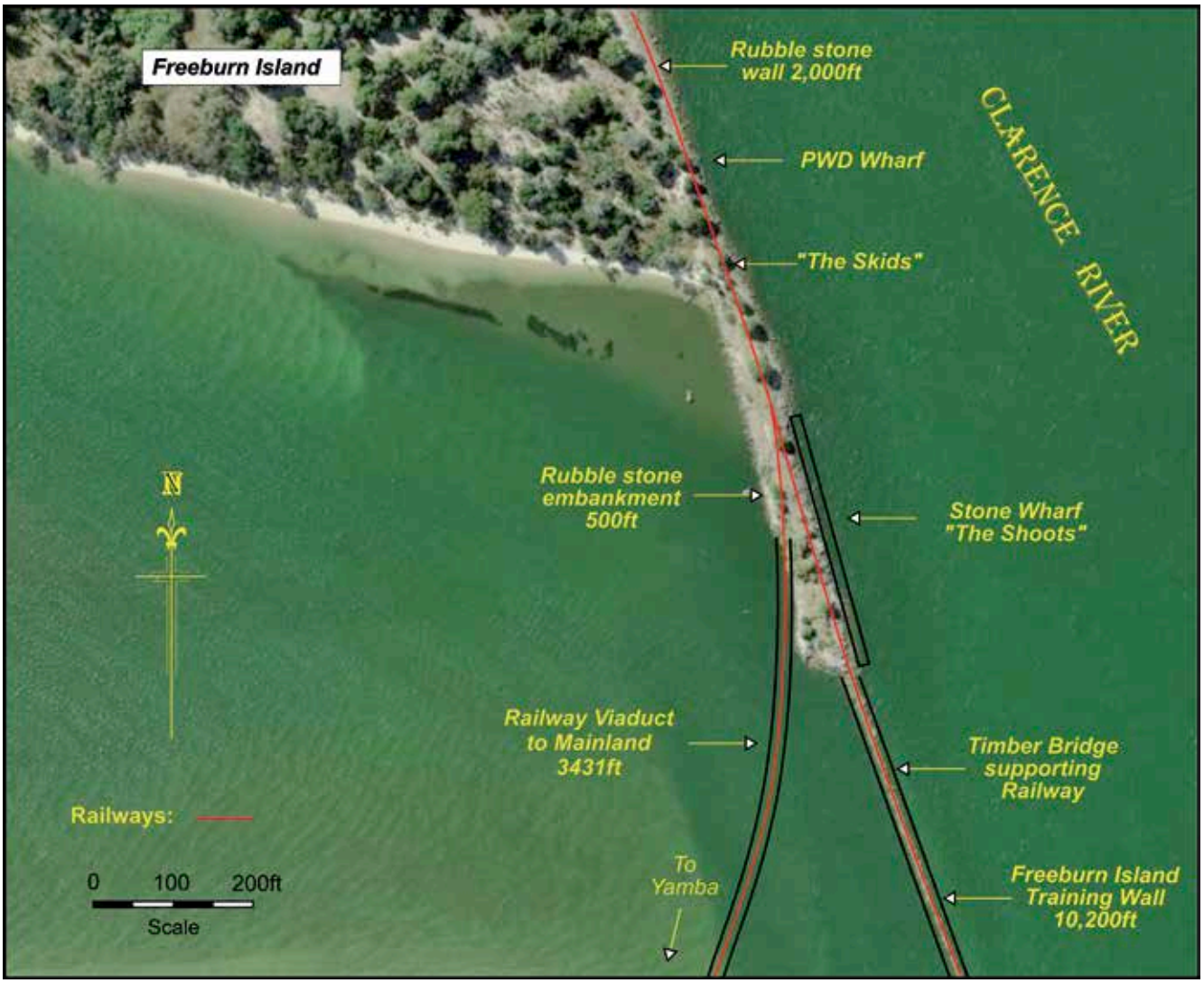
There was a more serious problem which might have been averted had Sir John Coode's breakwaters been built. The Freeburn Island training wall diverted the main river current away from Yamba Bay. Without its constant scouring effect, sand was driven in from the sea eventually leading to the formation of Hickey and Dart Islands. By 1908 the PWD dredges had given up the task of trying to keep the ocean channel open to Yamba Wharf. Instead the Yamba Back Channel south of Freeburn Island was dredged to allow the Grafton river steamers to get to Yamba. This required cutting a 36 ft wide gap through the 3,141 ft long railway viaduct between the south bank and Freeburn Island and the removal of several pile sets.

By 1908 two small openings had been made in the Freeburn Island training wall for small boats to pass through. The PWD would not allow these to be widened, nor the railway bridgework spanning them to be removed, to allow river steamers a more direct passage to Yamba. It considered this would be detrimental to the main river channel by permitting the escape of ebb tide waters which were a big factor in keeping the channel clear for navigation. In 1932 small boat owners were advised to be aware that part of the bridgework had fallen halfway across one of the openings and "*being under water, may be a danger to those unaware of its presence.*"

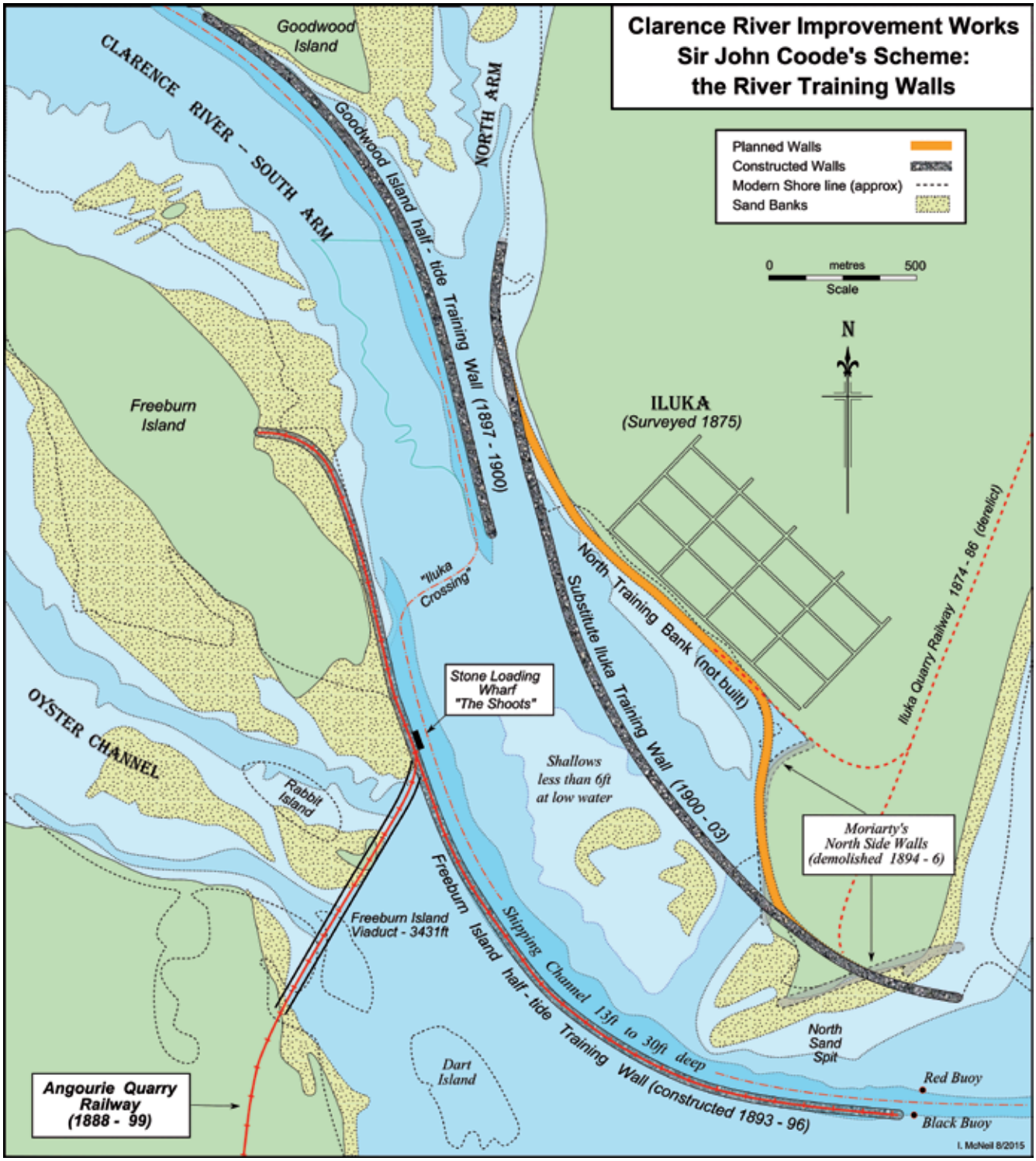
Both openings were eventually widened, probably post-WW2, with the southern opening nearest the ocean end of the wall now seeing regular use by the Iluka to Yamba ferry service and by Yamba-based fishing trawlers.

The Goodwood Island Training Wall

The second river training wall constructed under Sir John Coode's scheme was the 7,200 ft long Goodwood Island Wall. It was also a low half-tide wall and was situated on the north side of the Clarence River. It served the double purpose of causing the main stream of the South Arm to flow over towards the Freeburn



Construction of the Freeburn Island training wall started from the end of a 6ft high rubble stone embankment built on a wide sandbank that once flanked Freeburn Island. The long railway viaduct from the mainland also terminated on the embankment.



The Angourie Quarry Railway supplied stone to construct the Freeburn Island and Goodwood Island river training walls. Stone for the Iluka training wall came from Woodford Island Quarry, 18 miles upriver.

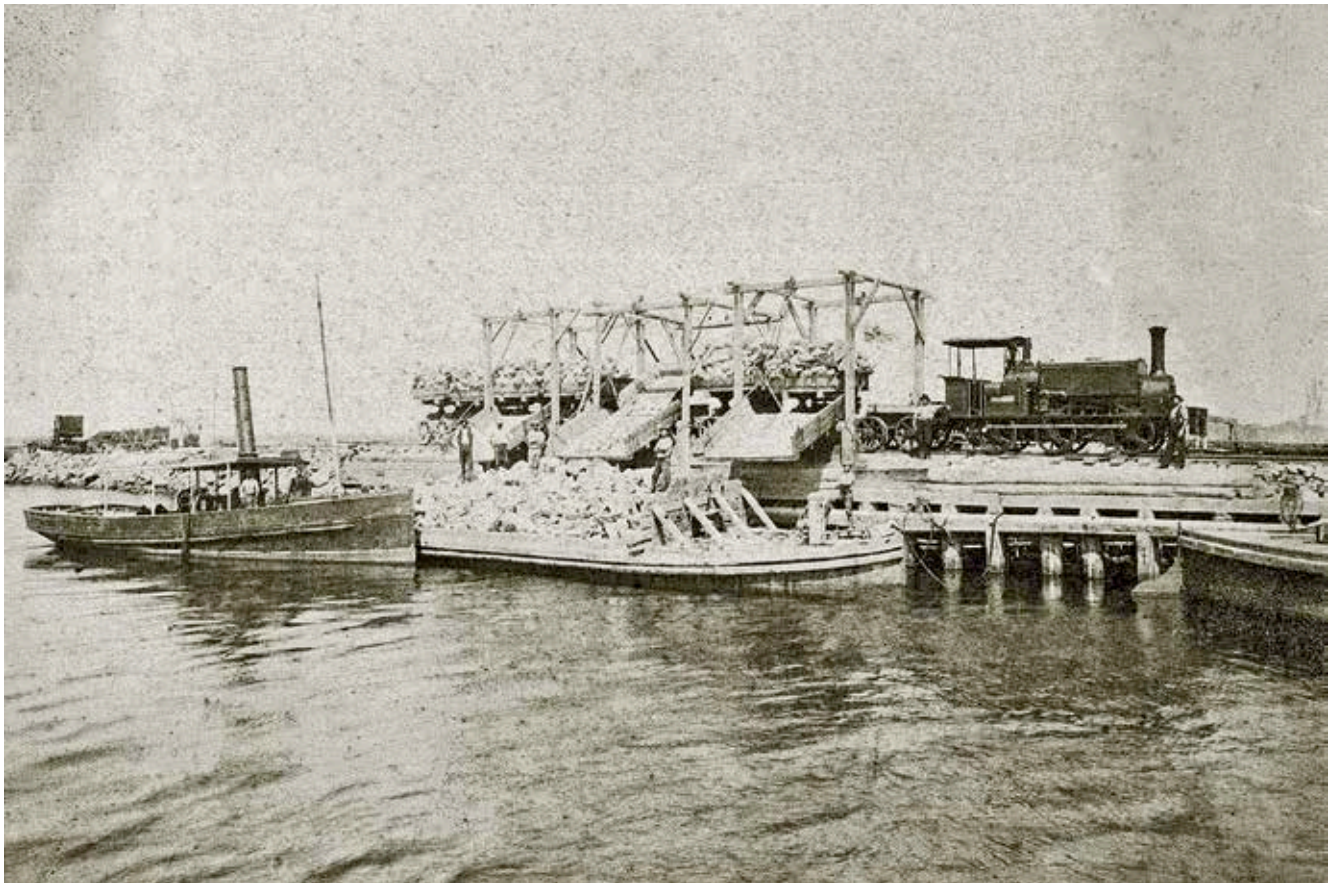
Island wall, and diverting the water from the North Arm to maintain a navigable depth in the channel in front of Iluka Wharf. It was a curved wall, like the Freeburn wall, and the river current scoured a deep channel for shipping beside its concave face.

The PWD opted to carry out the work by day labour instead of tendering it out to contract, as had been done for the Freeburn Island Training Wall. Engineer-in-Chief Cecily Darley explained the rationale behind the use of day labour to a Public Works Committee a few years later:[48]

"In many cases it is cheaper to carry these works out by day labour, and it is far more satisfactory. Where there is a settled piece of work, where you have no doubt as to any change being required, it is, perhaps, better to carry the work out by contract. But in many cases, there are unforeseen difficulties. It is especially the case in harbour works, and immediately you ask the contractor to do anything which is not in his contract he wants an excess price."

"You must have your hands free to meet unforeseen contingencies. In works of this kind you must be prepared to meet difficulties day by day. We get a good class of workmen; we pay the men well and we also pick them. If they do not do the work they can go."

"We employ absolutely competent and experienced foremen who know what a man is worth, and if they report that a certain man is not earning his wages we let him go.



Stone was transferred from tip wagons to punts at "The Shoots" stone wharf on Freeburn Island. A small tug towed them across the river during the construction of the Goodwood Island training wall. Unfortunately it is not known where this photo was taken or the identity of the locomotive shown, but it does demonstrate the method employed to handle stone. *Photo: Mosman Public Library*

An 1896 view taken from South Head showing Moriarty's South Breakwater (foreground), the bridgework of the partly-completed Freeburn Island Training Wall (centre) and the seaward end of the North Training Wall (background). Rail trucks used for stone transport and one of the quarry locomotives are stored on rail sidings in the old South Head Quarry. *Photo: Clarence Valley Historical Society*

There is no political influence at work, it is a question of doing the work or clearing out."

Construction started in September 1897[49] at the southern tip of Goodwood Island and extended downriver to bisect the flows of the North and South Arms of the Clarence River. Rail access was not considered feasible because the main shipping channel lay between Goodwood Island and the railhead on Freeburn Island. Instead the PWD shipped rubble stone across the river in punts. A stone loading wharf, known as "The Shoots", was built alongside the rail line on the raised embankment at the southern tip of Freeburn Island. Loaded stone trucks arriving from Angourie Quarry tipped their contents down wooden chutes into punts moored below.

To transport the stone, Kerr and Wallace's punts were overhauled and the PWD had two new 100-ton capacity wooden punts constructed. A small steam tug hauled the punts across the river to the tip site where the stone was laboriously thrown by hand into the water. Labourers wheeled stone in barrows to top off completed sections.

It took over two years to construct the Goodwood Island training wall with the last stone being tipped in early 1900.[50] Angourie Quarry gave out and was closed down at the end of 1899, and the balance of the stone needed to finish the job came from the newly-opened Woodford Island Quarry 17 miles upriver. In all, 171,800 tons of stone was used to build the wall.

The section of the river at the end of the Goodwood Island wall was known as the 'Iluka Crossing'. It was where river currents and tidal flows crossed from the Freeburn Island side of the channel to the Goodwood Island side. Sand borne in by incoming tides dropped out of suspension there, often rendering the crossing too shallow for shipping. Periodic visits by PWD dredges afforded only temporary relief and eventually the dredge Juno was permanently stationed on the Clarence in an attempt to keep the crossing navigable. This initiative cost the H&RB upwards of £ 5000 a year and was not a long-term economic solution to the problem.[51]

To get a better outcome the PWD decided to re-direct the flow of the North Arm, which had been blocked off by the Goodwood Wall, back into the main shipping channel. The extra flow, it was thought, would improve the scouring action of the current on the Iluka Crossing and keep it open for shipping.

Commencing in mid-1914, a 570 ft wide gap was cut in the Goodwood Island training wall to allow the waters from the North Arm to flow directly into the main channel.[52] Two grab dredges were employed to recover 8,600 tons of stone which was used to construct a short spur wall at the re-entry. The work was completed in August 1917, with the PWD commenting that "*already the diversion of the North Arm water on to the Iluka Crossing has effected considerable improvement at this entrance in the matter of dredging required*."[53]

Closure of the Angourie Quarry Railway.

The Angourie Quarry Railway ceased regular operations at the end of December 1899. Four locomotives remained at Yamba but none saw any subsequent service on breakwall construction. Ex-Iluka Quarry Railway Manning Wardle (163/1865) *Iluka* was sent to the Port Kembla harbour works in 1901. Kerr and Wallace's V&L 74 and *Hercules* followed in 1905 and 1906 respectively. The fourth locomotive was the failure-prone engine purchased by the PWD in 1874 for the Iluka Quarry Railway. It remained behind and lay abandoned beside Angourie Road for many years before being scrapped in 1938.

The railway remained intact until March 1901[54] when sections were pulled up to use in the construction of the Iluka Training Wall. By mid-1902, 324 pairs of 24 ft rails, about a mile and a half of line, plus a corresponding number of sleepers had been recovered and taken to Freeburn Island Wharf for this purpose.[55] The rest of the line to the quarry was pulled up post 1905.

The rails between Yamba and Freeburn Island were still substantially in place in 1905, by which time the shallowing of the Yamba Channel was causing increasing problems for the Grafton river steamers. It was suggested that passengers might be able to disembark instead at 'The Skids' wharf on the Freeburn Island wall, and be taken by rail to Yamba by a steam tram motor and tram car train. Steam motors were being displaced in increasing numbers as the Sydney tramway system electrified, and the proponent was sure that it would not be a difficult matter to obtain sufficient for the task.[56] Needless to say, this did not happen.

Two years later the only known fatality occurred on the railway. Nineteen-year old Joseph Carr was poling a trolley over the long viaduct to Freeburn Island to salvage bridge timber for the rebuilding of the approach to Yamba public wharf. He was travelling at a fast pace when the pole got caught on something and catapulted him 30 ft ahead of the trolley. Doctor Fordyce ordered him taken to Maclean Hospital aboard the *Lady Beatrice*, but he died of his injuries two days later.[57]

Rail access to Freeburn Island was cut in October 1908. Two of the viaduct's pile sets were removed to create a 36 ft opening for the dredge *Minos* to open the Yamba Back Channel as an alternative route for the Grafton river steamers.[58] The viaduct itself survived until the big floods of the late 1940s and early 1950s swept away the last remnants.

In 1919 Harwood Council obtained a Government grant of £200 to construct Angourie Road from Yamba to the newly-proclaimed Angourie village. The road was built on top of the railway formation, and the Council spent £20 of its grant to remove old sleepers from the roadway.[59]

Extant Remains.

Significant reminders of the Angourie Quarry Railway can still be seen in many places today. The old sea-front quarry at Angourie is a popular tourist attraction, especially the Blue Pool into which young dare-devils like to jump from the top of the quarry face. Spookies Beach Walk winds through the new railway cutting that the PWD excavated in 1897 to access the quarry. Rusted rails lay partly submerged in the quarried-out rock platform and a raised band of rock curving across the platform marks the route of the first quarry entry siding.

A shallow, overgrown cutting marks the location where the line originally entered the quarry, and another can be found behind the hill at Green Point. Most of Angourie Road was built on top of the rail formation, and the sweeping curve marked out by Deering Street, Cox Street and Shores Drive parallels the line to Freeburn Island. A few pile stumps embedded in the sand and mangroves off the end of Shores Drive are remnants of the long timber viaduct to Freeburn Island. On the island itself, rusted rails and broken wheels lay scattered on the stone embankment at its southern tip.

The two-mile long Freeburn Island training wall curving down the centre of the river is perhaps the most visible reminder of railway. Inclined wooden stumps sticking up at intervals along the partly-submerged wall are the tops of 50 ft turpentine piles driven deep into the river bed to support the railway bridgework. And local boat owners report that at dead low tide, lengths of rail can be seen in shallow places beside the wall.

Above: *The 2-mile long straight section of the Angourie Quarry Railway heading south towards Angourie Quarry. The line coming in from the right goes to Freeburn Island. Photo: Clarence Valley Historical Society*
Left *The same location in 2015. Angourie Road was built on top of the railway formation. Photo: Warrwick Hoad*
Below: *Slumped remnants of the training wall construction railway lie on the western side of the Freeburn Island rubble-stone embankment. Photo: Warrwick Hoad*
Above right (page 23): *The end of the 500ft-long rubble stone embankment projecting from the southern tip of Freeburn Island and the start of the 2-mile long training wall running down the centre of the river. The timber pile stubs at water level mark the end of the long timber railway viaduct from the mainland. Photo: Warrwick Hoad*

Postscript.

Following the completion of the Goodwood Island training wall in early 1901, the PWD began the construction of the Iluka Training Wall, the last of Sir John Coode's river training walls. It was a substantial structure that protected the Iluka shoreline and formed the northern boundary of the main river channel. The history of this wall, Woodford Island Quarry that supplied the stone for it, and the railways used to construct it will appear in Part 4 of this series, in a future issue of *Light Railways*.

Acknowledgements.

The substantial assistance afforded by Rob Knight (Port of Yamba Historical Society), Jon Henry (Iluka History Group), Warrwick Hoad (Angourie), and Margaret Switzer (Maclean District Historical Society) is gratefully acknowledged. My thanks go also to LRRSA members John Browning, Richard Horne, Bruce Macdonald and Stuart Thyer for their assistance in compiling the locomotive history of the railway.

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The rock platform fronting Angourie Quarry. The rock causeway in the foreground, curving towards the tree cover on the right, supported the railway connection from the northern quarry entrance. Stone was quarried out down to sea level on both sides of the line. Photo: Ian McNeil

The formation of the Angourie Quarry Railway between Cox Street and Yamba Road, Yamba. The line at this point was laid on a low embankment across flat sandy marshy terrain, and continued for one kilometre to the river bank at the end of Shores Drive. Photo: Ian McNeil

The steep quarry-face behind the 17ft deep Green Pool at the southern end of Angourie Quarry. It was excavated by the PWD and used for the supply of large stone blocks, weighing up to 10 tons each, to repair and strengthen the South Breakwater. *Photo: Ian McNeil*

The 10,200ft Freeburn Island training wall runs down the centre of the Clarence River. The inclined tops of some of the turpentine piles that once carried the construction railway can still be seen in many places. *Photo: Ian McNeil*

Industrial Railway NEWS

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Special thanks to contributors to the *Sugar Cane Trains/Navvy Pics 2ft* Facebook page.

QUEENSLAND

DOWNER EDI, Maryborough
(see LR 249 p.25)
1067 mm gauge
The LDP class locomotives in stock are rumored to have been sold. One of these had been used for shunting round the plant in preference to the official on site shunting loco, Walkers B-B DH DH73 *Hugh Boge* (718 of 1974).
Luke Horniblow 2/17

W.HECK & SONS PTY LTD, Rocky Point Mill, Woongoolba
(see LR 161 p.21)
610 mm gauge
This mill which used to have an internal rail system, may close within the next ten years if the farmers who supply the cane decide to sell their land to Songcheng, a Chinese company which wants to build a new city between Brisbane and the Gold Coast. Songchen may also acquire the mill and keep it operating during the transition period from cane farming to urban development.
ABC Rural 13/4/2017

ISIS CENTRAL SUGAR MILL CO LTD
(see LR 253 p.25)
610 mm gauge
Construction of a new line towards Booyal along the old Queensland Railways right of way is expected to start later this year and vegetation clearance has already commenced. Initially, the line will be constructed to a truck pad site south of Booyal. Construction materials have been accumulating at the mill.
Brian Bouchardt 4/17

MACKAY SUGAR LTD, Mackay mills
(see LR 253 p.25)
610 mm gauge
Mackay Sugar's rail system suffered substantial washouts due to torrential rain and flooding associated with Cyclone Debbie in late March. To help with repairs, EM Baldwin B-B DH *Charlton* (9562.1 6.81 of 1981) was expected to be put to work with the navvies, hauling a third ballast train after the Easter break. The Queensland Railways diamond crossing at Calen North on Farleigh Mill's Barron branch was noted in March to have been removed. Apparently, this is done every slack season to suit QR's needs and it is put back in place for each crushing season. Com-Eng 0-6-0DH *Eton* (FB3170 of 1963) was seen with the rail train at Leap 2 on the Farleigh system on 11 April. EM Baldwin B-B DH *Balmoral* (10684.1 4.83 of 1983) paired with Gemco 4w+4w brakewagon BV2 (CV001-WR20911-85 of 1985) were in use moving bins round the system for the Pleystowe bin shop from the start of March.
Arthur Shale 3/17; Andrew Matt 3/17; Mitch Zunker 2/17, 4/17

MACKAY SUGAR LTD, Mossman Mill
(see LR 252 p.25)
610 mm gauge
During April, this mill was put up for sale by the embattled owner, Mackay Sugar.
ABC News 13/4/2017

MSF SUGAR LTD, Mulgrave Mill
(see LR 254 p.30)
610 mm gauge
Fowler 0-4-2 *Nelson* (20273 of 1934) has been sold to the Bally Hooley Steam Railway at Port Douglas and was transported there on 11 April. NQEA 6 wheeled brakewagon 2 (built in 1972) has been adapted for use as a track recording vehicle and has been fitted with an adjustable bogie for this purpose. An agricultural tractor with a spray rig was being used for herbicide spraying of track in the Brinsmead area of Cairns on 19 April. Mulgrave is said to be getting twenty

Top: *Mackay Sugar's Com-Eng 0-6-0DH* Eton *(FB3170 of 1963) stowed with a rail train in Leap 2 siding on 10 April. Photo: Mitch Zunker* ***Above:*** *A long washout on the Mackay Sugar rail system on 3 April. Photo: Mitch Zunker*

Top: *Mackay Sugar's Clyde 0-6-0DH* Palmyra *(63-273 of 1963) and Walkers B-B DH* Cedars *(693 of 1972 rebuilt Walkers 1997) at Racecourse Mill on 21 March. Photo: Mitch Zunker* ***Centre:*** *Fowler 0-4-2* Nelson *(20273 of 1934) ready to be lifted onto a semi-trailer at Mulgrave Mill on 11 April. Photo: Chris Stephens* ***Above:*** *EM Baldwin B-B DH 24 (5477.1 8.74 of 1974) on shop bogies at South Johnstone Mill on 19 February. Photo: Luke Horniblow*

of the new 6 tonne bins being manufactured by Bradken at Boogan this year. These new bins will be paired up as units with link and pin couplers at the outer ends and Bradken design Willison couplers at the inner ends. Eventually, when the rest of the mill's fleet of bins is converted to the Bradken Willisons, these bins will be reversed so the link and pins couplers are at the inner ends of each unit.

Andrew Sues 3/17; John Charleton 4/17; Chris Stevens 4/17

MSF SUGAR LTD, South Johnstone Mill

(see LR 254 p.30)

610mm gauge

The Plasser Australia KMX-12T tamping machine (249 of 1982) has been scrapped at some time since 2011. By 26 March, the external face lift and recabbing of navvy loco, Com-Eng 0-6-0DM 27 (AI57111 of 1975) was complete and just waiting on some electrical work. The body has been painted yellow all over but green uppers may be added to comply with the MSF livery. Com-Eng 0-6-0DH locomotives 38 (AH4695 of 1965) and 39 (AH4688 of 1965) are being rebuilt this slack season. The new bins being manufactured by Bradken will be paired up as units with link and pin couplers at the outer ends and Bradken design Willison couplers at the inner ends. Eventually, when the rest of the mill's fleet of bins is converted to the Bradken Willisons, these bins will be reversed so the link and pins couplers are at the inner ends of each unit.

Luke Horniblow 2/17, 4/17; Bill Horton 3/17, 4/17; Andrew Sues 3/17

SUGAR TERMINALS LTD, Lucinda

(see LR 254 p.31)

610 mm gauge

By the end of March, Com-Eng 0-6-0DH (G1023 of 1958) which is being refurbised at L&W Repairs in Ingham had obviously been completely pulled

down and was part way through reassembly. The frames have been painted black as before but the headstocks now have red and white stripes instead of the yellow and black ones it had carried for many years. The new Mercedes Benz motor and Allison transmission were sitting nearby. Some track work has been done at the Lucinda bulk sugar terminal by the Wilmar Herbert River Mill's navvies this slack season.
Luke Horniblow 3/17; 4/17

TULLY SUGAR LTD
(see LR 254 p.31)
610 mm gauge
Com-Eng 0-6-0DH *Tully-18* (AO60113 of 1977) was seen with the herbicide sprayer at Davidson Road and the Murray truck dump on 5 March.
Luke Horniblow 3/17

WILMAR SUGAR (HERBERT) PTY LTD, Herbert River Mills
(see LR 254 p.31)
610 mm gauge
Macknade Mill's EM Baldwin B-B DH 19 (7070.3 4.77 of 1977) is being fitted with new bogies this slack season with the bogie frames and sand boxes being manufactured by Bradken at Boogan. These arrived at the mill on 17 March and are painted silver. By mid April, one hundred and fifty-one of the three hundred new 11 tonne bogie bins had been assembled at Macknade Mill. The Herbert navvies did some track work for the Lucinda bulk sugar terminal this slack season and seen there on 6 April were the Plasser Australia KMX-12T tamping machine (445 of 1998) and EM Baldwin B-B DH 20 (7070.4 4.77 of 1977) on a rake of ballast hopppers with the plough built on the frame of MR Simplex 10381 of 1953 at the end. Up until April, the above gear plus EM Baldwin B-B DH *Darwin* (6171.1 9.75 of 1975) and Clyde 0-6-0DH 11 (65-383 of 1965) have been seen on navvy duties on the line to Lucinda, the Bambaroo line, the line through Ingham and the Forrest Home line.
Editor 3/17, 4/17; Luke Horniblow 4/17

WILMAR SUGAR (KALAMIA) PTY LTD, Kalamia Mill
(see LR 253 p.27)
610 mm gauge
Com-Eng 0-6-0DH *Delta* (FD5094 of 1965) is being fitted with a new Mercedes Benz motor and Allison transmission this slack season.
Cameron Cislowski 4/17

WILMAR SUGAR PTY LTD, Pioneer Mill, Brandon
(see LR 253 p.28)
1067 mm gauge
Walkers B-B DH 5803 (682 of 1972) sees occasional use shunting in the full yard. It is not popular with crews owing to poor forward visibility due to the front mounted radiator and the fan blowing hot air towards the front of the cab.
Lee Edwards 3/17; Lee Fabbro 3/17

WILMAR SUGAR (PLANE CREEK) PTY LTD, Plane Creek Mill, Sarina
(see LR 253 p.28)
610 mm gauge
The rail system here suffered flood damage in the Rocky Dam Creek area following Cyclone Debbie in late March.
Kevin Borg 4/17

NEW SOUTH WALES

BLUESCOPE STEEL, Port Kembla Steelworks
(see LR 245 p.22)
1435 mm gauge
The rail operator here is Pacific National. Seen working at Cringila on 15 April were National Railway Equipment Bo-Bo DE locomotives PB1 (209-PB1 of 2014), PB3 (209-PB3 of 2014) and PB5 (209-PB5 of 2014). The fleet of locos that the NRE units have replaced, all now seem to be destined for scrap. During the week ending 15 April, English Electric Bo-Bo DE locomotives D30, (A-083 of 1964) and D33 (A-089 of 1964) and General Electric Bo-Bo DE locomotives D39 (A-240 of 1972), D41 (A-269 of 1974), D43 (A-271 of 1974) and D44 (A-272 of 1975) were hauled out of the works by one of the PB class locos and into the Cringila exchange sidings. By the end of the week, D39 had been moved to another siding where it will be scrapped. In due course, the others are expected to follow. Other out of use Bo-Bo DE locos seen on 15 April were Com-Eng D6 (8-1951 of 1951), English Electric Australia D16 (A-030 of 1959), D24 (A-037 of 1960), D31 (A-084 of 1964) and D32 (A-088 of 1964) at Brickyard while at Steelhaven were English Electric Australia D19 (A-033 of 1960) and General Electric Australia D45 (A-273 of 1975). Of these, D24 was in a partially cut up state and looks to have been that way for some time.
Brad Peadon 4/17; Bradly Coulter 4/17; Ben Koperberg 4/17

UNITED GONINAN LTD, Broadmeadow
(see LR 231 p.21)
1435 mm gauge
A Trackmobile Hercules road/rail shunt loco was seen at work here on 13 April.
Scott Sashmo 4/17

Top: *Macknade Mill's EM Baldwin B-B DH 20 (7070.4 4.77 of 1977) with a ballast train parked at Spinas siding along the 4 Mile Road on 13 March. Photo: Luke Horniblow* ***Above:*** *EM Baldwin B-B DH locomotives 20 (7070.4 4.77 of 1977) and* Darwin *(6171.1 9.75 of 1975) on slack season navvy duties are seen parked south of Tobanna on Victoria Mill's Bambaroo line on 5 March. The plough is a conversion from a 6 ton MR Simplex 4wDM (10381 of 1953). Photo: Luke Horniblow*

OVERSEAS

FIJI SUGAR CORPORATION

(see LR 254 p.33)

610 mm gauge

On 27 March, it was announced that Fiji Sugar has decided to permanently close Penang Mill and all the cane will go to Rarawai Mill at Ba. The cost of reinstating factory operations and declining tonnages were cited as reasons for the closure. Early in April, it was reported that Fiji Sugar was asking for tenders to revitalise its 700 kilometre rail network. A cane farmer from the Nadi area has asked for rail cane bins to be manufactured for the coming crushing season and says that farmers who use mechanical harvesters to cut their cane are keen to use the rail system for transport as it is cheaper for them than road transport. New Chief Executive Officer Graham Clark says that bins could be introduced by the end of this year's crushing season. CEO Clark took up his role at the end of February. FSC hopes to identify the site for a new mill by mid year and this mill will be better placed and equipped than current facilities. All mills are expected to be ready to start crushing by the beginning of June.

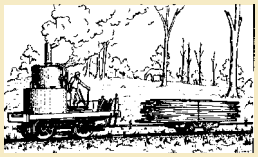
Following is a pertinent announcement from CEO Clark quoted from the *Fiji Sun* online.

FSC recognises the importance the rail system had in the delivery of cane here in Fiji.

The company accepted this is something that needed to be addressed very quickly, and an early review said the rail system was badly run down and in need of an upgrade. FSC is actively working with its partners to address the rail facilities with a view to refurbishing and upgrading where necessary. There was a need to boost the number of locomotives the company already had and also an increase in the number of rail trucks. He said FSC also wanted to introduce caged bins into the rail system and this would for the transporting of mechanically-harvested cane. He said this would bring together Government's assistance in acquiring new harvesters for growers.

Fiji Sun online 16/3/2017; *The Fiji Times* Online 3/3/2017, 27/3/2017, 8/4/2017, 10/4/2017

Top: *EM Baldwin 0-6-0DH* Hobart *(4413.1 7.72 of 1972) on slack season shunting duties at the Macknade Mill truckshop on 20 April. Photo: Christopher Hart* ***Above:*** *Pacific National's NRE Bo-Bo DE PB1 (209-PB1 of 2014) at Cringila on the Port Kembla steelworks system on 15 April. Photo: Bradley Coulter*



LRRSA NEWS

MEETINGS

ADELAIDE: "History of light railways in SA"

A sketchy history of light railways in South Australia. News of light rail matters will be welcome from any member.

Intending participants would be well advised to contact Les Howard on 8278 3082 or by email lfhoward@tpg.com.au, since accommodation is limited.

Location:
1 Kindergarten Drive, Hawthorndene.
Date: Thursday 1 June 2017 at 7.30 pm

BRISBANE: "Early Indonesian light railways"

Ross Sadler will present on early Indonesian rail and the Luttermollers working under their own steam.

Location: BCC Library, 107 Orange Grove Road, Coopers Plains.
Date: Friday 16 June 2017 at 7:30pm

MELBOURNE: "Balkans railways"

Peter Evans will describe some railway aspects of his recent visit to the Balkans with emphasis on the world-class railway museum at Ljubljana in Slovenia.

Location: Ashburton Uniting Church Hall, Ashburn Grove, Ashburton.
Date: Thursday 8 June 2017 at 8:00 pm

SYDNEY: "AGM and Sydney industrial tramways"

June is the month for the AGM, which as usual will not take up too much of the member's time. Over many years Sydney's suburban area was a host to many industrial tramways, serving a variety of industrial undertakings, quarries etc. A photographic presentation will explore and examine these long forgotten tramway systems.

Location: Woodstock Community Centre, Church Street, Burwood. Free Council car park behind building (entry via Fitzroy Street) or close-by street parking. Only 10 minutes easy walk from Burwood railway station.
Date: Wednesday, 28 June 2017 at 7:30pm

LETTERS

Please send letters to:
Editor: Richard Warwick
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e-mail: editor@lrrsa.org.au

Object found on timber tramway

This object was found on a timber tramway in the Narbethong area, and subsequently served as a paperweight and doorstop for the next 60-odd years.

It is a copper-based alloy in the shape of a 3 inch hollow cube, with one face open and a deep round-bottom channel on the opposite face. The inner surface retains the original sand-cast texture. The right-front and left-back faces (as viewed in the image) have been made smooth and parallel, with some of the original planing-machine markings still visible.

The left-front and right-back faces are flat, but not smooth – for example, the bulge remaining after the removal of the casting runner is apparent. The sides parallel to the channel are scooped out at the top, with traces of having been filed to match a cylinder of about 3½ inch diameter, and with the outer edges chamfered. The bottom is flat, apart from the central channel, and bears the impression of hammer-blows. There are no obvious sign of wear.

Can any reader offer any ideas as to what it is?

Ian Cutter
via email

Silvan Dam Construction (Victoria)

I was a 1949 baby boomer, the first of four boys. We grew up in South Melbourne, regarded as industrial slum. Whenever possible, we headed to greenery: bicycling to Station Pier, Albert Park, and Botanic Gardens and nearer bayside beaches. This gave me the experience of seeing the remnants of the South Melbourne gasworks tramway.

We also visited my grandparents in Nar Nar Goon, by train, for a weekend in the country. We obtained a Fiat 500 station wagon in 1951, and the adventures were further afield: most tourist spots within 60 km of Melbourne. These took me to Lakeside before the first closure. I have vivid memories of watching a train pass while we picnicked. Trips to the Dandenongs gave me a ride on Fox's Point funicular (early 1950s, or late 1950s?), and a picnic at Silvan Dam on Thursday 20 April 1954). I have no memories of this day, except through the only two photos taken (or surviving).

This mysterious object came from a timber tramway in the Narbethong area of Central Victoria, and Ian Cutter wonders if any readers may know what its function was. *Photo: Ian Cutter*

Perry 0-4-0T locomotive at Silvan Dam after construction was completed. *Photo: Roderick Smith*

Sewell side tipping trucks at Silvan Dam after construction was completed. *Photo: Roderick Smith*

I will have to rely on the editor to find some notes on the equipment shown, and for how long it had been out of use, and where it went after disposal. The people in the cab are my mother (now 92, and the main reason for scanning), me (aged 4), and my younger brother (aged 2).

So many photos which have come to LRRSA have been taken in similar circumstances: people on a picnic or hike; the railway was simply a backdrop, but how grateful we are today that those scenes were recorded for posterity then. It was only such social occasions which justified the use of scarce and expensive film.

From those early experiences, my parents clipped coupons from the '*Sun*' for a week so that the two sons could ride the first of the '*Young Sun*' Puffing Billy farewell tours, at the end of 1954. No adults were allowed aboard.

Now 5, I supervised my 3 year old brother. There were many more similar railway experiences through the 1950s.

Roderick B Smith
via email

Editor's note:
Mike McCarthy has advised as follows - Silvan dam was constructed between 1927 and 1932. An extensive 3 ft 6 in gauge tramway network supported the clearing of the site, movement of soil and quarrying of stone. Nine Perry locomotives were used. Four were sold to the SECV in 1942 and the remainder sat on site at Silvan until scrapped in the 1950s. There were a number of Sewell side tipping trucks also stored with the locomotives into the 1950s.

MM 1091 at Alexandra. Photo: Peter Evans

Last Train from Gellibrand (LR 254)

I would like to make one small correction to Phil Rickard's otherwise excellent article on the dismantling of the Beech Forest line. The Malcolm Moore that went to Rubicon was of course 1091, now in use at the Alexandra Timber Tramway, still fitted with the snow plough it used at Rubicon, and still bearing its State Electricity Commission paintwork.

Peter Evans
via email

Last Train from Gellibrand (LR 254)

I have attached a photo taken of the Beech Forest line in January 1965 showing the dismantling. It was taken during the family summer holidays to the Western District when we stopped at Beech Forest and at Colac.

Looking at the photos in LR 254, the back of the Malcolm Moore locomotive seems to have part of an auto coupler in place. Was the contractor intending to use NQR wagons before building its own rail trolley?

Greg Goold
Morwell, Victoria

Tramways of the Moreton Bay Islands (LR 251)

Congratulations to Rod Milne for his interesting article on the above. To answer his call for other tramways, I can add the following:

Comboyuro Point is the north-western point of Moreton Island, closest to Bribie Island, and is composed of sand. This led directly to a tramway that could be described as unusual! A light was first displayed at the point in 1863 but it wasn't until 1874 that a permanent tower, over 40ft in height, was erected. Fortunately (as it happened) it was built with timber framing and corrugated iron cladding, and was octagonal. This uniquely Queensland mode of lighthouse construction made it fairly light (in weight). In early March 1890, a storm, coupled with high tide badly eroded the sandy point putting the lighthouse in danger of succumbing to the encroaching sea. Mr Pethebridge, an engineer from the Department of Ports and Harbours, built a railway track and, placing the entire structure on a trolley, moved it back from the sea by 241 feet. It was repositioned so perfectly that its light still shone on the exact alignment as previously. (*Brisbane Courier* 24 March 1890.)

None-the-less the erosion of the sandy point continued and by late 1904 the sea was within 80ft of the tower. Early the following year it was again moved back; one report stating 366 feet. It is presumed a tramway

Track before dismantling at Beech Forest. *Photo: Greg Goold*

and trolley was again used. Comboyuro Point light was abolished in 1960 when the sea encroached again and the tower subsided into the sea.

Tangaluma (today's Tangalooma), is about mid-way along the western side of the island. A lighthouse was erected there in 1884-5. Again, it was in the 'Queensland style', the timber framing being made in Brisbane and shipped to the site. The light was erected at an elevation of 295ft and all materials were hauled to the top by incline tramway. (*The Queenslander* 22 Nov 1884) However, events conspired and due to shifting sandbanks in Moreton Bay creating a new channel, a new position for this leading light was required.

In 1889 planning for a new light was commenced about a quarter of a mile distant, just east of north, atop a narrow sand ridge, again reached by an incline tramway. Did this use the original tramline for part of its length before branching off on a new alignment? All materials had to be raised by a manually-operated crab winch, a task so tiring that only three loads per day could be effected by the fatigued men. (*Brisbane Courier* 24 March 1890.) It was first lit in September 1892, the elevation being 277 feet.

The lightkeeper had to use a trolley on the wooden tramline to haul his supplies up until the light was discontinued, in late December 1923. Tenders were called for removal of the buildings in mid-1925 yet a visitor in October reported that the tramway, winch, trolley and buildings were still there. Actual removal date is unknown though a 1929 report mentions "ruins". One suspects the wooden tramline was abandoned to the elements; can any remains can be found today ?

An intensive trawl through Pictures in Trove also found the following:

Russell Island - (southern Moreton Bay islands), jetty tramway visible on SLQ image 28042-0001-0028, dated 1926.

Amity Point, South Stradbroke Island – jetty tramway visible in Brisbane City Council image 11235, dated 1948.

Green Island (not to be confused with the Green Island off Cairns) jetty seen in BCC images 13547 and 8, dated 1956.

Coochiemudlo Island – *Coochiemudlo: a brief history*, by Mary Howells, published by the Redland Shire Council, 2001, available online at: https://www.redland.qld.gov.au/download/downloads/id/902/coochiemudlo_island_places_of_the_redlands.pdf mentions a farmer, Douglas Morton, and a wooden-railed tramway he built in 1941:"*A horse drawn trolley which travels over wooden rails transports visitors from the jetty to the base of the plateau, passing through lightly timbered country . . . access is gained to the top of the plateau through the Kyber Pass to Douglas Morton's farm'. Doug had dug the cutting, which he named the Kyber Pass and he also built the rail line, which was nearly a kilometre long. The little trolley could seat six on each side and was pulled by the Morton's horse 'Pilot'.*"

Morton's tramway was principally for transporting visitors from his jetty to his tropical fruit farm. It became a highlight of bay cruises run by the Point Lookout-Amity Resorts and Cruises Pty Ltd using the MV *Lookout*. Judging by the notices and advertisements in the *Courier-Mail* the operation lasted from early November 1941 and ended a week before Christmas 1942 when the Navy requisitioned the MV *Lookout*. The vessel re-appeared in May 1943 as the HMAS *Lookout*. Later renamed HMAS *Watcher*, she served in the New Guinea theatre and was lost in May 1945. One wonders if Morton also used his tramline to take his produce to his jetty and across to the mainland?

The shire council's land management plan notes that remains of the tramway can be found today near the western end of the island – Cultural and Historic Heritage Sites, 7.6.2 and 7.7.3 for the map No 4. http://web01.redland.qld.gov.au/robo/plans/Coochiemudlo_LMP/Coochiemudlo_LMP_final_Dale-dan_03-4.htm#7_6_2_European_Heritage

I wonder if some Brisbane members wouldn't mind taking the ten-minute ferry ride from Victoria Point and checking around the Coochie golf course and making a field report?

I can only concur with Rod Milne – if you know of other little tramways on the islands in Moreton Bay (and there must be more) please share them.

Phil Rickard
via email

The HMAS Creswell Breakwater Tramway (LR 253)

After over fifty years of various kinds of research work, I know only too well that it is never done! I am therefore extremely grateful to Shane O'Neil, Edward Garde and especially Phil Rickard for their kind words and what each has added to the stories of the HMAS Creswell Breakwater Tramway and of locomotive 530.

Enabling Phil to identify the location of the photograph from the Searcy collection was a real piece of serendipity. The photograph included on page 5 of my article was taken some time later than that of the SS *Astral*, as it shows coal being unloaded for the power station. Since writing the article, a few more snippets have come to my attention.

With the removal of the Naval College to HMAS Cerberus in June-July 1930, all that remained at Jervis Bay were the buildings and household furniture in the residences. Several long-term resident workers were retained as caretakers. All kinds of uses were suggested for the site, including a prison, old peoples' accommodation, health spa, film studio, and, most often, a holiday resort.

In mid-December 1930, houses on the site were advertised as "Furnished Seaside Residences to let, First-class bathing, Tennis courts, Golf links and Fishing". So began the use of the site as a holiday resort. The accommodation blocks soon became hotels and guest houses, and the many recreation facilities, along with its location, made it a major holiday destination through to the late 1950s. The site remained in Navy ownership, and some naval facilities were retained. World War II saw a significant increase in the use of the College site and Jervis Bay by the Navy, Army and Air Force, including an RAAF rehabilitation centre.

Initially, the equipment used in building the breakwater remained on site, clearly a hazard for a holiday resort. In mid-1932, though tenders were called for its sale and removal, the equipment was auctioned. It was quite a collection, including:

> a saddle-back locomotive with six wheels, a ten-ton travelling crane, 3500 sleepers, over 300 tons of rails, various generators, pumps, and boilers an ironing machine, a brine pump, a vertical ammonia presser, a belt-driven punch and shears, a pneumatic hammer, and five anvils.

The auction, held onsite on 12 November 1932, by F R Strange Ltd. of Sydney, realised over £3,000. Few indications of purchasers have been found, except for a Babcock & Wilcox boiler, which was bought by the Small Arms Factory at Lithgow. The auctioneers stated that all "the machinery was of high quality and had been used only under the supervision of skilled mechanics". This may not have been true of the locomotive. 530 was already well used before arriving at Jervis Bay, where it would also have been worked hard. Nonetheless, the sale price of £100 seems very small. The available evidence suggests that it was purchased by Cessnock Collieries Ltd., which operated the Cessnock and Neath mines and was developing the Kalingo Colliery, a stop-start process over some years due to the vagaries of the coal trade. 530 was known to have been out of use at Kalingo in 1938, and, as Shane reported, its remains were still there in January 1973.

Not everything can have been sold in 1932, as five years later "the rails and trollies" were removed for scrap, probably just before the oblique aerial photograph of "the old Naval College" was taken. This shows the route of the tramway track, but there is no evidence of any rails or sleepers, except perhaps on the breakwater.

I am pleased to have my suggestion that 530 was the Commonwealth Government's first locomotive corrected, though I'm not sure that it should be described as an 'industrial' locomotive, given that it and two other similar locomotives were built for the NSWGR for use on small branch lines. Nonetheless, 530 surely merits restoration. The photographs provided by Shane and Phil and the drawing provided by Edward (along with others and the photographs he took at the Richmond Main Museum in 1991) will clearly contribute to any restoration work that can be undertaken.

References

1. *Sydney Morning Herald*, December 13, 1930, page 20.
2. *The Sun*, November 8, 1932, page 16.
3. *Sydney Morning Herald*, October 19, 1932, page 8; *Sydney Morning Herald*, November 16, 1932, page 8.
4. *Lithgow Mercury*, November 16, 1932, page 2.
5. *Sydney Morning Herald*, November 16, 1932, page 8.
6. Turner, J. (2014): *Australian Steam Locomotives 1855-1895*. Jim Turner, South Windsor. Pages 50-51.
7. *Shoalhaven News*, October 27, 1937, page 9.

Dr Peter Crabb
via email

Field Reports

Please send any contributions, large or small, to fieldreports@lrrsa.org.au or to P.O. Box 21, Surrey Hills, Vic 3127.

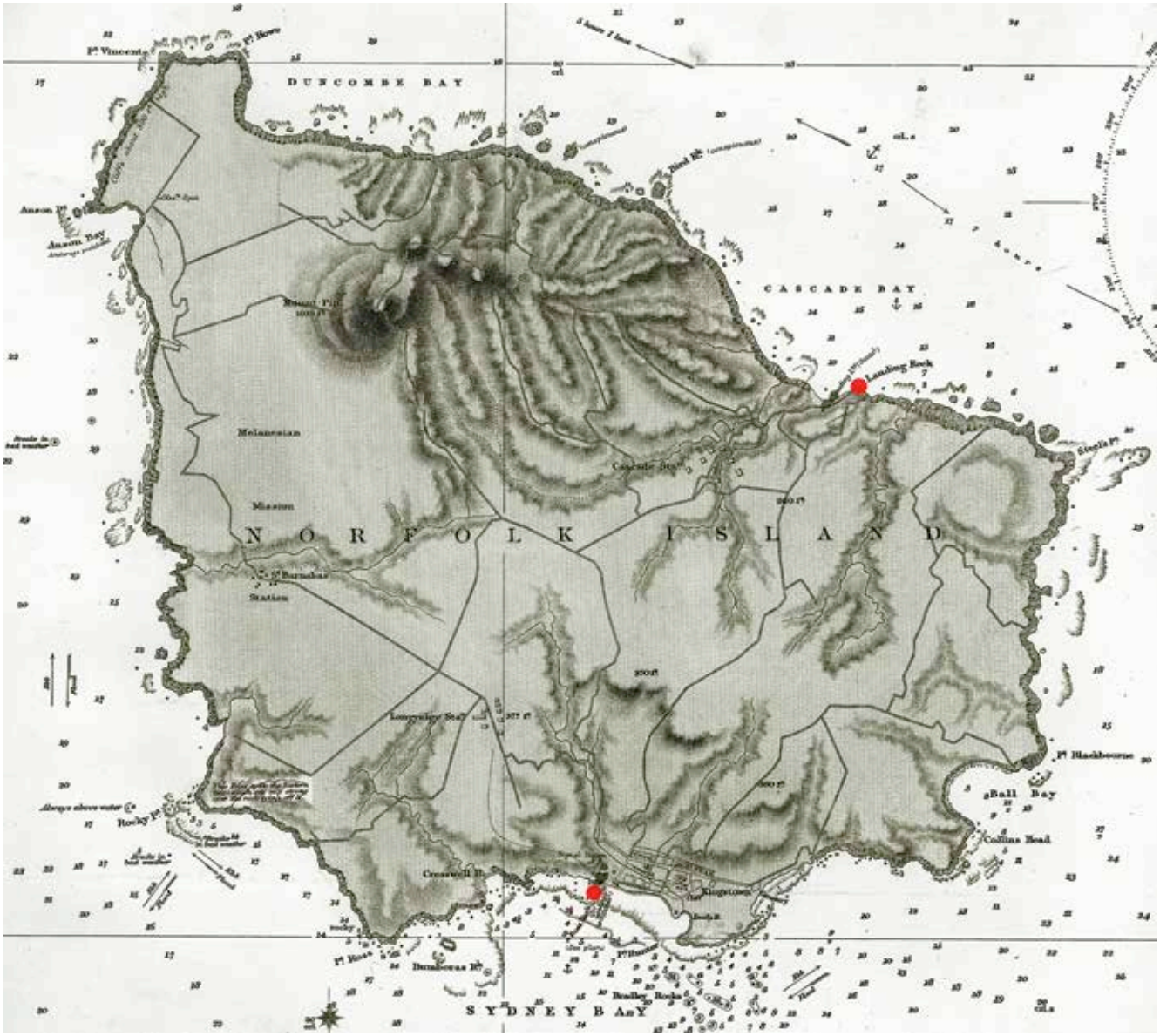
Norfolk Island pier tramways
Gauge unknown

Armed with information supplied by Phil Rickard, a visit was made to Norfolk Island during the first week in March 2017. Norfolk Island is a self-administered Australian Territory, situated in the South Pacific Ocean about 1600 kilometres NNE from Sydney. It has an 18th and 19th Century penal colony history paralleling Australia's. Phil's information and photos indicated that two pier tramways once existed on the island, as well as an intriguing proposal to build a convict-powered incline at Kingston.

Only two short piers exist on Norfolk Island. Cascade Pier is on the northern coast's Cascade Bay, with the main pier at Kingston on Slaughter Bay on the south side of the island. Both piers are quite short, as all cargo from ships has to be lightered to and from land due to reefs close to the shore. Kingston Pier is a mere 118 metres long from the shoreline and Cascade Pier is currently having its 25 metre length doubled to 50 metres. Kingston Pier is the main pier in use, and a tramway at one time ran from it about 130 metres to the Pier Store on the foreshore. Here, the goods were unloaded into the store through two doors, one at ground level and the other directly above into a loft. There was also a short section of rail line for launching boats.

An early twentieth century photograph confirms that Cascade Pier had a short tramway running from the jetty to a flat area immediately on the shore. (There is currently no sign of a storehouse). The photograph indicates a relatively wide gauge for this pier tramway. There are no remnants of either tramway extant, however, the writer discovered a wheelset as a rusty garden ornament at a cafe in the northern part of the island. It is the only relic of a light railway I was able to find. The wheels are of eight inches (200 mm) diameter and four foot (1200 mm) gauge. Referring to the photograph of the trolley and crane on Cascade Pier, the wheels on these vehicles appear to be larger than eight inches, but the wheelset found may have been from another vehicle. Given the fact that ALL goods destined for Norfolk Island must be brought in by ship and lightered to land, it seems unlikely that this wheelset is from anywhere else on the island. (Due to very selective felling of Norfolk Pine trees all over the island, tramways in connection with timber transport were not used). A 'Museum of Transport and Technology' is situated near the Norfolk Island airstrip, but the Tourist Information Centre advised me that, despite the proclaimed opening on Wednesdays between 2pm and 3pm, that information was probably wrong.

Above: *Kingston Pier in the 1880s, with very little evidence of a tramway. Unknown photographer, State Library of Victoria image H15279*
Below: *Cascade Pier in the early twentieth century showing the tramway and crane. J Patton photographer, State Library of Victoria image H42834/78*



British Admiralty map of 1863 with the two jetty positions marked by red dots, Cascade to the north and Kingston to the south. State Library of Victoria

The outdoor area has a couple of winches that were possibly used for logging, but there is no tramway equipment on display. I have no idea if there is anything rail-related inside the museum.

There was an intriguing proposal to build a convict-powered capstan-worked incline on the island. A drawing for this is dated 10 June 1842, under the hand of Thos. Seller, Foreman of Works. I made enquiries regarding both the pier tramways and this incline with Janelle Blucher, the island's Acting Museum Director. She was unaware of any proposal to build an incline and was quite adamant that it was never constructed, although she was quite excited by the Thos. Seller notation on the drawing. Initially it was thought the incline was intended to convey goods from the pier to the Commissariat building, but at the site, there appears to be no real need for it. The difference in elevation between the Pier Store and the Commissariat building is insignificant and the distance is only about 349 metres. A 'slaughter' (an Old English term for swamp or wetland) existed between the two, which would have necessitated the building of a sizeable embankment across the slaughter in order to maintain some sort of a constant gradient for a double-track incline.

Four foot gauge wheelset on Norfolk Island. *Photo: Chris Wurr*

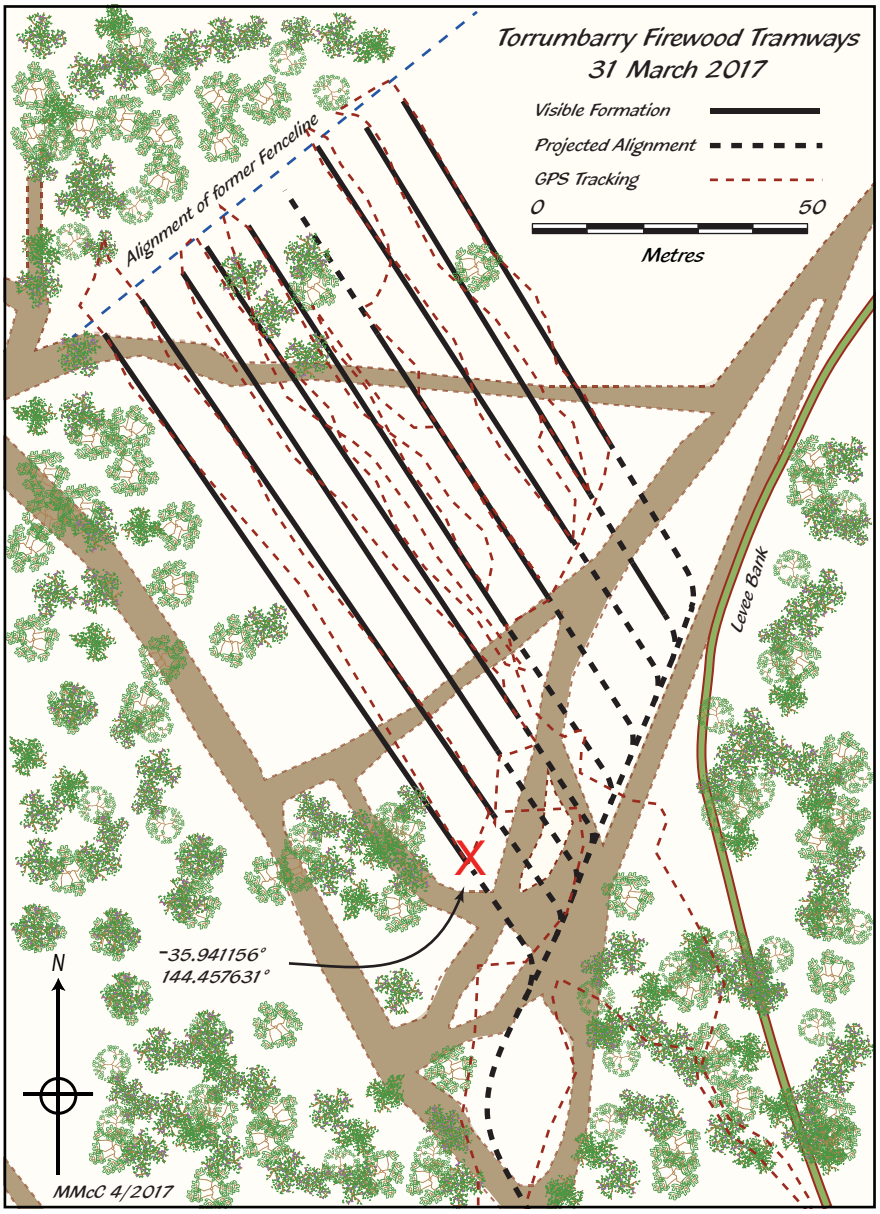
The drawing shows the incline extending quite some distance uphill beyond the Commissariat building and the heading of the drawing reads "*Proposed Tram Road at the back of the Commissariat Store*". On the hillside beyond the rear of the Commissariat building there once existed a stone quarry. This quarry yielded the material for constructing all the buildings in the

Kingston area, including the extensive convict gaol. The proposed incline would have facilitated the movement of stone down the hill. However, Norfolk Island's convict history is reputed to have been even harsher than that at Port Arthur in Tasmania, so it seems that the incline may have been deemed an unnecessary 'luxury'. Certainly there is no indication on the ground, nor on Google Earth, that a double track, 1 in 41 gradient, 6 ft 4 in gauge incline was ever built.
Chris Wurr 3/2017.

Torrumbarry Weir, Victoria (see LR 229, 236, 243 and 246)
610 mm gauge

Another visit by Bruce McLean, Chris Wurr and Mike McCarthy to Torrumbarry Weir took place on 31 March 2017 with the prime purpose of further investigating the 2013 discovery of tramway formations west of the weir. These formations were initially thought to be associated with spoil removal but this was soon discredited when it was realised that most of the spoil was dumped alongside the lock and removed in the 1996 reconstruction of the weir. The realisation that firewood was harvested and brought to the weir site led to the conclusion that what was observed were the tramways associated with firewood stacks. The SR&WSC adopted a similar approach to firewood at its Robinvale Pumping Station.
Surprisingly, given the weather on the previous four visits (minimum 35 degrees!), the temperature was a comfortable high 20s which made the mapping work considerably easier than it might otherwise have been.
We arrived at around 11.30am and set to work recording the precise number and alignments of

The tramway formations are quite subtle but distinct once you know what you are looking for. Most of the area denuded for the firewood stacking remains clear of vegetation to this day. The image has been enhanced to highlight the formation of one of the firewood sidings. Photo: Mike McCarthy



the sidings with a view also to refining views on the access alignment and location of a loop for locomotive access and working.
There were found to be nine lines of tramway set on average 7.6 metres (25 feet) apart. Of interest is the discovery of the remains of a fenceline at the north-west end of the site. This fence ran across the end of the sidings and likely marked the boundary of the land available for weir construction. Whatever its prime purpose, the fence clearly indicated the extremity of the sidings that we were mapping.
As was the case elsewhere on the Torrumbarry tramway network, no sleeper impressions were found. The formations consisted of slightly raised mounds approximately 0.75m in width. The area is crossed by several modern-day vehicle tracks the formation of which have destroyed sections of the tramway formations.
The layout and direction of the sidings led to further thought being applied to the alignment of the tramway that linked the firewood stacks to the weir and lock site. Previous thought had been that the tramway followed the flood protection levee bank that was built to protect the worksite. It was believed likely that the tramway was laid atop this structure. More detailed examination this time suggested that this was most doubtful. The alignment of the current road access seemed much more probable but a small gully would have needed bridging. This would have needed only a small structure and would not have precluded the route from being used.
Post visit examination of current, 2007 and 1946 aerial photography reinforced the view that this most likely would have been the alignment of the tramway. Interestingly, the same examination of aerial images identified further formations on a different alignment immediately to the north of the site investigated. Another visit will be needed!
After completing work at the firewood stacks the trio moved 3 kms to the south-east to the fine sand line to accurately place an image taken on that tramway. This was successfully done despite the protests of two red-bellied black snakes! The principal benefit of this part of the day's activities was to precisely place the alignment of the sand line for further investigation on a future visit.
Mike McCarthy, 4/2017

Heritage & Tourist NEWS

News items should be sent to heritagetourist@lrrsa.org.au Digital photographs for possible inclusion should be sent direct to Richard Warwick at editor@lrrsa.org.au including the name of the location, the name of the photographer and the date of the photograph.

QUEENSLAND

DURUNDUR RAILWAY, Woodford

610 mm gauge

At a recent work party, crow bars were used to adjust the alignment of the track panels prior to concreting the floor of the locomotive storage shed. The panels of rails and sleepers for both the outer tracks have now been fabricated and placed. The precision part of this exercise has been to support the track panels to the correct level and line so that the track does not move when the concrete is being placed. Workers are now ready to hand over to the concreter to place his side formwork and reinforcing steel before placing and finishing the concrete.

During the period of record high temperatures, inspections have been undertaken before running days to ensure that the track remains in sound condition. Future track days will concentrate on renewing defective timber sleepers in steel or concrete in the mainline. A number of steel joint sleepers have been fabricated for installation in the mainline. The long point throw-over lever timbers on some points in the workshop area require replacement with steel sleepers.

Durundur Railway Bulletin Volume 38 Number 344 March/April 2017

FRIENDS OF ARCHER PARK STATION AND STEAM TRAM MUSEUM, Rockhampton

1067 mm gauge

Fitters have installed new LED lights on either end of the tram and these are working well, so there is no excuse for motor vehicles not to see the tram any more.

The Purrey Steam tram is operating well now that all the problems with the boiler float and connecting shaft have been repaired. A rod has been installed between the rear brake pads to stop the pads which surround the tyre flange, from rattling from side to side and wearing the tyre flanges.

Rails were laid in nearby Kershaw Gardens in 1989 when it was proposed that the tram would operate in the park on special occasions. However, this Kershaw Gardens' rail line was removed as part of cyclone Marcia restorations, on 12 March 2017. The Gardens' relocated but never restored North Rockhampton station and this has also been demolished.

Tramtracks Volume 11 Number 2, April 2017

HUNSLET 1239 UPDATE – IPSWICH RAILWAY WORKSHOPS

This is a follow up report on the Hunslet 4-6-0T B/N 1239 of 1916 being repaired at the Ipswich Railway Workshops Queensland

The boiler was test fitted in March 2017, only to find the bottom wash out plugs fouled the frame stretchers and these were removed and a lug on the front ash pan door was also foul. The boiler is now fitted into position, bolting the boiler in place with some plumbing and touch up painting. The cab roof will need to be fitted and the locomotive will be ready for public display in due course.

Bob Gough, April 1917

MSF SUGAR LTD, Mulgrave Mill

(see LR 254 p.30)

610 mm gauge

Fowler 0-4-2 *Nelson* (20273 of 1934) has been sold to the Bally Hooley Steam Railway at Port Douglas and was transported there on 11 April.

John Charleton 4/17; Chris Stevens 4/17

NEW SOUTH WALES

PETE'S HOBBY RAILWAY, Junee

610 mm gauge

Under perfect weather conditions, Junee's latest rail attraction, Pete's Hobby Railway, was officially opened on Monday 6 February 2017. Approximately 60 friends of Peter, some local, others from as far away as Sydney, made the journey to Junee to be present at the opening and also help celebrate his 75th birthday.

Over the previous two days, these guests had been provided with guided tours of the various rail-orientated attractions in the surrounding district, including the Wagga Rail Heritage Centre, Tumba Rail's preserved Ladysmith Station, Bethungra rail spiral and the Junee Roundhouse Museum, while lunch on the Sunday was partaken at the former Junee Railway Refreshment Rooms, now the Railway Station Café.

Following approval by Junee Shire Council of the Hobby Railway proposal in June last year and despite many months of adverse weather conditions, some 300 metres of track of the 500m or so proposed, have already been constructed, together with a passenger platform, thanks to volunteer support. In addition, local contractors have been used where needed for specialist works and supplies of materials.

Pete's Hobby Railway is exactly that, a small 2-ft (610mm) gauge railway owned and to be operated as a hobby by Peter Neve, on private property at Junee in southern NSW. It is still currently under construction, now that approval of the whole concept by the local Council has been received.

Unfortunately, owing to the specific requirements of the Rail Safety National Law 2012 (NSW), Peter is not permitted to open the railway for public inspection and/or rides. However, visitors will be welcome to view, and photograph, Pete's Hobby Railway from the street, only at times that may be advertised, such as during Junee's Rhythm n Rail Festival , which is usually held in March each year.

Updates on the progress with the construction of Pete's Hobby Railway appear on the Railway's website www.PetesHobbyRailway.club . These are prepared on an irregular basis and are posted to Peter's web-page after they have been first distributed to those direct volunteers and supporters of the project.

Peter Neve OAM 22/3/2017

Hunslet 1239 under repair at Ipswich railway Workshops. *Photo: Bob Gough*

With owner Peter Neve at the throttle, the official first train breaks through the ribbon to enter the newly named station. Josh Burke, who built the station, proudly looks on. Photo: Ben O'Malley

VICTORIA

COAL CREEK COMMUNITY PARK AND MUSEUM, Leongatha

610 mm gauge

At the end of the running season in 2016, BFC 7's boiler came due for washout and inspection. This was carried out over December/January with initially no major issues found. All valves were disassembled, inspected and refitted, a major exercise. The opportunity was also taken to replace the fireman's side injector delivery pipe with a straight section eliminating some unnecessary bends and improving access to some components. A new whistle isolating valve was fitted and gauge glass seals were replaced. The air compressor was removed for overhaul after failing early in 2016 and work on that continues. A hydrostatic leak test was then performed with all but one washout plug sealing nicely. The washout plug immediately above the firedoor was observed to have some wastage around the external diameter of the hole. This may have been legacy damage and there are a couple of theories about what caused it. Either way, the number of threads in the hole must be a minimum of four to hold the plug against boiler pressure and at present it doesn't have that. A repair will be completed, however the planned first steam day for 2017 (2 April) has had to be cancelled. Next scheduled steam running day is 4 June and workers are aiming to have the locomotive back in service by then. Any further changes will be posted on the Coal Creek website. Meanwhile, diesel operations continue.

Andrew Becker 20/3/2017

WALHALLA GOLDFIELDS RAILWAY, Walhalla

762 mm gauge

Late in January diesel-hydraulic locomotive DH 72 was moved from Loy Yang where it had been sitting for the past five years to the newly rented space at the Yallourn workshops. Many hours of planning and preparation went into the move. The maintenance crew had laid track into the workshop area so the locomotive could be moved once it had been lifted off its bogies. The locomotive barely fitted through the doorway at Yallourn with millimetres to spare. All overhaul work on this loco as well as the two X1 trams/railmotors can now be carried out under cover in a well-equipped workshop environment. The task now will be to secure funding to complete the re-gauging and other overhaul works. As yet a final vehicle specification has not been completed for the X1 trams and this will need to be finalised before work commences in earnest

The class 10 locomotive is the only one capable of pulling all four carriages when they are loaded. As such its importance at the busy Christmas, Easter and September holidays is critical to the reputation of the railway. Fortunately the locomotive got through the busy period with only a few minor hiccups, being available every day it was needed. The Annual 500 engine-hour B exam was completed, but the auxiliary compressor which is used to charge the Main Reservoir to enable operation of the air starter motor failed, requiring removal of the starter motor for overhaul. Starting air for first start of the day was provided from the fixed compressor in the loco shop. Once started the engine was allowed to run all day without any problems. It is planned to start the repainting of this loco and the Fowler in the coming month.

Dogspikes and Diesel January 2017

PUFFING BILLY RAILWAY, Belgrave

762 mm gauge

The Board has received final copies of the Master Plan and Business Case as key documents to the future of the railway. Following significant additional work carried out in early January, the Business Case has now been completed and was lodged with the Government on 13 January. The Railway is seeking Government funding assistance in the May State Budget to assist with the implementation of infrastructure projects flowing from the Masterplan.

Following representations to the Government by the Board over recent years State Cabinet has approved the preparation of a new Act to govern the Board's activities. Whilst the old Act has served the Railway well, after nearly 40 years of operation it is now dated and in need of an upgrade to more properly reflect current circumstances. It is anticipated that the new Act will be introduced into Parliament in February or March and will probably be proclaimed during the first half of 2017.

The Board was pleased to hear that PBR had recently gained two Tourism awards, one being a Silver Award for the Major Tourism Attraction category, and the second was a Gold Award for Volunteer Service.

Climax 1694 was out for one of its scheduled appearances on the Commissioners Train on Saturday April 8. The day began with a tour of Belgrave workshop before continuing to Menzies Creek, hauled by the Climax locomotive. Passengers then visited the Museum redevelopment project and then onto Emerald and Gembrook to see the carriage workshops and explore the large Innes Road storage facility. The Commissioners Train is scheduled to run again on 3 June and 2 September.

The booklet *Climax a locomotive resurrected* has been reprinted in a new edition, with a number of new photographs. A project is about to commence to rebuild Cockatoo station in a form similar to its appearance in the mid 1920s.

Monthly News February 2017; Frank Stamford, April 2017

SOUTH AUSTRALIA

MILANG LIGHT RAILWAY CENTRE

On 10 April 2017 an additional locomotive arrived at the South Australian Light Railway Centre for restoration and display.

'The Ruston' was built in the first half of 1939 by Ruston & Hornsby Ltd of Lincoln in England. It was a member of that company's Class 44/48 and its builders number is 187078.

The locomotive's track gauge is two feet, it has a 48HP engine and a mechanical transmission. A locomotive of the same class and year is operating at the Leighton Buzzard Railway in the UK and contact has been made with that railway to obtain information to assist the restoration to running order.

'The Ruston' was owned by the Waratah Gypsum Company and was employed at their salt and gypsum harvesting operation at Stenhouse Bay at the bottom of the Yorke Peninsula. By 1969, the Company had applied numbers to their fleet of locomotives and "The Ruston" became number 304.

By 1971, operations had ceased and 'The Ruston' was donated to the Mile End Railway Museum, the predecessor of today's National Railway Museum (NRM). In April 2017, the NRM loaned the locomotive to the South Australian Light Railway Centre at Milang for restoration. When that is complete, 'The Ruston' will be

maintained in running condition on the Centre's two foot gauge track.

The top photo on the next page shows 'The Ruston' at work on the Yorke Peninsula and is credited to A.D. Lockyer. The photo below it shows the locomotive on arrival at Milang from the Barossa Valley. It arrived on a truck and was rolled onto the end of the two foot gauge track. Taken by P. Lucas, the photo shows the Centre's BEV battery loco shunting 'The Ruston' into its display position in the Centre where restoration will take place over the coming months.

Peter Lucas, Port Milang Historic Railway Museum Inc.

WESTERN AUSTRALIA

BENNETT BROOK RAILWAY, Whiteman Park
610 mm gauge

On 20 January 2017 Metlabs Australia undertook ultrasonic thickness testing of the inner wrapper of NG 123's firebox. The comprehensive readings were mailed to BBR as a record of the condition of the firebox as of that date. They are presently in the hands of the locomotive manager. This was done along with weld testing and the locomotive will soon have welding repairs to the tube plates according to the boiler inspector's instructions.

BBR has ordered and has received, air mail, from a factory in India, rubber gaskets for maintenance on the fleet of 17 vacuum braked wagons, in particular for diaphragms and gaskets for the equalizing valves attached to the vacuum cylinders.

Many of our bogie wagon fleet were initially regauged thirty years ago during the 1980s. The vacuum pipes that carry the train brake, and had proved adequate for so many years, are now showing signs of age, particularly where vacuum hoses were used as elbows underneath.

The Atlantic Planet and the Fowler locomotives are running the weekend services with the

APPILA YARROWIE RAILWAY

Max Sayer, a builder from the tiny town of Appila in South Australia's mid-north, had long been fascinated by railways. His father had worked for the railways in Germany for over 50 years, where much of his time was spent inspecting and maintaining a portion of the Stuttgart to Singen railway in the south-west of that country. When Max's son Max junior began showing an interest in railways too, culminating in an attempt as a five year old to construct a railway line from some steel piping, Max senior decided that he would try to build a small railway for his children on some vacant land adjacent to the family home.

In around 1970, the acquisition of an abandoned 1 ft 6 in gauge (457mm) ex mining tipper truck was the genesis of what was to become the Appila Yarrowie Railway. Max built about 30 metres of track as a tentative start to the railway – and the children pushed the tipper truck backwards and forwards along that track until the rails had gained an appreciable shine.

Looking to expand the railway, Max purchased a number of 2 ft gauge railway axles from sawmills in Wirrabara and Jamestown. Some 14 lb/yd rail was also purchased from the sawmills, as well as a set of points. A turntable and another set of points was purchased from a farmer at Laura – these had formerly been in use at the old Laura flaxmill.

A train runs over the new bridge over the Mooroopna waterhole in April 1993. *Photo: Max Sayer*

Max asked a friend, Norm Baynes, who was a local engineer and experienced welder, if he thought it would be possible to put a Volkswagen motor onto a 610mm gauge frame – and Norm replied that "anything was possible". He constructed a steel frame to house the motor after Max had purchased a 1957 Volkswagen from local a farmer. Max's idea to use a Volkswagen motor was that it was air cooled and therefore safer to use around children.

Some additional rail was purchased from the Lochiel saltworks circa 1980. This included some lengths of prefabricated track.

By 1992, the children had all left home, and Max and his wife Bernie moved to Laura. The land on which the railway had been built was sold and the rail was removed and transported to Laura by 1995. The rail remained in the yard adjacent to the house there for years.

The family expanded with the arrival of grand children from the late 1990s, and, with them in mind, Max set about reconstructing the railway on the vacant land adjacent to the house in 2006. Two hundred metres of track was laid, with a loop completed by circa 2008, when Max was in his late 70s.

Again, a small siding was installed, and the turntable placed at the end of the siding.

The family marvelled at Max's ability to construct a small railway virtually on his own at his advanced age. It was a remarkable achievement. It is not sure as to who got more enjoyment out of the railway – Max or the grand-children – but it was to provide a lot of pleasure.

The Sayer Family (edited version), via Les Howard

Laura-the grandchildren graduating to the engine in February 2010. *Photo: Max Sayer*

Ashley running the midweek operations and with only minor repairs required. Workers have outfitted each of the running locomotives with earmuffs in an effort to improve the comfort and ease of operating the locomotives as some can be quite noisy on occasion.

Sunday 5 February saw NG15 118 *Elizabeth* make its first journey on the mainline in over a decade. The need to turn 118 arose from a request from a movie producer who wanted a big green steam engine as a static prop in an upcoming independent film. While it was probably the most awkward choice of locomotive, the process to get it ready for the film had begun. 123's tender has been painted green on one side to match 118's livery, and the smokebox was also repainted. The next step was to get it turned around so it could be coupled to the newly painted tender. During the week leading up to the day, the underside of 118 was prepared for travel on the mainline. A messy task, but a valuable learning experience for the steam crews of the future. Once a suitable day was organised, 118 was taken to WVJ to be turned. Working around the service train and making numerous stops along the way to check all was well, 118 was soon facing the right way to be coupled to the waiting tender. After a bit more cleaning up, 118 was ready for the big day.

Newsletter, February 2017

OVERSEAS

NEW ZEALAND

DRIVING CREEK RAILWAY, Coromandel

381 mm (15 inch) gauge

On a recent trip to New Zealand we visited the Driving Creek Railway at Coromandal on Sunday 12 February 2017. Barry Brickell started the railway initially to transport clay for use at his pottery. Eventually the line extended to three kilometres over his 22 hectare property. The whole area has also now been replanted with New Zealand native trees such as Kauri, Rimu etc.

The gauge of the railway is 15 inches and it was all hand laid with rail obtained from closed mines. The line snakes its way up the hillside from the pottery/shop utilising five reversing points in the form of zig zags as well as a unique double deck bridge, there are also three tunnels along the way. The line's upper terminus is called Eyeful Tower because of the beautiful views that are seen from the viewing area. Eyeful Tower is just over 100 metres above the lower terminus but the line climbs very steeply over this distance with the steepest grade being 1:14.

The drivers of the trains give a full commentary as you travel along the line and then at the upper terminus they explain the history of the line as well as the technical specifications.

All the locomotives and carriages have been built in the railways own workshop to meet the unique operating conditions. The locomotives have been given names and on the day we visited *Possum* and *Snake* were in operation. There are also two diesel locomotives available that are now only used for track maintenance.

Alf Atkin

Driving Creek Railway showing the steep terrain. *Photo: Alf Atkin*

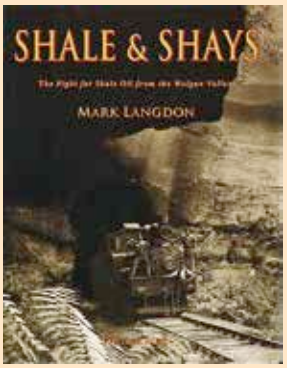
Books from LRRSA Sales ...

Shale & Shays

The Fight for Shale Oil from the Wolgan Valley

By Mark Langdon

Published by Eveleigh Press.
300 pages, 279 x 215 mm, hard cover, many photographs.



A new history of the famous standard-gauge Wolgan Valley Railway, New South Wales. With five chain curves and 1 in 25 grades in spectacular scenery, it used four three-truck Shay locomotives. Includes some original hand-coloured photographs, detailed maps, and rolling stock diagrams.

Price $78.00 plus postage
($70.20 to LRRSA members)

Mountains of Ash

A History of the Sawmills & Tramways of Warburton and District

By Mike McCarthy

Published by the LRRSA.
Hard cover, 312 pages, A4 size

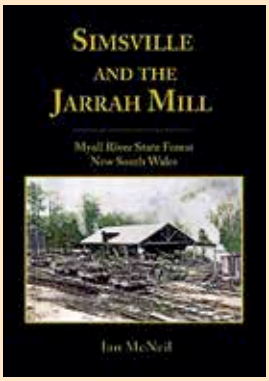
Describes a complex network of over 320km of tramways serving 66 sawmills in a mountainous area.

Over 280 photographs, 50 maps and diagrams, references, bibliography, and index.

Price $59.95 plus postage
(**$44.96 to LRRSA members)**
Weight: 1,650 gm

Simsville and the Jarrah Mill

Myall River State Forest, New South Wales

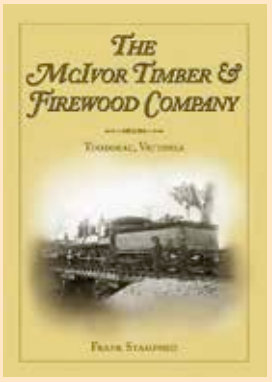


By Ian McNeil
Published by the LRRSA
Soft cover, 96 pages, A4 size
55 photographs, 12 maps and diagrams, references, and index.

The history of a 3ft 6in gauge tramway and sawmiling operations at the village of Simsville, near Stroud. The tramway used three Climax geared locomotives.

Price $29.00 plus postage
($21.75 to LRRSA members)
Weight: 490 gm

The McIvor Timber & Firewood Company



Tooborac, Victoria

By Frank Stamford
Published by the LRRSA
Soft cover, 104 pages, A4 size
104 photographs, 23 maps and diagrams, references, and index.

The history of a 5ft 3in gauge tramway from Tooborac to Mitchell's Creek, Puckapunyal, Moormbool West and Cherrington.

Price $30.00 plus postage
($22.50 to LRRSA members)
Weight: 490 gm

Postage and packing: Within Australia, up to 250gm $3.50; 251 to 500gm $6.60, 501 gm to 3 kg $15.00, over 3 kg to 5 kg $18.70
Send to: LRRSA Sales, P.O. Box 21, Surrey Hills Vic 3127.
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www.lrrsa.org.au

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- If joining in February or March, pay $16.00 ($21.67/$25.67 overseas) and receive 2 issues of *Light Railways* (Nos 260-261).
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