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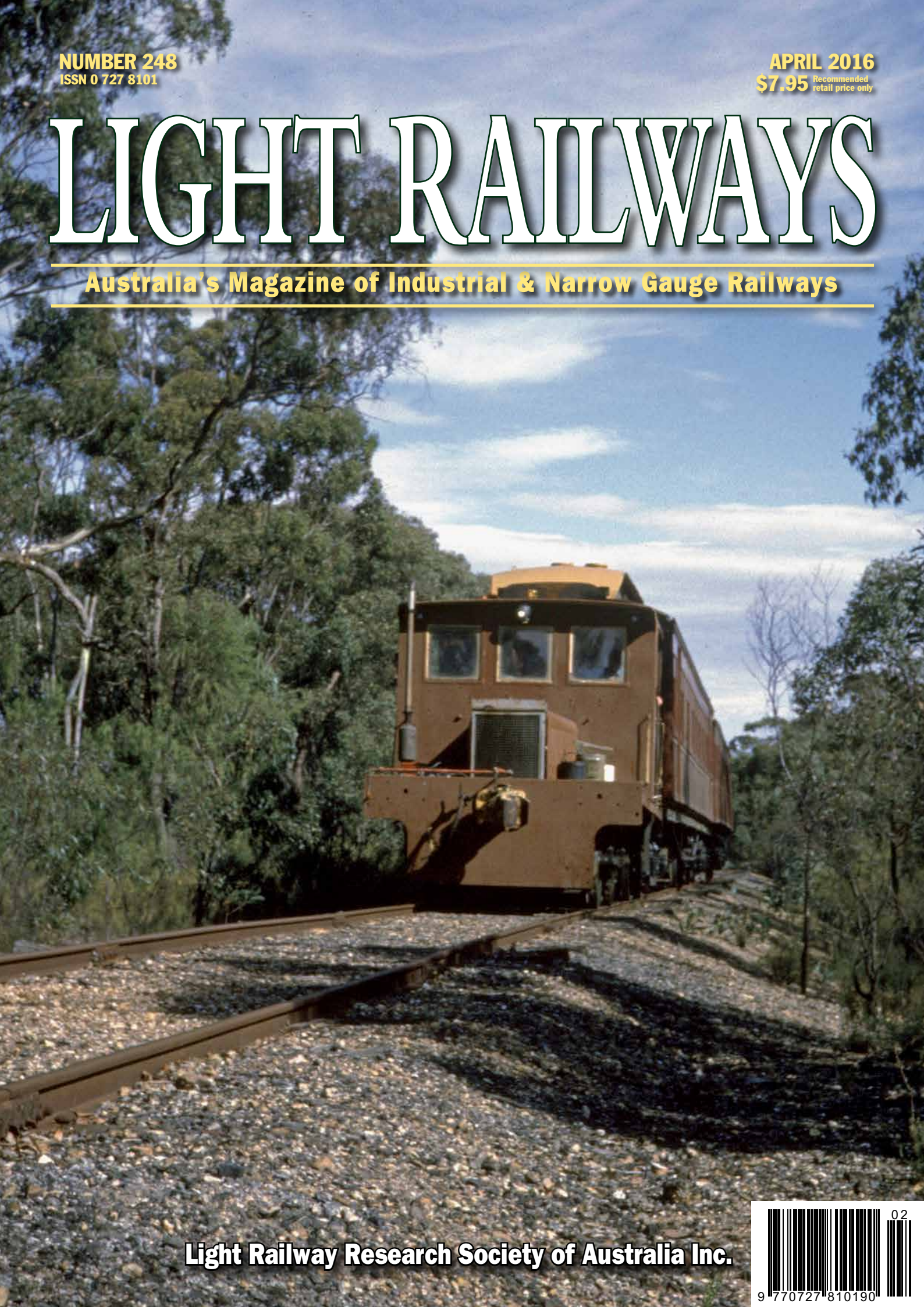
LIGHT RAILWAYS

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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Contents

Editorial

The road goes ever on and on…

After two and a half years of editing your *Light Railways* magazine, it's time for me to step down, and hand over the staff.

It has been a tremendous learning experience that has given me new skills, knowledge, and introductions to wide range of interesting, enthusiastic authors and historians, many of whom I hope to keep in contact with into the future.

Prior to becoming Editor in October 2013, my only magazine experience was as Field Reports and Research Editor for the six previous issues of *Light Railways*!

Support from the outgoing members of the Editorial team, Bob McKillop, Bruce Belbin (who fortunately still does the layout and 'makes it look nice'), and John Browning was (and is) always given freely, so thank you.

I'd also like to thank the current editorial team, Richard Warwick, Peter Evans, Chris Hart, Stuart Thyer, Andrew Webster and David Fitzsimons for all their hard work and support.

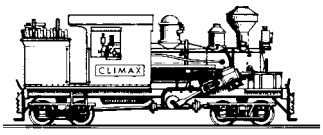
Richard will be taking on the Editor's job, so the magazine is in safe hands going forward – with a healthy amount of articles on hand (please keep them coming)!

Lastly, thanks to Janelle and Callum for putting up with me in editing mode – and Callum in particular for teaching me how to draw maps!

Thanks and best wishes,

Scott Gould

Front Cover: *In March 1986, former Australian Paper Manufacturers Malcolm Moore 0-4-0 DM hauls two passenger cars from Castlemaine to Maldon prior to the opening of the tourist railway at Easter that year. Constructed in 1939 at Port Melbourne, the loco undertook its delivery run to Maryvale, some 190 km east of Melbourne, at a top speed of 40 km/h! Photo: Rob Gould*



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.

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.

The Resident Engineer's residence was the finest house in Iluka when it was built on the river bank in 1875. The quarry rail siding to Iluka Wharf (off to the left) passed in front of the fence. Photo: Queensland State Library.

The Clarence River Breakwater Story

Part 2 – The Iluka 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 serious shipping hazard. 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.[1] 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 concentrate the river and tidal currents to maintain a deep water shipping channel by natural scouring action.

Between 1862 and 1867 construction work on Moriarty's scheme was concentrated on the south side of the river. The southern breakwater was started and a long training wall built beside the Yamba river bank. The story of these works and the South Head Quarry Railway that transported stone for its construction was told in Part 1 of the Clarence River Breakwater Story which appeared in LR 245, the October 2015 issue of *Light Railways*.

Part 2 continues with the history of the Iluka Quarry Railway and its role in the unsuccessful attempts to implement Moriarty's scheme on the north side of the Clarence River.

River Improvement Works on the north side.

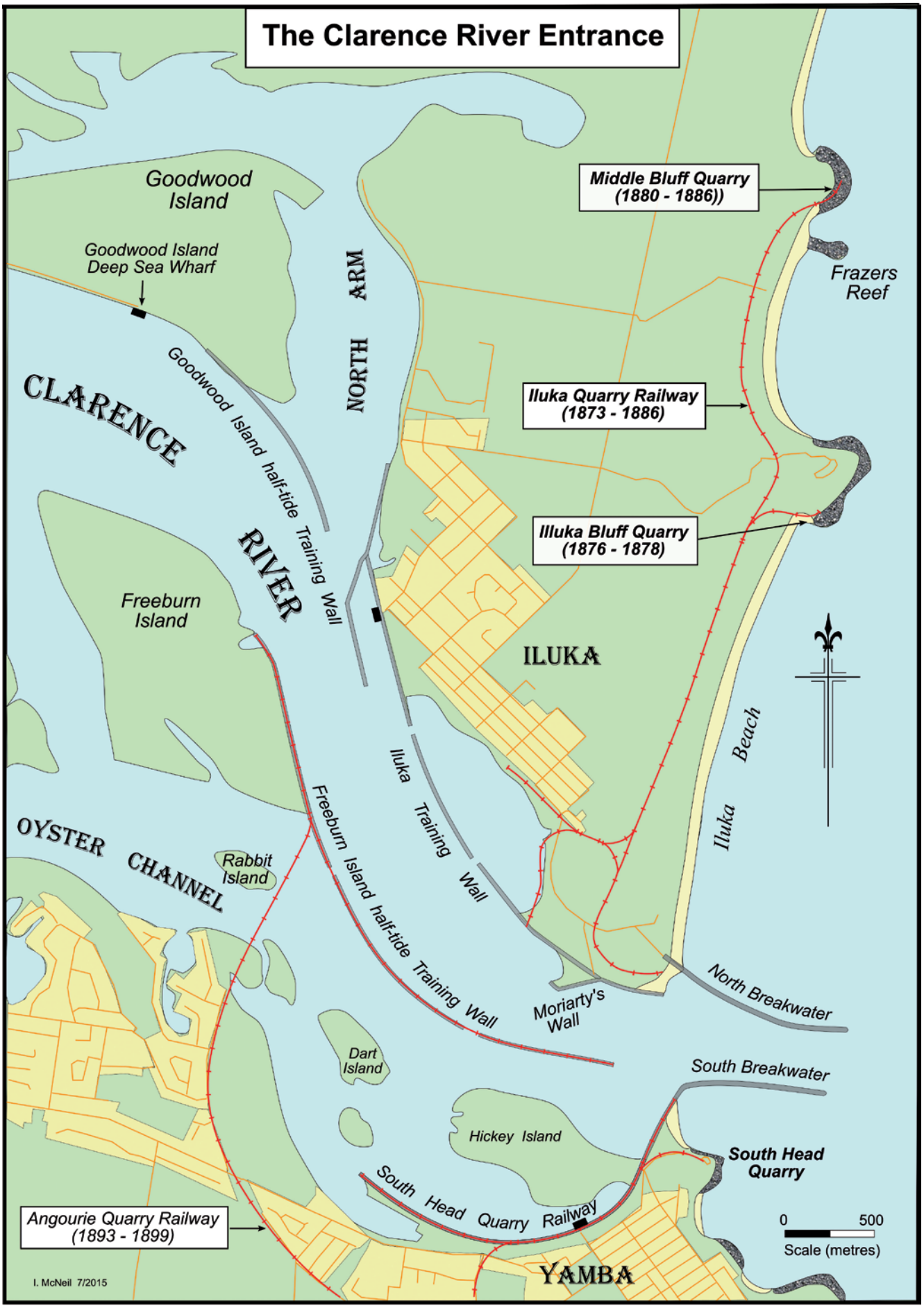
In December 1862 the NSW Government voted £30,000 to begin the northern breakwater,[2] but the only work carried out on the north side was a survey for a two mile railway to the Iluka Bluff quarry site.[3] After the first phase of construction finished on the south side in 1867, Engineer-in-Chief Edward Moriarty elected to wait until it was clear what effects the southern breakwater and training wall would have on the river entrance.

Moriarty's scheme depended on retaining the North Sand Spit which blocked the northern half of the estuary and pushed the shipping channel close to the southern Yamba shore. However, conditions at the entrance began to deteriorate from 1870 onwards. Big floods in March and September 1870 washed away the lower parts of the North Sand Spit. This process continued until, by 1873, the river entrance had more than trebled in width to 2600 feet. In Moriarty's own words: '*The collateral result of such widening of the channel was to admit a larger body of tidal water, which by its scour, produced a corresponding effect on the channel, increasing still further its width, and thus aggravating the evil.*'[4]

As the river entrance widened it also shallowed, becoming more difficult for ships attempting to enter and leave the river. Three ships; the brig *Sarah*, the steam barque *Examiner* and the schooner *Coquette*, were wrecked at the entrance between 1870 and 1873. Two years later the screw steamer *Helen McGregor* was wrecked on the Black Buoy Reef just inside the heads with the loss of eight lives.

In June 1872 Moriarty recommended to Parliament that the deferred breakwater works on the north side should proceed,[5] and in January 1873 it was announced that the Government had given approval for the construction of the northern breakwater at Iluka.[6]

At the time Iluka was not even a village on paper; it wasn't surveyed until 1875 when the first streets were laid out by surveyor Donaldson. The engineers' first priority was the construction of a wharf where steamers could berth to unload heavy plant and supplies for the works. Edward Bell was appointed Resident Engineer for the Clarence River on an annual salary of £550 in December 1872, and arrived early in the New Year to survey a site for the wharf.[7]



1900 quarries and quarry railways superimposed onto a modern map base. Parts of both mainland and island shorelines have changed significantly since wall construction began.

Tenders for its construction were advertised in April 1874,[8] and the contract worth £628 was won by the brothers David and Frederick Rankin, local bridge contractors from Grafton. They sub-contracted out for the supply of timber for the wharf; 2000 superfeet of three inch planking and 744 lineal feet of wharf piles. Their contract was not without its hiccoughs – at one stage they offered a £20 reward for the conviction of '*the evil disposed person or persons who did wilfully, on the night of Wednesday last, or early on Thursday morning, throw off the wharf at Iluka, Clarence Heads, a Box of Tools and Anvil.*'[9]

An office and a spacious residence overlooking the river near Iluka wharf were built for the Resident Engineer. The first engineer, Edward Bell, suffered from ill health and was succeeded by Merion Herbert Moriarty – Edward Moriarty's brother – in October 1874. When Merion was transferred to the Illawarra district in 1880 he was succeeded by Mordaunt Leyburn Maclean who supervised work on Moriarty's scheme until it was suspended in 1886.

The leisurely progress on the north side attracted plenty of criticism. In December 1874 Mr. Bawden, the local member for the Clarence electorate, tabled a list of questions in Parliament on the subject. Moriarty replied that works were in hand on the north side as evidenced by expenditure totalling £45 in 1872, £922 in 1873 and £5628 in 1874. He stated:

> The contract for the formation of the tram-road which will connect the quarry with the proposed breakwater is nearly completed, and the construction of the wharf for landing the heavy plant etc. is being proceeded with. A locomotive engine, steam winches, and all the rails and sleepers have been purchased and will be forwarded to the Clarence River as soon as the wharf now in course of erection at Iluka shall have been completed. Tenders for quarrying the stone for the breakwater will shortly be invited.[10]

In preparation for the breakwater contract, Moriarty's staff spent much of 1875 carrying out surveys and soundings. They produced a revised plan and specification which was put on display in Grafton Court House in March 1876. The displayed plan was 7 feet long and was drawn to the scale of 200 feet to the inch. The local newspaper reproduced the specifications for its readers and for '*those persons who feel an interest in the navigation of the Clarence River*':

> The specification states that the contract shall be for a length of 1200 feet of breakwater, the work consisting in quarrying, loading, and hauling, and tipping the stone to be used in the construction, the Government providing the rails, sleepers, etc., for the roads, the stone to be obtained from the headland at the north side of the Clarence River. The stone is to be quarried in as large blocks as the quarry can furnish, the stones averaging 6 tons weight, or as much more as can be obtained by careful quarrying, all stone to be run over a weighbridge, and weighed. The Government will provide a locomotive engine to haul the trucks, also stone trucks and steam winches for lifting the stone, as well as iron blocks, falls, sling chains, and sheers; all other plant and labour being found by the contractor, who shall engage to deliver, within three months after the signing of the contract, the stone in the breakwater at the rate of not less than 2500 tons a month. The breakwater shall in the first instance be made 16 feet wide on the top, and the slopes on each side may be such as the waves shall wash the stone down to, fresh stone being deposited from time to time, as the subsidence takes place, so as to preserve the width on the top, and the proper slopes and other dimensions.[11]

In January 1876 the Public Works Department (PWD) placed advertisements inviting tenders for the construction of the northern breakwater with applications to close on March 14.[12] The contract was awarded in May 1876 to Daniel Macquarie, an experienced Government contractor.[13]

Macquarie, Noble and Co.

Daniel Macquarie was an energetic businessman, a colourful character and an aspiring politician who made repeated and unsuccessful attempts to get himself elected to the NSW Parliament. He engaged as a contractor to the NSW Government and among his first contracts was the construction of the telegraph line between Mudgee and Murrurundi, and the excavation of Big Hill road cutting on what is now the Oxley Highway.

His first large contracts were for the construction of coal staithes in Newcastle Harbour in 1868, and for the earthworks for the Great Northern Railway, Contract No. 5, from just north of Scone to Murrurundi between 1868 and 1870.[14]

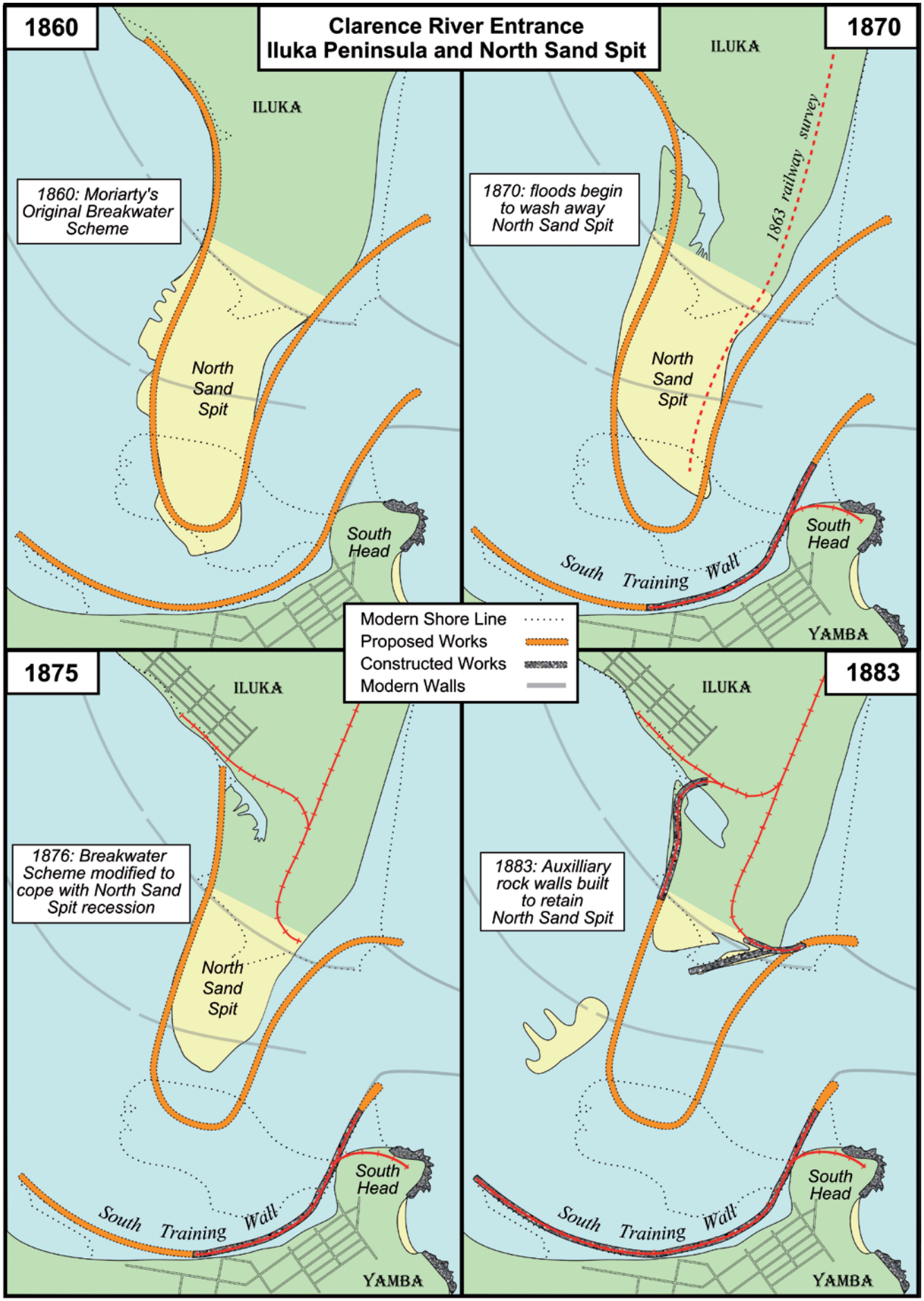
In 1870 he changed direction, taking over the lease of the Patent Slip at Stockton in Newcastle Harbour. He rebuilt, enlarged and modernised the slip-yard, advertising in the Sydney newspapers that the slip was now able to take up vessels of the largest class. Business was good, and in October 1873 he expanded his operations to Sydney Harbour, leasing Cuthbert's slip at Millers Point.

Macquarie over-extended himself financially and a down-turn in trade saw his creditors take action to recover debts of over £8,000. He was declared insolvent in May 1875.[15] All his assets were auctioned off in Sydney and Newcastle in the following months.

His troubles worsened when John Mason, a bailiff for the Bank of NSW, attempted to take possession of his steam yacht in Sydney Harbour. After strong words were exchanged, Macquarie instructed his engineer to cast off, open the regulator and jump ashore. The yacht steamed off at full speed across the harbour with the hapless bailiff on board, Macquarie yelling out after him, '*Have her and be damned*!' The bailiff knew nothing of watercraft and had to be rescued by the crew of a vessel anchored on the other side of the harbour. Macquarie was charged at Sydney Quarter Sessions with casting away a vessel so as to endanger life, found guilty and sentenced to three months in Darlinghurst gaol.[16]

Macquarie appears to have regarded these events as merely a temporary setback. Released from gaol he soon formed the partnership of Macquarie, Noble and Co in early 1876 with a Sydney businessman, James Harvey Randall Noble.[17] They began by advertising themselves as shipbrokers and commercial agents but it was not long before Macquarie was back in the contracting field. In February 1876 he won a contract for city works in Redfern, Sydney, followed by the major contract for the north breakwater at Clarence Heads. The following year he took on the construction of prison buildings at Trial Bay[18] and the construction of an engine house for the Crown Street Water Works in Sydney.[19]

Macquarie despatched his partner, James Noble, to Iluka to manage the Clarence River breakwater contract. The Irish-born Noble had no experience in the contracting field, having previously worked as a commercial representative for a leading Melbourne soft-goods house. In March 1879 he was involved in a scuffle with the rather officious local customs officer at Iluka, Arthur Hood Pegus.[20] Pegus observed one of Noble's men covertly unloading a keg of gunpowder off the *City of Grafton* steamer. Suspecting that inter-colonial duty had not been paid, he marched over to impound it. Noble intervened physically, grabbing Pegus by the beard and putting him in a head lock to restrain him so that the keg could be spirited away. Noble was charged with assault, firstly at the Grafton Police Court where the Police Magistrate acquitted him, and again at the Grafton Circuit Court where a judge again found him not guilty.



The accelerated erosion of the North Sand Spit caused great problems for Moriarty's engineers and was ultimately responsible for the abandonment of his north side works.

It may be that James Noble was fortunate to have friends in high places, but the well-publicised case seems to have been the last straw for Daniel Macquarie. He dissolved the partnership in October 1879[21] and came up from Sydney to take charge of operations at Clarence Heads.

Macquarie carried on with the contract for the north side works until his health began to fail in early 1883. He died in Sydney on 12 April 1883 at the age of 50.[22] His quarry plant and buildings on both the Iluka and Yamba sides of the river were put up for auction in November 1883.[23]

The Iluka Quarry Railway

There was no stone on the Iluka Peninsula for breakwater construction. The locale was described by the early surveyors as '*low sandy hillocks of blown sand covered in low scrub and coarse grass*.' The nearest available stone was at Iluka Bluff, a rocky headland some 1½ miles north. The tram-road referred to by Edward Moriarty to Parliament in December 1874 was a two-mile standard gauge (1435 mm) railway to the planned quarry at Iluka Bluff.

The original 1863 survey for a railway ran from the quarry to the southern tip of the North Sand Spit, where the north breakwater was to have been commenced. By 1873 the southern part of the Spit had washed away and plans were changed. Cecil West Darley, Moriarty's assistant engineer, came to Iluka in August 1873 to peg out a modified route for the railway. In November the Harbours and Rivers Branch invited tenders for the supply of 6000 split railway sleepers and for the construction of railway earthworks.[24]

The sleeper tender was won by Thomas J. Schafer. John George Schafer from Wombah on the North Arm of the Clarence River (believed to be Thomas' brother) advertised for '*two or three pairs of good splitters*' early in the New Year and by April 1874 had cut the sleepers and completed his contract.[25]

The earthworks contract was awarded to a local publican, Charles Peoples, mine host of the *British Hotel* in Grafton.[26] Peoples appeared to sail close to the wind as far as the law was concerned, and at one stage wound up serving three months in Grafton gaol for operating an illegal still. Nevertheless, by early 1876 he had completed his earthworks contract for which he was paid £545.

The rails and sleepers were laid by day labour under Government supervision and it was nearly two years before

A standard gauge wheel set from an 1870s breakwater tip wagon stands beside the road from Iluka to the Northern Breakwater, at the approximate location where the Iluka Quarry Railway crossed.

Photo: Ian McNeil

Rob Knight and members of the Port of Yamba Historical Society employed a metal detector to detect rails of the Iluka Quarry Railway buried under sand dunes north of Iluka. Photo: Rob Knight collection

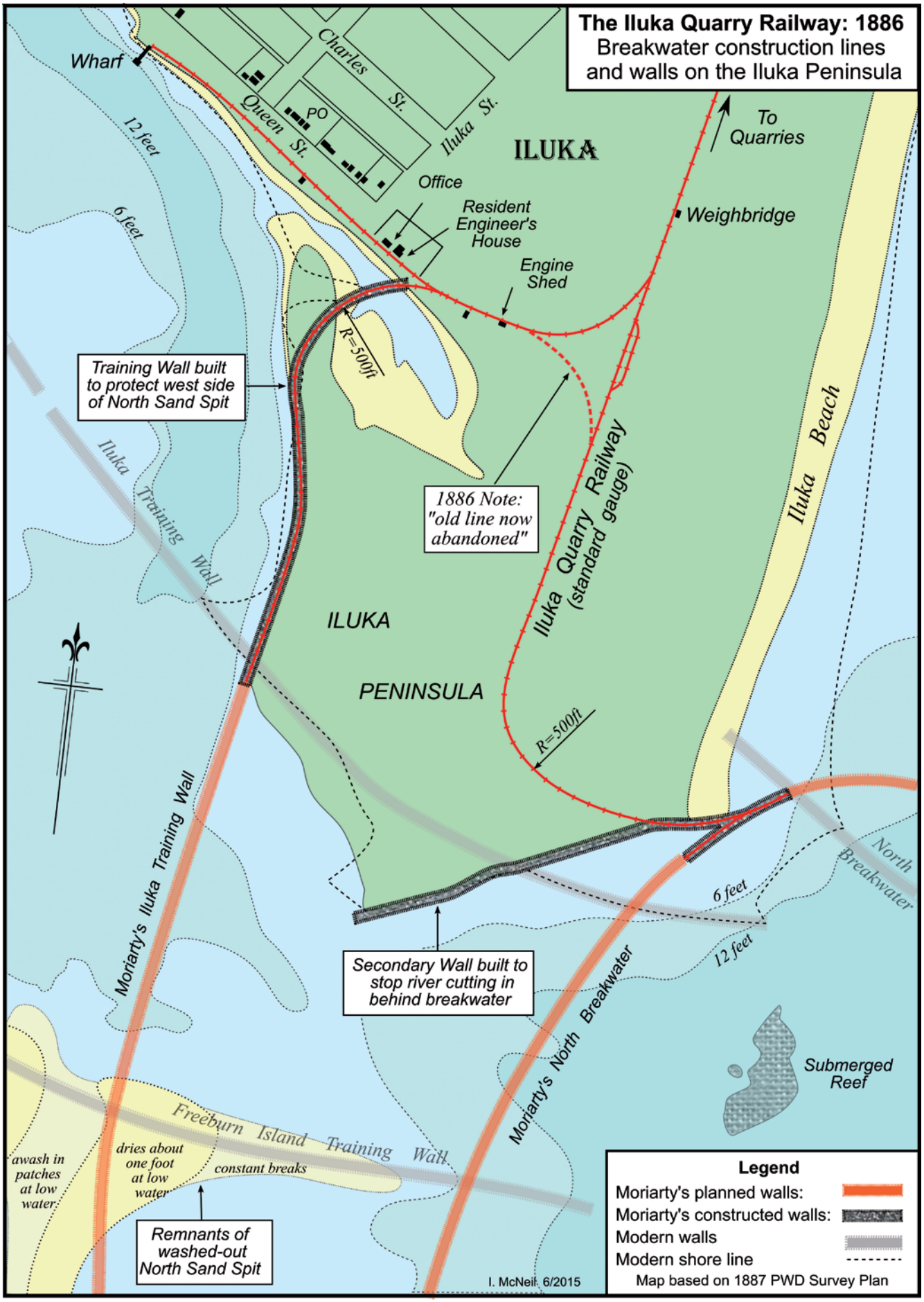
it was commissioned. Much of the delay can probably be attributed to the time taken to prepare the 1876 survey plan for the northern breakwater and training walls. In March 1876 the resident engineer, Merion Herbert Moriarty (Edward Moriarty's brother), drove the locomotive on its first trip on the new line, towing three trolleys crowded with navvies and a number of local residents.[27]

The standard-gauge line was built on the eastern side of the Iluka peninsula, parallel to Iluka beach. The terrain was flat and uninviting, with the scrubby sand hills of Iluka Beach on one side and flood-prone salt marshes on the other. The earthworks constructed by contractor Charles Peoples were minimal, consisting of an alternating series of shallow cuttings through sand hillocks and low sand embankments across the intervening depressions. The only earthwork of any consequence was a short side cutting on the southern flank of Iluka Bluff where the line curved to the east to enter the sea front quarry.

Halfway between the quarry and the breakwater was a junction for a short branch line to Iluka Wharf. It passed in front of the Resident Engineer's residence and ran along the river bank to the wharf at the foot of Vere Street. The locomotive shed is believed to have been located on this branch line, between the engineer's residence and the junction. The Government's 16-ton weighbridge, supplied by John Keep in 1877, was located just north of the junction.

The main line continued due south for another few hundred yards before curving east to run to the start of the northern breakwater. Short construction sidings were put in a few years later to transport stone to the protection walls being built down both sides of the North Sand Spit to prevent it being washed away.

When Cecil Darley completed pegging out Bell's survey for the Iluka Quarry Railway in 1873, he was requested by Edward Moriarty to investigate a possible extension to Woodburn on the Richmond River, 25 miles north. The Richmond River was navigable as far inland as Lismore and passed through exceptionally fertile country. But the Richmond bar was even more treacherous than the Clarence's and vessels could be bar-bound for weeks at a time. It was thought that agricultural produce and timber from Richmond might be shipped by canal or railed to Iluka, thence shipped by coastal steamer to Sydney. Darley ruled out a canal but estimated that a light line of railway with suitable rolling stock could be had for £100,000.[28]



The Iluka Quarry Railway was built to haul stone for breakwater construction. It operated intermittently owing to the many construction problems experienced on the north side.

60lb rails with dog-spikes still in situ were found buried under sand on the Iluka Peninsula. They were in remarkably good condition considering they had been there for over 100 years. Photo: Ian McNeil

This proposal came to nothing and later the NSW Government proceeded to improve the Richmond River entrance by constructing breakwaters and training walls.

In May 1878 advertisements appeared in the press inviting tenders for a one mile extension of the Iluka Quarry railway to Woody Head, now known as Middle Bluff. Iluka Bluff quarry could not produce the large blocks of stone needed for the northern breakwater, and a replacement source of stone was needed. This was found one mile north at the Middle Bluff, the next headland up the coast. This contract went to the Mayor of Grafton, Frederick William Chapman,[29] who put on 20 men for the job.

Operations on the line were shared between the contractor and the Government. Under the terms of the contract it was the contractor's responsibility to provide the motive power to haul stone trucks in and out of the quarry, and also to haul stone trucks on the breakwater and training walls. On a typical journey, loaded stone trucks were hauled out of the quarry by draught horse and handed over to the Government steam locomotive for the trip to the breakwater. At the half-way point they passed over the Government weighbridge where they were recorded and weighed by Edward Blakeney, the weighbridge clerk. At the works site the trucks were handed back to the contractor to be horse-hauled to the tip-site.

One platelayer and two labourers were employed to maintain and extend the line on the breakwall as required, and also to keep sand drifts off the rails, an ongoing problem amongst the sand hills.

The Iluka Quarry Railway operated intermittently between 1876 and 1886. The failure of the Iluka Bluff Quarry in 1877, the death of the contractor Daniel Macquarie in 1883, and the engineering difficulties encountered while attempting to build the breakwater on the unstable North Sand Spit resulted in long periods of inactivity on the railway.

There was one final period of operation for the southern part of the railway between March 1894 and November 1896. The PWD employed day labour and a small rail-mounted steam derrick crane to recover some 72,000 tons of stone from the short lengths of walls that Moriarty had built on the north side. These were dismantled down to the low water mark.[30] The recovered stone was loaded into tip trucks and horse hauled a short distance to construct a section of the replacement North Training Wall across the neck of the North Sand Spit.

After this task had been completed, the north-side tip trucks and some recovered rail were shipped down to the Macleay River breakwater works near South West Rocks.[31] It appears that the rest of the Iluka Quarry Railway was abandoned and soon disappeared under the sand dunes. Field investigations in 2014 uncovered intact sections of railway line buried under the sand in areas that mineral sand miners had not disturbed during their operations in the 1970s. The 60 lb rail uncovered was in exceptionally good condition considering it had been buried for over 100 years.

The first Iluka Quarry Railway locomotive

By December 1874 the PWD had acquired and over-hauled a small second-hand standard-gauge steam locomotive.[32] Unfortunately the identity of this locomotive is still in doubt. It was first believed to be Vale and Lacy No. 1 of 1866[33]. This was the first locomotive built in NSW, described at the time as a 70 hp, 26 ton engine:

> which has attached to four of her six wheels powerful breaks (sic) to check her descent when on the inclines, and there is an apparatus by means of which she can throw sand on the rails when they become too slippery for the wheels to hold.[34]

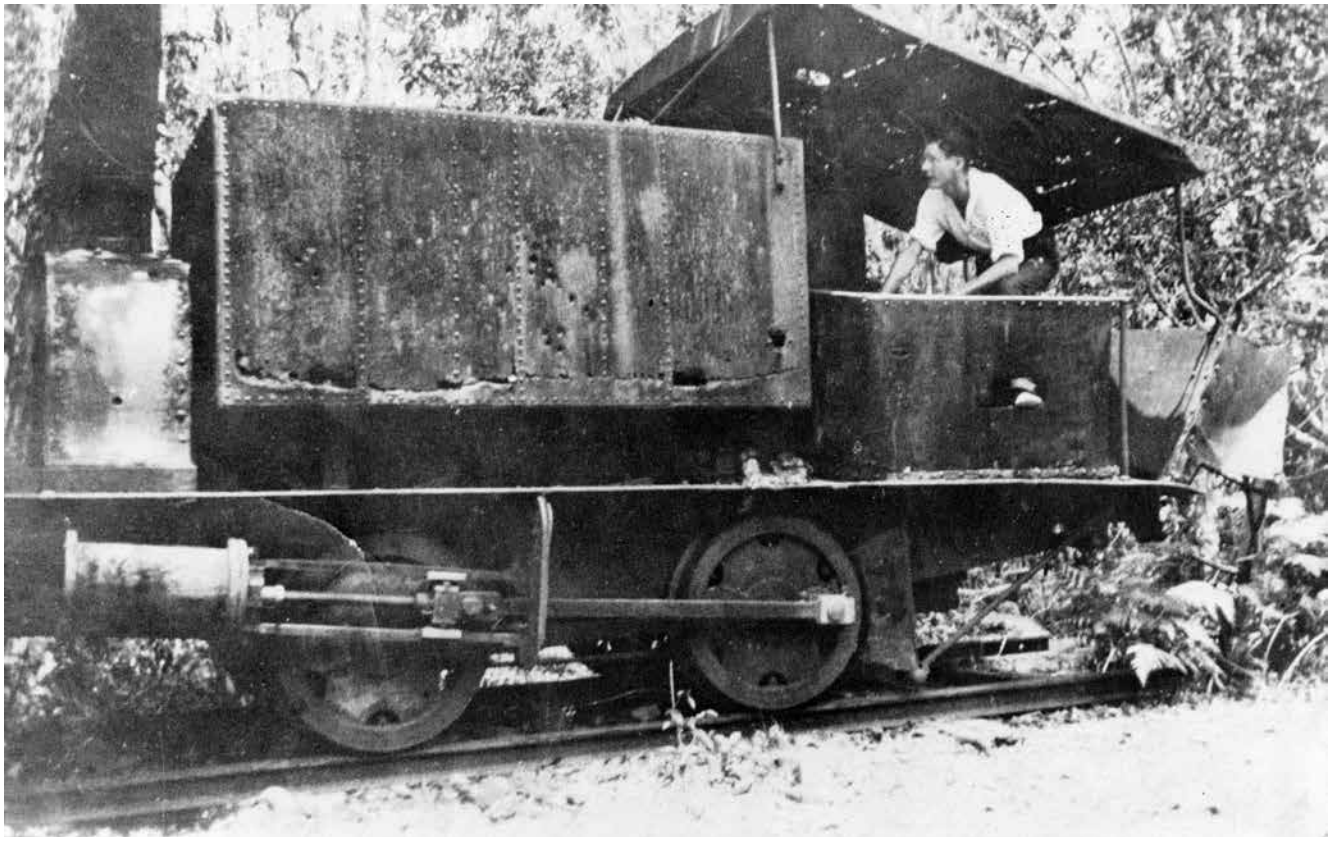
However, photographs of its derelict remains beside Angourie Road south of Yamba show a lighter four-wheel saddle-tank locomotive from which only eight tons of scrap iron were recovered in 1938.

The locomotive's first run at Iluka came in March 1876 when the Resident Engineer Merion Moriarty drove it on the first section of the newly constructed Iluka Quarry Railway. Unfortunately it proved to be a poor acquisition. It broke down on a regular basis, each time bringing work on breakwater construction to a halt and causing the workmen to be laid off for the duration. The PWD attracted some pungent criticism over the condition of the locomotive. One irate correspondent signing himself *Caustic* wrote to the local newspaper to air this complaint:

> It appears in this case the Government have to provide what is called the rolling stock, and to keep in perfect order and condition the short railway line, to enable the contractor to remove the stone from the quarry, or what is termed the Bluff, from thence to the ocean at the Heads. Now, Sir, it is a most lamentable fact that, until the last week or ten days; the works were brought to a standstill by the breaking down of an" old rattle trap " called an engine, and all the navvies were thrown out of employment for five weeks, and several left the service. Some two hundred pounds were paid to overhaul this engine before it was sent down from Sydney, and in a few weeks it was found necessary to send down a practical engineer to doctor it, and within seven days it was again placed in hospital and is now running, like "an old horse, well oiled.[35]

Another equally irate correspondent signing himself *Vitrol* added that the locomotive was a wretched specimen of decayed mechanism that had been condemned some seven years ago. He claimed the PWD had paid £500 for it and spent another £200 to overhaul it before despatching it to Iluka, a shocking waste of public funds![36]

Acknowledging there was a problem, the PWD sent up a replacement locomotive (Manning Wardle 163 of 1865) in March 1877.[37] Edward Moriarty reported two months later that; '*repairs to the other engine are nearly completed, so that we shall have two engines, and there will be no danger of the work being delayed*.'[38] However, it is doubtful if the first locomotive ever saw any further service on the Iluka Quarry Railway and may not even have been returned from Sydney after being repaired. The haulage task was well within the capabilities of one locomotive. It was only required to shuttle stone trucks



The abandoned remains of the first Iluka locomotive slowly decayed beside Angourie Road south of Yamba for many years before it was finally scrapped in 1938. It was first thought to have been Vale and Lacy No. 1 of 1866, but as this was built as a 26 ton six-wheeled locomotive, that identification is now in doubt.
Photo: Port of Yamba Historical Society

a relatively short distance between the contractor's quarry and its works at the breakwater site. Traffic on the line was never very heavy owing to the ongoing problems and delays associated with the breakwater construction program.

It is more probable than not that it was the locomotive sent to Yamba in 1883 to haul stone from South Head Quarry to extend the South Training Wall, where it also failed in this task: [39]

> Work has not been commenced yet at the Heads for the extension of the southern dyke. It is said the contractor has been up and ready to commence work for upwards of two months. The Government locomotive was sent to Sydney for repairs and to undergo a thorough overhaul; but when it was returned and steam was got up, I hear it would not work, only in a very perverse manner, by forcing water into the cylinders and steam into the funnel. I don't know very much about locomotives, and this may be the way they commence their work, but if such is the case the people at Yamba do not understand it either, and at any rate could not get it to work.

In 1886 all construction work at Clarence Heads was suspended and it appears the unwanted and unloved locomotive languished in the engine shed at South Head Quarry. It was not employed on the Angourie Quarry Railway during the 1893 – 1899 construction of the mid-river training walls. When the last of the plant was removed in 1906, the locomotive was left on an isolated siding south of Yamba. It was still there in March 1918 when the PWD invited tenders for its purchase.[40] There was no taker and six months later a local newspaper correspondent commented:

> A dozen years ago a worked-out quarry near Clarence Heads, with about four miles of railway line, was abandoned, and all the plant removed, except a locomotive, which was left in a shed on a siding. A few years later the Department sold the shed for a few pounds and it was removed, leaving the locomotive exposed to the weather. Still later the line was lifted, excepting the rails on which the engine stood. Now, after a further long interval the Works crowd is calling tenders for the purchase of the engine; lowest or any tender not necessarily accepted. Which means that if offers are not up to reserve, the ancient machine will be left to season for a few more years until its value improves. [41]

It was still there when photographed in a derelict condition by the late Bart Wiles in the 1930s. In April 1938 eight tons of scrap iron, representing all that was salvageable of the locomotive, was stacked on Yamba wharf awaiting shipment to Sydney[42], reportedly for sale to Japan. Dr John Kramer photographed the remnants of the saddle-tank beside Angourie Road in 1986 but they had disappeared when he returned several years later.

The abandoned Iluka locomotive was the backdrop for more than one 'Box Brownie' holiday snap as well as a target for some early graffiti.
Photo: John Kramer collection

John Kramer photographed the rusted remnants of the saddle tank beside Angourie Road, near the Sewage Depot turnoff, south of Yamba in 1986. *John Kramer collection*

The second Iluka Quarry Railway locomotive: Manning Wardle 163 of 1865

To replace the unreliable first locomotive, the PWD purchased a small 15-ton locomotive from the Waratah Coal Company of Newcastle, NSW, in March 1877. It was that company's No. 2, 0-6-0ST Manning Wardle (163 of 1865), which was loaded onto the steamer Agnes Irving in Newcastle Harbour and despatched to Iluka.[43]

It was imported by the agents, R F Tooth and Mort for the Waratah Coal Company and arrived in Newcastle in April 1866. The locomotive operated on a three-mile private railway between the company's colliery and its wharf and coal shoots at Bullock Island in Newcastle Harbour. After some ten years' service the company disposed of it to the PWD and replaced it with another Manning Wardle, 739/1879, their second No. 2.[44]

Unlike the first locomotive, No. 163 appears to have led an uneventful life on the Iluka Quarry Railway. Only one blemish was recorded when a piston rod broke and knocked the end out of one of the cylinders in May 1883, putting the locomotive out of action for nearly a month.[45]

One of the few anecdotes unearthed concerning the locomotive occurred in 1882. January 12 was election day and both the breakwater workers and the dredge men were given half-a-day off to vote. The former '*came in on the locomotive and her tender, clustering all over it like bees, and returned in the same fashion, cheering so joyously that I think Stevenson must have been a favourite with them*'.[46]

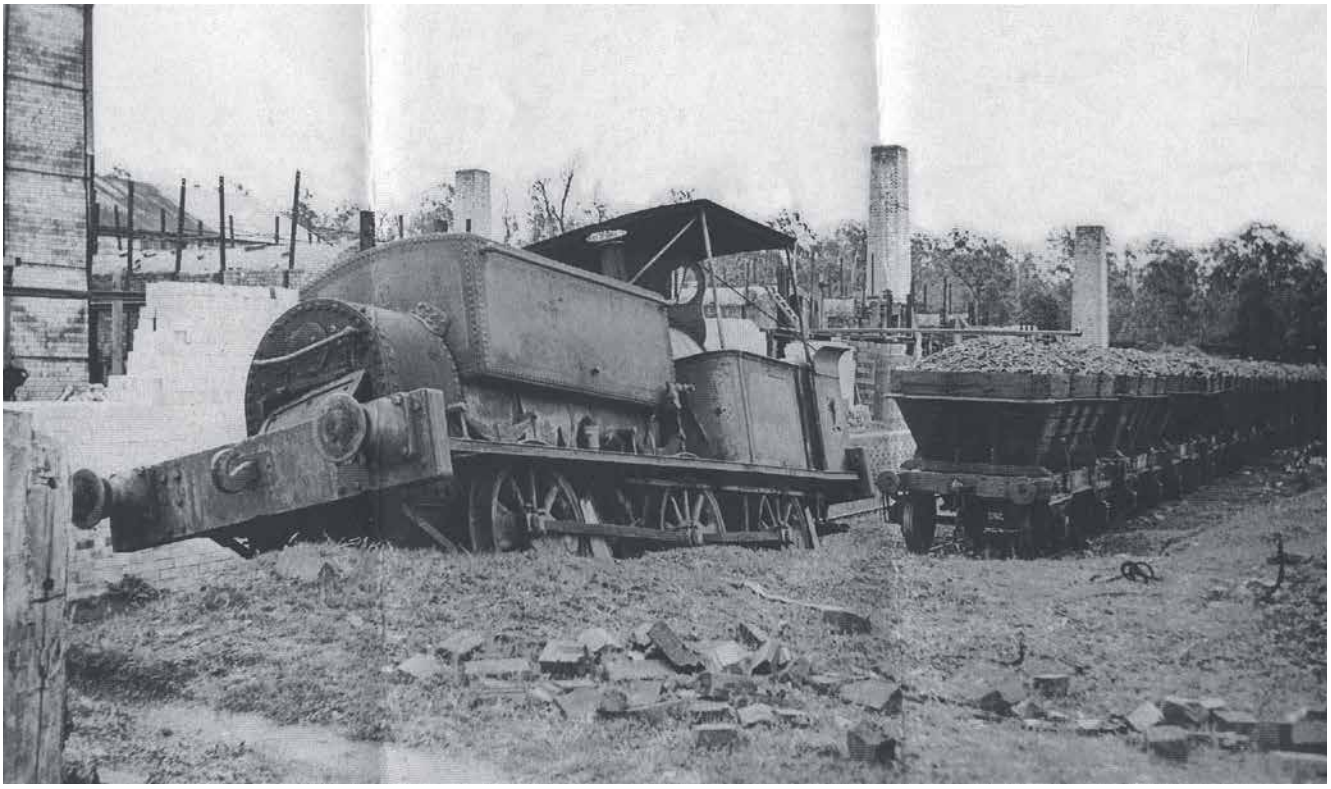
Another related to complaints about meat delivered to the workmen camped near the quarry. Apparently the meat was; '*run out from Iluka on the coal-truck of the locomotive, and deposited on the sand beside the railway line, from where they must fetch it if they want it.*'[47]

Construction work on the north side was suspended in 1886 pending the receipt of Sir John Coode's recommendations for a revised scheme. At the time it was confidently expected that breakwater construction work would continue, and it is believed that the Manning Wardle was stored in the Iluka Locomotive Shed pending a resumption of work. Instead the NSW Government decided to construct Sir John Coode's river training walls and not the breakwaters. Plant was transferred to the Yamba side of the river for the opening up of Angourie Quarry and the construction of the Angourie Quarry Railway.

There was a possible reference to the Manning Wardle in January 1891. Tenders were invited for the construction of the Angourie Quarry Railway and a local newspaper correspondent commented:

'*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.*'[48]

Manning Wardle 0-6-0ST (163 of 1865) at the first Port Kembla breakwater colliery, shortly after its transfer from the Clarence River. "The line from the quarry to the new breakwater at Port Kembla is finished and the locomotive and train of trucks, spick and span, stands ready for steam up 27 July 1901." E. Ellis. *Photo: Bruce Macdonald collection*

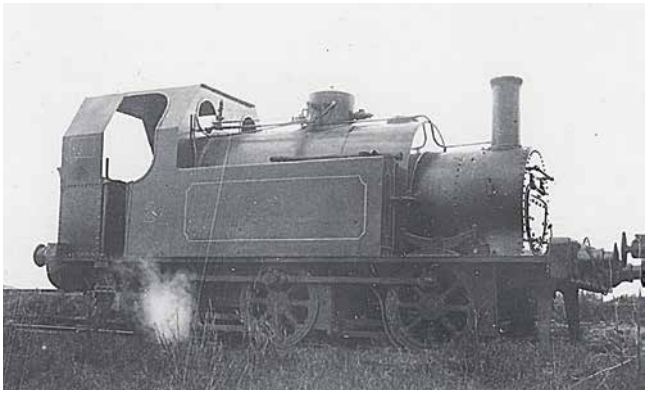


Ex-Iluka Manning Wardle 0-6-0ST (163 of 1865) derelict at the Waterloo Brickworks on the Ashtonfield Colliery Railway near Thornton in the early 1930s. *Photo: John Shoebridge collection*

The Angourie Quarry Railway was initially operated by breakwater contractors Kerr and Wallace, who brought in its own locomotives, between 1893 and 1896. When the PWD took over in 1897, the Manning Wardle was one of the locomotives available to haul quarried stone for the river works.

Following the closure of the Angourie Quarry Railway in December 1899, the PWD transferred the Manning Wardle to Port Kembla. There it hauled stone from the newly opened quarry for the construction of the first harbour breakwater. It arrived via the Fitzroy Docks, Sydney, on 13 May 1901 [49] and was the first PWD locomotive brought in for the breakwater works. At Port Kembla it was known as *Tilly*, and after the 1916 re-numbering of PWD locomotives became PWD No. 26.

Locomotive historian E Ellis noted that; '*she was fitted with pumps that worked off the crosshead. You just leaned over the side of the cab and turned a brass handle half a turn and your boiler feed was on. I often had to go for a run to pump up the glass.*' He also noted that according to the manager of the Waterloo Brickworks in Sydney, owners of the Ashtonfields Brickworks at Thornton, the Manning Wardle was acquired from J S Rodgers in March 1919 for service on Thomas Longworth's short Ashtonfield Colliery Railway at Thornton.[50] In 1922 it was replaced by an ex-NSWGR CC class tank engine, after which it lay derelict for a number of years on a siding adjacent to the brickworks.



The ex-Iluka Manning Wardle 0-6-0T (163 of 1865) was rebuilt in 1933 by Goninans of Newcastle utilising a steam tram boiler and saddle tank for Tom Howley's Glenrock Colliery Railway. The top of the loco cab was narrowed to fit through the narrow Merewether Beach tunnels. *Photo: John Shoebridge collection*

In 1933 it and a second derelict Manning Wardle were acquired by Tom Howley with the intention of making one workable engine from the components to use on his Glenbrook Colliery Railway in Newcastle. The job was contracted to Goninans who fitted a steam tram boiler and saddle tank. The loco cab was narrowed at the top to fit through the narrow Merewether Beach tunnels. The locomotive commenced work on Howley's line in March 1934. When the line closed in 1942 the composite Manning Wardle was acquired by JP Kennaway, a local second-hand machinery dealer. It was available for sale but there were no buyers and the locomotive was finally cut up in the mid-1950s.[51]

Iluka Bluff Quarry.

The first quarry site selected by Moriarty's engineers to supply stone for the northern breakwater works was at Iluka Bluff – then known as North Head – the first rocky headland north of the Clarence River entrance. This is now part of the Bundjalung National Park and has a tourist lookout sited on the highest point.

The underlying rock strata at Iluka Bluff were composed of the same hard blue sandstone as that found at South Head quarry. It was overlain by thick layers of softer rock, similar to South Head, which had to be stripped back before quarrying could begin.

Macquarie and Noble began preparations at Iluka Bluff in July 1876 with the establishment of a work camp for their men just south of the Bluff. They built an office, blacksmith's shop, store room, horse stables and a fodder shed at the site. A powder magazine was excavated into the western side of the Bluff containing, James Noble told a visiting reporter, '*enough powder*

The imposing headland quarry face of the short-lived Iluka Bluff Quarry. Although there was a large quantity of hard blue sandstone available, it could not be quarried out in sizes large enough for breakwater construction. *Photo: Ian McNeil*

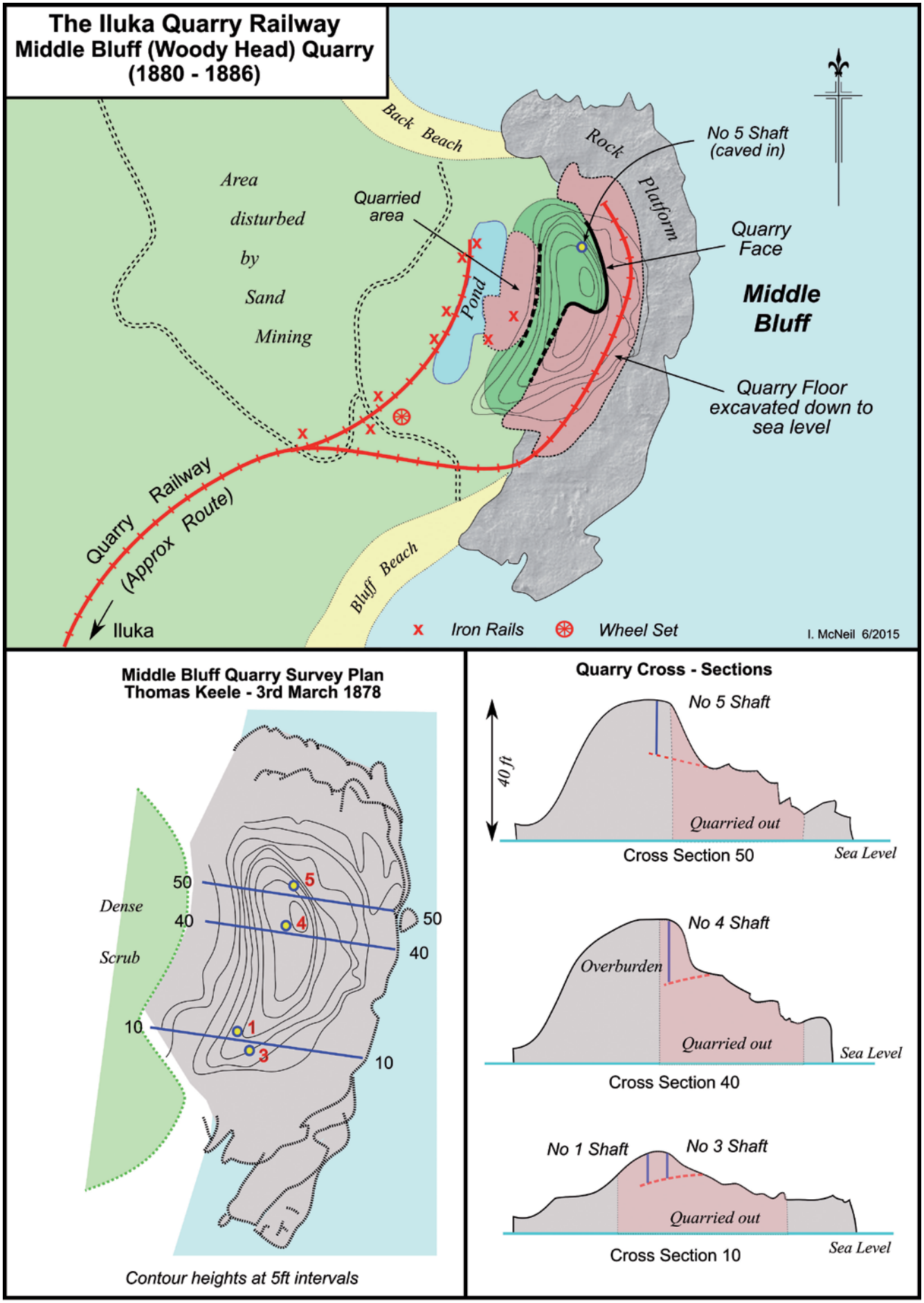
to blow the whole quarry into the Pacific.' A side cutting was excavated through the southern side of the Bluff and a rail line laid to the quarry face at the water's edge. Some 35 men were employed at Iluka Bluff Quarry including quarry labourers, hammer-men, a blacksmith and his assistant, a carpenter and a plate-layer.[52]

The quarry began producing stone in late 1876. The overlying soft rock strata were stripped back and a sea-front quarry face opened up to expose the hard underlying sandstone. Vertical holes were drilled down behind the face and packed with gunpowder. The resulting blasts loosened large blocks of stone which were levered out by quarry labourers. Two 16-ton capacity steam cranes were employed to load stone blocks onto standard-gauge four-wheel tip trucks. Loaded trucks were hauled out of the quarry one at a time by a draught horse. When six or seven loaded trucks had been accumulated they were picked up by the Government locomotive to be hauled to the breakwater work site two miles to the south. At the breakwater site the locomotive was uncoupled and the contractor took over again, using horses to haul the trucks to and from the tip face.

Unfortunately it soon became evident that much of the stone coming out of Iluka Bluff Quarry was unsuitable for breakwater construction. The presence of multiple fissures and layers within the sandstone strata caused much of it to fracture into pieces too small to be used. Although the quarry site had been tested by three resident engineers, firstly by William Baron in the 1860s then later by Edward Bell and Cecil Darley, the fissuring and layering in the underlying layers had not been detected.

The decision was made to open another quarry to supply the large blocks required for breakwater construction. It is believed that quarrying operations continued at Iluka Bluff, at least until a new quarry had been opened up, in order to keep up a supply of smaller sized stone to construct protective walls down both sides of the North Sand Spit.

150 year old wheel sets and crane parts scattered at the south end of Middle Bluff Quarry. Two in-situ sleepers from the Iluka Quarry Railway protrude from the grassy bank in the centre background. Inset: wheel detail. *Photo: Ian McNeil*



Middle Bluff Quarry supplied the lion's share of stone for Moriarty's North Breakwater. The small headland was extensively quarried and a large area of the adjoining rock platform was excavated down to sea level.

A panoramic view of the headland quarry face at Middle Bluff. Although a much smaller headland than Iluka Bluff one mile to the south, its hard blue sandstone could be quarried out in large blocks suitable for breakwater construction. The remnant hill is a shadow of its former self. Photo: Ian McNeil

Middle Bluff Quarry.

A new quarry site was selected one mile north at Woody Head – modern-day Middle Bluff – the next rocky headland north of Iluka Bluff. The site was surveyed and test shafts were sunk in March 1878 by Thomas William Keele, an assistant engineer with the Harbours and River Branch, who also carried out the survey for the extension of the railway to the quarry.[53]

Middle Bluff Quarry began production in early 1880 when Daniel Macquarie invited tenders for quarrying stone and loading waggons at the works. He placed more advertisements in the following months for good quarry labourers, experienced hammer and drill men, pick and shovel men, a blacksmith and a horse driver.[54]

Compared to the more imposing Iluka Bluff one mile to the south, Middle Bluff was an insignificant little headland – more of a hill than a headland – less than 50 feet high. The hard blue sandstone rock suitable for breakwater construction was also covered by overburden which had to be stripped off and run to spoil. Quarrying began on the rock platform at the water's edge, where the harder rocks outcropped, and worked back into the headland. The rock platform itself was extensively quarried out down to sea level leaving only a narrow rock rim to keep the sea out. Judging by the large waves that break onto the rock platform today, the quarry must have been an unpleasant place to work in bad weather.

The quarry was the scene of a double fatality in February 1882. Quarry labourers James Candlish and Thomas Wilson were fatally injured by a ¾ inch chain which snapped while lifting a 17 ton block of stone.[55]

James Ellis the quarry foreman told the ensuing coroner's inquest that on that day he had helped the men rig the gear for lifting the stone with the chain being run through double pulley blocks to enable the 12 hp steam winch to lift it. Before the stone was fully off the ground, the chain snapped and the free end, some 70 feet long, whipped through the air striking Candlish and Wilson.

The evidence given by the steam winch driver William Casselli was more disturbing. He told the coroner that the chain supplied was Admiralty tested and should have lasted 12 months for the type of work they did. Stones of up to 23 tons weight

The rock platform in front of Middle Bluff headland was extensively quarried down to sea level leaving only a narrow rock rim to keep the sea out. Rail lines on the quarry floor faced frequent immersion when heavy seas sent waves breaking over the rim. Photo: Ian McNeil

Low water levels in the quarry pond behind Middle Bluff uncovered an in-situ length of the Iluka Quarry Railway. The 140-year old rails and sleepers are in a remarkably good state of preservation considering their age. More rails were found under the sand along the line of the railway.
Photo: Warwick Hoad

had been lifted. Chains often broke and when they did the blacksmith would cut out the broken link and replace it with a shackle. The chain that killed the two men already had five shackles in it.

Both men were still alive after the chain strike. They were rushed to Iluka by locomotive and taken upriver by boat to Grafton Hospital. Candlish had been struck in the head and never regained consciousness, he died the following day. Wilson sustained a compound fracture of his leg and died four days later from gangrene and complications following amputation. The coroner's jury reached a verdict of accidental death but was critical of work practice at the quarry. They added a rider to their verdict:

'*From the frequent breaking of the chains, they should be examined by some competent person before being again subjected to such heavy strains as they have lately been submitted to*.'[56]

All construction work on the north side was suspended in July 1886 following an inspection of the Clarence River entrance improvement scheme by the eminent British harbour engineer Sir John Coode. Operations at Middle Bluff quarry were closed down and the men were paid off. Both quarries were abandoned and never re-opened.

The North Breakwater

The story of the failed North Breakwater is a rather dismal one, punctuated by delays, government procrastination, underfunding, a failed quarry, an unreliable locomotive, the death of the principal contractor and the unstable nature of the North Sand Spit.

It was first proposed by Moriarty in 1860 but approval for its construction was not forthcoming until January 1873 and the first stone was not tipped until October 1876. It was to be built '*á pierres perdues*' (literally, 'lost stones'), similar to the procedure used to construct the South Breakwater in which large irregularly-shaped stones were tipped into the sea to settle into a stable, self-interlocking rubble wall.

Work began in mid-1876. The first of many delays began when the locomotive acquired by the PWD to haul stone broke down on a regular basis. A replacement locomotive, Manning Wardle 163 of 1865, was sent up from Newcastle in March 1877. By the end of 1877 it had become clear that stone from Iluka Bluff Quarry could not be produced in sizes large enough for breakwater construction. Work on the breakwater stopped for most of 1878 while the replacement quarry at Middle Bluff was opened up and the railway extended into it.

1879 and 1880 were years of heavy rainfall and river flooding. The effect at the entrance was to accelerate the cutting away of the North Sand Spit, and by 1882 the river was threatening to isolate the embryo breakwater by breaking through the Iluka peninsula behind it. In Moriarty's own words, '*on the north side very great difficulties have been encountered*.'[57] Work was stopped on the breakwater and concentrated instead on protecting what was left of the North Spit with stone facing down its east and west flanks. Commenting later on the effort required to stop the Spit washing away, assistant engineer Cecil Darley said that at one stage they were tipping stone into 31 feet of water.

Less than 600 feet of the northern breakwater was built. It proved insufficiently strong to withstand the battering of storm waves and sections of it washed away. Commander Frederick Howard, a British Navy captain, was a nautical surveyor in the employ of the Harbours and Rivers Branch. He gave evidence to the 1889 Public Works Committee enquiring into improvements at the entrance to the Clarence River:

> 'The north breakwater was giving way all along. The water used to percolate through, and the sea was continually washing the stones away in parts. There was originally a breakwater running out here (referring to map), but that has disappeared.'[58]

It was not until early 1883 that Moriarty felt that the situation had been stabilised sufficiently for work to resume on the breakwater construction. A further complication followed a short time later. Daniel Macquarie, the contractor for the northern breakwater, had been in poor health for some time prior and died on 12 April 1883. More delay ensued until a replacement contractor was found to take over the north side works. Railway contractors Greig and Monday accepted the contract and work resumed in May 1884.[59]

Amid mounting criticism, the NSW Government began to question the viability of Moriarty's improvement scheme. By January 1885 over £137,000 had been spent on the Clarence River entrance works. £76,000 of this had been swallowed up on the north side with less than 600 feet of unstable breakwater and deteriorating conditions for navigation to show for it. When Sir John Coode, the pre-eminent British harbour engineer of his time, re-visited Australia in 1885 the NSW Government engaged him to examine several of its problem river entrances, not least the Clarence. He visited Clarence Heads in October 1885, inspected the river entrance and Moriarty's harbour works, and interviewed a number of veteran steamer captains.[60]

Following his visit Sir John requested a number of additional hydrographic surveys to be carried out and the results sent to him back in England. In 1886 Commander Howard and his survey staff spent eight months on the Clarence carrying out the requested surveys. Pending the completion of this work and the receipt of Sir John's report, all work was suspended on both the north and south sides of the river in July 1886 and the workmen were paid off.

The demise of Moriarty's river improvement scheme

The NSW Government received Sir John Coode's report in November 1887. His proposal was a radical departure from Moriarty's scheme. It recommended a navigable channel to be created on the north side of the river going straight out to sea across the North Sand Spit. Internal training walls and external breakwaters were to focus the combined scour of river and tidal flows to stabilise the position of the entrance channel and maintain a navigable depth in it. The Coode scheme was not cheap; he estimated £183,400 for the training walls and £397,500 for the breakwaters.[61] Coode's report was referred to the Parliamentary Standing Committee on Public Works. In October 1889 the Committee recommended that only the training walls should be constructed initially with the question of the expensive breakwaters to be deferred until it was clear that they were necessary.[62]

On 16 September 1890, the 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 construction of Sir John Coode's training walls.

The receipt of Sir John Coode's report brought on the end of Edward Moriarty's career. Moriarty had been in poor health for some time, and in August 1888 it was announced that he was to be granted six months leave of absence on full pay and would retire from the service on a pension of £791 13s a year. After 30 years service for NSW Public Works, he returned to England to live out his retirement in Hampshire until his death in September 1896.

Moriarty's secondary wall across the North Sand Spit was dismantled in the 1890s to provide stone for the replacement scheme. It was partly rebuilt in 1970 when hydraulic modelling demonstrated it was a necessary adjunct for river control. *Photo: Ian McNeil*

The remnants of Moriarty's early 1880s protection wall down the west side of the North Sand Spit are visible at low tide. Much of stone used in its construction was recovered between 1894 and 1896 to build the North Training Wall across the neck of the Spit. Photo: Rob Knight

His second-in-command Cecil West Darley was appointed his successor as Engineer-in-Chief of the Harbours and Rivers Branch. Darley was also given six months leave on half-pay '*to enable him to recruit his health, which has been much impaired by overwork, caused by the long illness of Mr. Moriarty*.' Robert Hickson, the engineer in charge of works at Newcastle, was appointed as acting Engineer-in-Chief until Cecil Darley took up his appointment at the beginning of 1889.[63]

Moriarty's scheme was abandoned following the adoption of Sir John Coode's alternative scheme for the Clarence River Entrance. The few sections of wall constructed on the north were dismantled a few years later. The recovered stone was used to construct part of Sir John Coode's North Training Wall.

Ironically, the section of Moriarty's protection wall built down the east face of the North Sand Spit was re-instated in 1970. Hydraulic modelling had shown that it was a necessary adjunct to reduce the width of the entrance channel in order to increase its depth.

Extant remains

While Iluka and the northern side of the Clarence River have changed out of all recognition since Moriarty's time, evidence of the work done some 150 years ago can still be seen in places. The quarry faces and excavated rock platforms at Iluka Bluff and Middle Bluff will remain an enduring legacy for centuries to come. Less permanent are the heavily corroded wheel sets, pieces of rail and miscellaneous ironwork scattered around these old quarry sites.

Much of the Iluka Quarry Railway disappeared under sand shortly after closure. It was said at one stage that the dunes were moving inland six inches a day and the old locomotive shed still remains buried.

Local historians Rob Knight and Jon Henry employed a metal detector to locate buried rails and dog-spikes along the route of the Iluka Quarry Railway in the sand hills between Iluka Reservoir and Iluka Bluff. Mineral sand mining activities further north between Iluka Bluff and Middle Bluff destroyed most of the evidence of the railway in this area.

Moriarty's breakwater and protection walls on the North Sand Spit were dismantled in the 1890s and the stone reused in later walls. Remnant stones from some of these walls can still be seen in the river bed at very low tides.

Acknowledgements

The very considerable assistance given by Rob Knight, Jon Henry and members of the Port of Yamba Historical Society is gratefully acknowledged. My thanks also go to LRRSA members John Browning, Richard Horne, Bruce Macdonald, John Shoebridge and Stuart Thyer for their assistance in piecing together the largely undocumented locomotive history of the line and for supplying photographs of the same.

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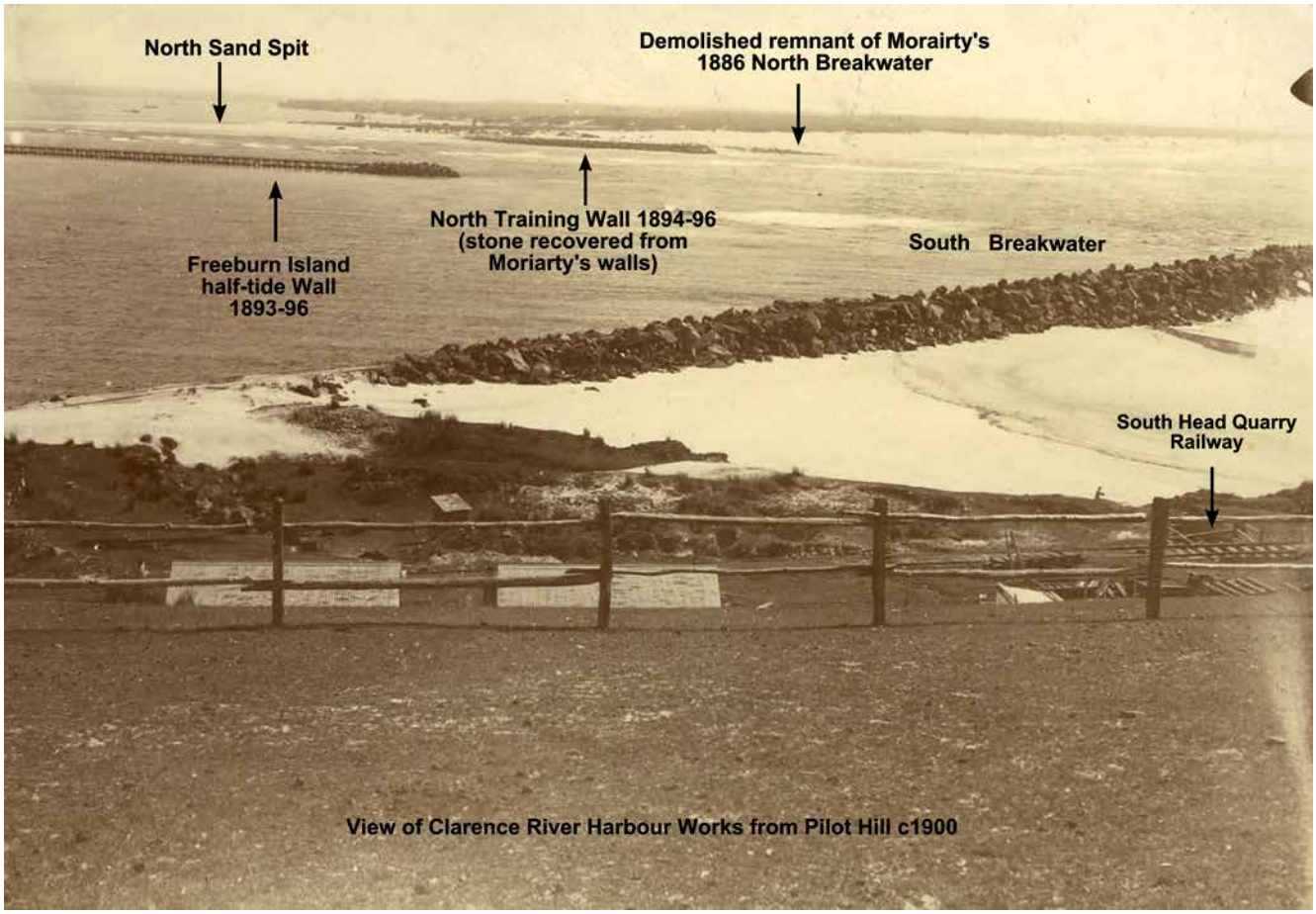

The Clarence Harbour works c1900. The short South Breakwater and the submerged remnants of the North Breakwater were the only legacy of 25 years of work on Moriarty's scheme at the river entrance. *Photo: Port of Yamba Historical Society.*

Former South Australian Railways 2-6-0 locomotive Yx 170 taking pride of place on the track amid heavy machines and equipment in the Main Workshop. *Photo: Robert F McKillop*

Remembering Yarloop Workshops

by Robert F McKillop

The destruction of the acclaimed Yarloop Workshops in the Waroona fire inferno on 7 January 2016, together with most of Yarloop township, was a huge blow to Australia's industrial heritage and the dedicated volunteers who had restored and maintained this world acclaimed site. My wife and I had the good fortune to visit the Yarloop Workshops on 25 August 2011 during a holiday in Western Australia.

This article draws on our experience of that visit and presents some of the images taken there, but first some background on the Millar companies that was responsible for establishing the workshops at Yarloop in the late 1890s.

Millar's empire

The brothers Charles Gibson and Edam Frank Millar (C & E Millar) were active railway contractors in Victoria, New South Wales and South Australia by 1883, when they developed an interest in milling the giant karri trees of Western Australia's south-west districts. Following their success in gaining the contract to construct the private Great Southern Railway to Albany on 20 July 1886, they landed the plant for two sawmills at Albany, together with 400 labourers. The mills were erected at Torbay west of Albany to cut sleepers for the new line.[1]

In 1886 the Millar brothers floated the company Millars Karri and Jarrah Forests Limited backed by British capital with its headquarters in London. As the demand for timber receded in the 1890s depression, the local Millars general manager, Henry Teesdale Smith, worked with the principal sawmilling enterprises in Western Australia to combine into one amalgamated company in order to rationalise resources and reduce overheads. On 12 August 1902 eight companies merged to form Millars Karri & Jarrah (1902) Limited with its headquarters in London.[2]

Henry Teesdale Smith had selected a site at Waigarup (later Yarloop) to establish a mill to saw jarrah timber in 1895 and the mill there was established adjacent to the Perth–Bunbury railway line. This site would grow into the centre of a vast network of bush tramways and it was here that large locomotive and mill machinery workshops were established in 1901 to maintain all the combined company's locomotives, rolling stock and plant. Over the years there were five mills on the Millars bush tramway network at Yarloop, which incorporated some 620 kilometres of railway formation.[3]

During the steam era, most of the Millars locomotives were maintained by the fitters and boilermakers at the main workshop within the Yarloop Workshops complex. The facilities lacked the heavy lifting equipment found in government railway workshops, so the boilers were lifted off their frames with screw jacks, the fire hole being filled with timber baulks to provide a lifting point at the cab end. Once clear of the frame, the boiler was skidded off to the side on greased rails using kangaroo jacks. Crew jacks were also used to lift the locomotive and tender frames off their wheels.

Brake blocks were made in the foundry and they were generally changed on washout days. A mileage register for locomotives was kept at each mill depot and this was augmented by a carbon copy book in which drivers entered requests for any work needed on their locomotive.

A fulltime wagon inspector was responsible for assessing the condition of the axle boxes and brakes on the timber trucks, vans and carriages. A carpenter carried out repairs and fitted new timber as required in the truck shop. A full-time doctor was based at Yarloop to carry out regular checks of train crew personnel while the WAGR eye testing van was regularly stabled at Yarloop to test company train crews.[4]

The workshops also manufactured mill equipment and serviced the saws and stationary steam engines used at the various

mills in the Millars empire. The workshops were particularly noted for their capacity to manufacture replacement parts for locomotives, rolling stock and mill equipment, thereby avoiding long delays in obtaining these items from the United Kingdom.

In the 1930s more than 100 people were employed at the workshops and a further 500 were engaged in the company's operations in the district. The Yarloop Workshops continued to operate until 1978 when Cyclone Alby caused severe damage to the buildings and Millars abandoned the workshops.[5]

Visiting the workshops

Yarloop was a must see venue during our trip from Perth via Bunbury, Manjimup, Pemberton, Albany, Kojonup and Northam before returning to Perth. I had read much about the workshops and the efforts by the local community to restore and promote its heritage, but the experience of that visit greatly surpassed my expectations.

The workshops comprised a large complex of timber buildings with railway lines winding their way between them. We received a friendly greeting from the volunteers in the entry area, paid our entry fee and followed the map to the various features of the extensive complex.

The overpowering experience is of a facility where time has stood still. It seems as if the last person out as the cyclone bore down in 1978 shut the doors leaving, leaving thousands of tools, block patterns, saws, nuts and bolts and many similar items hanging in their allotted place or sitting on shelves to gather dust and cobwebs over subsequent decades.

There were a number of visitors exploring the site, but such was its extent that we had many of the building and rooms to ourselves. The saw repair shop was our first stop with its array of machines driven by belts from overhead shafts and the intricate tools used by 'saw doctors' to repair and sharpen the basic tools of the timber trade.

The company library with its shelves of books and magazines from bygone eras was also fascinating as we spent time checking out the titles that company executives saw fit for their employees. The main workshop with former South Australian Railways Yx Class 2-6-0 locomotive No. 170 taking pride of place on the track amid heavy machines and equipment, notably a huge wheel lathe, while the walls were adorned with an amazing array of tools, while the overhead shafts and leather belts to drive the machines added to the nostalgic character of the place. To one side, the pattern shop had shelves stacked high with many hundreds of patterns for every conceivable item.

An interior view of the Steam Shed with the large Austral engine ex-Dean Mill in the foreground. Photo: Robert F McKillop

A scene inside the locomotive shed with the Clyde 0-6-0DH locomotive (B/N 61-241 of 1961) at the head of a rake of flat-top timber-carrying wagons on the right and the Baldwin steam tram replica built by Colin Fry to the left. Photo: Robert F McKillop

In the adjacent locomotive shed, recently repainted Clyde-built 0-6-0DH locomotive (B/N 61-241 of 1961) was stabled at the head of a rake of flat-top timber-carrying wagons, while the Baldwin steam tram replica built by Colin Fry (see LR 186, p261) was displayed on an adjacent track. A large logging whim from the era of bullock-power was displayed in a nearby building that, from memory was the foundry with a blacksmith's forge and equipment.

To the rear of the complex the steam house and the more recent steam shop displaying an assortment of steam engines, pumps, compressors and generators all driven by two ex-WAGR vertical boilers. Live steam events were then held on the second Sunday of each month.

Epilogue

The Yarloop workshops continued to gain recognition as one of Western Australia's premier heritage attractions following our visit, with a number of authorities recognising it as one of the world's premier industrial heritage sites with its intact collection of machines, tools, locomotives and rolling stock and stationary steam engines with particular attention given to the amazing collection of timber patterns.

Alas, all that came to a sudden end on Friday 7 January 2016 when virtually the whole town was wiped off the map by the Waroona inferno. In addition to the entire heritage-listed Yarloop Workshops, the town's railway station, police station, pub, shops and 95 houses were destroyed.[6]

Fortunately the replica Baldwin steam tram was off site at the time, while Yx class locomotive 170 appears to have survived as a restorable item. What else survived from this world-class collection remains to be determined at this stage, but the losses for Yarloop township and its residents have left large scars on the landscape and the energy of the people affected. We await future advice on what may grow from the experience.

End Notes

1. Gunzburg, Adrian and Austin, Jeff, *Rails Through the Bush: Timber and firewood tramways and railway contractors of Western Australia*, Melbourne, LRRSA, 1997, pp 17 and 220
2. *Bunbury Herald*, 13 August 1902
3. Gunzburg, Adrian and Austin, Jeff, op. cit, p53
4. Gunzburg, Adrian and Austin, Jeff, op. cit, pp 39–40.
5. http://www.yarloopworkshops.com.au/history.html
6. http://www.smh.com.au/national/yarloop-wiped-off-the-map-20160108-gm25wg.html

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

QUEENSLAND

BUNDABERG SUGAR LTD, Millaquin Mill

(see LR 247 p.22)
610 mm gauge
Bundaberg Regional Council has written to Bundaberg Sugar requesting that flashing lights be installed at a level crossing on Heidke and Hummock Roads where there is limited visibility on the approach from the south. Bundaberg Sugar stated that this level crossing has been risk assessed and complies with the Australian standard for railway crossings and the Queensland Manual Uniform Traffic Control Devices where flashing lights are not required to be installed. As well, trains slow to 10 km/h for this crossing. The Council is now engaged in ongoing discussions with Bundaberg Sugar.
News Mail 26/2/2016

MACKAY SUGAR LTD, Mackay mills

(see LR 246 p.22)
610 mm gauge
One of the approaches to the Uruba bridge over Cattle Creek was washed away during a deluge early in February. This is a regular occurence so the track panels are removed each slack season and if the low embankment gets washed out, it is just a matter of rebuilding it with rocks and gravel then replacing the panels.
A visit on 11 February found the usual very large number of locomotives from all three mills gathered at Racecourse Mill for annual maintenance.
Walkers B-B DH *Dulverton* (690 of 1972 rebuilt Walkers 1997) was on duty transferring bins between Farleigh Mill and Pleystowe for routine annual maintenance at the Pleystowe bin shop. The transfer process was to start with a delivery of 160 already serviced empty bins from Pleystowe to Farleigh but the initial working was delayed for some time at Level Crossing 115 at Mandurana while electricians switched the warning lights there over to automatic working.
At Farleigh, 150 bins are to be converted from 'W' axlebox supports to horn guides as a way of reducing maintenance costs. In addition, 100 new 5-tonne bins for Racecourse Mill are to be assembled at Farleigh, using 50 recycled chassis and 50 chassis delivered new from China, the first such order for Mackay Sugar. Fifty of these new bins made their way to Racecourse Mill on 26 February.
On the main line between Racecourse Mill and Bakers Creek, ballast regulator BREG1 (Plasser 247 of 1982) was noted at Racecourse 8 siding, while ballast tamper TTAMP5 (Plasser 376 of 1990) was at Temples Lane.
Clyde 0-6-0DH *Devereux* (67-568 of 1967) was noted on the track welding train near Marian Mill's Mia Mia 3 siding.
Clyde Qld 0-6-0DH *Palms* (70-708 of 1970) is being fitted with a new Mercedes Benz motor and Allison transmission this slack season. The Detroit Diesel 92 series V6 motor from this loco will go into Clyde 0-6-0DH *Sunnyside* (57-160 of 1957).
John Browning 2/16; Mitch Zunker 2/16, 3/16

MSF SUGAR LTD, Mulgrave Mill

(see LR 247 p.22)
610 mm gauge
On 25 February, South Johnstone Mill's EM Baldwin B-B DH 32 *Liverpool* (10385.1 8.82 of 1982) was still here where it is being fitted with RSU remote control gear.
The Plasser Australia KMX-06 tamping machine (98 of 1975) was in use on 26 February.
Danny Nolan 2/16; Jason Sou 2/16

MSF SUGAR LTD, South Johnstone Mill

(see LR 247 p.23)
610 mm gauge
Com-Eng 0-6-0DH multiunit locomotives 8 (AA1543 of 1960) and 9 (AH3979 of 1964) are being rebuilt this slack season. By 25 January, both had been stripped down to the frames and these frames were seen in the brakewagon and loco storage shed with two new Mulgrave style cabs nearby on 24 February. It is expected that they will also be fitted with RSU remote control gear. Seen at the mill on 21 February was a stripped and cleaned Clyde frame with a pair

Top: *Walkers B-B DH* Dulverton *(690 of 1972 rebuilt Walkers 1997) crosses Mandurana Road on its way from the Mackay Sugar bin servicing shop at Pleystowe to Farleigh Mill on 11 February. Photo: John Browning*
Above: *Mackay Sugar's Clyde 0-6-0DH* Devereux *(67-568 of 1967) with the rail welding train on Marian Mill's Mia Mia line on 11 February. Photo: John Browning*

Top: *On the main line south of Racecourse Mill on 11 February is Mackay Sugar's Plasser tamping machine* TTAMP5 *(376 of 1990). Photo: John Browning* ***Centre:*** *At the South Johnstone Mill locoshed in a typical slack season scene on 21 February are, front to rear, Com-Eng 0-6-0DH locomotives 5* Bramston *(AH2460 of 1962), 1* Josephine *(A1821 of 1957), 10* Russell *(A2027 of 1958) and Clyde 0-6-0DH 12 (55-60 of 1955). Photo: Luke Horniblow* ***Above:*** *A trio of Walkers B-B DH locomotives at Tully Mill on 20 February. At the front are* Tully-3 *(643 of 1970 rebuilt Tully Mill 2013) and the rolling frame of* Tully-4 *(622 of 1969 rebuilt Walkers 1996) while lurking in the background is* Tully-9 *(618 of 1969 rebuilt Tully Mill 2010). Photo: Luke Horniblow*

of new Mulgrave style cabs nearby. The frame looked to be that of 55-56 or 56-90 which are the ex Mulgrave Mill Clyde 0-6-0DH locomotives 23 *Behana* and 24 *Pyramid*.

On 25 February, EM Baldwin B-B DH 32 *Liverpool* (10385.1 8.82 of 1982) was still at Mulgrave Mill where it is being fitted with RSU remote control gear.

The Cosic family of the Woopen Creek area near Mirriwinni is trying to have a cane bin dump siding on Joyce Road reinstated after 16 years of non-use. It had previously been in use from 1970 to 2000 and for the past 16 years, the family's cane has been transported 1.8 kilometres along Joyce Road to another siding. MSF Sugar is backing the family but the Cairns Regional Council is refusing to give permission based on the long period of non-use, concerns about noise, dust, safety and changed land use in the area.

Jason Sou 2/16; Luke Horniblow 1/16, 2/16; *The Cairns Post* 21/2/2016

PACIFIC NATIONAL COAL AUSTRALIA, Nebo

1067 mm gauge

At least two Zephir road/rail shunt locos are in use at the train maintenance facility here. One which is of the LOK model range, has the running number of LOK 1603 and the other is a battery electric CRAB 1500E of unknown identity.

www.freightquip.com/index.php/new accessed 4 March 2016

S.R. BUGEJA & SONS, Peri Road, Mackay

(see LRN 60 p.11)

610 mm gauge

The remains of a 4wDM locomotive still lie at the side of Peri Road, amid disused rails and other materials. The locomotive was built in the 1960s for use hauling cane on horse lines on the Bugeja family farm, but was unsuccessful. The engine was removed, but the chassis still lies where it was left about 50 years ago.

John Browning 2/16

TULLY SUGAR LTD

(see LR 247 p.23)

610 mm gauge

On 4 January, Tully was the last mill in the industry to finish the 2015 crushing season, putting through a mill record of 2,897,999 tonnes of cane.

Walkers B-B DH *Tully-4* (622 of 1969 rebuilt Walkers 1996) is being refurbished this slack season and will probably be fitted with a new Cummins motor. Another 100 new 10 tonne bins are being purchased by Tully this year.

ABC Rural 4/1/2016; Luke Horniblow 2/16

WILMAR SUGAR (HERBERT) PTY LTD, Herbert River Mills

(see LR 247 p.23)

610 mm gauge

One hundred 11 tonne bogie bins are being built at the Wilmar workshop in the Burdekin for the Herbert this slack season. These will then be assembled at the Wilmar workshop in Ingham. Also, forty-five new sugar bin chassis are being built at the Ingham workshop this slack.

These will replace those of worst condition in the existing fleet. The existing boxes will be reused and they will be swapped over at the Macknade Mill truckshop. On 3 March, Walkers B-B DH *Cairns* (681 of 1972 rebuilt Bundaberg Foundry 1997) took forty-five sugar bins from Victoria to Macknade, handing them over to EM Baldwin 0-6-0DH *Hobart* (4413.1 7.72 of 1972) at the South Side loop for the final stage of the trip across the Herbert River to Macknade.
Editor 2/16, 3/16

WILMAR SUGAR (INVICTA) PTY LTD, Invicta Mill, Giru
(see LR 246 p.24)
610 mm gauge
A new branch line and siding is being constructed near Clare in response to increased cane production on land previously owned by the Australian Agricultural College.
Wilmar Sweet Edition 1 of 2015 (published December 2015)

WILMAR SUGAR (PROSERPINE) PTY LTD, Proserpine Mill
(see LR 247 p.24)
610 mm gauge
Since commissioning following rebuild, Clyde 0-6-0DH 8 (65-443 of 1965) has seen service as the slack season bin shop shunter.
Tom Badger 2/16

WESTERN AUSTRALIA

BHP BILLITON NICKEL WEST, Kalgoorlie Nickel Smelter, Hampton
1435 mm gauge
A Trackmobile 'Magnum' road/rail shunt loco numbered K165 and named *Priscilla* is in use here.
Walter Rowe 1/16, 2/16

CBH GROUP, Forrestfield
This group which is Australia's largest grain exporter, had a number of Zephir road/rail shunt locos on site around September 2015 and they are probably intended for use at the group's larger country depots. It is assumed that they are of 1067 mm gauge.
Scott Jesser 2/16

ROY HILL HOLDINGS PTY LTD, Boodarie
(see LR 234 p.26)
1435 mm gauge
A Zephir LOK 16.300 road/rail shunt loco numbered ZS-0007 is used to shunt the rolling stock maintenance depot at Boodarie. Fitted to it is an optional cab rollover cage which includes an extra roof.
Scott Jesser 2/16

OVERSEAS

FIJI SUGAR CORPORATION
(see LR 247 p.25)
610 mm gauge
The FSC executive chairman has suggested that changes to the cane planting seasons could be made enabling cane to be harvested

Top: *On 4 March, Mackay Sugar's EM Baldwin 0-6-0DH* Melba *(12512.1 7.85 of 1985) is out on a post servicing run on Racecourse Mill's Peri line. Photo: Mitch Zunker* ***Centre:*** *Proserpine Mill Clyde 0-6-0DH 8 (65-443 of 1965) following rebuild at the mill on 10 December. Photo: Tom Badger* ***Above:*** *A recent acquisition by Roy Hill Holdings for their Boodarie rolling stock maintenance depot is this Zephir model LOK 16.300 road/rail shunt loco numbered ZS-0007 seen on 20 February. Photo: Scott Jesser*

and processed year round in some parts of the country. Once cogeneration of electricity commences at Rarawai and Labasa Mills, they could be used to process cane outside of the traditional crushing season. He has also stated that a lot of money will be spent repairing rail lines during the current off season.

At a meeting of the Lautoka Cane Producers Association held at Nadi in January, it was said that the rail network is the cleanest, safest and most cost effective means of transporting cane and that the industry could reduce costs by increasing the rail to lorry ratio, investing in new cane trucks and using the rail system for other purposes such as tourism and transporting people.

A Lautoka businessman proposed at the Lautoka Chamber of Commerce and Industry business forum on 16 January that a 'Railway Sightseeing Project' for tourists be developed using existing railway lines linking Lautoka Port to Viseisei and Matawalu villages.

A passenger on a bus involved in a collision with a locomotive of the Labasa Mill in March 2013 has been awarded damages by the Labasa High Court. The damages are to be paid by the bus driver and the bus company.

Tropical cyclone Winston tracked through between the two main islands of Viti Levu and Vanua Levu on 20 February, just touching on the northern coast line of the former. Being of catagory 5, it caused a great deal of destruction and initial reports suggest that the cane crop has been severely affected with damage at the mills as well. The worst affected areas are Rarawai Mill's Ba and Tavua areas and Raki Raki which supplies Penang Mill. Initial assessments estimate that 60% to 80% of the crop in these areas has been damaged. Penang Mill which was the closest to the cyclone track has lost its chimney and some roofing iron. The road/rail bridge on the Penang River at the mill was closed due to damage caused by the cyclone. It is being said that a number of the mills may not open for the coming crushing season.

Fiji Broadcasting Corporation 30/12/2015; fijivillage.com 13/2/2016; The Fiji Times Online 6/1/2016, 16/1/2016, 18/1/2016, 22/2/2016, 23/2/2016, 24/2/2016 27/2/2016, 3/3/2016; *The Australian* 23/2/2016

PT FREEPORT, Grasberg Mine, Irian Jaya

(see LR 247 p.25)

1435 mm gauge

The Grasberg block cave underground mine is currently being developed to take over production of copper and gold ore from the Grasberg open pit mine. Approximately 160,000 tonnes of ore per day will be hauled by rail from chutes to the underground crushers. Remotely loaded and autonomously controlled trains will consist of eleven or twelve bottom dump cars driven by a 40 tonne electric locomotive, carrying about 400 tonnes of ore per train load, and running on 1435 mm gauge tracks. Initial production will begin in late 2017.

Nine Zephir road/rail shunt locos capable of being powered by diesel motor or batteries have been built for use in this mine. Seven are yellow LOK 1400 models, weigh 14 or 16 tonnes and are builders numbers 2472 to 2478. Two are white LOK 2000 models, weigh 20 tonnes and are builders numbers 2479 and 2480. These two are fitted with ATP. None of the Zephirs have been allocated running numbers yet. The LOK 1400's will be used to position wagons at the loading chutes and the LOK 2000's will be used on the wider rail system assisting the Schalke locomotives when there are breakdowns and performing maintenance tasks.

Scott Jesser 2/16; Ray Gardiner 2/16, 3/16; Jamie McKenzie 3/16; Tony Weston 3/16; www.massmin2016.com/Media/MASSMIN2016/abstracts/materials_handling/65.pdf accessed 2 March 2016; www.massmin2016.com/Media/MASSMIN2016/abstracts/materials_handling/66.pdf accessed 2 March 2016

Top: *Mackay Sugar's Com-Eng 0-6-0DH 25* Eton *(FB3170 of 1963) with a rail train on 5 March stowed at Leap 5 on the Farleigh Mill network. Photo: Scott Jesser*
Above: *Another rail train, and this is Victoria Mill's at a relay in Hamleigh with Clyde 0-6-0DH* Perth *(69-682 of 1969) in charge on 28 February. Photo: Luke Horniblow*

Book Reviews

Amusement Railways of Australia

by Jim Longworth

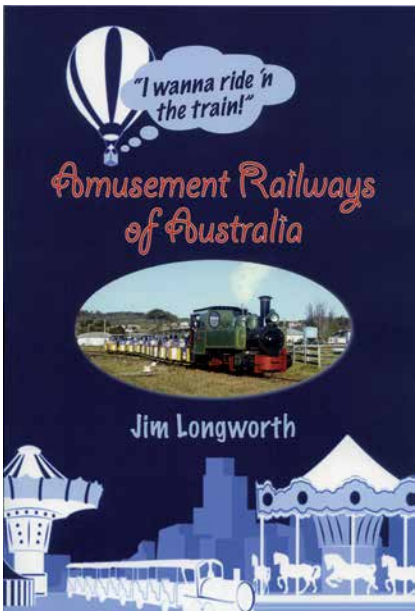
Published by Transit Australia Publishing
Soft cover, 224 A4 pages, 450 photographs (335 in colour), 59 maps and 23 assorted illustrations. Available from the LRRSA online bookshop – $64.95 plus postage ($58.45 plus postage for LRRSA members)

This book covers a subject that has had little published about it. There has been much information available about preserved railways with larger steam locomotives and gauges greater than 610 mm, but little is known of the smaller, miniature railways.

The description of Amusement Railways by the author is considered to be very selective. Excluded are "*lines set up to primarily display the engineering prowess of their makers*" – many of these lines are open to the public and do fall in the category of Amusement Railways. One that comes to mind is the Diamond Valley Railway at Eltham, Victoria, operating every weekend for the enjoyment of the public.

In the text are at least two lines that are tourist lines, not amusement railways – the Portland Cable Tram (7.4 km long, not 4 km!) and the Victor Harbour Horse Tramway, both carrying tourists to their destinations, or observing the sights.

With so many entries, one of the big things missing is an itemised index, at least to the locality. There is a table of contents at the front that only lists the capital city and country area, but in the case of NSW it provides more detailed regions. The entries within the state are not in alphabetical order, which means going through the pages to find what you are looking for.



The book has 244 pages, profusely illustrated with black & white and colour photographs. There is a wealth of information but it is also selective in detail for some categories. In some cases builders numbers are quoted, whilst others are not. Although there are several references to *Light Railways* and *Light Railways News* it is considered that there is a lot of other information that has not been followed through with other information that is readily available, particularly outside of NSW.

NSW is covered in some detail and for one railway there are pages of information about the one attraction, but unfortunately the book is lacking in a lot of cases in other states. More contact with members of other states, could have provided more information – in fact when the book was shown to some Victorians – they queried why there was no reference to an old amusement railway at Mordialloc.

Some of the attractions could be classified as Museums and or Tourist Railways so there is some question about what is included in the definition of an Amusement Railway.

The book is recommended to those who remember the Amusement Railways of the past and those that continue to operate. As one of the main omissions is a detailed index, it is hoped that when the author publishes a second edition it includes the various corrections, additions and an index.

Peter Charrett

LETTERS

Please send letters to:
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St Peters brickworks LR 243

I was very interested to see in Letters in LR243 mention of a skip on an incline in the brickworks at St Peters.

I have a hazy memory of seeing it in operation around 1948 – perhaps even a year or so earlier.

My recollection is that the incline skip was fed by a system of narrower gauge lines radiating outwards to the walls of the quarry.

I was particularly struck by the fact that there were no points in the narrower gauge tracks but instead the smaller skips were skidded on a steel plate to align with the desired track.

The smaller quarry floor skips were being propelled by man power.

My vantage point (street level) was too far away for me to estimate the gauges.

Thank you Tony Weston for the interesting item and the memories it awakened.

Regards

Terry Boardman OAM
Queenscliff, NSW

Mystery Electric Locomotive (Tasmania) LR 246

Tony Coen, in LR246, raises the question of the Mystery Electric Locomotive from Russell Allport Engineers, apparently on trial on the wharf of a sawmill in Tasmania's Southern Forests. Two possible locations are canvassed: at the Huon Timber Company's wharf at Whale Point on the Huon River, and at the Hastings Mill, near Southport.

The HTC's wharfage consisted of an approach pier of limited width leading to the main shipping berth at right angles to it, and lying on the general alignment of the Huon River. The main berth was wider than the approach pier. The two had a footprint of a reverse 'L'.

There is a photograph of the Company's workhorse locomotive, *The Huon*, propelling loaded short wheel-based wagons along this pier towards the main berth, but it would not have been practical for it to propel the wagons around a sharp 90 degree curve onto the berth itself. There have been some suggestions that there may have been a turntable at the intersection, or the wagons might have been manhandled around the curve. Such a scenario might well have led to the demonstration of the short wheel-based locomotive along the berth itself, and it is not impossible that the photograph was taken looking inshore (southwards) from the berth, with the background topography fitting the scene quite well.

I have my doubts that the photograph was taken at Hastings for a number of reasons. For one thing, the background topography and vegetation doesn't sit well with the panoramic image of the mill site, wharfage and village that was published in the *Weekly Courier* of 30 May 1918, the year of closure on the mill, admittedly ten or twelve years after the projected date of the photograph. This panorama was taken from the rise to the north of the site, looking towards to the south-east.

The main wharf/pier at Hastings ran from the shore in more or less a south-westerly direction. If the photo was taken from the eastern side of the pier, then it would have been looking westwards, towards the neck of land known as The Tongue, and with the loco at the inshore end of the 'rake'. The land in the background would be some distance away, say 200 metres across the

water, and this is not evident in the photo. Further, the land shown is vegetated with eucalypts, while The Tongue was more cleared, with several houses evident in the panorama.
If, on the other hand, the photo was taken from the western side of the pier, it would be looking eastwards, with a substantial area of cleared land in the left fore- and middle ground, and any vegetated land would be rising up to the left background, and not to the right, as shown.

There is perhaps an issue of dates with respect to Hastings. In the mid-1880s, the mill owners built new wharfage at the Deep Hole, on the southern shore of Southport, and transferred timber to there from the mill in lighters, because of problems in navigating the Southport bar. In short, the Hastings pier took a more staging role in operations over the years. Further, the Hastings mill was acquired by the then H. Jones & Co-controlled Huon Timber Company at about the projected time of the photograph. Of course, neither of these points would, in themselves, discount the Hastings pier being the site of the photograph, but the latter, in particular might do so in view of the business culture of Henry Jones.

There were two other steel-railed 3 ft 6 in gauge tramways with wharves/piers serving mills in the Southern Forests at the time, at Hopetoun and at Raminea.

The Hopetoun mill of the Tasmanian Timber Corporation/Tasmanian Hardware Corporation had substantial wharfage out into Port Esperance about 2 km south of Dover, but the background in the photo certainly does not match with the area, and it is unlikely that the Company would be considering electric tramway infrastructure in view of its parlous financial state at the time. In any event, there were two tracks out from the shore there, one close to each side of the pier, while the photo seems to indicate only the one, running down the centre.

The other possibility is a bit of a 'smokey'. The Raminea mill had a substantial wharf (not a pier) running along the banks of the Esperance River, just downstream from the main road bridge, and there are several photographs in existence of it. It was quite wide, with room for stockpiling sawn timber each side of a serving tram track. If the photo was taken from inshore of the track, looking eastwards across the river, the topography in the background would fit very well.

At the time, Chesterman & Co, owners of the mill, were slowly mechanizing their operations. In June 1899 they had taken delivery of a new mobile steam log hauler built by AB Byers of Hobart, this was followed up by a bush steam locomotive from the same builder, delivered in 1912. It became known as the *Byers*. At the time that the *Byers* was being conceived, it is possible that Russell Allport Engineers were promoting their products to Chestermans, including the electric locomotive. Perhaps it is important to realize that electric traction of this type would not have been practical on the bush trams, but might have fitted in well with the moving of product from the mill to the wharf, a distance of about 200 metres, and along the wharf itself.

I have to admit that this is all conjecture on my part. I have never come across this matter in all my research on Raminea, and the only possible evidence to it is the topographical similarity of the background, and the general layout of the wharf itself. It would be an intriguing thing if this conjecture was true! Whatever the case, such a system was never to be installed at Raminea.

Problem not solved!

Scott Clennett
Via email

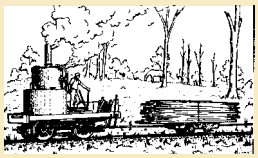
Research - Ray Graf Collection (LR247)

As a friend from over forty years sharing his interest in industrial railways, I can throw a little more light on the seemingly strange photographic habits of the late Raymond Graf. Ray's generosity to his friends and valued acquaintances over this period has been shared by many, and the explanation is in no small part based on this premise.

Long hours of overtime with his employer in the 1970s were rewarded with opportunities for several overseas excursions looking for industrial railways and examples of preserved narrow gauge railways - who else had been to Angola for the narrow gauge sugar cane railways? In particular the introduction in the USA to a group of American enthusiasts who regularly traded 35 mm colour transparencies amongst themselves and interested parties. To participate the requirement was for original slides only, not copies, preferably with cardboard mounts in order to record a little detail about the subject. These were invariably all record shots. Over a period of time, along with his local circle of regulars, Ray could be sending slides to fifteen or so correspondents. Hence the rolls of film exposed with only a couple of actual subjects.

As for with this author, the task of keeping up with sorting, annotating and distributing such a volume of original slides gradually became a chore unable to be sustained, and by the time of Ray's passing there were still numerous rolls that had not been attended to. Before the digital era, this was mostly the only way of sharing quality colour material both locally and internationally. Now the fact that there are still multiple copies of some subjects should be considered a legacy of value allowing distribution to a wider audience of researchers.

Philip Graham
Tasmania
Via email



LRRSA NEWS

MEETINGS

ADELAIDE: "Milang Light Railway Centre, and the SA, NT & Broken Hill light railway data project "
We will discuss business that has arisen since the 24 September 2015 meeting, the SA Light Rail data project and the SA light rails centre project.
News of light rail matters will be welcome from any member.
Please contact Les Howard on 08 8278 3082 or lfhoward@tpg.com.au if you are planning on attending.
Location: 9 Craiglee Drive, Coromandel Valley
Date: Thursday 7 April 2016 at 8pm

BRISBANE: "Railways of the Iberian peninsula in the 1960s"
David Rollins will be presenting colour slides of steam operations in Portugal and Spain in the mid 60s.
Location: BCC Library, 107 Orange Grove Road, Coopers Plains.
Date: Friday 15 April at 7:30pm

MELBOURNE: "Railways of northern India"
Peter Evans has recently returned from the subcontinent and will be presenting on the railways of northern India, with special emphasis on the narrow gauge Kalka-Shimla mountain railway.
Location: Ashburton Uniting Church Hall, Ashburn Grove, Ashburton.
Date: Thursday 14 April at 8:00pm

SYDNEY: "The professional Tunneling Engineer"
Mr Geoff Bateman, tunneling engineer, will present a talk on heritage railway tunnels and tunneling techniques of the past. As some old railway tunnels are put to alternative uses today professionals are required to advise on their stability and integrity.
Location: Library and Community Hub, Corner of Condor St and Railway Parade, Burwood. First floor room. Free Council car park in front of and behind building.
Date: Wednesday 27 April at 7:30pm

Millewa Salt and Gypsum Tour 23, 24 & 25 October 2015

The Society had 25 members and friends join the Millewa Salt and Gypsum tour northwest of Ouyen in Victoria, including six from interstate. The tour was brought forward to October when the weather is milder and we had near perfect conditions for this semi-desert tour and for those camping out. Our tour guides were Bruce McLean and Chris Wurr who have an intimate knowledge of the railways and tramways in this region.

The members met in Ouyen on Friday afternoon and travelled to Linga with a quick stop at Underbool to inspect and photograph the replica salt tramway loco and wagon. At Linga we inspected the railway siding and the former easement where the Sailor Salt tramway headed northwards towards the Pink Lakes. The cars followed the line of the tramway on the back streets of Linga until it diverged across wheat fields into private property.

It was harvest season and all the surrounding paddocks were tall with wheat being collected. We crossed the tramway again and inspected several embankments before entering a farm gate and following the tramway to a substantial cutting with great photo opportunities. From the cutting the vehicles followed the tramway through open scrub and salt pans, with numerous stops to inspect remains, including embankments, sleepers, dog spikes and fishplates, but hardly any rail.

We entered the boundary of the Murray Sunset National Park and proceeded to the beautiful Pink Lakes. The members dispersed in all directions to explore Lakes Becking and Crosby. There is a lot to see there including a static display of salt harvesting machinery with huge salt mountain, the corduroy road at the end of the tramway formation leading out into Lake Becking, numerous machinery foundations and salt wagons. Some members returned to Ouyen for the night, whilst most members camped out at either lake.

Next day the members regrouped at Ouyen station and headed north up the Calder Highway to Nowingi. We inspected the siding site and associated Millewa South line connections, as well as the ironclad tank. The cars followed the railway roadbed westward past the site of the ballast siding and several unbuilt station sites to the burnt out TK Bedford petrol tanker.

After several more station site inspections, we reached the remains of Munro's gypsum works which were characterised by numerous excavations and foundations. Just past the Meridian Road turn off, the vehicles entered the Raak Plain which to the uninitiated, is a very desolate place. The members stopped at the Brunswick Plaster Mills' gypsum plant & over-rail loader and took the obligatory group photos. We inspected the sites of the washing and screening plants, gypsum stockpile, workshop, living quarters and final resting place of *Cleis* and IB locos.

The members then headed further west and inspected several more station sites and the 26 mile survey post, before coming to the end of the railway roadbed. We then travelled down to Rocket Lake for a late lunch and welcome break for a cuppa. Some of the members returned to Red Cliffs for the night, whilst the others camped out at Rocket Lake.

The tour group pose in front of the last remaining section of the Brunswick Plaster Mills Gypsum loading plant on the Raak plain. Photo: Scott Gould

Next day the members regrouped at the Red Cliffs Historical Steam Railway for an enjoyable ride on their 2 km of 610 mm gauge railway, hauled by the EM Baldwin diesel loco in home-made passenger cars. The members were also given full access to the workshops and surrounds, where they saw the restored Kerr Stuart 0-4-2T steam locomotive named *Lukee*, B/N 742 of 1901, that formerly operated between Red Cliffs railway station and the Red Cliffs pumping station

This was a lovely way to round out a fantastic tour and special thanks go to our expert tour guides Bruce McLean and Chris Wurr. Norman Houghton and Scott Gould also helped with planning the tour logistics and historical notes.

Simon Moorhead

Right: *The tree lined Pink Lakes - Linga tramway easement can be easily followed north across the wheat paddocks. Photo: Scott Gould*

Visit report – Tinbeerwah Mountain Railway, Cooroy

A group of about a dozen LRRSA members and friends were welcomed to Russell Savage's Tinbeerwah Mountain Railway, located on private property near Cooroy, on 15 November 2015. This impressively engineered 2 ft gauge line, is a working railway used for transporting materials on the property and serving a small sawmill. The sawmill was observed in operation.

Russell has built or modified many items for use on the railway and has also preserved a number of locomotives. The rolling stock items built include a bogie ballast hopper, a bogie way and works wagon, a bogie flat wagon, and log transporter bogies. There are also a number of interesting signalling installations using ex-main line railway equipment.

Although the line is not accredited to carry members of the public, the following locomotives and linecars were able to be demonstrated in use:

CASEY	4wPMR	A.Savage, Cooroy	1983 rebuilt VR KS inspection trolley
H220	4wPM	R.Savage, Mildura	1983 rebuilt Malcolm Moore tow tractor
G42	B-B PH	R.Savage, Mildura	1987
G.C.3	4wPMR	R.Savage, Mildura	1990
RM1	B-B PMR	R.Savage, Mildura	2002

The following 2 ft gauge locomotives and line cars were also noted:

	4wDM	Motor Rail	21575	1956 ex Pleystowe Mill, Mackay
	0-4-0BE	Wingrove & Rogers	2216	1942 ex Smithfield Ammunition Factory, SA
	4wDM	Ruston & Hornsby	285339	1949 ex SR&WSC Victoria & Hayman Island
TMC-2	4wPMR	Tamper		1981 regauged ex ANR

Also seen were the remains of the first two home-built locomotives for the line, one discarded and the other converted to a leaf blower wagon. There are a number of wider gauge railway linecars and two ex-QR Linmac shunt tractors on site.

Thanks are due to Russell Savage and his volunteer helpers for their welcome and hospitality.

John Browning 11/2015

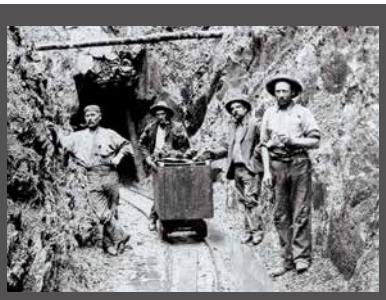
Left: *G42 shunts a log bogie at Russell Savage's sawmill. Photo: John Browning*

LRRSA Captains Flat Tour – Saturday 30 April 2016

Captains Flat, about 45 km south east of Canberra was once a very significant silver-lead-zinc mining town. In 1897 a 2 ft gauge tramway, on which a Krauss steam locomotive worked, connected Elliott's shaft with the smelter at the southern end of town. One feature of this tramway was a high curved wooden trestle bridge. The remains of the track formation are still evident in many places. There are also remains of the industrial 20 in gauge railway system around the latter day mine site, which can be easily inspected.
A standard gauge NSWGR branch line also connected Captains Flat with the main line near Bungendore of which photogenic civil engineering features are still to be seen from the road, which parallels the railway for much of the distance.

Tour participants will meet at **Bungendore at 10:00am** for a 10:30am departure to Captains Flat via Hoskinstown. Must bring lunch and munchies to eat. Note: No fuel is available at Captains Flat. The hotel may possibly be open for refreshments.

All interested participants please contact Ross Mainwaring (0415 995 304) to confirm details and travel arrangements before the tour date.



Field Reports

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

Taggerty Sawmilling Company / Bromfield & Gorman / Buxton Sawmilling Company mill sites and tramway networks, Black Range, Victoria
Gauge 914 mm.

This field report is another instalment in the data collected by the LRRSA post-2009 bushfire survey team.

History

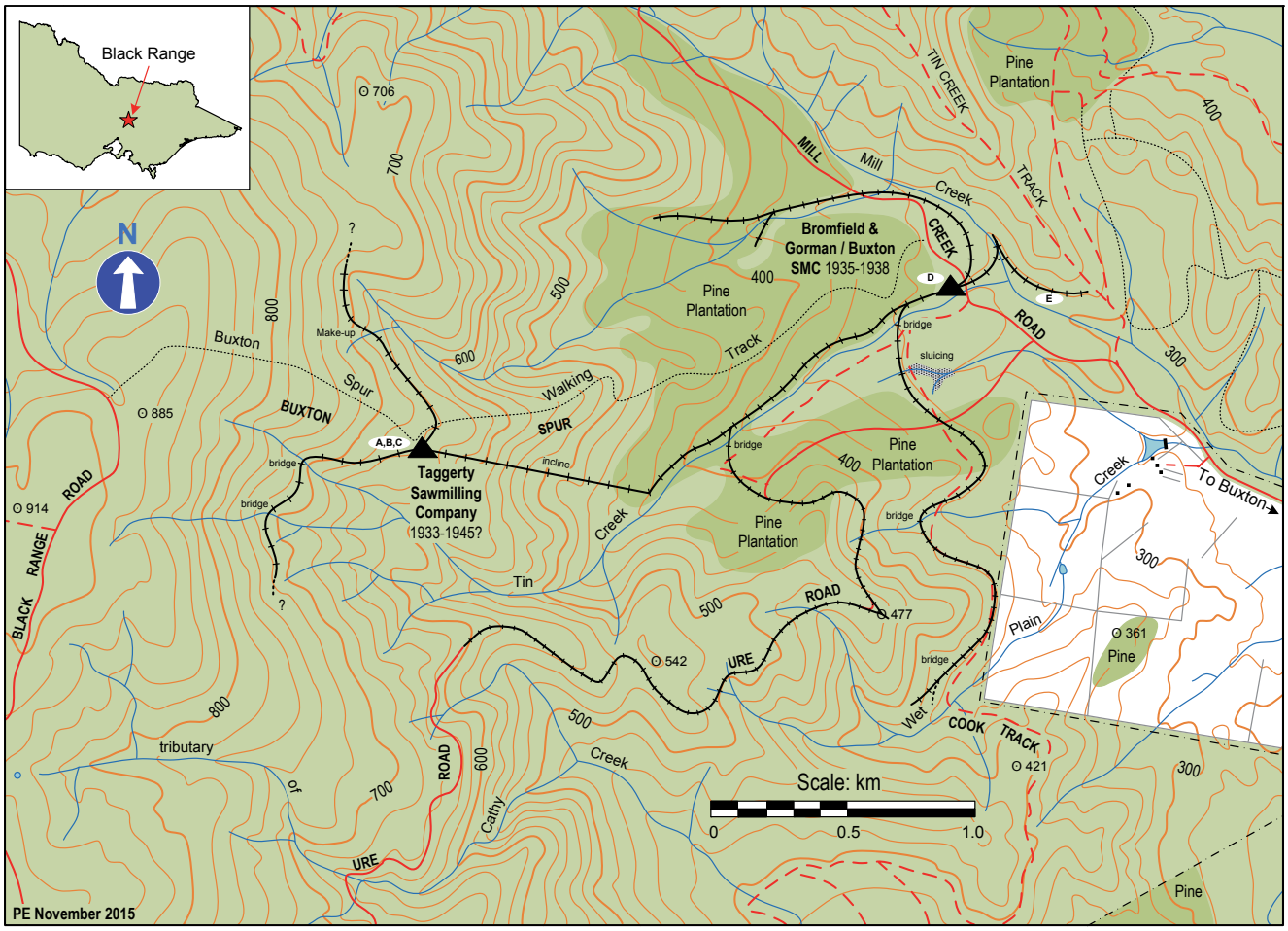
The Taggerty Sawmilling Company established a mill on Buxton Spur in 1933 using plant formerly owned by the Mohican Sawmill Company and purchased with finance from Melbourne timber merchant John Sharp & Sons. The practical operation of the business was overseen by sawmiller Oliver Menz. The mill site was on a steep spur, providing an obvious outlet to the Acheron Valley below. A 3-ft gauge incline laid with wooden rails was constructed from the mill down to Tin Creek and, from the foot of the incline, a gently graded tramway in favour of the load was laid north-east as far as Mill Creek Road. From the terminus of this tramway, sawn timber was dispatched to Melbourne by motor truck over the newly-improved Black Spur Road. Log tramways were laid north and south from the mill to tap the timber growing on the eastern fall of the Black Range. At the terminus of each tramway, logs were hauled to the landing by a steam winch.

The mill was situated on a high spur surrounded by thick forest with dead, dry ring-barked timber nearby - an obvious fire-risk. The mill's water supply came from a small dam near the men's huts and was piped to a trough adjacent to the mill boiler. In response to a request from the Forests Commission in 1934 to construct a fire-refuge dugout at the mill, Oliver Menz replied 'I have no dugout here as it would be useless. It is not far to get out here and I am certain that if a fire is coming there will be no-one stop to get burnt'. He added that everything appeared to be green so far. Menz's optimism, luckily, was well founded. The mill was not destroyed in the 1939 bushfires, and only the forty chains of incline had to be replaced. Little is known of subsequent operations at this site except that the mill licence was cancelled at the end of 1945. The remaining timber on the area was

A: *Heavy timbers and holding-down bolts making up part of the engine foundations at the Taggerty Sawmilling Company site on Buxton Spur (as it was in May 2005).* *Photo: Peter Evans*

B: *The Johnson & Sons Jackass boiler (as it was in May 2005).* *Photo: Peter Evans*

C: *The substantial sawdust heap at the Taggerty Sawmilling Company site (as it was in April 2005).* *Photo: Peter Evans*

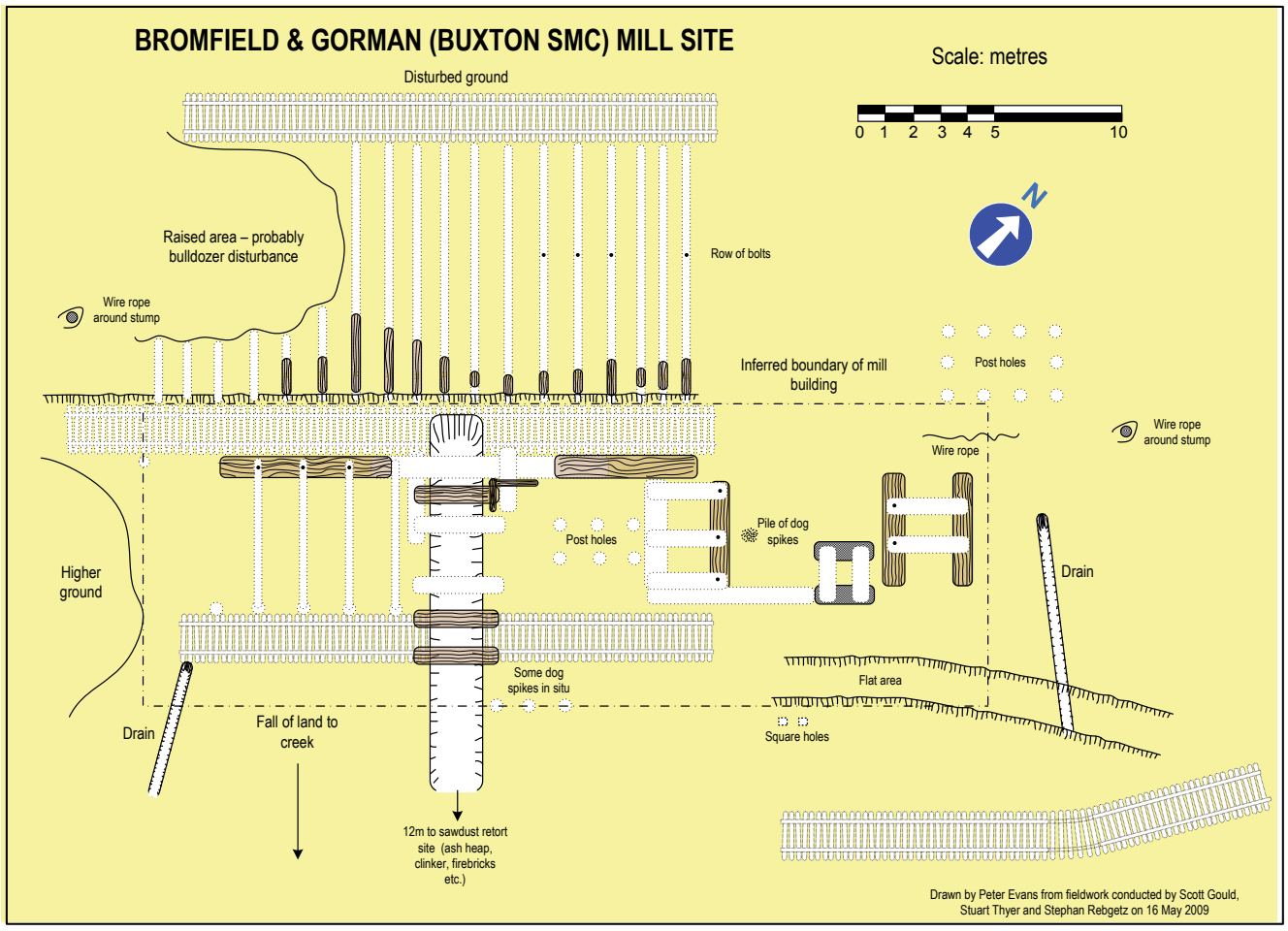


allotted to R W Robinson & Sons for conversion at the Robbies Creek mill (see LR 245, pages 28-33).

In mid-1935 another sawmill was established at the lower terminus of the Taggerty Sawmilling Company's outlet tramway. Like the Taggerty Sawmilling Company, the new mill's timber would be dispatched to Melbourne by motor truck. This new mill was ostensibly owned by Percy Bromfield and Henry Gorman. However, no sooner had the mill opened when it was revealed that timber merchant William Cook Pty Ltd had been financing the construction of the mill from the very beginning. The mill was now owned by Buxton Sawmills Pty Ltd, with directors Percy Bromfield and William Cook. This gave the mill a ready outlet for its timber from Cook's yards at Mary Street, Preston. The sawmilling licence was transferred into the name of the new company in December 1935. Little is known of logging operations at this mill but, judging by the extensive log-tramway network constructed, those operations must have been both intensive and energetic. So much so that, by early 1938, it became apparent that, if milling operations were to continue at a profit, the mill would have to be shifted to a new site. By June the necessary work had been carried out and the mill was at its new site 3.5 km south of its original site and adjacent to what today is known as Project Road. (See LR 246 pages 28 to 32 for a report on this site).

D: *Looking north-east along the breaking-down track at Bromfield & Gorman's mill site in May 2009. The log yard is to the left and the sawdust trench branches to the right (in the centre-right of the picture), with Mill Creek Road just visible in the distance.* *Photo: Scott Gould*

The Taggerty Sawmilling Company mill site and tramways were surveyed by Peter Evans on 24 January 1992, and 25 April and 15 May 2005. Unfortunately, the long walking distance to get into and out of this site (plus the number of tramways to be mapped by one person) precluded the preparation of a site plan of the mill itself. The mill was of fairly standard layout with a single sawdust trench bearing 50°T. There is a substantial sawdust heap 50 m across, but few small artefacts other than some 914 mm gauge wheelsets. Curiously, these were a mixture of inside-bearing and outside-bearing axles. The most prominent feature at the mill was a set of large, heavy timbers fitted with long vertical bolts, clearly once the foundation for a horizontal steam engine driving the mill. Marks on the timbers indicated that they were hewn



with a broad-axe. The only item of machinery remaining at the site is the partially cut-up remains of a 5.5 m long by 1.8 m diameter 55 hp Jackass boiler built circa 1910 by Johnson & Son's Tyne Foundry in South Melbourne. This boiler has flanged ends, a water bridge, and 85 staggered tubes. The boiler was originally used at a mine at Bendigo, and was registered to the Mohican Sawmill Company at Cheviot in October 1923 as BIA 5742 (with a working pressure of 100 psi).

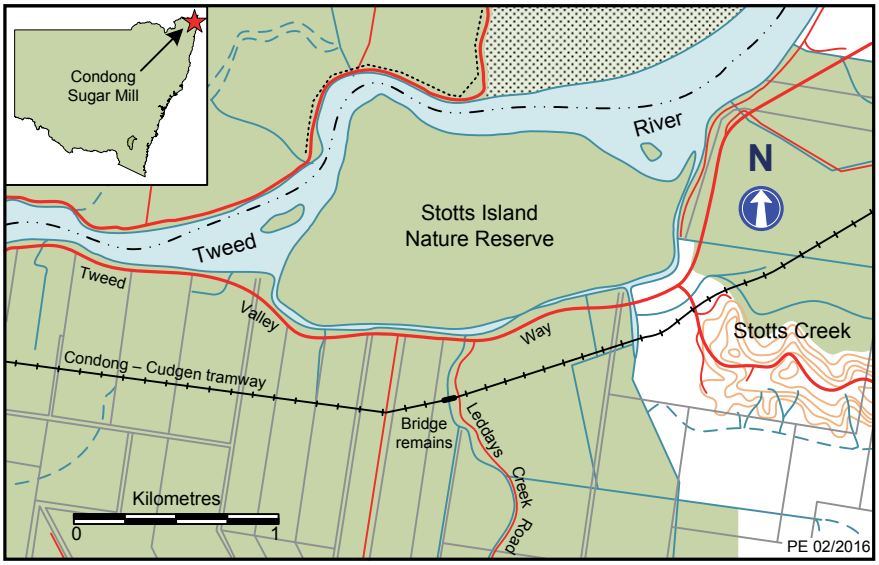
Two log tramways led out of the mill. That going south was gently-graded and close-packed for horse traction, and swung west shortly after leaving the mill before crossing a double-level bridge over a creek (this creek being the probable site of the dam for the mill water supply). At the time of survey there was still a 30 lb/yd length of steel rail on the north side of this bridge. From the bridge the tramway swung south and crossed a second bridge 20 m long and 10m high before contouring around spurs dividing a further two creeks. The tramway was lost in an area heavily disturbed by later logging. The log tramway going north from the mill had the remains of a 914 mm gauge log truck only metres into the bush on the far side of the walking track. The tram was on a reasonably steep grade in favour of the load, mostly on side-cuttings, and there was one 50 m long make-up through a shallow gully in the mid-section of the tram, but no other substantial bridging. The tramway was lost in a heavily disturbed area of young regrowth at the head of a gully. Of the incline tramway on the spur leading east from the mill there was very little sign, most of the tram being apparently laid flat on the ground. From the foot of the incline sections of the tramway have been disturbed by pine planting operations.

Bromfield & Gorman's mill and tramways were surveyed in stages. A logging tramway left the Taggerty Company's outlet tramway about 1 km south-west of Bromfield & Gorman's mill and headed south-east on a steep climbing grade to a reversing point on a spur. The tramway then followed this spur generally west. This tramway is marked on a 1936 Forests Commission map (prepared during forest assessment work), and cannot be anywhere except under today's Ure Road (constructed prior to the 1950s). A second tramway terminating near Wet Plain Creek (not mapped in 1936) was surveyed by

E: *The eastern extremity of Bromfield & Gorman's logging tramway system, looking north-west towards the site of the reversing point on the east bank of Mill Creek, May 2009. The forest is already showing signs of recovery from the fires of February that year.* *Photo: Stefan Rebgetz*

Peter Evans on 24 January 1998. This tramway contoured around the hillside on an almost level grade, passing just above the extensive sluicing operations of Passing's Mohican Tin Mining Works, active in the early years of the twentieth century. This tramway was partially destroyed during John Bowman's logging operations in 1962 (and subsequent establishment of pine plantations). Cook Track now largely follows the old formation but, in the gullies and on the outside of road corners, there was still substantial evidence of wooden rail and close-packing for horse traction in 1998. Nails in the packing tended to confirm a gauge of 914 mm. Apart from what must have been a substantial bridge over Tin Creek and another over a tributary of Wet Plain Creek, there was only one low bridge of two spans observed near the terminus of the tramway. Close to the terminus was a south-branching formation which may or may not have been an additional section of tramway; there being insufficient evidence to determine this.

The Bromfield & Gorman mill site and tramways to the north and east were surveyed by Scott Gould, Stuart Thyer, Colin Spencer and Stefan Rebgetz on 16 May 2009. The mill site has substantial remains, the soil in this area having retained the impressions of rotted and burnt-out logs extremely well (see site plan). There is a very 'readable' set of mill foundations and a few of the larger bed logs are extant. The logging tramway heading north then west is marked on the 1936 map and was virtually laid flat on the ground. Only small remnants remained at the time of survey. One loading ramp was observed just east of the crossing of Mill Creek Road. The tramway heading north-east is more interesting. After crossing Mill Creek it terminated at a dead-end point, reversing its direction (probably to avoid building a bigger bridge across the creek) and contouring on a side-cutting around the hillside above the creek in a generally south-easterly direction. There were two log landings on this section and a possible (ill-defined) branch tramway.



All-in-all this is an extremely interesting network of interrelated mills and tramways and the field research has made this more complete than a study of the 1936 mapping alone would have allowed.

Peter Evans, Scott Gould, Stefan Rebgetz, Colin Spencer, and Stuart Thyer 11/2015. Report written by Peter Evans.

The remains of the tramway bridge over Leddays Creek. *Photo: Peter Cokley*

References

1. Mill and tramway histories condensed from Evans, P. (in prep). *Wooden Rails and Green Gold: A Century of Timber and Transport over the Yarra Track.*

Condong sugar mill tramway bridge, NSW 610 mm gauge

A remnant of the former Condong sugar mill tramway still exists on the line linking the Condong and Cudgen systems: a rolled steel joist (RSJ) bridge over Leddays Creek on Leddays Creek Rd, NSW. It is 340 metres off Tweed Valley Way (the former Pacific Highway). The bridge, which is visible on Google earth, has concrete abutments. It is located just south of Stotts Island and its cordinates are 28° 16.726'S 153° 29.812'E.

Anyone researching the Condong Mill tramway at the mill itself might keep in mind that, when the tramway closed, the Pacific Highway was the road immediately out the front of the sugar mill and out the front of Condong Public School, not the present day highway alignment. (This will help with locating the standard gauge NSWGR Pacific Highway level crossing site). The Post Office building, marked on some maps across the 1960s highway from the mill, is still in operation as a PO and general store (as well as selling a delicious morning tea).

Peter Cokley, via LRRSA Yahoo group

RESEARCH

Please send contributions to:
Research Editor, Stuart Thyer
PO Box 21, Williamstown, Vic 3016
e-mail: research@lrrsa.org.au

Trove – National Library of Australia

A major re-vamp of *Trove*, often mentioned in these pages and a great source for research, was done over a three-day period in late February that saw the whole system offline whilst the work was done. To quote the press release "*Trove 7.0 includes a large number of improvements, including a complete revision of the Digitised Newspapers interface (Newspapers 1.0), and the addition of a new zone for Government Gazettes.*" Sounds good – to read the full blurb check out http://trove.nla.gov.au/general/completedlist. We've looked at some of the key new features of *Trove* to see how it 'stacks up' in reality.

Newspaper Filter – With over 1100 newspaper titles from which to pick it was becoming a time-consuming chore to trawl through the list seeking a particular paper in a particular area. The new filter allows the use of a key word – town or paper – to narrow down the search. Unfortunately this is only as good as the info already in the newspaper list. A few issues were quickly noticed:

Problem 1. The *Riverine Herald* is a major regional paper published in Echuca. For reasons known only to *Trove*, someone put it in the NSW list when it was originally added. If one looks for it in the Victorian list, you'll never find it.

Solution: Provided you don't narrow down your search to just Victoria but leave it Australia-wide, you will find the paper. The same applies to the short-lived *Moonta Herald*. Due to its sub-masthead '*and Northern Territory Gazette*' you can guess where it ended up!

Problem 2. Names of towns sometimes change over time. Emerald Hill is now South Melbourne. *The Record*, Emerald Hill became *The Record*, South Melbourne in 1883. Yet on *Trove* it is listed as an Emerald Hill paper until 1954. Using the filter to search for 'South Melbourne' is a waste of time. So unless you know the paper is called The Record or that it was originally Emerald Hill, you'll never find it. Take note!

Problem 3. The *Narracoorte Herald* changed its spelling in the 1940s to Naracoorte to reflect the current spelling of the town's name. In *Trove*, filtering for Naracoorte will never find it – unless you just search for part name – ie. 'coorte', or its original name. The same applies to Peterborough but in reverse. Search for Peterborough and that's all you'll find. Petersburg has a separate heading. No cross-referencing even though it's the same paper.

Solution: search for 'Peter'.

All these, and other, potential problems should have been attended to prior to introducing a filter; let's hope when time is available the whole newspaper list is examined and alternate spellings etc added so the filter can perform its intended task. It does serve, however, as another example for the need to search common misspellings and alternate terms to ensure a comprehensive search result.

Putting aside the above limitations, the filter can be useful to limit your search for a particular paper. An additional feature is a slider to allow the easy selection of a small (or large) period of years. Thus if you don't care in what town the paper was published and you don't know the name, but, say, you do want to read any paper pre-1830 you can quickly get a list of 15 – six in NSW and nine in Van Diemen's Land (now TAS). And if you can't find the paper/s you want in the area you want you can still do it the hard way of going down the entire list for your state of choice, reading each entry – a slow and laborious task if your masthead knowledge is lacking. One can't help thinking a map-based system might be the way to go.

Rating: 8/10 A good idea that just needs some more tinkering to realise its full potential.

Newspaper Article Screen – Assuming you found the paper of your choice, for the dates of your choice and have put in your search words and brought up a list of potential entries and then gone into a particular item, several new features are now apparent. 'Zoom' and 'View' whole screen are easier to achieve, navigating to the next page or even the next issue is simpler. A number of settings can be changed such as size and font of the OCR text and even whether you want white on black – or black on white! Indeed one can spend a lot of time fiddling with settings without doing much research. You can make your OCR font bigger, smaller or change the font altogether to one of five or so options – maybe you prefer Georgia over Garamond? Arial over Times New Roman? Strewth!

Adding tags, comments or lists are much the same though now accessed via the sidebar on the left of screen. Once added you can view the whole three on one tab. Fixing text has a fixed tab at the top of the OCR column or you can use the floating tab that your mouse will activate. Downloading an article is via another tab with various options – it is largely intuitive and self-explanatory. The end result is similar to previous (though this scribe usually prefers to 'screen print', paste and trim the result so that all snippets can be pasted chronologically on a Word document.)

The arrow that used to take one to the top of the next column has been done away with, replaced mainly by a small red square on a miniaturised page that one can drag to the next column. Similarly, if an article runs over two pages a page selection box is added. There are also buttons for rotating the page view for those very few pages scanned sideways presumably. Text correction and tagging is much the same though now accessed via a list of symbols on the left of screen.

Rating: 9/10. Lots of good ideas but a bit of overkill – if only they had used the techos to fine-tune the newspaper filter.

Government Gazettes – This content has been eagerly awaited for some time, but at this stage only some NSW content has been completed. To further whet the appetite or infuriate, a search on Gazettes often returns results, but the actual scanned copy is not yet uploaded. Presumably this is part of the process of re-uploading content into the new *Trove*; handily they supply an 'email request' button so that the user is informed once the content is available.

Gazettes are structured differently to newspapers and this has been accommodated by adding 'article categories' to narrow searches by such terms as proclamations and legislation, private notices, tenders and contracts, appointments and employment. It is likely that the 'tenders' section will be of interest to light railway researchers and may give some clue as to the movement of locomotives around the country.

The interface is basically the same as for newspapers. For researchers who have developed methods to create effective searches, the structure and content of Government Gazettes will take some re-thinking to work out how and where to find relevant information. No doubt there is good information to be found in this section of *Trove* to enhance people's research.

Rating: 9/10. It's great to have the content online and the new search terms makes searching easy to structure. If all the promised content had been available, I would have given it a 10.

Overall, it is great to see *Trove* continue to grow both in size and complexity. While there are clearly issues related to the uploading of all the content, by the time this article makes it to press, most of those will probably have been rectified. Other bugs will likely be identified by eager users; look through the forums for the current issues and plans to address them. However every silver lining is held up by a cloud, in this case the prospect of Federal funding cuts to the NLA. As part of proposed budget cuts, the library will cease aggregating content in *Trove* from museums and universities unless it is fully funded to do so. It is possible this will see a reduction in the amount of new content added over the coming years, a great shame as it undermines the efforts of so many different collecting institutions to develop material that can be placed online[1].

Phil Rickard, Ian McNeil and Stuart Thyer

1. Henry Belot, 'Budget cuts will have a 'grave impact' on the National Library, staff told', *The Sydney Morning Herald*, 22 February 2016, online edition

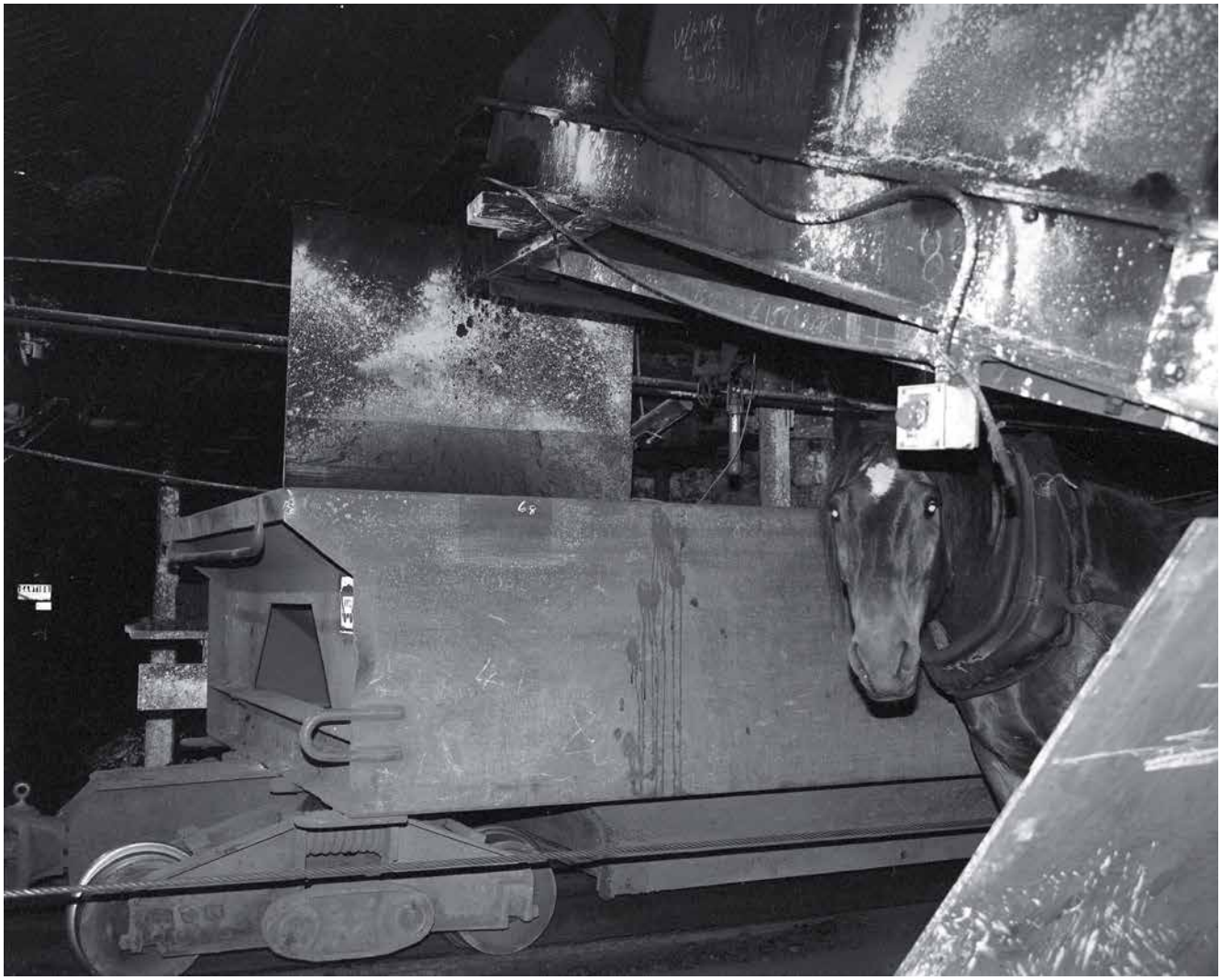


Image: OL_BRAN408_003 **Caption:** *Horse named 'Podge', Buchanan loading point, Stockrington No 2 Colliery, Nov 1983. At the loading point, Podge was used to pull out the wire rope that was then attached to the mine cars. The rope then pulled the cars through the coal loader and Podge was left to wander happily waiting for the next rake of cars. When more cars arrived, Podge would make his own way back to the rope, ready to pull it out again.*
Brian R. Andrews, the Brian R. Andrews Collection, the University of Newcastle Library

Photographic collections

Collections of historic photographs seem to be rapidly appearing on the internet. Perhaps due to cheaper scanners, more affordable internet, easy to use web publishing software, better access to high end broadband; or a mix of these, many people, collecting institutions and organisations are posting their collections for all to see. This can be a tremendous boon for researchers, or potentially a drain upon one's time. It's all too easy to spend hours browsing through people's collections! I don't normally try to keep up with these collections but a few have stood out recently.
From Western Australia, this small collection http://bitsandsteam.co.uk/photos-5/ was taken by a visiting UK enthusiast in 1962. It features photographs of both Government and private locomotives in operation.
From NSW, the University of Newcastle Library, Cultural Collections Unit hosts collection http://tinyurl.com/hz3opeg. It was created in conjunction with the ARHS NSW Division and with over 1600 images, features a range of private operations. It's certainly not the ARHS's entire collection, they have much, much more available through their reading room in Redfern but it is a great selection of material, all scanned at a high resolution. The Cultural Collections site also contains the J & A Brown archives, which were donated to the University in 1996. The Brian R Andrews collection, featuring a wide range of mining industry images from the 1970s and 1980s, is also located on the website. Brian published articles in LR103 and 108 and the full range of images from those articles can be viewed through his collection.
In Tasmania, a *Flickr* account, with the username *Trainiac* has a range of images of Tasmanian tramway material. Some of these are scans from other people's collections, in particular Ted Lidster's work over many years. http://tinyurl.com/gl3kmnc.
Stuart Thyer

Aerial Viewing Tool

This very impressive tool, http://tinyurl.com/hxyv7vu allows you to scroll over a 1948 basemap of Wollongong and bring up modern imaging within a viewing circle that can be placed anywhere on the map. While the 1948 map is of excellent quality and everyone is familiar with modern aerial viewing software, this website brings the two together in a very elegant way. Produced using ArcGIS Story Map software, this may not be the only map to have been produced in this fashion. If readers are aware of other maps produced in this style, it would be good to hear of them.
The map makes comparative mapping of an area very easy, so I decided to check some of my work and in doing so discovered an error in my field report of the Mt Keira colliery line in LR242. The locomotive sheds were not beyond the western end of the modern day Throsby Drive; their remains now lie under the drive itself, shortly before it ends at the roundabout. Fortunately the rest of my work seems to have held up fairly well to scrutiny using this new tool, but it will certainly make any future exploration significantly easier.
Stuart Thyer

Heritage & Tourist NEWS

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

QUEENSLAND

PETTS LOCOMOTIVE, Mackay

610 mm gauge

The future of the Petts locomotive formerly used for train rides at Bedrock, near Walkerston, 14 km west of Mackay is unclear after it was recently passed in at auction. It ran on a 2.2 km circuit and was built bespoke by Ken Petts in 1998. It was a four wheel diesel-electric which was fitted with a large Scania diesel truck engine driving an electric generator which supplied electric power to an electric motor which transmitted power by a drive chain to both axles. Carriages were also four wheeled with the first and last carriages having their own powered axles. By January 2010, the line had been lifted and the train offered for sale at $55,000.

The locomotive was recently put up for auction by Lloyds but there were no on-line bids and bidding is now closed, the locomotive having been passed-in. The future of the locomotive is unclear and the vendor is holding on to it at present. However, the auctioneer has said he will place people in contact with the vendor if there is any interest.

Report via John Browning, 1-2/16

DREAMWORLD, Coomera

610 mm gauge

Following a trial run on Australia Day and plenty of online support, Dreamworld will be returning its iconic 1917 Baldwin steam train to regular service on the first Saturday of each month.

The Baldwin locomotive 4-6-0 (45215 of 1917) was steamed for the first time in three years on Sunday 17 January 2016 when Peter Gough lit the fire, raised steam and moved the locomotive up and down the shed where it is stored. After several trips up and down it was driven out into the open at the eastern end of the shed for photographs

On 22 January steam was again raised in the Baldwin. It was to do a light engine test around the park, but it was decided to take the three coaches and brake wagon/stroller wagon on two test trips. After the tests the steam-outline diesel locomotive took over for the day's running.

On Australia Day, Dreamworld quietly had the Baldwin back in action. It did a test run around the park before the public opening time. The test was successful and it continued to run all day.

The operators of Dreamworld considered the day to be very successful and have announced that the locomotive would be running the first Saturday of each month and be available for special occasions.

The Dreamworld Express diesel engine will continue to take on regular daily duties in the park.

The Baldwin was put to work for a couple of days in February when the diesel's starter motor failed. It was the first time since 2013 that a steam train had navigated the narrow gauge track at Dreamworld. Though the reintroduction was without fanfare or publicity, train enthusiasts and Dreamworld fans soon picked up on it; messages of support flowed on Dreamworld's Facebook page and the park replied with hints about its future, suggesting that it will be back again.

The red 1917 Baldwin engine was a staple at Dreamworld for more than three decades. Opening with the park in 1981 as Cannonball Express, it operated alongside the 1951 Perry steam engine (5643.51.1 of 1951) until 2013 when both locomotives were retired and a diesel replica from Italy's C&S was put into daily duty.

The change was met with discontent from theme park and railway enthusiasts alike. While the new locomotive looked the part, its utilitarian diesel engine sound and motion was an abrupt departure from genuine steam locomotives. The change was pitched as an environmentally-friendly alternative to the steam engines.

The Perry, Dreamworld's newer of the two original steam engines, was donated to the Australian Narrow Gauge Railway Museum Society where it is maintained and still operated for tourists and enthusiasts. The Baldwin remained at Dreamworld, sitting just out of view in the train storage and maintenance area, north of the Buzzsaw roller coaster. In this location

On 22 January 2016 Dreamworld Baldwin Locomotive 4-6-0 (45215 of 1917) moved under steam for only the second time in three years since being replaced by the C&S diesel. *Photo: Bob Gough*

the train has received ongoing maintenance and servicing to keep it in an operable condition.
Chris Deaves, General Manager of Engineering at Dreamworld said that returning the Baldwin to service wasn't arduous: 'The train has been kept well maintained since its original use. It has been continually serviced so it was a smooth transition to get the locomotive back on the tracks.'
'The train will also be on standby for special occasions. The diesel Dreamworld Express will be used at all other times,' Mr. Deaves said.
Reports by Bob Gough and article by Richard Wilson, Parkz, 1/16

WOODFORD RAILWAY, Durundur
610 mm gauge
ANGRMS has been successful in obtaining a grant of $15,000 from the Moreton Bay Regional Council Community Grant toward the loco storage shed. While this combined with the state government grant of $35,000 is a significant amount of money, it still only comes to just over half the overall cost of this shed. Management has now signed the contract for supply and erection of the shed and work is underway to submit the building application to Council. Management still has to finalise the contract for the concrete floor but the next few months should see construction of the shed underway.
As part of Queensland Rail's 150th anniversary celebrations, communities along its tracks were presented with replica platform seats. Moreton Bay Regional Council has presented ANGRMS with one of these seats.
Recently ANGRMS was donated a set of platform scales, a decoration which hung on the Nanango station wall, and the gate from the station master's house. The platform scales, along with the QR150 seat mentioned above are now on display at Woodford station. The decoration and gate have temporarily been placed in storage until a suitable display location becomes available.
As a result of the Queensland Transport audit back in August, plus Queensland Transport education sessions during 2015, the Railway found that it needed to improve its internal auditing process. This is still very much a "work in progress" but forms have been developed to assist with the process and to better record the information needed. During the last few months of 2015 workers conducted internal audits on Operations, the SMS, buildings, track and operational rollingstock. While these audits might have a down side in that they are a lot of work, there is also a positive side. Workers have had to stop and look at what they are doing, as well as review the condition of materials. This has a very positive contribution to the safety of the railway, helping to ensure passengers and workers go home safely after each day on site. There will be a lot more to do and learn during 2016.
On Thursday 10 December 2015, an independent track audit inspection was undertaken; the main observations from this audit were:

- The line is generally only of a poor to fair standard, although it is suitable for the traffic task that is required of this track.
- Sleepers are in generally fair to good condition. In total 66 defective or ineffective timber sleepers – 42 replacements and 24 rebore and spike were marked out with white paint for replacement.
- Track strength was found to be acceptable for the traffic task required.
- Ballast is crushed metal type with some areas a mixture of sand and gravel and is adequate to ensure track stability.
- Fastenings were inspected and found to be satisfactory.

The report concluded that the standard of track is generally good. There were some low priority defects located during inspections and a number of opportunities for improvements were identified.
Following the audit, trackwork has concentrated between the workshop points and the gate at the start of Freeman's Cutting.
Sleepers have been replaced in groups of 2 or 3 with steel sleepers.
Future track days will concentrate around Ch 200 m to Ch 300 m and Ch 450 m to Ch 550 m where there are higher concentrations of poor condition sleepers.
Work at Petersen Road will be temporarily mothballed whilst the track work associated with the new running shed is undertaken.
Durundur Railway Bulletin Volume 37 Number 337 1-2/16

FRIENDS OF ARCHER PARK STATION AND STEAM TRAM MUSEUM INC., Rockhampton
1067 mm gauge
Both the tram (Valentin Purrey, Bordeaux) and the Billard locotractor have had their yearly service. The tram's return to service has been delayed as members must replace all the steam tubes. However, due to a delay in receiving the steam pipes, The Friends were not due to get the tram back on the track until at least 14 February.
Some members have started work on carriage CWM21 by pulling down some of the old damaged ceiling. Fixing the floor is the first big item on the agenda and quotations on materials are being sought and plans made. Members will do the restoration work over the next year or so.
Wheels have been installed under the tram trailer and members will commence preparing exhibits and signage for display on it.
A new alternator has been fitted to the Tampa 6 and members hope to operate it on Family Fun Days for an extra attraction.
Tram Tracks Volume 10 Number 1, 2/16

MORETON MILL, Nambour
610 mm gauge
Brad Peadon reports an interesting discovery of on-site changes (compared to a photograph taken during the 10th anniversary celebrations of the Moreton Mill), near the entry to a house and farm at the northern end of Valdora Road. A member of the Maroochy Shire Tramways SIG Facebook group went to inspect this spot and noticed that a 2 ft gauge point had been laid just beyond the second sign, along with a point lever. Also changed since this photograph is the crossing sign which has been moved across the road and level with the yellow sign. It seems that someone has an interest in the area's rail history and he is planning to approach the land owners for further information.
Brad Peadon 1/16

VICTORIA

PUFFING BILLY RAILWAY, Belgrave
762 mm gauge
Puffing Billy has announced three Commissioners' Special Climax hauled trains will run during 2016 on Saturdays April 16, June 4 and September 3. The events start at Belgrave station, with a tour of the locomotive workshop from 8am.
The Commissioners' trains will depart Belgrave for Menzies Creek at 9am hauled by Climax Locomotive 1694 of 1928.
An NA locomotive will join the train at Menzies Creek for a double-headed run to Emerald where the Climax will be removed for the rest of the trip.
The NA-hauled train will continue to Gembrook for lunch. The train will then be added to the regular timetable Gembrook-Belgrave service meaning a double-NA hauled trip home.
Full details are online at www.puffingbilly.com.au/en/events-and-dining/commissioners-train/
The Puffing Billy Railway Board is also working on design specifications for the construction of a new consist of NBH type vehicles, the overwhelming favourite of Puffing Billy passengers, together with some additional disabled/guard configured vehicles.
While it might look to the casual observer as if work on the Garratt NGG 16-129 (7430 of 1951) had come to a halt once the boiler was in place, work is proceeding. As with all projects like this, there are periods of rapid and obvious progress, and times when it appears that nothing is happening at all. In the case of the NG/G16-129 project, many of the more substantial tasks (frames, wheelsets, boiler, tanks etc.) are complete, and the team is now working on a myriad of smaller items in the background. With the boiler sitting level in the cradle, the rivet holes in the smokebox are being drilled ready to attach to the saddle. The team has also been busy getting patterns made and parts cast, including the blast pipe and cross head. The blast pipe combines the exhaust steam from the front and rear engines units before feeding it through the blast nozzle. Both castings have now been sent out for machining.
The current big task is the design and manufacture of all the steam and exhaust pipes. The original pipes were in no state to be reused, and many were manufactured from pipe sizes no longer available. New drawings were created, using the closest available pipe sizes, and a whole set of new flanges and lens rings designed and manufactured to suit. With so many angles and curves involved, the easiest way to produce the pipes is on the job. The flanges are fixed in place and the pipe sections trimmed and tack

welded in position to suit, following which they are removed for final welding. Where practical, bent pipe has been replaced with standard pipe elbows trimmed as required; a much cheaper and rapid method of fabrication.

More of the original parts are making their way out of store and down to Belgrave, either to be overhauled and reused, or for measurement to allow new ones to be manufactured. With attention beginning to focus on lubrication and boiler fittings, several boxes containing things like safety valves, top feed check valves, blowdown valve, injectors, lubricators and oil feed pots have arrived to be dismantled, cleaned up and their condition checked. Pipework manufacture on the engine units has also begun. Space to work is rather confined and access is limited by the between-cylinder stretcher casting. This is why the pipes are being made and fitted now; further on in the assembly process, access will become near impossible to this area.

In order for all the pipework to be complete, the flexible ball joints which connect the pipes on adjoining parts of the locomotive are required. At each end of the boiler cradle, a steam ball joint, steam pipe expansion joint and exhaust ball joint provide the flexibility famous in the Garratt design.

Puffing Billy website 2/16, Monthly News 2/16 and Tim Heeks, *Narrow Gauge* magazine 3/16

WALHALLA GOLDFIELDS RAILWAY, Walhalla

762 mm gauge

In the financial year 2014/15 the railway recorded 32,544 passengers, the 2nd best ever since 2009/10. Passengers were up 9% from the previous year. In the period July 2015 to January 2016 it has transported 19,439 passengers which is higher than the corresponding period 2014/2015. The railway has 60 active volunteers covering operating crews, maintenance and station staff.

The Board of the Walhalla Goldfields Railway has an ongoing vision for the future to make the WGR one of the most prosperous tourism and heritage railways in Victoria and Australia. To be able to achieve this the Board has committed to a number of purchases and projects already completed with a number still on the drawing board. These projects have required considerable effort, both in planning, project management, labour and finance.

A new fence has been erected at the Thomson yard to keep equipment more secure. The fence was erected by a local fencing contactor in the space of a few days.

Dog Spikes And Diesel, 2/16

NEW SOUTH WALES

RICHMOND VALE RAILWAY MUSEUM, Richmond Vale

1435 mm gauge

On 21 January the boiler for War Department ROD No 2004 of 1919/J&A Brown No. 23 was lifted on to the frame. This boiler was removed from the frame in early 1987 with the idea of returning it to service but this has proved too costly so the engine is being cosmetically restored only. The lift was completed in three hours.

Graham Black 1/16

Richmond Vale Railway Museum's cosmetic restoration of ROD 23 continues, with the boiler back in place on the frames. *Photo: Graham Black*

ZIG ZAG RAILWAY, Lithgow

1067 mm gauge

The claim for bushfire damage to the railway has been finalised and is now in the hands of various public servants. It has been a long process to identify both Trust and railway property and to provide accurate information and estimates for repair or replacement of the damaged property. Once this is finalised and the railway has some idea of a settlement amount, planning how to use the money to get the railway back to running condition and then re-construction can commence.

Another important problem is the washaway at Wallaby Flat near Clarence Tunnel. It has been found that some of the proposed retaining embankment will be on privately owned land so negotiations with the owner have commenced to purchase a small parcel of land so as to avoid this problem. Negotiations involve not just the land but an access agreement across Railway land over the tunnel and other problems. Once these are complete the engineering works can commence to reinstate the track.

Work has been progressing on 218 (ex-Queensland Government Railways 2-8-2 Baldwin 69453 of 1943) and 1072 (ex- QGR 4-6-2 Walkers 540 of 1956) with 218 nearly ready to steam. 1004 (ex-Emu Bay Railway 10 class diesel, TGR workshops Launceston, 1966) is being worked on with the Board approving funds for various parts to get it running again. Work is also underway on some carriages.

Another problem faced by the railway is the illegal crossing at Clarence. The National Regulator has proposed a plan to eliminate level crossings nationwide that are not used or only subject to occasional usage. As this has the potential to affect many tourist and heritage railways there is a move to alter the proposal and to allow more time to solve many of the problems it raises.

The Board is hoping that they will be able to run the section car along Middle Road by late April as a prelude to Clarence running once the wash-away is fixed. They are also hoping to get the Clarence shop open on weekends to produce an income stream.

Switchback Issues 140-142 12/15-1/16

WESTERN AUSTRALIA

BENNETT BROOK RAILWAY, Whiteman Park

610 mm gauge

Little has been done on the Whiteman Village Junction North signals project over the past two months due to the weather conditions and school holiday roster commitments. At present the signals are operational under review and appraisal with some shortcomings overcome as a result. The signals manager is on leave during February and it is hoped that on his return, the point motor at No. 2 road points can be connected. Some minor repairs have been carried out on existing equipment and the ever-recurring scheduled routine maintenance undertaken.

Two turnouts for the Zamia station area have been completed and are located on two QBB flat tops in the railway workshop yard. Members are working on the ash pan mounting area and ash pan of NG15 123 (Franco Belge 2670 2-8-2 of 1949). The ashpan mounting area will be needle-gunned and cleaned, rust protected and primed. The mock-up cardboard ash pan is complete and being drawn up in auto-cad for manufacture.

The Dorman Planet (4wDM 3966 of 1962) motor has been rebuilt with reconditioned heads and the locomotive is back in operation. Two second

hand heads were sourced from Melbourne then overhauled along with the injectors at considerable expense. It has been tested a number of times and with a few minor tweaks should give reliable service if properly looked after.
The 0-4-2T Perry BT1 (Perry 8967.39.1 of 1939) is being readied for the coming steam season, including remedying the vacuum problems with the smokebox door. New suspension pins and components are being manufactured for the 0-6-2 Perry (Mile End 2601.51 of 1951) to get the chassis rolling soon.
Bennett Brook Railway Newsletter 2/16

SOUTH AUSTRALIA

SOUTH AUSTRALIA LIGHT RAIL CENTRE, Milang

610 mm gauge
The latest meeting of the SA Group of the Society was highlighted by a talk by Milang Railway Museum secretary Peter Lucas about the SA Light Rail Centre grant which has been received from History SA and its use over the next few months.
The exhibits in the centre will be interpreted by storyboards which will be colour-coded. There will be a large map of SA on which the light railway sites will be marked with pins coloured to match the related storyboard.
Further details are to be discussed at an upcoming meeting at Milang with History SA.
SA LRRSA minutes, 2/16

OVERSEAS

Derbyshire, UK

610 mm gauge
The pace of the restoration of Hunslet 4-6-0 tank engine No. 1215 (Hunslet 1215 of 1916) is accelerating and the restoration team is well into the re-assembly. Work is going well on the bunker and side tanks and all of these have now been replaced and secured on the frames. The bogie is finished and has been placed in situ on the track panel so it is ready to be secured in place when the locomotive is lowered; it is almost a 4-6-0 again. Progress is being made on many aspects of the locomotive. The new boiler is finished and tested and was delivered to the workshop on February 4. The final stage of work for the contractors was to carry out a hydraulic test for the boiler inspector. An initial test was carried out on January 13 and 100psi was reached. By the January 20, 250 psi had been achieved, ready for the Inspector to come and witness and sign off. This took place on January 26 (a fitting day for Australians). The boiler passed its RSA inspection so the way was clear for the restorers to take delivery of this vital and key part of the project.
Next steps include:

1. Completing the tidying up and the painting of the main frames
2. Completing work on the valves and buckle and guides and lap in both slide valve faces
3. Finish making and fitting the new cylinder cladding plates
4. Completing fitting of the new brake gear and new return spring
5. Completing work on the rear sandbox pipes
6. Making and machining new pistons and rods Making new valve parts e.g. radius rods
7. Starting making up new shaped boiler cladding for the Belpaire shoulders, boiler bands and boiler cladding sheets
8. Making a new water balance pipe

The new boiler arriving has signalled the start of a very intensive period of work on the locomotive but it will all come down to funding now as there are still a few significant expenditures to make before 1215 is complete again. The target is to have it back in steam mid-year.
The locomotive will appear as it was in 1916 in matt black. They will vary this only slightly in that the buffer beams will be red as will the space between the frames and the inside of the top half of the cab will be cream.
The locomotive is being fitted with discreet air and vacuum brake systems so it can operate passenger trains on any UK narrow gauge railway. It also has a steam brake for use on the locomotive only when it is running light engine or when it is involved in shunting; that was a feature of all the original Hunslet 4-6-0T locomotives.
It will also have the cast iron builder's plates and 303 plates fitted to the bunker and tank sides respectively and the team has gone to a great deal of trouble to make sure that there are the correct number and pitch of rivets on the tanks, boiler, cab and bunker sides. The team strives to make sure that all of the fittings will be going back on exactly as they were and that all of the pipe runs will do the same and follow the correct routes. The number 303 will also be stencilled on the two buffer beams.
Kiillamarsh Chronicle Issue No 33, 2/16

Out with the old, in with the new. The Bundaberg (on the ground) and newly constructed boiler for Hunslet 1215 of 1916 together as another restoration milestone is achieved.

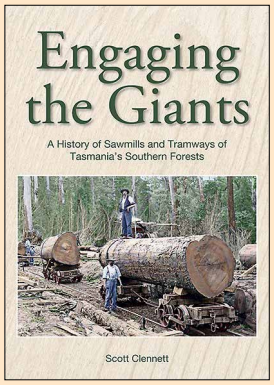
Carrying its service number plate, the left hand tank joins the frames as the jigsaw that is Hunslet 1215 comes together. *Both photos: Mike Lynskey*

Timber tramways of southern Tasmania ...

Engaging the Giants

A history of sawmills and tramways of Tasmania's Southern Forests

By Scott Clennett
To be published by the LRRSA in July 2016



Hard cover, 240 pages, A4 size 170 photographs, 21 maps, bibliography, references, and index.

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It covers the area from Franklin (45 km south of Hobart) to Cockle Creek - the most southerly settlement in Tasmania, and includes Bruny Island. Details of the ships and barges which carried the products of the many sawmills in the area are given, together with an insight into the living conditions and the innovative methods that were used to solve many problems. Gauges of the timber tramways varied from 2 ft 6 in to 6 ft, but the most common gauges were 3 ft 6 in and 4 ft 6 in.

Over a dozen steam locomotives were used, including two Shays, and many of ingenious local manufacture. Three Hobart engineering firms supplied steam and internal-combustion locomotives of unusual design to many of the sawmillers.

The maps, prepared by Mike McCarthy, show the tramways, mills, roads, waterways, and contours.

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