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LIGHT RAILWAYS

Australia's Magazine of Industrial & Narrow Gauge Railways

Light Railway Research Society of Australia Inc.

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Imperial to metric conversions:

1 inch (in)	25.40 millimetres
1 foot (ft)	0.30 metre
1 yard (yd)	0.91 metre
1 chain	20.11 metres
1 mile	1.60 kilometres
1 ton	1.01 tonnes
1 pound (lb)	0.454 kilogram
1 acre	0.4 hectare
1 horsepower (hp)	746 Watts
1 gallon	4.536 litres
1 cubic yard	0.765 cubic metres
1 super foot (sawn timber)	0.00236 cubic metre

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No 262 August 2018

Contents

Editorial

Well, its another bonus 48-page issue for all to enjoy, but we stop the presses to make an important and extremely noteworthy announcement.

The Queen's Birthday 2018 honours list brought some wonderful news for the LRRSA. Our founder and long-time stalwart, Frank Stamford, was awarded a Medal of the Order of Australia (OAM) in recognition of his contribution to 'Rail Transport History'.

This is indeed a well-deserved and, some might say, long overdue recognition of Frank's contribution to the research and publishing of light railway history. Frank's efforts in support of the preservation and support of the Puffing Billy Railway also formed part of his award.

Most LRRSA members need little explanation of Frank's achievements but, for recent 'converts' we might add that without Frank there never would have been an LRRSA and you would not be reading this magazine! Following the actual presentation of his award later in the year, a more comprehensive commentary will be made. However, in summary and, as detailed in his award notes, in relation to the LRRSA, they include the following:

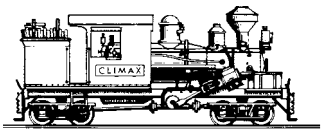
Founder LRRSA, 1961. President 1961 – 1968, 1978 – 1982; Vice-President 1976 – 1977. Publications Editor, 1961 – 1980, 1982, 1983, since 1997.

Author: 'The McIvor Timber and Firewood Company', 2015; 'Arsenic and Molasses', 1998; 'Five to 500', 1986; 'Powelltown', 1984; 'Tall Timbers and Tramlines in Victoria', 1974.

We offer Frank our most sincere congratulations on receiving his thoroughly deserved OAM.

Mike McCarthy

Front Cover: Deane, *Hudswell Clarke B/No.377 of 1891 at Baxter & Prince's sawmill, Donnybrook, WA. It, and an identical locomotive,* Dodger/Preston, *(No.379), features in the article on page 18 of this issue. Four locomotives of this type were used on the construction of the Midland Railway of WA. Of the other two, No.378,* Keane/Tom Cue, *worked on the North Mount Lyell Railway construction in Tasmania, before ending up at Sanderson's timber tramway, Forrest, Victoria, where it was scrapped in the 1950s. No.380,* Perth/Six Wheeler, *worked on the Marrawah Tramway, Tasmania, before ending up at Jaeger's sawmill, north-west Tasmania, where it was converted to a diesel. Photo: Courtesy of Donnybrook Visitor Centre*



Light Railway Research Society of Australia Inc. A14384U
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www.lrrsa.org.au

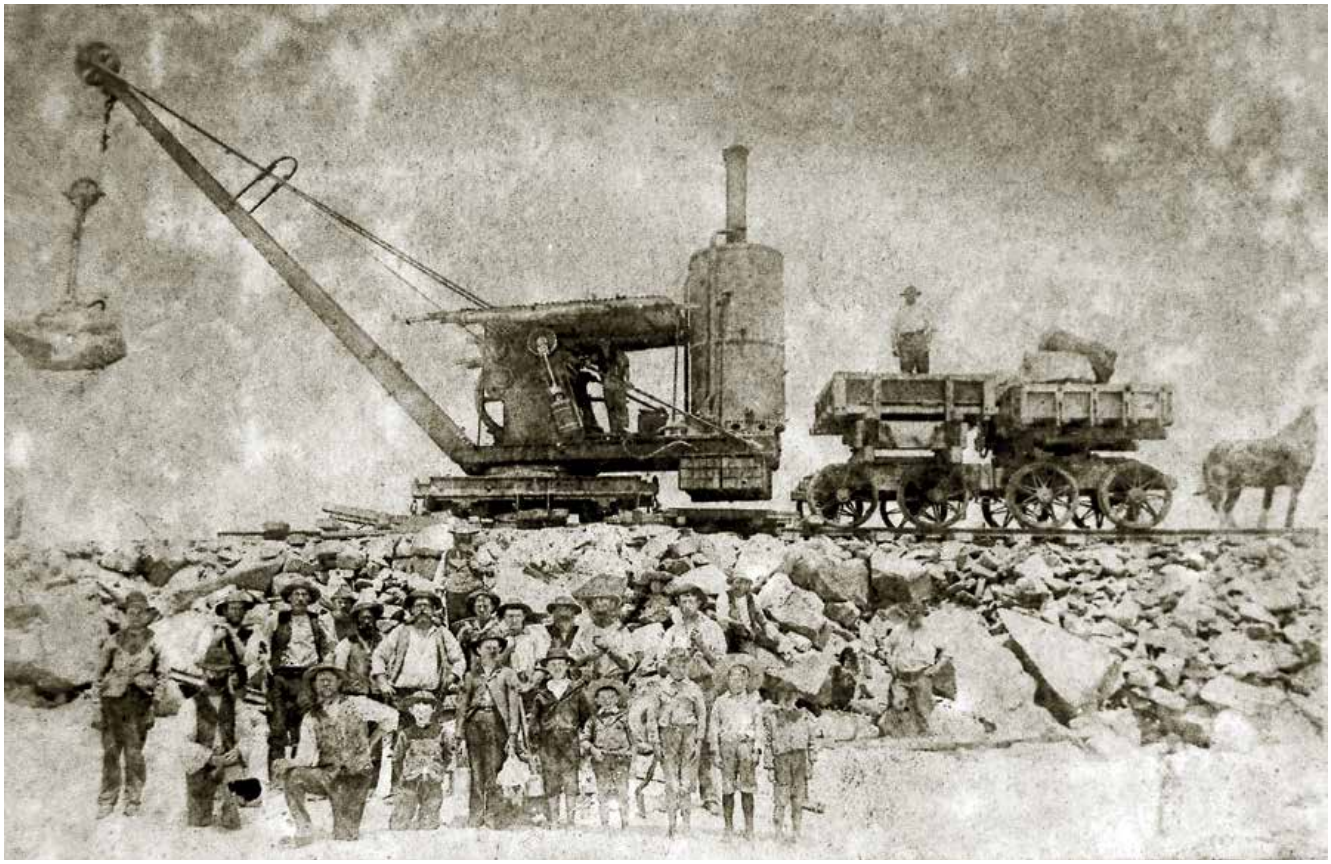
The Light Railway Research Society of Australia Inc. was formed in 1961 and caters for those interested in all facets of industrial, private, tourist and narrow gauge railways in this country and its offshore territories, past and present.

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

Light Railways is the official publication of the Society. Material submitted is subject to editing, and publication is at the discretion of the Editor.

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

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



Between 1894 and 1896 the PWD employed a travelling steam crane to dismantle Moriarty's walls on the North Sand Spit, with the recovered stone being used to construct part of Sir John Coode's North Training Wall. Although of poor quality, this fascinating photograph shows a wealth of detail illustrating the stone recovery procedure. *Photo: Maclean District Historical Society*

The Clarence River Breakwater

Part 4 – Woodford Island quarry and the Iluka training wall

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 shallow channel through these obstacles shifted unpredictably. Successive NSW Governments strove to improve the navigational safety of the entrance in order to foster trade and encourage development.

This is the fourth in a series of five articles covering the 100-year history of the Clarence River breakwater walls at the river entrance, and the railways used in their construction. Parts 1 and 2 (*Light Railways* 245 and 248) related the history of Edward Moriarty's uncompleted river entrance improvement scheme. Part 3 (*Light Railways* 255) told the story of the Angourie Quarry Railway and its role in the construction of the successful replacement river improvement scheme devised by Sir John Coode.

Part 4 covers the history of Woodford Island Quarry and the Iluka Training Wall, the last of the Clarence River training walls to be constructed.

Sir John Coode's Recommendations for Improving the Clarence River Entrance

The distinguished British harbour engineer Sir John Coode visited Australia in 1885 to inspect several harbour sites and river entrances on behalf of the various colonial governments. The NSW Government requested him to recommend schemes to improve the entrances to the Clarence and Richmond Rivers and Lake Macquarie. It received Sir John's report[1] on the Clarence River in 1887.

Sir John recommended redirecting the main channel away from the south side of the river, and training it to run down the centre of the estuary and straight out across the off-shore bar. He proposed two large ocean breakwaters to permanently fix the position of the channel across the bar, and three long river training walls inside the entrance. He estimated the breakwaters would cost £375,000 with another £183,000 needed for the training walls.

In view of the high cost of the proposed works, the NSW Government referred his proposals to the Parliamentary Standing Committee on Public Works. After much deliberation the Committee recommended that the river training walls should be constructed, but work on the more expensive breakwaters be deferred until it could be shown that they were necessary and that the trade to the Clarence River district warranted such a large expenditure.[2] The Government accepted the Committee's recommendations and passed the "Entrance to Clarence River Improvements Act of 1890" authorising an expenditure of £254,300 for the work.[3]

Work on the river training walls began in 1890. A quarry was opened at Angourie Point, 5 miles south of Yamba, and a standard gauge railway line was laid to connect it to Freeburn Island in the centre of the Clarence River. Between 1893 and 1896 the first of Sir John Coode's walls, the two-mile long Freeburn Island Training Wall, was constructed down the centre of the Clarence River by contractors Kerr and Wallace.[4]

The second wall was the Goodwood Island Training Wall on the north side of the Clarence. It was constructed by the NSW Public Works Department (PWD) using day labour. Stone from Angourie Quarry was railed to Freeburn Island, tipped into punts and ferried across the river to build this wall. It was completed in early 1900.[5]

Sir John Coode's North Training Wall

The third of Sir John's proposed walls was the North Training Wall which was to serve as both a protection wall and a training wall. Unlike the 'half-tide' Freeburn Island and Goodwood Island training walls, which were submerged at high tide, the North Training Wall was to be built considerably above high water level. The primary wall would run along the Iluka shore, starting from a point 1,200 ft south of the Resident Engineer's Office, curve across the North Sand Spit and finish in line with the proposed north breakwater. Sir John recommended that this Wall should also be continued upriver to the North Arm entrance to protect the Iluka foreshore from current scour and flood damage.

The North Training Wall was planned to cross the North Sand Spit in a wide sweeping curve. In doing so it would intersect the rubble stone walls that Moriarty's engineers built in the early 1880s in their unsuccessful attempt to stop the sand spit from being washed away. If left in place, the old walls would project into and obstruct the central shipping channel planned by Sir John Coode. Consequently, when construction of the Freeburn Island Training Wall down the centre of the river began in 1893, the PWD began preparations to dismantle them. Stone recovered from the old walls would be re-used to construct part of the North Training Wall.

The PWD opted to carry out the work by day labour instead of tendering it out to contract, as had been done for the Freeburn Island Training Wall. Engineer-in-Chief Cecily Darley explained the rationale behind the use of day labour to a Public Works Committee a few years later:[6]

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

Preparations began in June 1894 when a rail-mounted steam crane arrived at Iluka on board the SS *Coraki*.[7] Next month tenders were invited for the supply of 500 squared railway sleepers, to be used to lay track for stone recovery and wall construction.[8] By the end of August 1894 some 15 men were at work recovering stone from the remnant stub of Moriarty's northern breakwater.[9] The work site was fully exposed to the elements causing work to be suspended when seas were too rough, on one occasion for two weeks straight.

Construction work on the North Training Wall began where it crossed Moriarty's stone protection bank on the seaward side of the North Sand Spit. Rails were laid to connect with the old Iluka Quarry Railway siding on top of the breakwater. The traveling steam crane lifted stones from the breakwater and loaded them onto standard-gauge side-tipping and end-tipping wagons. Horses hauled loaded wagons to the advancing tip face on the new wall.

By mid-February 1895 the workmen had dismantled 400 ft of the north breakwater down to the low water mark and built the first 750 ft section of the North Training Wall.[10] Six months later they had completed 1400 ft and reached the point where the new wall converged onto Moriarty's stone protection bank on the river side of the North Sand Spit. The local newspaper commented that, "progress across the sand spit had been rapid because little or no portion of the new wall was touched even by high tides, but now the tip would immediately be into deep water."[11]

Instead, construction activity returned to the seaward end, and in November 1895 the PWD was given approval to dismantle the remaining sections of Moriarty's walls.[12] Tenders were invited for the supply of another 500 railway sleepers[13] to lay more track, and during the next 12 months recovered stone was used to extend the wall 1200ft eastward. It terminated with its end projecting a short distance into the sea. This end of the wall was built up to ten feet above spring high tide level, falling back on a 1 in 200 grade to be four feet above high water at its river end.[14]

Work came to a halt in November 1896 after all the available stone had been used up, and the men were paid off. They had recovered 72,708 tons of stone from Moriarty's walls and used it to construct 2,607ft of the North Training Wall at a cost of £7,127.[15]

A Replacement for Angourie Quarry

When Kerr and Wallace finished their Freeburn Island Training Wall contract in November 1896, the PWD took over to build the two remaining training walls on a day labour basis. It was already known there was insufficient stone economically recoverable from Angourie Quarry for the task. One of the Department's assistant engineers, Thomas William Keele, was tasked to locate a replacement quarry. Keele examined the two most likely sites for a new quarry; the first at Bald Hills headland two miles south of Angourie, the second on Woodford Island 17 miles upriver from Yamba. Two trial shafts were sunk at the Woodford Island site in mid-1898.[16]

Keele concluded that the Department would save £12,000 by selecting Woodford Island. He reported there was unlimited good stone and highly favourable quarrying conditions at the Woodford site, right on the water's edge, allowing stone to be punted directly to the Heads.[17]

By comparison, opening a quarry at Bald Hills would require a two-mile extension of the Angourie Quarry Railway. There would be the additional expense of operating the railway, and also maintaining the 3,400 ft long timber viaduct to the Freeburn Island stone wharf. He added that as the stone was needed for works on the northern side of the river, it would have to be punted to the work site regardless of which quarry it came from.

This decision did not suit some of the local Yamba businessmen who, presumably, saw their livelihoods threatened by the exodus of upwards of 80 quarry workers and their families upriver. Accusations of gross departmental mismanagement, poor quality stone at Woodford, and political influence were freely aired. Engineer-in-Chief Cecil Darley found it expedient to address a meeting at Yamba to present the Department's case. David Tulloch, a local Yamba businessman, was one of the most vocal opponents at the meeting. He disputed every point with Darley and wanted to call witnesses to support his case. Darley replied that he was not there to hold an inquiry, but simply to give a Departmental report. He said it was not to be expected that a change from one quarry to another could be made without hurting someone's feelings and interests. It would suit the Department better to have the quarry nearer the Heads and have the work more concentrated, but the removal was made for sound reasons.[18]

It was estimated that it could take up to two years to open up a quarry on Woodford Island and assemble the necessary plant to handle and transport the stone. In the interim, the life of the Angourie Quarry was extended by excavating a new railway entrance into the quarry to access more stone.

Ilarwill Village

Woodford Island is the biggest island in the Clarence River, 37 square kilometres in area, with a 170 metre high sandstone ridge running down its centre. It is formed where the Clarence splits into the North and South Arms at the small village of Brushgrove then reforms at the town of Maclean. The site for the new quarry was on the northern side of island, about one mile across the river from Maclean. It was on Crown Land which had been set aside some years previously for a gun battery to discourage enemy warships from sailing upriver. An area of 246 acres was gazetted as a quarry reserve in August 1899.[19]

In January 1900 the families of a number of Angourie Quarry employees together with their furniture were moved to Woodford Island. The PWD had set aside an area of land for a village on the southern bank of the Clarence River next to the quarry.

Blasting stone at Ilarwill Quarry, Woodford Island, for Clarence River breakwater construction during the 1960s. The earlier 1900–1903 Woodford Island Quarry workings are shown by the darker rock face on the left. Much of the evidence of these workings disappeared as Ilarwill Quarry expanded. *Photo: Norm Brown collection*

Workmen were able to lease ¼-acre lots for £1 a year upon which to build their own small houses.[20] This arrangement met with the approval of the local Maclean newspaper:

> Navvies Allotments: The Government have decided upon a very wise step, which is now being carried into effect at the Woodford Island Quarry. Instead of allowing the workmen to pitch their tents or build huts promiscuously about the reserve, there has been set apart a portion of land to be used for this purpose. The area has been cut up into fair sized allotments and pegged off. By this means each employee will be entitled to the same area of land. This is certainly a step in the right direction. The land is under the control of the Harbors and Rivers Department and will be reserved for the workmen and will not be leased or sold.[21]

Married men employed at the quarry built small homes in the village and single men erected huts, all at their own expense. There were three boarding houses which provided meals for single men but not accommodation. The little village developed with the establishment of a post office agency, a hop-beer shop, and a store run by John Carey. In August 1900 the workmen built themselves a 35 ft by 20 ft community hall known as Federal Hall where concerts, card nights and the annual Woodford Island Quarry Ball were held. It was also used as a church by visiting ministers of most denominations. For sport a cricket ground was established near the hall, and quarry elevens took on visiting teams with considerable success.

By mid-1900 there were some 40 children at Ilarwill but no school. Petitions to the Education Department to provide one fell on deaf ears because of the close proximity of Maclean Public School two miles away. That this was on the other side of the river was not taken into account. Some employees elected to house their families in Maclean itself, a move that saw every available house taken up and landlords raising rents accordingly. Getting to work for these men meant early starts to take the slow hand-operated ferry punt across to Woodford Island and late returns.

The influx of quarry workers and their families brought quite a measure of prosperity to nearby Maclean. Local businessman especially benefited from the extra trade. For two or three years the annual Maclean Highland Games featured rock drilling contests in addition to the more traditional wood chopping events. Not all of Maclean welcomed the boisterous newcomers, with one prominent citizen referring to them as "like all the quarry push, only fit for drinking beer and blackguarding." [22]

Woodford Island Quarry

Preliminary work began in early 1899 to prepare the Woodford site. A dredge spent several weeks deepening the approach to the river bank where quarried stone was to be loaded onto punts. A gang of 15 men was put on to clear scrub and timber off the hill face where the quarry was to be opened.[23] By the end of May there was over a score of men with horses and carts engaged on the job. The wharf work was approaching completion and the approaches, including a shallow freshwater swamp in front of the hill, were being filled in with overburden stripped off the hillside. The river bank was built up, levelled, and faced with rubble stone.

A number of men camped on-site had a narrow escape one night when an enormous rock, loosened by rain, came tumbling down the steep hillside and flattened one of their tents. Fortunately they heard it coming and got out of the way in time, but several lost all their possessions.

A large concrete reservoir was constructed in a gully about a quarter of a mile away to supply water for the quarry. Water was pumped from the reservoir to a number of iron tanks installed half-way up the hill and reticulated down into the quarry by pipelines. This water supply was not always reliable and in dry spells was supplemented with bore water from a nearby swamp. During the very hot summer of 1902 it gave out completely and water for the quarry's steam boilers had to be punted upriver from Iluka.

Two wharves and a jetty were built on the river bank in front of the quarry. The largest was the 190 ft wide stone loading wharf, situated at the eastern end of the river frontage. A 25 ft wide coal wharf and a water jetty were sited on the river bank 400 yards west of the stone wharf.[24]

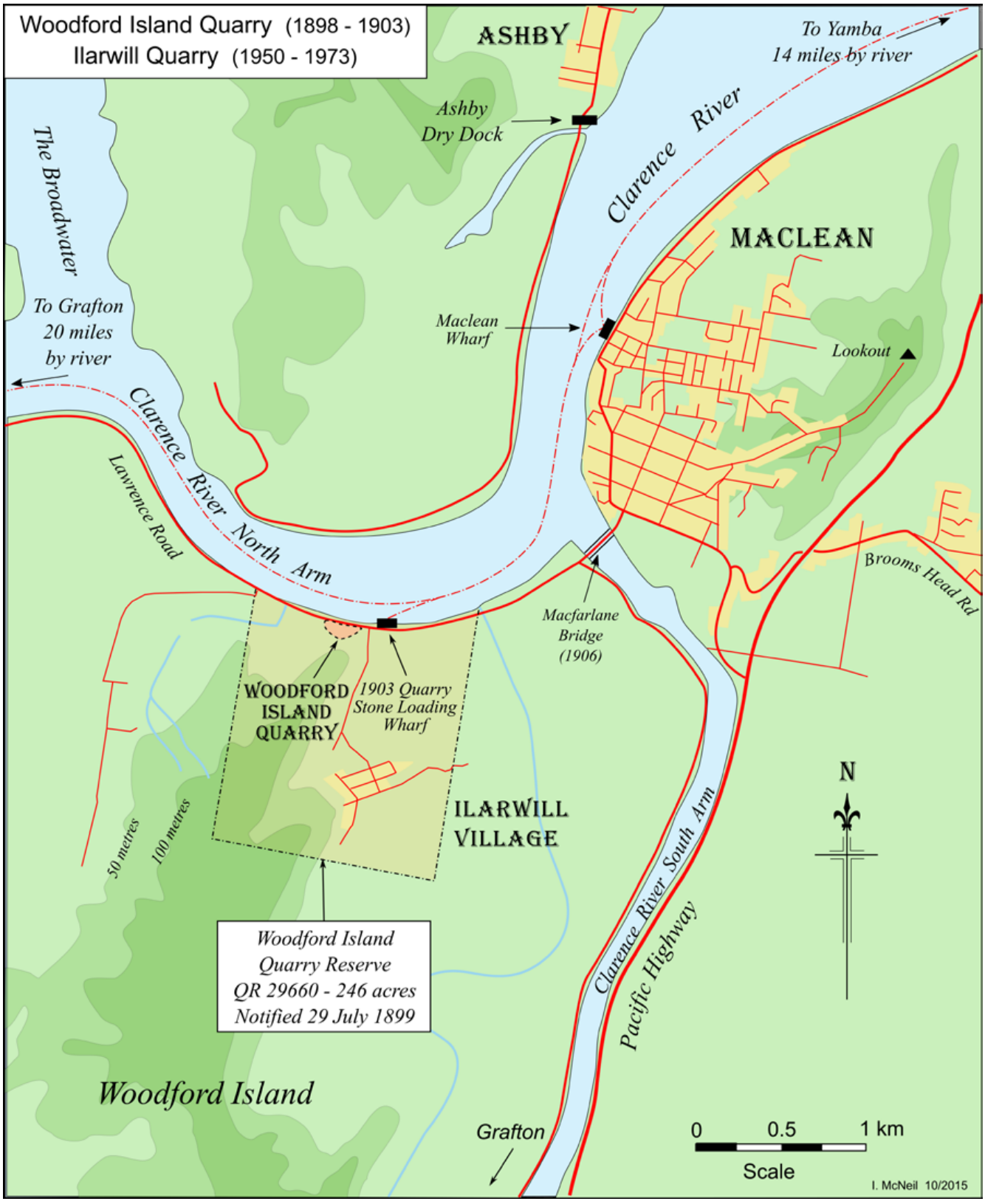
In May 1899 the PWD invited tenders for the supply of 1000 9 in x 4½ in x 8 ft red mahogany railway sleepers, all hewn, delivered to Woodford Island.[25] The contract was awarded to W.D. Small of Lawrence who quoted a price of 1s 10d each. They were used to lay a system of standard-gauge lines inter-connecting the two wharves, the blacksmith's and fitter's shops on the western side of the quarry, and the quarry face itself.

During January 1900 the quarry plant, cranes and machinery at Angourie Quarry were dismantled and taken by rail to the Freeburn Island wharf, loaded onto punts and towed upriver to Woodford Island Quarry.[26]

Quarried stone had to be shipped 18 miles down the Clarence River to the training walls at the Heads. In March 1899, Mr. E W Fitzgerald from Petersham in Sydney was awarded a contract for £4,100 to construct four wooden punts of 200 tons capacity to carry stone.[27] They were built on the river bank at Grafton next to Fraser's sawmill. Construction of the punts was delayed when Fitzgerald's men went on strike, complaining about undue interference from the Government overseer. This led to a Departmental Inquiry after which the labour problems were apparently resolved. The first punt was launched in late February 1900 and the remaining punts soon followed with the last one being launched in late May.

A second-hand steam tug, the *Lilian*, was purchased and overhauled by the PWD to tow punts from Woodford Quarry down to the Heads. She was a steel-hulled vessel, 100 ft long and 20 ft beam, with compound engines giving her a good turn of speed.[28] The *Lilian* arrived in April 1900, taking over from the smaller *Oberon*, which had been employed at Freeburn Island but was underpowered for the longer Woodford Island run. Captain Kimpton transferred from the Grafton Ferry service, gaining a promotion along the way, to take command of the *Lilian*. In service the *Lilian* usually made one return trip per working day, towing two and sometimes three punts to the Heads and back.

The 160ft high quarry face at Ilarwill Quarry illustrates the immense reserves of high-quality stone available for training wall and breakwater construction. Local feelings ran high when the PWD selected the site for a quarry in 1898. Residents in nearby Maclean were all in favour, but many in Yamba questioned the wisdom of the decision and passionately declared that the stone would be completely useless for the purpose
Photo: Ian McNeil



Woodford Quarry began production in January 1900 with the first three month's production being used to finish the Goodwood Island training wall. There were four steam cranes in operation at the quarry, two of four tons capacity, the other two of nine and ten tons respectively.

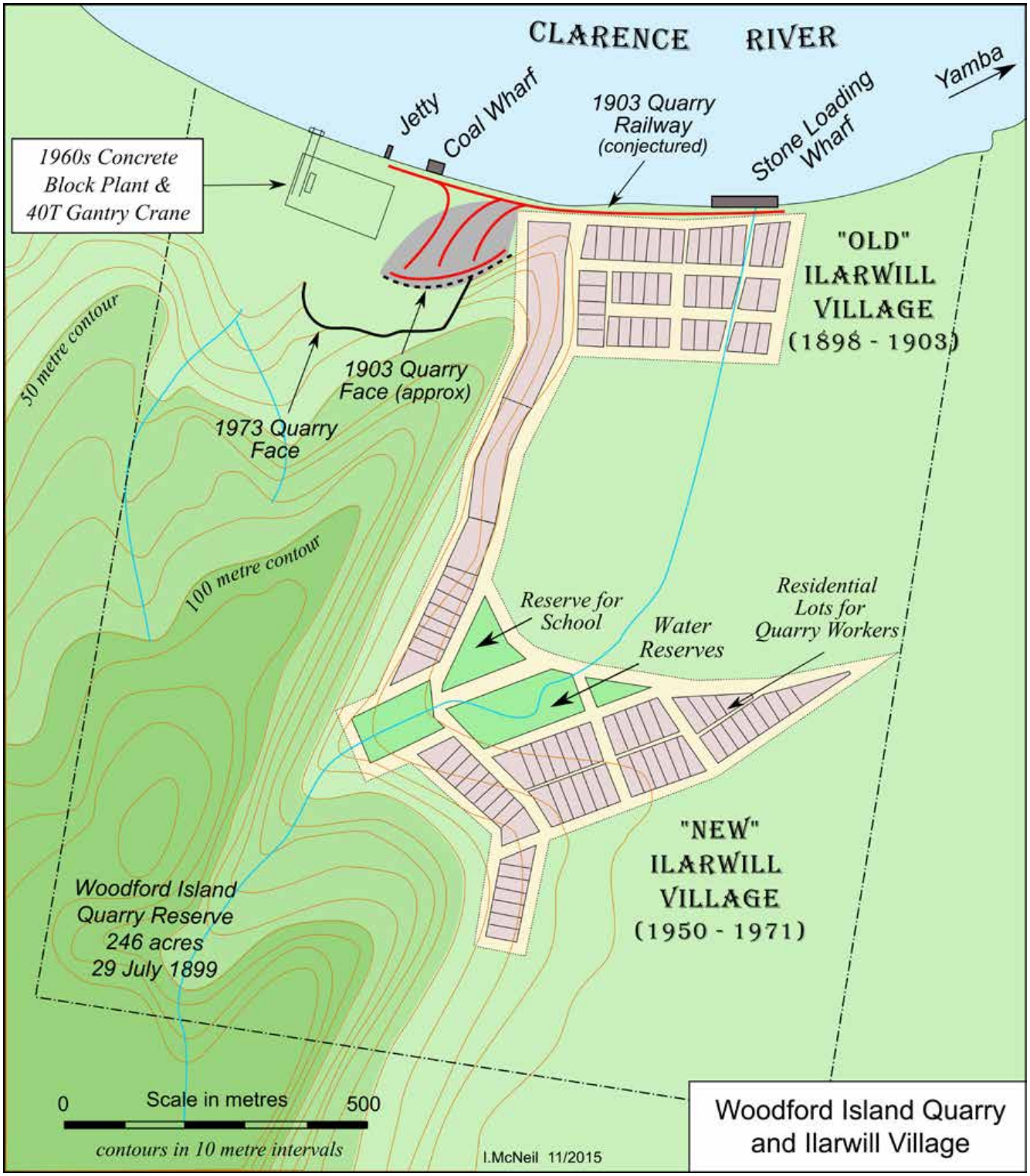
Two explosives magazines were established in caves dug into the hillside some distance from the quarry. Gunpowder from the magazines was used to blast stone blocks from the quarry face. The majority of the stone had to be broken up by hammer-men and spallers into pieces small enough for labourers to throw off the punts by hand. This added considerably to the cost of operations. Broken stone was crane-loaded onto standard-gauge side-tipping trucks, hauled to the stone wharf, and tipped down chutes into waiting punts moored below.

Early in the piece it was thought that one of the Angourie Quarry Railway steam locomotives would be brought upriver to haul trucks to the stone wharf, but this remained a pipe dream. All the haulage was done by privately-owned horses. The going rate for a horse and driver was ten shillings a day

– seven shillings for the driver and the rest for the upkeep of his horse - which provoked a great deal of dissatisfaction. Horse feed was expensive and a good wagon horse could not be had for less than £25.[29] The work was very hard and entailed a great strain; the best of horses did not last long at it even if they escaped accident. In one reported incident an unfortunate horse was killed when its hoof got caught in a set of points and the wagons it was hauling ran into it. The rate was increased to 12 shillings a day in May 1902 after the drivers had threatened to go out on strike.

Quarry workmen got seven shillings a day and crane drivers got eight. The work was hard, especially during the heat of summer, and it was dangerous. Although there were no recorded fatalities at the quarry, there were plenty of accidents that resulted in injured workers being ferried across the river to Maclean Hospital for treatment. One of the more dangerous places was at the top of the 60 ft high quarry face where men, horses and drays were employed to strip off overburden, and where the steam drills were positioned.

Wodford Island Quarry was managed by James Ellis, the veteran quarry superintendent who had worked previously for Daniel Macquarie at Iluka Bluff Quarry and his granite quarry at Trial Bay before managing Angourie Quarry. His residence was removed bodily from Angourie to Woodford Island in late 1899, and a telephone connection to Maclean was provided for him.



By mid-1901 stone production had peaked at 15,000 tons a month. A visitor to the quarry described the scene at that time: [30]

> The Quarry presents a busy scene. There is now a considerable face of rock exposed of sufficient hardness for the outer breakwaters, and at present the quarry is being worked so as to get away the softer stone which is suitable for the inner work, which we understand will occupy the whole of this and part of next year. Along the base the cranes and trucks are constantly moving, and gangs of men are breaking and loading stone. On the ledges above steam drilling machines and men are at work, and on one terrace 30 feet high a platform has been erected and horses and drays are removing waste and tipping it down a shoot. As far as we could see, there are from 150 to 200 men at work at the quarry. At present the face presents a body of rock about 60 feet high and 700 feet long, and upon it a small army of men are employed. There are four cranes at work, raising the broken rocks into the trucks, which are hauled by horses to the wharf, where their loads are tipped into the punt. Besides the stationary cranes there is a 10-ton portable crane, which can be moved about from place to place on the railway line. At the western side of the quarry are the blacksmiths, engineer's and fitter's shops, stores, etc., where there is a variety of machinery for repairs to the rolling stock and other plant.

Large quantities of coal were needed for the steam cranes and other installations at the quarry, as well as for the steam tug *Lilian*. Coastal steamers, usually the *Australia* or the *Oaklands,* brought 200-ton cargoes of coal upriver every month and unloaded it at the coal wharf.

Larger blocks of stone were needed as the advancing Iluka Training Wall approached the sea. A 10-ton capacity steam derrick crane was erected on the stone wharf to load blocks weighing up to 10 tons into the punts.

Woodford Island Quarry operated between 23 January 1900 and 14th August 1903. It produced 450,000 tons of stone for the Clarence River training walls. The workforce at the quarry and on the training walls peaked at 220 men in early 1902, and then declined as the production of small stone gave way to larger blocks. The quarry closed and the men were laid off in August 1903 following the completion of the Iluka Training Wall.

The Iluka Training Wall

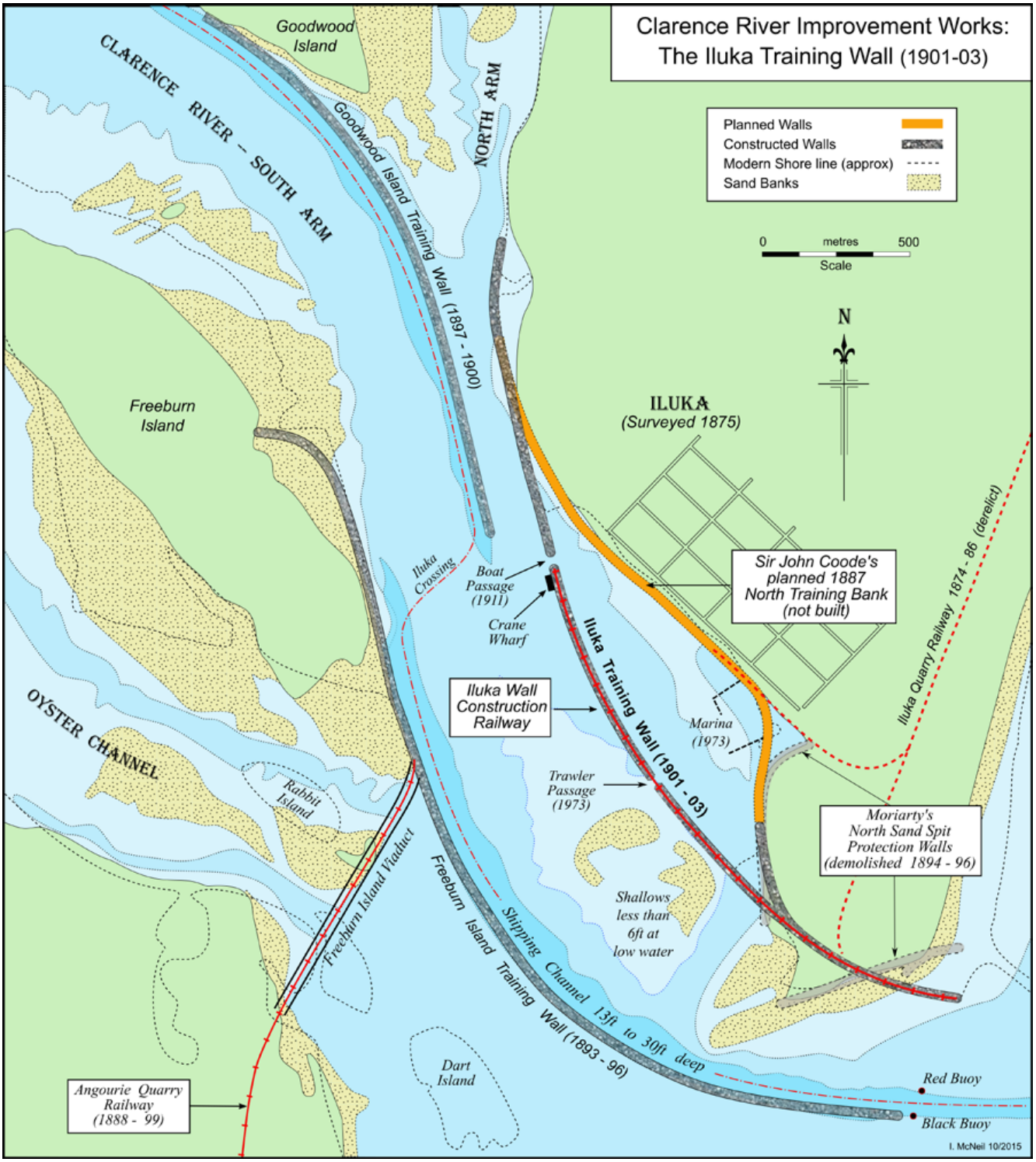
The last of the three walls authorised under the 1890 Clarence River Improvements Act was the North Training Wall. Sir John Coode planned this wall to follow the curve along the Iluka river bank. The PWD built the first section across the North Sand Spit between 1894 and 1896 with stone recovered from Moriarty's walls.

At the same time Kerr and Wallace were constructing the Freeburn Island training wall down the centre of the river. It was found that the current following the curve out of Iluka Bay met the Freeburn wall almost at right angles. It scoured a hole 52 ft deep alongside the new wall, which caused considerable subsidence at the time of its construction. It also promoted a build-up of sand on the adjacent North Sand Spit which narrowed the shipping channel

To offset these problems Cecil Darley modified Sir John's plan for the North Training Wall. He altered its direction to run offshore on a straighter alignment to cut off Iluka Bay and

One of the four Woodford Island Quarry steam cranes loading stone onto flat-top rail wagons which will be horse-hauled to the nearby Clarence River stone wharf. The photograph dates to late 1902 or early 1903 when larger stone sizes were needed to construct the seaward section of the Iluka Training Wall. Before that all stone had to be broken up into pieces small enough to be thrown off punts by hand.

Photo: Maclean District Historical Society



direct all the current down the main channel. Darley's modified wall was called the Iluka Training Wall. Unfortunately for the inhabitants of Iluka it cut off shipping access to their wharf, a cause of many complaints during the ensuing years.

Construction of the Iluka Training Wall commenced on 10 April 1900[31] from a point on the river bank near the foot of Micalo Street, Iluka. Punt loads of small stone were shipped down river from Woodford Island Quarry and thrown by hand into the water to construct a rubble stone wall. The procedure used was known as *á pierres perdues*, literally 'lost stones.' Rough unshaped stones straight from the quarry were dropped into the water to fall to the bottom of the river under their own weight. This created a strong, self-interlocking structure. Gaps created by stones sinking into the river bed were filled by stones settling down from above. Local subsidence on top of the wall caused by settling was made good by adding top-up stone later on.

In some places the current swirling around the end of the advancing wall tended to scour out deep holes. Where this occurred, the river bed ahead of the wall was first coated with a layer of gravel and pebbles up to 12 ft thick.

In October 1900 a crane wharf was built on the wall at chainage 3160 ft, opposite the end of Denne Street, Iluka. A 10-ton capacity stiff-leg steam derrick crane with a 30 ft jib was installed on the wharf, and pile staging put in to moor punts alongside. The crane was commissioned in March 1901 to lift stone from punts and load it onto standard-gauge tip trucks.[32] Rails and sleepers recovered from the Angourie Quarry Railway were laid on top of the wall. Horses hauled loaded tip-trucks to the tip-face to discharge their contents.

Most of the stone was still hand-thrown off the punts to build the wall up to high water level. Stone used to raise the wall six feet above high water was handled by the crane and tip-trucks.

By mid-1901, 130,000 tons of stone had been placed to advance the Iluka Training Wall 3600 ft downriver.[33] The first 1200 ft had been raised to its planned height of 6 ft above the high-water mark with the remainder up to high water level. During the next 18 months the wall advanced south across Iluka Bay at a rate of 200 ft a month, in water averaging eight to twelve feet deep at low tide. The rail line on top of the wall was extended to keep pace with construction activity. According to Thomas Keele, the Principal Engineer of the Harbour and Rivers Branch, sidings able to hold six trucks were provided at 1000 ft intervals on both sides of the crane wharf.

The horse haulage of loaded stone wagons on the wall-top railway was not without its hazards. Norman McLeod, a horse driver, lost four toes from his left foot when he slipped and fell while uncoupling two moving wagons.[34] Alexander MacKay, another horse driver, lost his big toe in a similar accident. Both injured workers were taken upriver by steam launch to Maclean Hospital where the local doctor amputated their mangled digits.

Larger blocks of stone were required as the wall got closer to the sea and Woodford Quarry began increasing production of blocks weighing up to ten tons at the end of 1901. All these were unloaded by steam crane and sent to the tip face on board tip-trucks. The use of small stone for wall construction was discontinued after April 1902.

Shallow water on the approach to the North Sand Spit limited access by the steam tug and its punts to high water only. The PWD reported it experienced 'great difficulty' discharging stone in this section and in April 1902 resorted to employing a night shift to maintain progress.[35] An electric light plant was promised for this work, but the steam boiler for it was diverted to the Richmond River breakwater works instead to power a donkey engine. The unpopular night shift lasted for six months during which time construction work was done by the light of torches.

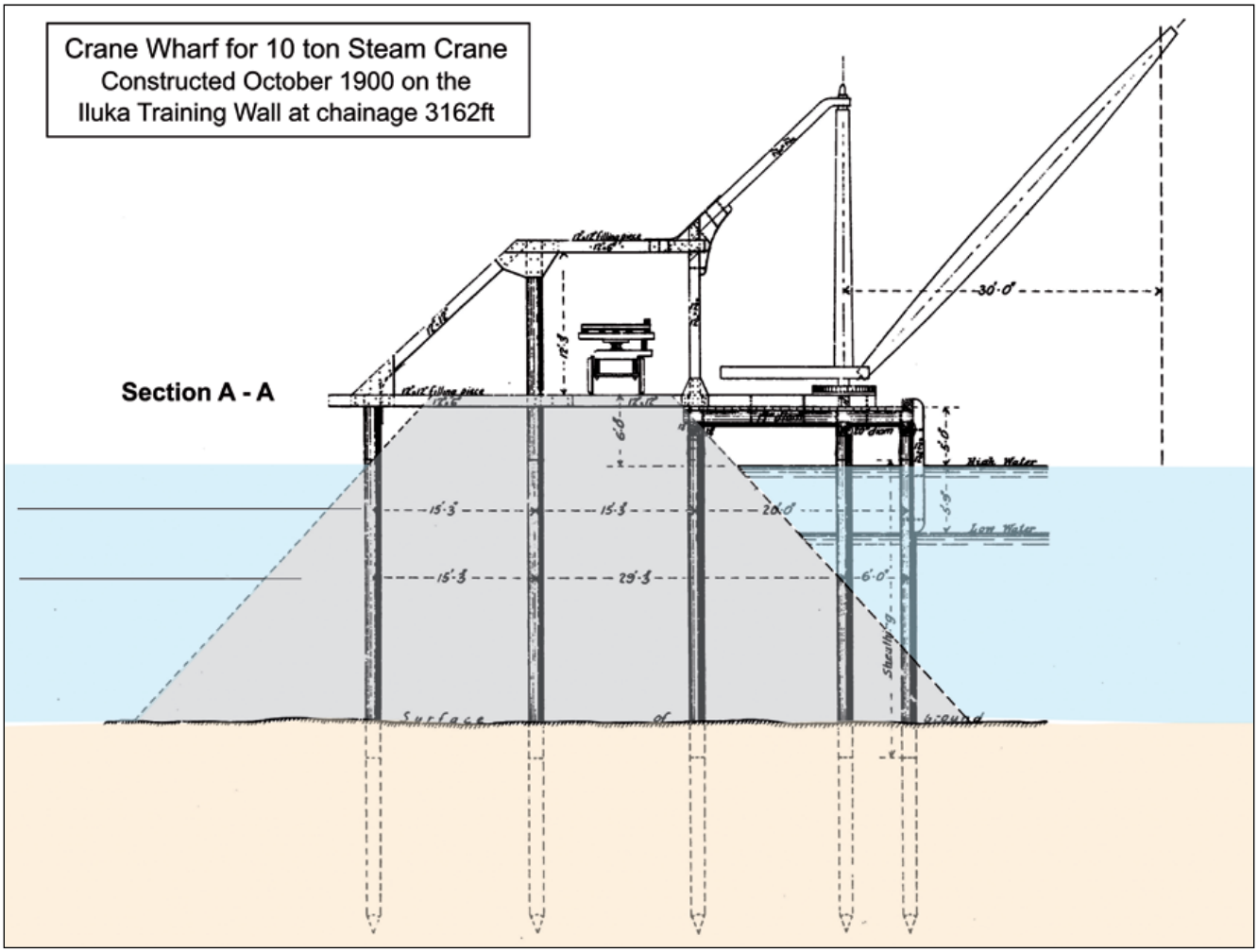
In September 1902, the Iluka Training Wall met up with the 1896-built North Training Wall on the North Sand Spit. The PWD reported that the work necessary to clear sand drifts off the old wall and relay the railway line on it added greatly to the cost of construction for this section.[36] On the seaward side of the North Training Wall, an 800 ft long extension was built projecting into the sea. It was a large structure more akin to a breakwater than a training wall, over 10 ft above high-water mark and constructed from the largest stones the cranes could lift.

The Iluka Training Wall was also extended 2700 ft upriver to the North Arm entrance to protect the river bank and prevent flood waters getting in behind the main wall. This extension was begun in mid-1902 and was built with small stone hand-thrown from punts. Unlike the main wall, it was a relatively small structure, being just three feet in width and standing only three feet above the high water mark.

The construction of the Iluka Training Wall took nearly three and half years and was not finished until August 1903. Over 400,000 tons of stone went into the wall; 165,000 tons of this was handled by crane but a staggering 235,000 tons was thrown by hand off the punts, representing an incredible amount of hard manual labour!

The Iluka Training Wall stretches in a long curve eastwards towards the sea, with the main river channel on the right and the sheltered waters of Iluka Bay on the left. A standard gauge steel-railed horse railway on top of the wall was used to transport stone from the crane wharf, located behind the green channel marker, to the seawards-advancing tip face. *Photo: Ian McNeil*

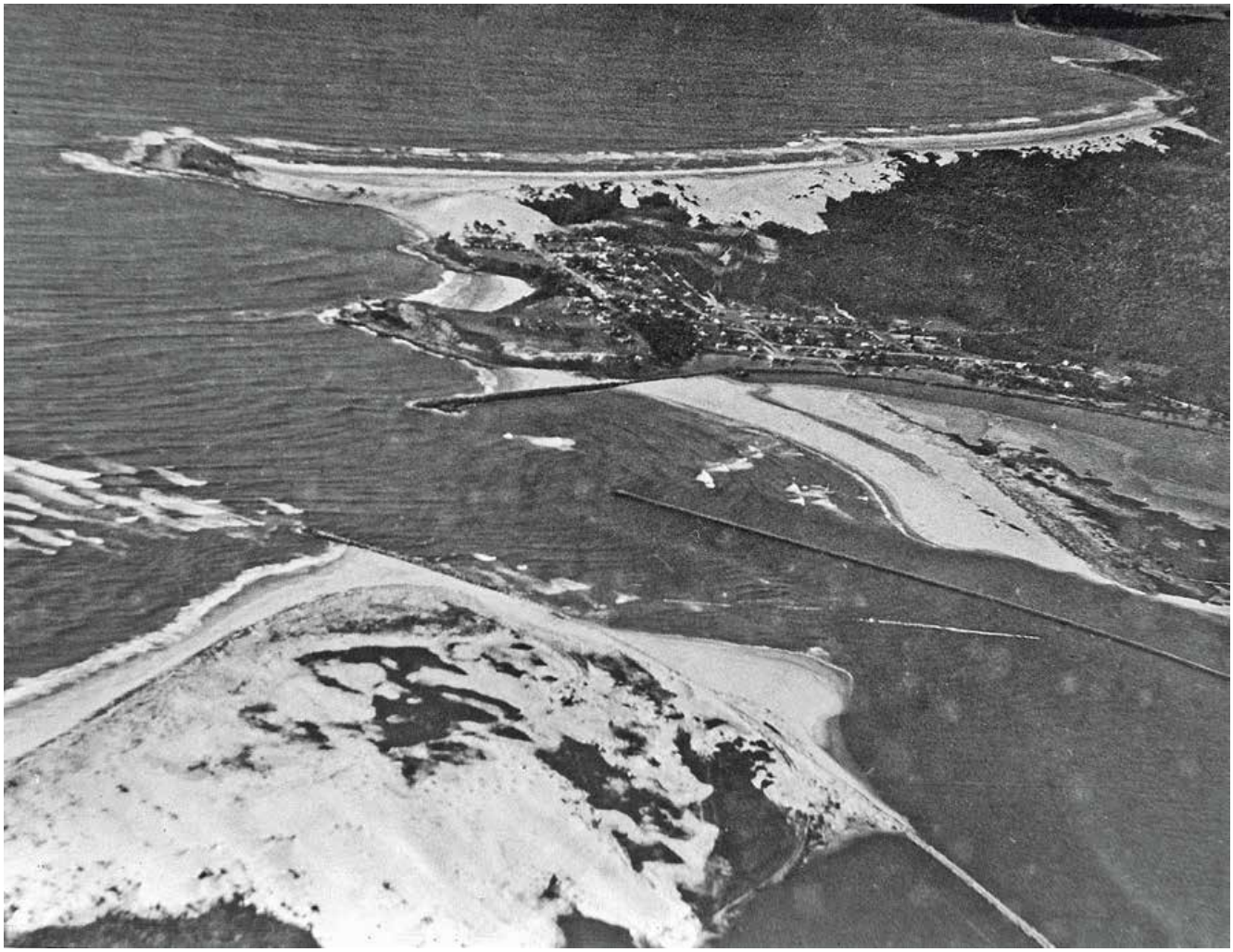
In 1901 a 10-ton steam crane was installed on the Iluka Training Wall to transfer large blocks of stone from punts to railway tip-trucks, which horses hauled to the tip face. The crane wharf site, to the left of the green channel marker, is now on an isolated length of wall which can only be reached by boat. Boat openings at either end are used by fishing trawlers and the Iluka – Yamba ferry. *Photo: Ian McNeil*



Design details of the crane wharf mounting a 10-ton steam crane erected on the Iluka Training Wall. It was a substantial structure with piles driven deep into the river bed and well-braced to support the 30ft radius crane derrick. PWD Engineer-in-Chief Cecil Darley approved the original engineering drawing in July 1900.

The Iluka Training Wall on the approach to what was then the North Sand Spit. Deeper water and increasing exposure to heavy seas dictated that large blocks of stone up to 10 tons weight were used in its construction and the practice of hand-throwing small pieces overboard off punts was discontinued. South Head and the Yamba foreshore are visible in the background. *Photo: Ian McNeil*

The seaward end of the Iluka Training Wall with the end of the partly-submerged Freeburn Island Training Wall just visible behind it. For over 50 years the Iluka Training Wall was the de-facto North Breakwater, defining the northern limit of the navigation channel into the mouth of the Clarence River. *Photo: Ian McNeil*



Contrasting aerial views of Clarence Heads in the 1940s (above) and in 1969 (below). The head of the Iluka Training Wall served as a de-facto northern breakwater for over 50 years until the North Breakwater was completed in 1969. Tide-borne sand was a continual problem for navigation inside the estuary. It was responsible for the formation of Hickey Island, which closed off steamer access to Yamba Bay. Photo: Norm Brown collection

Closure

Following the completion of the Iluka Training wall in August 1903, the works were closed down and all the men were discharged. Many of the quarrymen sold their small homes, and went to work at Port Kembla on harbour improvements. The punts and tip trucks used on the Iluka Wall were shipped upriver to be stored at Woodford Island. The 10-ton steam crane on the Iluka Wall was dismantled and sent to Coffs Harbour where it was used to replace an under-powered 5-ton crane at the end of Coffs Harbour Jetty.[37]

Some twenty men were subsequently re-employed for a few months at Woodford Island Quarry under a Government grant to quarry stone for river bank protection work around the local area. James Ellis, the veteran quarry superintendent, stayed on for a couple of years as the quarry caretaker before retiring in August 1905.

The cranes, buildings and railway tracks at the quarry remained in situ for a couple of years until it was clear that construction of Sir John Coode's ocean breakwaters was not going to proceed. The 10-ton steam crane on the stone wharf was the first to go; it was sent to the Cataract Dam construction site south of Sydney.[38] The re-usable plant was sent to the Port Kembla harbour works[39] with the remainder being auctioned off on-site in August 1905.

The sentiments of many of the Woodford Island quarry workers who dispersed following the works closure were reflected in the first two verses of a poem penned by 'old-timer': [40]

Good-bye, dear old Quarry, good-bye, good-bye;
No more we hear the ganger's sonorous rallying cry;
No more the ring of hammers as they rattle on the drills,
Bringing back the echoes from far across the hills.

I sit and rest, and quietly, in view of the Quarry's face,
Meditate on how us men had oft-times 'made the pace'
Of all the 'graft' we 'put in' in the hard, but happy, past,
To the music of the anvil's ring and the engine's hasty blast.

The Aftermath

After the completion of the Iluka Training Wall, the Government was lobbied hard to complete the rest of Sir John Coode's scheme and build the breakwaters. In response it commissioned the Harbour Improvement Board in July 1905 to report on the Clarence River Entrance.[41] The Board was asked to review past expenditure, report on the effectiveness of the constructed works, and recommend what future works should be undertaken in the future.

The Board reported that £464,248 had been spent on Clarence River entrance improvements since Moriarty began work in 1862. A further £361,000 would be required to construct the breakwaters recommended by Sir John Coode. It was of the opinion that neither the present nor the prospective trade of the Clarence warranted so large an expenditure. It considered that now the entrance had been fixed by the walls which had been constructed, all the requirements of the harbour could be provided for at much less cost by dredging. Its decision was influenced by the success of the PWD-designed self-propelled hopper suction dredge "*Antleon*" which was built in Scotland and commissioned in 1889: [42]

> The important results obtained by working the new self-loading bar sand-pump *Antleon*, and the large land-reclaiming sand pump *Castor*, demand more than a passing notice. Hitherto no attempt to deepen, by dredging, sea bars having only 5 feet of water on them, has, as far as I am aware, been made either in Europe or America—all the bars dealt with having sufficient depth to float a dredge drawing 8 feet. To overcome the difficulty, I took advantage of the latest improvements in boilers, engines, pumps, and steel shipbuilding, and had the twin-screw dredge "*Antleon*" constructed to load herself with 250 tons of sand on a rough bar when steaming slowly over it, and to draw, when so loaded, only 5 feet of water, with a speed of 9¾ knots. No pump dredge of this size with such a draft has ever been built before; and it is gratifying to report that the experiment has been entirely successful, no less than 2,000 tons of sand having been pumped in eight hours from the crown of a shallow and tortuous sea bar where there had been only 5 feet of water previously.
>
> The Board concluded its report by stating,
>
> Although not part of our instructions, we think it is only right to draw attention to the fact that a very large expenditure has taken place, not only on the Clarence, but on all the rivers along the coast of the State, and that practically, no return is obtained from them.

In spite of repeated requests to successive NSW Governments, it was not until the 1950s that breakwater construction finally began. Until then the Iluka Training Wall remained the last significant river entrance improvement work to be constructed on the Clarence River. Minor modifications were carried out in 1908, when a boat opening was cut through the wall just north of the crane wharf, and another opposite the marina for fishing trawlers in 1970.

Part removal of the Black Buoy Reef at the mouth of the entrance channel had been authorised under the Clarence River Improvements Act of 1890. Due to its exposed location it was deemed too dangerous to carry out the work until after the breakwaters were built and provided shelter for the site. Subsequent hydraulic modelling in the 1960's indicated that removal was not necessary as it was the depth of water over the off-shore bar that was the limiting factor for shipping access. The reef is also regarded by the Yaegl people as a sacred site and is the subject of a native land title claim.

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15. North Training Wall, *PWD Annual Report for the year ending 30 June 1897,* p.33.
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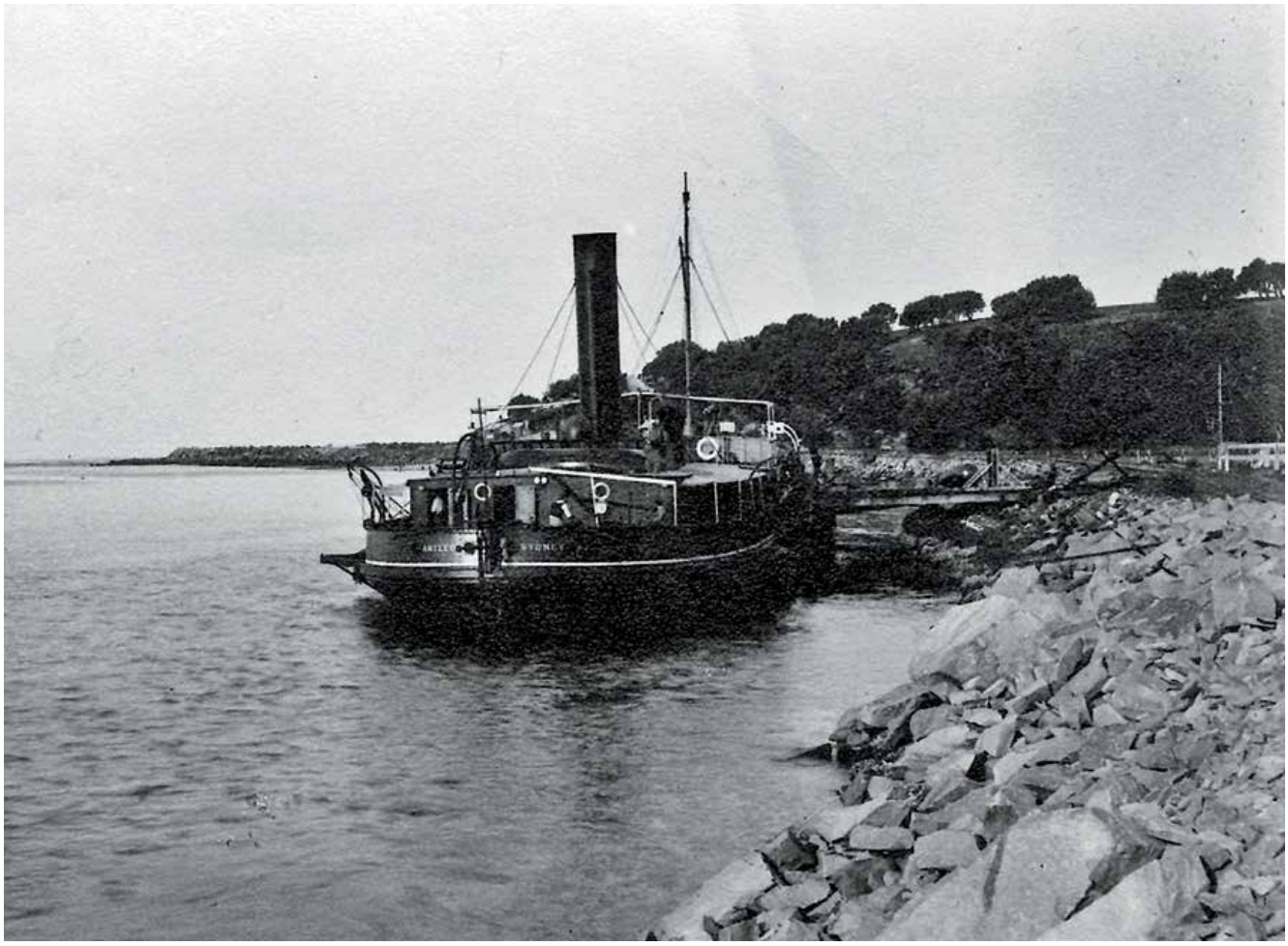

The bar-dredge 'Antleon' moored alongside the Yamba Training Wall. The PWD relied upon its large fleet of dredges as a more economical option to keep the mouths of NSW's navigable rivers open, instead of building and maintaining expensive breakwaters.

Photo: Clarence Valley Historical Society

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24. Woodford Island Wharves, PWD Survey Plan 29408, 17 August 1911.
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26. Woodford Island Quarry, *CRA*, 12 January 1900, p.2.
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UPCOMING ARTICLES IN LIGHT RAILWAYS

The Editorial team is very fortunate in having a very healthy list of articles on hand, which in most cases are ready for publication. To whet the appetite of our readers, here is a summary of some of the main articles that are in the pipeline and that will be published over the next couple of years. There are also many shorter articles that are not listed here, but which are ready and will be published when room permits.

- Cheetham Salt tramways. This article describes the tramways used at both Laverton near Melbourne, and at Moolap near Geelong, where an extensive system of 2 foot gauge tramways were used by the Cheetham Salt Company
- Guy's Pebbly Beach tramways. This article describes the tramways used by the Guy family to serve its sawmill on the south coast of NSW
- Port MacDonnell jetty tramways. This article will describe the jetty and its associated tramways on the south coast of South Australia
- Salt from the Pink Lakes. This article describes the operations and tramways associated with salt production in the Esperance area of Western Australia
- The Clarence River Breakwater part 5. This will be the final installment of Ian McNeil's excellent series of articles on the tramways, quarries and breakwaters associated with the construction of the breakwaters at the Clarence River in northern NSW.
- A ride on the Torrumbarry Weir tramway. This article provides a fascinating description of a ride on the 2 foot gauge tramway and describes the many features and operating processes of the tramway constructed to deliver materials to the site of the weir on the Murray River.
- The locomotives used at Dreamworld on the Gold Coast in Queensland. This article describes the two steam locomotives used at Dreamworld and gives a fascinating insight into the day to day issues with the operation of steam locomotives.
- Robb and Co and its Cudgen Sugar Mill and associated tramways. This article provides some fascinating details of establishing and operating a sugar mill in the late 1800s and into the early 1900s
- The use of light railways in many forms on various farms throughout NSW. This article provides details of the various uses of light railways in the day to day operations of farms.
- Plateways in Melbourne part 2. The second installment of the ground breaking article on plateways in Melbourne by Phil Rickard
- Moving Mount Pinninger. The story of the tramways used in the construction of the Sugarloaf Reservoir (now known as Eildon Weir) in Victoria. This article will describe the use of horse hauled sand trams, the use of gravity inclines at several locations and the later use of Malcolm Moore locomotives.

Locomotive Deane *working for Baxter & Prince at Donnybrook, with Abraham Baxter at left. Photo: Courtesy of Donnybrook Visitor Centre*

Baxter & Prince Mills, WA

by Jeff Austin

The history of the Marrawah Tramway (LR No.257) by Jim Stokes, describes the locomotive *Six-Wheeler* and how it was one of four Hudswell Clarke locomotives built for railway contractor Edward Keane in Western Australia. A recent photograph discovery of the locomotive *Deane* (Hudswell Clarke No.377/1891) provides an opportunity to detail the history of the Baxter & Prince sawmills at Donnybrook, Western Australia.

The railway contractors, Baxter & Prince, comprised the father and son team of Abraham and George Baxter, and their partner William Prince.[1] They had extensive experience in railway construction in eastern Australia and had won a contract for the minor deviations on the Eastern Railway in WA in 1894. In 1895 the government advertised tenders for construction of the Mullewa-Cue Railway which was 316 km long. Baxter & Prince were one of the firms who were after this contract and they began investigating the purchase of a sawmill to supply sleepers and other timber to the project. When the tenders for the railway were opened on 16 December 1895, the tender from Baxter & Prince for £84,535/2/3,[2] was far below the government estimate and was accepted. Their intention was to lay the track as quickly as possible and then operate it as a private railway until the handover to the government.

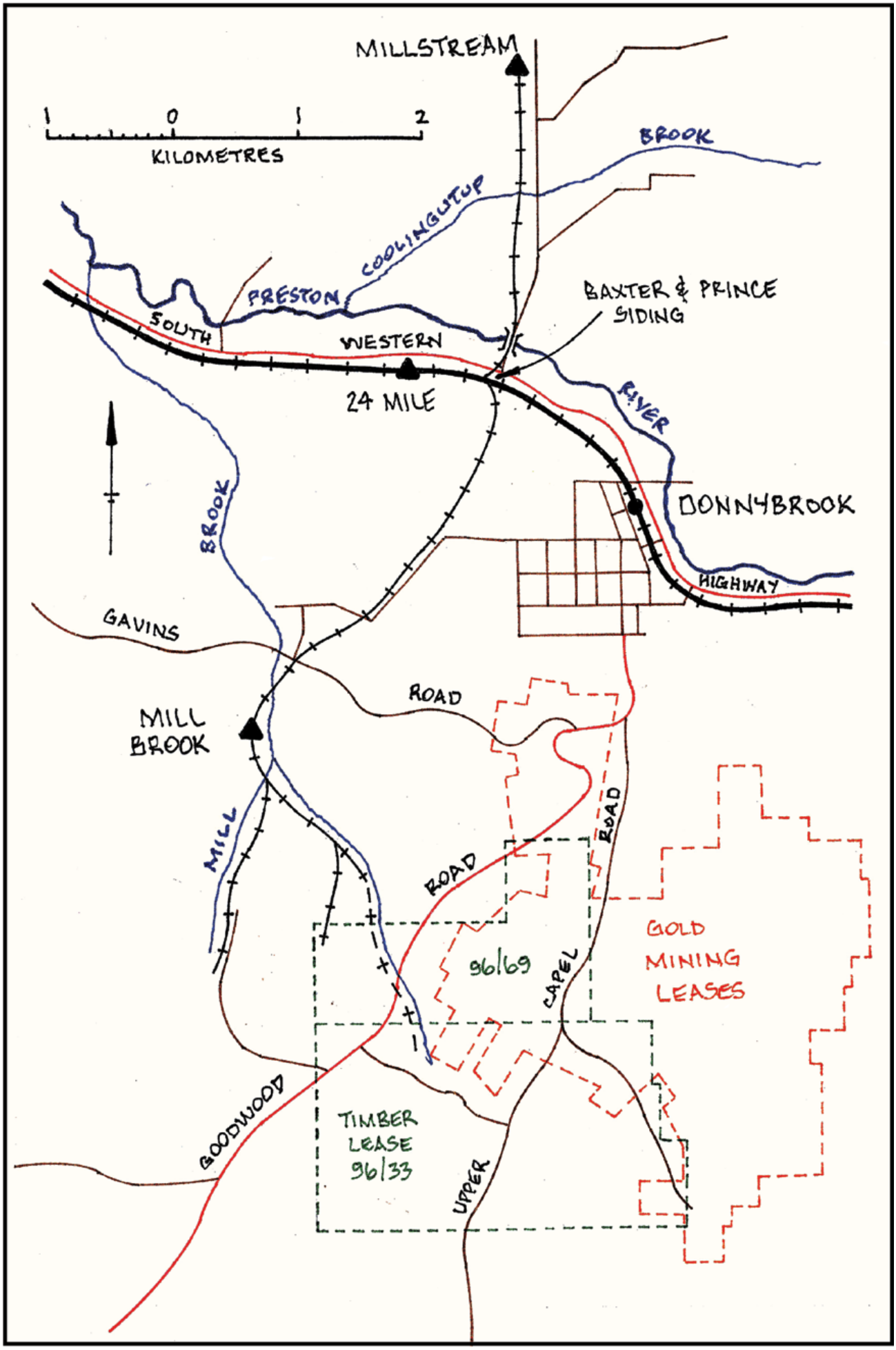
In August 1895 George Baxter inspected the Collie mill of James Port,[3] south-east of Brunswick (later Brunswick Junction) but this had no rail access and so he eventually settled on another of Port's mills near Donnybrook. J.C. Port had two mills on the Boyanup-Donnybrook railway, at the '21 Mile' and '24 Mile'. The 24 Mile mill had originally built in 1894 by railway contractors, Smith & Timms for supplying sleepers to the Boyanup-Busselton railway.[4] This mill was on the north side of the government railway, on private property (Loc.55) belonging to G.R. Turner[5] and served by 'Port's No.2' siding.

Having secured the Cue railway contract, Baxter & Prince purchased the 24 Mile mill in January 1896 and swung into full production of jarrah sleepers. In the meantime, they had plans for a new mill north of the Preston River and had purchased a 20 hp engine and sawmill from Melbourne.[6] Initial deliveries of sleepers for the Cue railway came from the Jarrahdale mills but by 23 March 1896 they had 14,000 sleepers from the 24 Mile mill stacked at Bunbury for shipping.[7]

Irishtown mill

Two days after being awarded the Cue contract, on 18 December 1895, Baxter & Prince obtained Timber Lease No.96/34, covering 1280 acres of forest north of the Coolingup Brook.[8] George Baxter visited Donnybrook on 13 February 1896 to select the site for the new mill and the main engine was delivered to this site, 2.4 km north of the government railway on 15 March 1896.[9] This mill was known as Millstream and the locality later became known as Irishtown.[10] Progress was reported in the *Southern Times*, 28 April 1896:

> Messrs. Baxter & Prince are pushing on with the development of their property at Donnybrook in a very energetic manner, and a railway siding in connection with their mill is now being laid. They are about starting milling on an extensive scale and their tram line will extend for about two miles into the heart of the forest…they will have two large mills at work and will remove the timber from their mills by locomotives…this firm are credited with having on hand orders which will take them fully five years to execute.



J C Port had been cutting timber in this area and constructed a bridge over the Preston River to haul logs to the mill. Baxter & Prince used this bridge to carry their new timber tramway from the government line to the new mill. To facilitate access to this bridge, they constructed a new siding, 0.5 km east of Port's No.2 siding and this was completed in May 1896.[11] It was known as 'Baxter & Prince' siding. With two mills in operation the output of sleepers was substantial. On 12 July 1896, the largest train hauled by a single locomotive into Bunbury arrived with 67 wagons loaded with 9000 sleepers from the Baxter & Prince mills.[12] While most of the sleepers were sent by sea to Geraldton, wagon loads were also railed over the Midland Railway from Midland Junction-Walkaway, en-route to Mullewa.[13]

Locomotives

For working the timber tramway, Baxter & Prince purchased two small 0-6-0 saddle tank locomotives from railway contractor, Edward Keane. These were two of four identical engines ordered by Keane on 28 November 1890 and constructed by Hudswell Clarke & Co, Leeds, England (Makers No.377-380).[14] As built they had 7 in x 12 in cylinders, 2 ft 0½ in driving wheels and weighed 10 tons 1 cwt. They were used for hauling materials for the Keane's Midland Railway Company of WA contract, between Midland Junction and Walkaway. At the completion of the project, two of the engines - *Deane* (HC No.377) and *Dodger* (HC No.379), were sold to Baxter & Prince.[15]

Deane

Delivered to Fremantle on the ss *Gulf of Martaban*, 11 April 1891 and named *Deane* (in honour of the Governor's wife, Lady Olivia Edith Deane Robinson). Used at the Midland Junction end of the MRWA contract. Sold to Baxter & Prince about December 1895 and used at their saw mills near Donnybrook and Upper Capel (Kirupp).

Dodger/Preston

Delivered to Geraldton on the barque *Niola*, on 5 October 1891 and named *Dodger*. It was used at the Walkaway end of the MRWA contract, and then sold to Baxter & Prince about December 1895 and used at their sawmills near Donnybrook, renamed *Preston*.

Mill Brook mill

During their time in the Donnybrook district, Baxter & Prince are described as operating only two mills at the same time, even though there were four mill sites. This points to the mills being relocated as the forest was cut out.

In April 1897 they were granted Timber Lease No.96/161, about 3 km south of their siding.[16] This was a 640 acre block with a small creek (later Mill Brook) cutting across the eastern side. They laid a tramway from the eastern end of their siding down to this lease and the old 24 Mile mill from Port's No.2 siding was likely moved to the site. This was an opportune time to move, as the rail construction was nearing Cue and the milling of sleepers came to an end. The company then looked to producing specialised timber for the station buildings along the Cue railway and other orders. A visitor to the mill recorded his impressions in the *Southern Times*, 15 June 1897.

> …Situated a little apart from the rest of the mill, but within easy distance of it, is a planing machine, now hard at work, planing, tongueing and grooving boards in connection with the stations and other buildings on the Murchison railway. The mill was at full swing…It is situated on a slope so as to enable the timber to be moved on skids by its own weight. The mill was not originally designed for cutting long timber, but was laid down on the most approved lines for sleeper-cutting for the railway…When going at full speed at this work the mill has put out 1,400 sleepers in one day as well as cutting other timber. The men employed on the mill, including teamsters, number about 50 in all, and are all old hands…The mill is capable of an average output of 20 loads per day of mixed orders. The mill has four benches, including one travelling breaking-down bench, a crosscut and docking saw, a planking bench, rip bench and picket bench…

Goodwood Road mill

With the Mill Brook mill up and running, the government approved the extension of their tramway a further 3 km into the forest and a new mill site in June 1897.[17] This mill was near the 'old Goodwood Road', 4 km south of Donnybrook and used the machinery from the Millstream mill. The rails from this spur were also used for the tramway extension. In field notes of a survey of lots on the north side of the Preston River bridge in July 1898 only the old formation of the 'timber tram line' is shown.[18]

Baxter and Prince mill in operation at Mill Brook or Goodwood Road. *Photo copied from the* Geraldton Express, *December 1898*

The *Geraldton Express* described a visit to this mill in December 1897:

> …another two miles on the locomotive and still further into the bush to the second or biggest mill. The timber gets bigger as we get in. Passing a siding with several large logs lying awaiting shipment, we dismount at the new stables-lofty buildings with cool bark roofs-where the army of horses employed in the business is stabled. A large feed store adjoins, and a well populated settlement of houses all cluster around the mill.

The capacity of the new mill was 30 loads per day and supplied large orders for paving blocks to England and mining timbers to the WA goldfields. Another order was the government railway sheds at Kalgoorlie which required the best quality logs, squared and dressed. In October 1897 the company secured the contract for 200,000 sleepers from contractors Smith & Timms for construction of the Kalgoorlie-Menzies and Kalgoorlie-Kanowna railways.[19] With about 250 men employed in the bush and about the mills, along with 60 horses and bullocks, the company looked forward to many years in the district.[20]

The company had several 640 acre timber leases throughout the forest and one of these was No.96/33, which straddled the Goodwood Road and contained the mill site.[21]

Gold

In June 1898 gold was discovered in gullies south of Donnybrook townsite[22] and more importantly, on Baxter and Prince's Timber Leases No.96/33 and 96/69. There was soon an influx of prospectors pegging claims and shafts sunk throughout the forest. While not in the same league as the Kalgoorlie goldfields, it nevertheless brought a great deal of mining activity and business to the town of Donnybrook. The district was declared a goldfield in November 1899 but never quite lived up to the early feverish activity and was largely played out by 1903. It did however have dire consequences for Baxter and Prince – the government decided not to renew their annual timber leases, instead supporting the mining leases.[23]

Baxter and Prince made little protest in regard to the cancellation of their leases. Possibly they were offered generous concessions on new timber leases to make the move to Upper Capel, 20 km south of Donnybrook. But more significantly, the new location had vast uncut forest which offered a long term future for the mill adjacent to the government railway. During this latter period the timber milling side of the partnership had been managed by George and Abraham Baxter, while William Prince left to become the engineer for the W.A. Goldfields Firewood Supply Co. at Kurrawang, near Kalgoorlie, and in 1906 he became the manager of the McIvor Timber & Firewood Co. in Victoria.[24]

A siding was constructed at Upper Capel in April 1900[25] to service the new mill and the transfer of equipment and employees got underway. The removal of stockpiles of sawn timber and the clean up at the Donnybrook mills was completed by late 1901 and the 'Baxter & Prince' siding was removed on 4 October 1901.[26]

With only the one mill to supply at Upper Capel, the locomotive *Preston* was sold to W.N. Hedges in November 1900 and sent to the W.A. Goldfields Firewood Supply Co.[27] The other engine *Deane*, was noted in service at Upper Capel in December 1900 and June 1901. A visitor to the mill at this latter date was full of praise (and colourful 'turn of phrase') for the achievements of this little engine and described them in the *Bunbury Herald*, 25 June 1901:

> Upper Capel Mill
>
> We were met by the "Deane", a powerful, though microscopic engine owned by Mr. Baxter. She is an historic piece of machinery, having laid, in former days, all the material on the Mullewa-Cue railway, and she moves along with the appearance of being swollen up with pride at the feats in the desert. With an angry, jealous shriek of defiance at the big Government engine which is standing at the platform, panting and throbbing from her recent exertions, the "Deane" whisks us off, and still throbbing with pride, lands us at the mill a few minutes later."

Upper Capel was renamed Kirupp on 1 July 1901.[28]

George Baxter purchased the historic WAGR locomotive 'A 7' (Beyer Peacock No.1903/1879) in October 1902 and *Deane* was retired and scrapped. The boiler had been cut up by 1911.[29]

New Owners

The early days at Kirupp were very successful for the Baxter's. They had won a contract for 50,000 sleepers to New Zealand, and followed this up in February 1903 with the largest contract awarded to an Australian firm – 1.5 million sleepers to South Africa.[30] With this contract in hand and the need to expand the business, the Baxter's decide to sell and move onto other business and railway contracting opportunities.

The mill and timber railway was sold to the 'Western Australian Jarrah Saw Mills Ltd.' (owned by Bartram & Sons of Melbourne) in May 1903.[31] George Baxter was given a rousing send-off at Kirupp on 10 June 1903 and presented with an engraved gold watch from the employees.[32] The Baxter & Prince era had come to an end.

2018

The government railway at Donnybrook has been closed since March 2005 and the grass covered track cuts through a pleasant landscape of apple orchards at the site of the old Baxter & Prince siding.

Very little remains of the various mill sites and tramway formations. Coupled with their short life span and the elapsing of nearly 120 years, the passage of time has taken its toll. Later sawmilling in the same forests by Bunnings mill at Argyle has also complicated the identification of the older lines.

The spur out to the Irishtown mill traverses open farm land today and nothing remains of the tramway formation. Similarly, the location of the Preston River bridge has been significantly changed by later road works. The mill site itself is located in state forest and not far from the quarries, which mined the famous Donnybrook sandstone. The forest at the site is reasonably open and some trenches mark the old mill site.

Old stone footings of Mill Brook mill, Donnybrook, 1 February 2018. *Photo: Jeff Austin*

The only solid evidence is at the old Millbrook mill site. There are two degraded stone footings which must have supported mill machines, plus several trenches, while sections of old tramway formation have become forestry tracks. The re-growth of the forest has all but hidden the community which once lived and worked there.

Despite the best effort of the locals and my own research, I was unable to identify the site of the Goodwood Road mill. The memories of most people recalled the nearby and more famous 'Goodwood' mill of the W.A. Timber Co. which operated from 1884-87 but not the Baxter & Prince mill. Tracing this site by following the tramway formations was also difficult due to cleared farmland and Bunnings tramway formations from the 1920s.

The remarkable survivor from this whole enterprise is the locomotive *Preston*. Sold in 1900 and transferred to the W. A. Goldfields Firewood Supply Ltd, it spent much of the time shunting in the yards at Kurrawang. Out of use by January 1910, it was sold to the WA Government Meatworks at Wyndham in May 1920.

The meatworks and PWD depot were connected to the Stony Point jetty by a system of tramways (see LR 59) and worked by the 0-6-0PM *Kaiser* (Ruhrthaler No.161/1912) (see LR 184), 0-4-0WT *Kate* (T. Green & Sons No.132/1889) and *Preston*. These were all out of use by October 1953, having been replaced by Simplex-Dorman locomotives. The isolation of Wyndham resulted in the later preservation of all three of these locomotives. *Kate* is displayed at Margaret River, while *Preston* and *Kaiser* occupy a short section of track at Wyndham port, along with other historic rolling stock (see LR 151).

Acknowledgements

Thanks to Anne Murray and Adrian Gunzburg for copying and restoring the photographs suitable for publication. My thanks also to Barry Green for advice on the Donnybrook area.

Notes

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23. *Southern Times*, 25 January 1900
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Old Baxter & Prince formation and landing along Mill Brook, 3 February 2018. *Photo: Jeff Austin*

The preserved locomotive Preston *at Wyndham port on 27 September 1992.* *Photo: Jeff Austin*

Schöma Tunnel Locomotives exported to Australia and NZ Part 1

by Philip G Graham

Introduction

Schöma is a significant European manufacturer of narrow gauge industrial diesel locomotives and more particularly specialised designer of tunnel locomotives. It entered the Australasian underground construction industry as a late player, filling the gap following a demise in local Australian rail engineering and manufacturing, and with the broadening of world-wide trade for sourcing project equipment. The first Schöma tunnel locomotives to be used in Australia were of the second-hand, re-manufactured category and a good example of the frequency with which Schöma locomotives are adapted for more than one project all around the world.

From a modest beginning in 1930, SCHÖMA - Christoph Schöttler Maschinenfabrik GmbH, began manufacturing small diesel locomotives for the widespread North German peat winning industry. The factory is ideally situated at Diepholz in lower Saxony, north-west Germany, in the vicinity of some of the largest peat bog railway networks [known as Torfbahns]. The early 'Kleinloks' were not only fitted with their own transmissions, but also with one and two-cylinder diesel engines designed and manufactured by SCHÖMA. The company was an early developer of the cardan drive now used in all modern diesel locomotives. Following the Second World War, a strong export business saw large numbers of two- and three-axle diesel locomotives sent to almost all the sugar cane growing regions of the globe, with Australia's near neighbour Indonesia a frequent customer.

Since the 1970s however, with the rise of mechanised underground tunneling, Schöma has successfully adapted its range of diesel hydraulic and diesel hydrostatic locomotives to support the increased transport capacities required by tunnel boring machines.

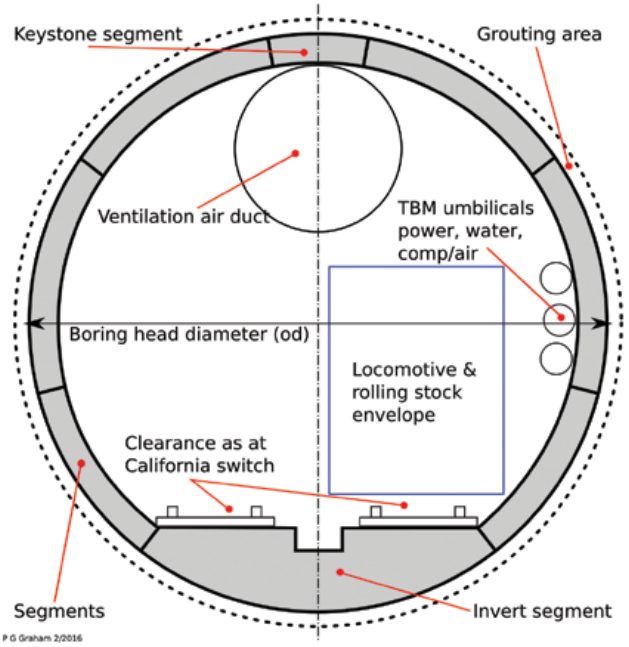
The ongoing role of rail in tunnel boring projects

Despite recent innovations in the underground construction industry, narrow gauge rail remains viable for man-riding, materials delivery and muck disposal in tunnel construction operations. This is particularly so in mechanically-driven lined tunnels in the outside diameter range between 2.5 metres and 7.0 metres. In the range of 5.5 metres to 10.0 metres, there are some inroads being made by the articulated, pneumatic-tyred, bi-directional "multi-function-vehicle" (MFV), and tunnels over 11.0 metres diameter are almost exclusively equipped by MFVs manufactured by subsidiaries of tunnel boring machine manufacturers.[1]

In the tunnel size ranges outlined above, smaller tunnels are usually for waste water, storm water, water transfer for irrigation or power generation, and utilities tunnels - for power cables and for containing pipelines for oil, gas, potable water. The intermediate size tunnels are mostly metro and suburban railway tunnels, intercity railway tunnels, and regional road tunnels, and in recent times mine access adits. The larger size tunnels are generally multi-lane road tunnels or combined road/rail behemoths.

The reasons for selecting to construct by 'drill-and-blast' or Tunnel Boring Machine (TBM) are many and varied, but where TBM construction is chosen, there is a healthy manufacturing industry for the supply of new railway equipment and for re-manufactured second-hand items. Locomotives, rolling stock and track components are all catered for.

A TBM is a complex piece of machinery with a rotating cutting head. The machine advances as it excavates a circular section of tunnel. In many circumstances, concrete tunnel lining segments are inserted as the TBM advances, and are



Typical TBM tunnel cross-section showing components layout.

bolted together to strengthen the tunnel structure in soft, wet or unstable ground. The use of TBMs has increased because tunnelling using this method is faster than drill and blast methods, disturbs the ground less and results in a uniform profile bore, making tunnel lining cheaper. Because of the high cost of TBMs, the longer the tunnel the less the cost per metre, but their use in urban areas is also favoured because no blasting is necessary.

All TBMs require an extensive supply chain at the rear of the actual boring head machinery. Generally referred to as the "back-up" or trailing gantry, this attachment to the TBM has facilities for controls, power supply, forward probing and rock bolting, muck conveyance, segmental lining installation, grouting and crew amenities. When installing rings of segmental lining, the segments (also known as voussoirs) each forward thrust of the TBM by one ring length requires the timely delivery of a complete set of segments, and the immediate dispersal of the equivalent volume of muck excavated - all with continuous forward momentum. Muck disposal can be either by whole rail wagon with rotary tippler, detachable muck bins for vertical lifts or alternatively by conveyor belts or pumped pipelines. Everything else needs to come in and out by rail.

The design of the locomotives and rolling stock is very specialised. They must fit within the tunnel profile, with width governed by the dimensions of any section of dual passing track, known as a 'California Switch'. Height is restricted by the need to clear overhead ventilation ducting. In addition, there is a need to penetrate deep into the interior of the back-up gantry body. Diesel-powered locomotives have been the majority supplied, overtaking the earlier designs of battery-electric vehicles, but with the rise of Chinese builders of TBMs and their accompanying locomotives, along with recent environmental requirements and technological advances, battery-electric tunnel locomotives are again increasingly viable.

Tunnel locomotive manufacturers

Here in Australia, the manufacturing enterprises of E M Baldwin & Sons and GEMCO supplied diesel and battery electric locomotives used in tunneling projects. Had they been able to continue trading to the present day, there is no doubt that many further useful tunnel contracts would have been carried out by them. With the march of time and globalisation, there are now just a few key international suppliers in the special tunnel locomotive market. Building locomotives to merge seamlessly into the back-up operations of a TBM project is an exacting task, with some particular preferred suppliers. These now include Brookville from Pennsylvania, USA, having largely taken over from the once ubiquitous Plymouth Locomotive Works following the latter's exit from the market. Mining Equipment Ltd, a US company that hires out tunneling locomotives and rolling stock, has recently undertaken locomotive manufacture on its own account. The GIA company from Sweden has also recently been active, having been acquired by the Atlas Copco Group. Clayton continues to be a prolific supplier of both diesel, battery and wire electrics for EU and world markets. Furthermore Chinese manufacturers have produced a number of Schöma look-alike units. While largely confined to the domestic market, some locomotives, mainly battery-electrics, are being exported in increasing quantities.

By far the most prolific builder of diesel tunnel locomotives is Schöma. Having been pre-eminent in this field for the last 40 years, the company is one of the major suppliers of purpose built locomotives specially manufactured for the tunnel construction industry.

In addition to sales of new locomotives, Schöma also overhaul and re-manufacture in-house many of its existing locomotives and adapts them for new operations on TBM projects. Some locomotives have been used on as many as six or seven different projects over twenty or more years! Further to this activity, there are a large number of tunnel locomotive trading transactions undertaken by original or current owners, machinery dealers and auction agents. These transactions often go unrecorded and details of them may not have been passed on to the original manufacturer or project owner.

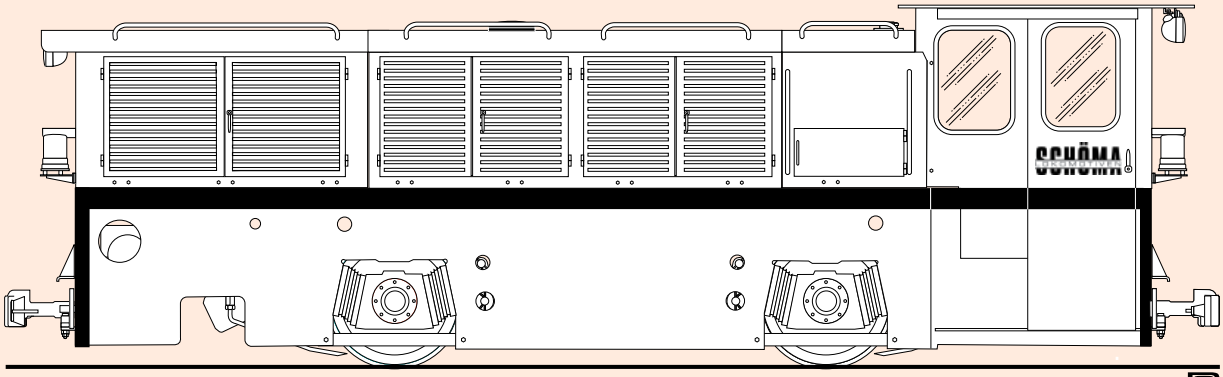
Typically working underground inside secure sites for the duration of a contract before being moved on, it is a challenging task to identify and keep track of tunneling locomotives. Much detective work goes on involving a small network of enthusiasts spread around the world and the study of photographs found on contractors' and machinery sales websites.

The first Schömas in Australia

Four second-hand Schöma tunnel locomotives of the model type CFL200DCL, which had already had a varied and productive working career, formed the first import of the marque into Australia for the "New Southern Line/ Airport Link Concession" construction project in Sydney NSW being undertaken as a joint venture between Transfield and French firm Bouygues Travaux Publics. These had been the second major design for Schöma in this size of tunnel locomotives, and formed the basis for subsequent variations.

Schöma Model Type designations are descriptive of the type of transmission

CFL - Cardan drive locomotive to axle drive from a turbo hydraulic transmission
CHL - Cardan drive locomotive to axle drive from hydrostatic pump and motor
000 - Aproximate power range (HP then kW)
D - Fluid coupling
CL - Clark (Clark-Hurth) turbo transmission
G - Güldner, the initial hydrostatic design (Now Linde)



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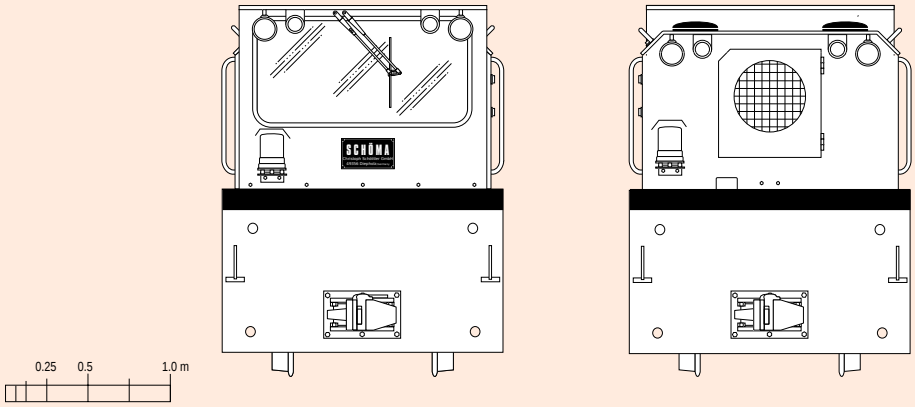
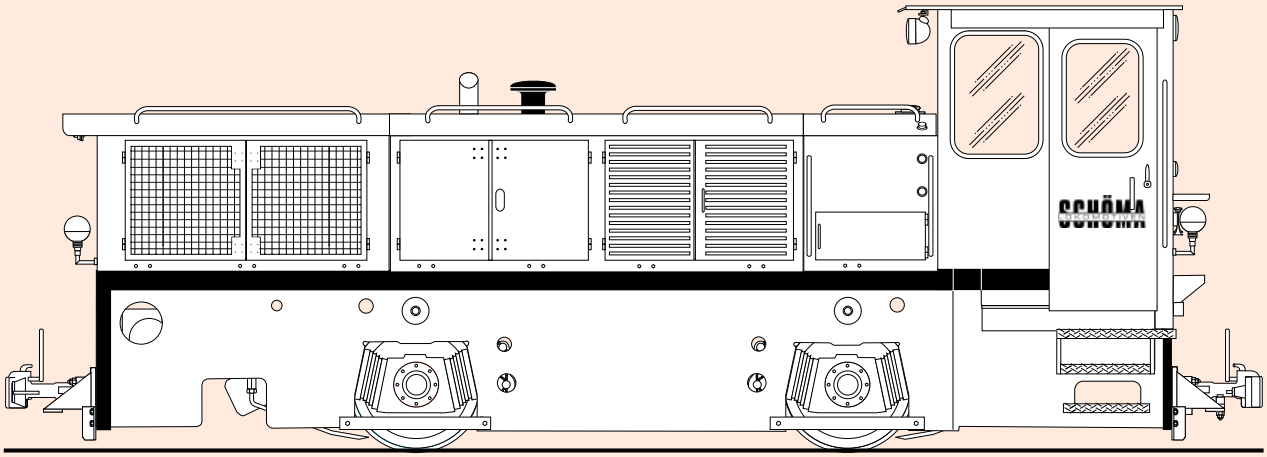
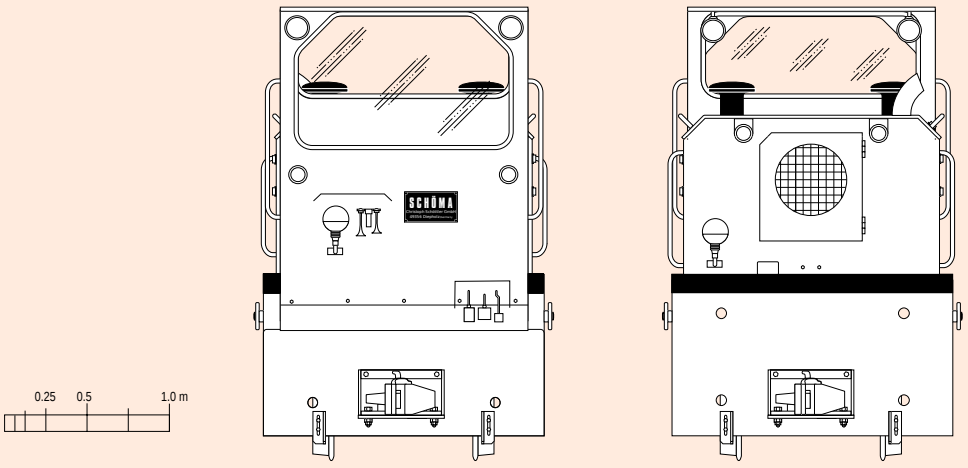
Schöma Model Type CFL200DCL — Rebuilt & modified 1990 for Denmark--MT Group (MTG), Storebælt-Tunnel





4858-4861

Schöma Model Type CFL200DCL - Rebuilt & modified 1996 for Australia--Transfield/Bouygues jv, Airport Link Construction, Sydney NSW



Prior to their arrival in Sydney the units had undergone several transformations.

To deliver the required power range of 204kW, the Deutz F12L413FW air-cooled engine was used, but this was to be the only application of this, the largest in the 413-series, as most of the following designs utilised the 10-cylinder version with a lower rating. In this latter form a thick plate under-frame with additional interior ballast weights, allowed a 170kW, 35 tonne adhesive combination not varied over most of the later production span.

As built for the French TGV tunnel project, the engine compartment was furnished with all-louvred access doors. Even these did not prove adequate for engine ventilation on the next project, that of the Storebælt Tunnel, Korsør in Denmark—the remarkable tunnel/bridge combination connecting the islands of Zealand and Funen by a combined road and rail route. The four-used CFL200DCL were supplied in advance of the deliveries for the MT Group's main new-build locomotive order. The overhaul included an alteration to the driving cabin reducing the roof height to match that of the engine hood, and placing the driving control station below the front cab window.

The muck excavated by the Earth Pressure Balance TBMs on the Danish project contained high moisture content, and tended to overflow conveyor belts when transiting into the muck wagons. A considerable amount ended up coated over the locomotive hood, clogging the air intake louvres—not ideal for an air-cooled engine—the solution was to remove each intermediate louvre creating larger breathing slots.

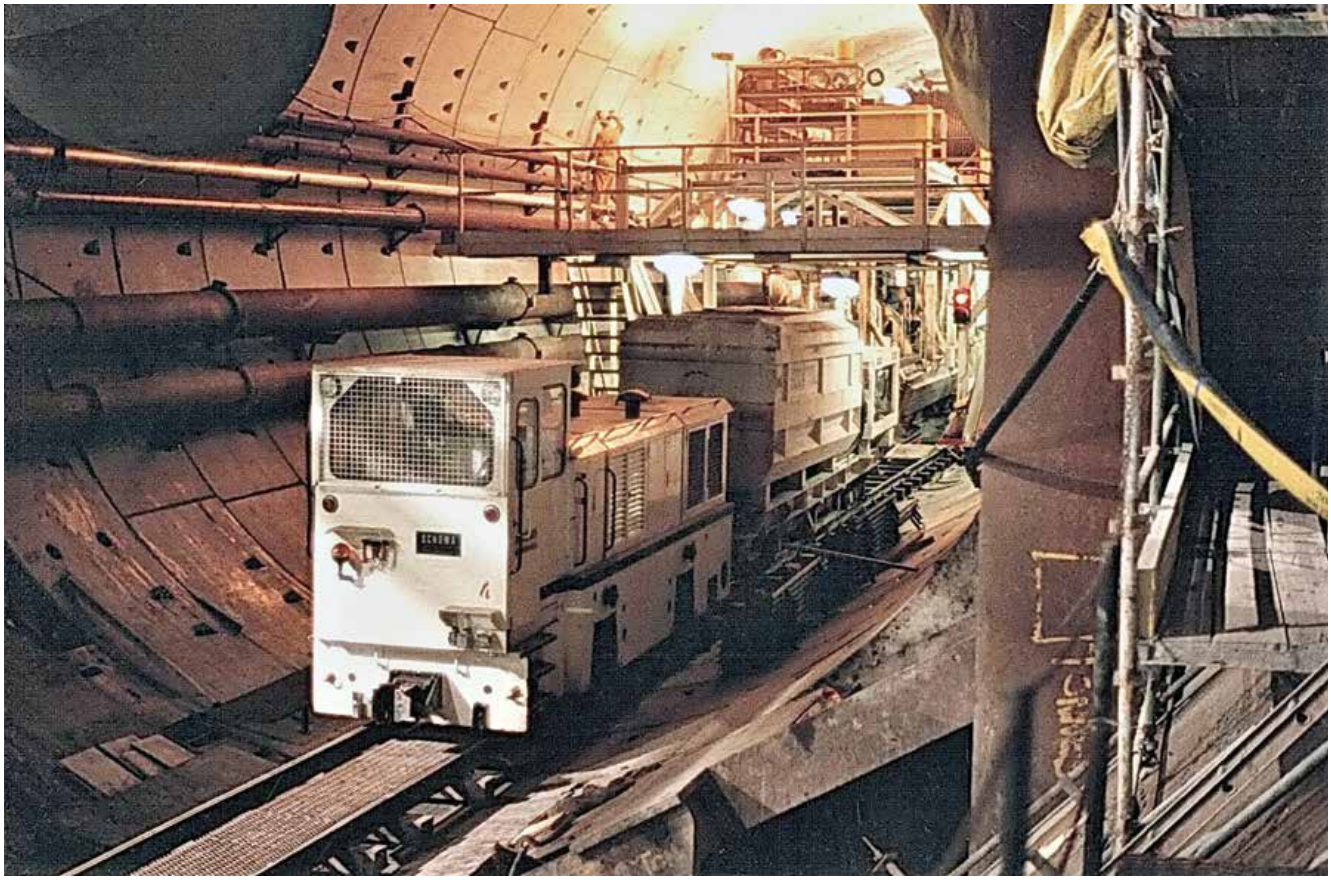
Australian modifications

When these four locomotives were selected to be used for the Australian project, the previous problem with air circulation in the engine hoods would be negated by their operation within a larger diameter tunnel and the excavated muck, as a pumped slurry in pipeline, would not be handled by rail. Consequently the modifications to the engine hood included mostly plain sheet metal doors with only the adjacent doors to the engine itself having mesh panel doors. The intakes for engine air filters were extended above the hood roof.

Onerous duties while on the Storebælt-Tunnel in Denmark with a liberal coating of muck. Note the height of the cab roof, and cabin floor level indicated by the bottom door rail. (4860 of 1985). Photo: Bent Hansen

By far the most radical modification to the locomotives in their Australian guise was the heightening once again of the driver's cabin to allow for vision over the top of the engine hood. The cabin was raised well above the usual limits for tunnel locomotive profiles, and exceeded that of the original 1985 design. The alteration included the raising of the cabin floor, and enabled the driver to either stand or sit when operating the locomotive. The control station, normally located under the front window facing in the forward direction, was re-located laterally to the right-hand side between the door and the engine compartment firewall, thus allowing full vision while at the controls in either direction.

Schöma CFL200DCL 4858 in its original guise working as #1 on the TGV Atlantique Tunnel in France. Note the floor height inside the cabin just above the bottom door rail. Photo: Schöma Official



Above: *In the back-up area of Herrenknecht S-103, the large 10.71 m diameter of the future twin track 'Airport Southern Link' tunnel can be appreciated. Plenty of room to allow a generous high vision driver's cabin on Schöma CFL200DCL #4 (4858 of 1985) seen here near the site of Domestic Station. Photo: Kevin Waid*

Below: *Attending to man-riding duties for the Transfield/Bouygues jv, Schöma D60 (5024 of 1989) was already a veteran on its third tunnel project since its debut on the Channel Tunnel project between Great Britain and France. Photo: Kevin Waid*

The construction phase

The NSW Southern Line/Airport Link TBM[2] was one of the developmental uses for a large diameter TBM drive. At 10.71 m, it was the largest outside diameter tunnel boring machine hitherto engaged, enabling double track in a single tunnel, and created the longest tunnel in Australia. The pumped slurry method to stabilise the face material and to transport the mined muck was used here in Australia for the first time. With the rapid development of TBM mined tunnels world-wide, by 2000 these pioneering standards would have already been exceeded.

The tunnel construction railway was used for transportation of the pre-cast concrete ring segments, grouting materials, fixing hardware and personnel, the latter being in the hands of Schöma Model Type D60 man-rider (5024 of 1989), also sourced from the Storebælt-Tunnel, Korsør in Denmark.

Tunnel construction began at the southern launch shaft site in Tempe Reserve. The launch sequence saw the Herrenknecht TBM serial number S-103 assembled at the bottom of the shaft progressively in sections, until all of the 75 metres of back-up tail was attached. The tunnel locomotives remained stored on the surface next to the shaft until the initial TBM drive forward off the thrust frame, and then, one-by-one, commenced their duties in the shaft as full ring-building got underway.

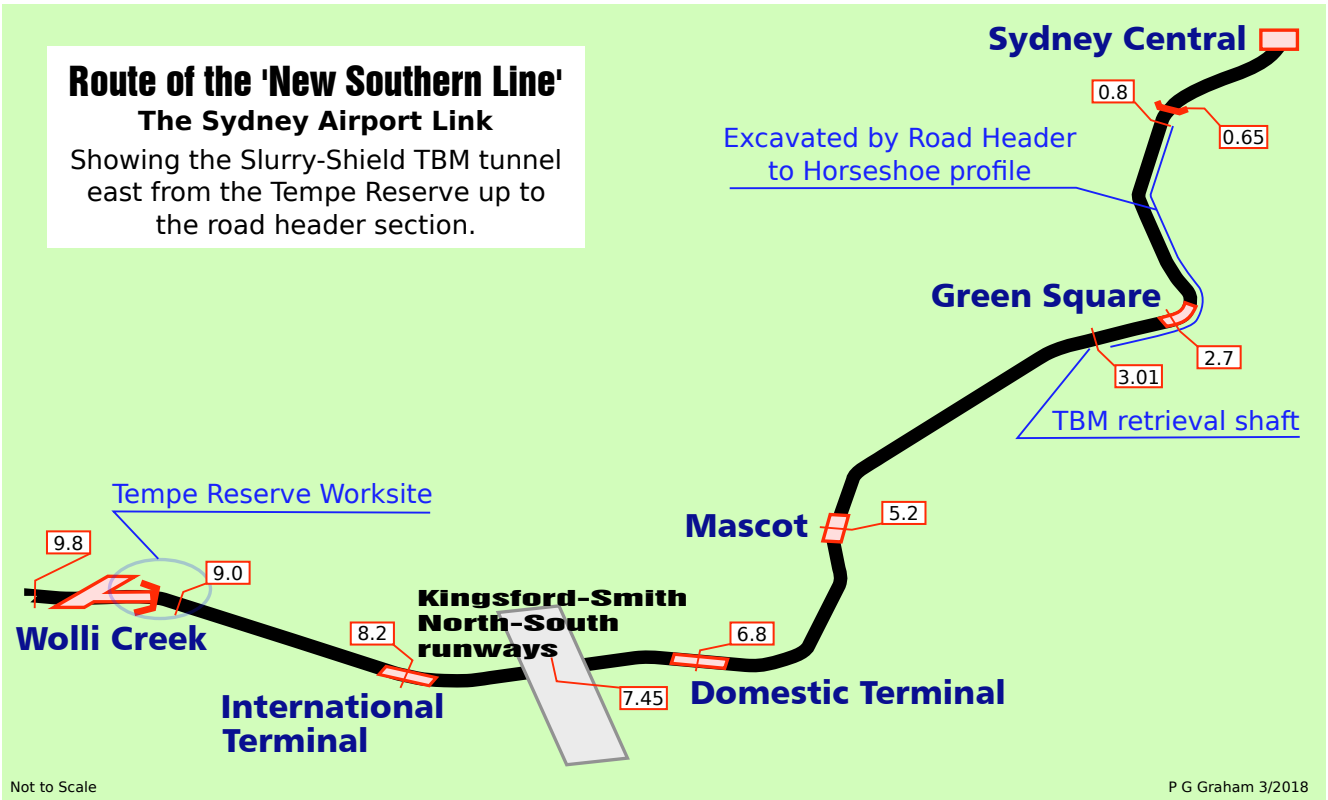
The CFL200DCL locomotives, all faced with engine-hood leading into the tunnel, would work pushing segment wagons and other supply vehicles up to the TBM trailing back-up gantry with supplies to enable a build of one ring length prior to returning back out to the launch shaft at Tempe each time to replenish. Overhead portal cranes here lowered segment sets from adjacent storage down to waiting wagons. At full boring capacity, initially two complete train sets were in action, loaded and empty trains crossing at intervals, and towards the completion of the 5 496 m tunnel, three train sets were needed to cover the distance. One locomotive sat spare as required.

The TBM was blessed at a special ceremony[3] on Saint Barbara's Day, 4 December (the patron Saint for tunnelers and miners) at the Tempe Reserve portal, which was located 9.0 route km from Sydney Central Station. The excavation east from the portal towards the International Terminal Station began just before Christmas 1996. Descending down to pass under Cooks River the lined bore started to ascend and curve left at 8.6 km. It broke through the western wall of the International Terminal Station at 8.2 km on 31 May 1997. The slurry TBM then received a month's maintenance in the International Station box before setting off again easterly, with the bore curving left and gently dropping until 7.45km, located approximately under the main North South runway of Kingsford-Smith Airport, where it then ascended and curved right to Domestic Terminal station at 6.8 km where it broke through into the station box on 22 November 1997.

Repeating the maintenance interval again before the TBM left Domestic, the bore swung left and headed north towards Mascot (5.2km). The bore then ran NNE in a long straight towards Green Square station, before descending and curving right until the segment-lined bore ended at 3.01km. The Herrenknecht machine completed its drive at the Alexandria retrieval shaft on 7 May 1999.

The next tunnel section was the initial 2 200 m drive south from the northern portal adjacent to Prince Alfred Park, near Central Station, excavation of which had been undertaken simultaneously to the TBM section by road header machines into the Sydney sandstone typical around Central, and into some shale until the softer alluvial ground was reached. From the site of the TBM dismantling operations, the horseshoe-profile heading rises to the left and Green Square station at 2.7km. The tunnel ends at 0.65km. At both ends of the tunnel route cut and cover construction transitions between the bored or header-hewn tunnel and the portals.

For the balance of the tunnel fit-out, the tasks for the tunnel locomotives and narrow gauge rolling stock would already be over.



Above: *Schöma 4858 and 4860 ready for work at the top of the Tempe Reserve Shaft. Photo: Ray Graf, LRRSA collection.*
Left: *The modified cooling slots on the engine compartment for Schöma 4861 while in Denmark. Photo: Bent Hansen*
Below: *The lowered roofline as altered from the Australian cab on 4859. Compare the cab door window and the cut-down cab side window position on the Hong Kong cab. Photo: Alain Ballmer*

Above: *The unusual lateral position of the control station on the right-hand side of the now cramped cab of Schöma 4860. Photo: Alain Ballmer*

L to R; All four Schömas 4859, 4858, 4861, 4860, an interloper 5090, and man-rider 5024 for sale in Hong Kong, July 2005. Photo: Alain Ballmer

Schöma Tunnel Locomotives exported to Australasia/Oceania – New, Used, Disposals and later Re-sales

Maker Serial Nr Order Yr Model Axles Type Power Weight Gauge Shipping Date Initial Customer & Plant Number Disposition (below)

Schöma **4858** 1985 CFL200DCL -B- dh 277PS 35t 1000 .12.1985 France--Spie-Batignolles jv, TGV Atlantique Tunnel, 91-Villejust.

Notes: TGV Atlantique Tunnel, 91-Villejust (Marcoussis, Essonne) - Spie-Batignolles/Campernon Bernard jv (C) - __??__ TBM-Slurry 9.25 m dia x 4 300 m (_/86-_/88).

➔ _/8x Schöma, Diepholz. Converted to 900 mm gauge, general overhaul and first cabin rebuild - lowered and control station reversed;

➔ 10/89 Denmark--MT Group (MTG), Storebælt-Tunnel, Korsør #45-21 - Storebælt-Tunnel, Sprogø - MT Group MTG - Howden-Wirth TBM-EPB 8.9 m odia: *Selandia* Southern Tube, eastern Drive x 3 700 m; *Dania* Northern Tube, eastern Drive x 3 700 m; Storebælt-Tunnel, Halskov - *Jutlandia* Southern Tube, western Drive x 3 700 m; *Fionia* Northern Tube, western Drive x 3 700 m - 2 x 7 400 m total (11/90~_/94);

➔ 6/96 Schöma, Diepholz. General overhaul, F12L413FW 203 kW {MNr 7106004}, and second cabin rebuild - extra height for view over engine hood compartment, control station mounted rhs cab-side wall;

➔ 10/96 Australia--Transfield/Bouygues Travaux Publics jv #4, New Southern Line/Airport Link Construction, Sydney NSW - Herrenknecht TBM-EPB-Mixshield (Slurry) S-103 10.71 m dia x 5 496 m tunnel (12/96-5/99);

➔ _/99 Schöma, Diepholz. General overhaul, and third cabin rebuild - extra height cab now reduced in height;

➔ _/00 China--Dragages/Bouygues Travaux Publics/Zen Pacific jv (C) #2, - MTCR/KCRC West Rail, Stage 1, Package DB320 (North part), Tsuen Wan West~Mei Foo, Tsing Tsuen tunnel, HongKong - NFM TBM EPB/hardrock TBM 8.75 m dia x 2 x 1 850 m {3 700 m total} (4/00-12/00);

➔ _/0x Schöma, General overhaul;

➔ _/03 China--Bouygues Travaux Publics/Dragages jv (C) #2 plant equipment number #11-2002, KCRC East Rail, Package LDB201, Lok Ma Chau Spur Line Extension, Sheung Shui{LS}~Chau Tau tunnel, Hong Kong - NFM TBM EPB/hardrock *Mulan* 8.75 m dia x 2 x 3 600 m: Down Track (9/03-6/04); Up Track (8/04~4/05) {7 200 m total}
Advertised for sale Hong Kong 7/05

Schöma **4859** 1985 CFL200DCL -B- dh 277PS 35t 1000 .12.1985 France--Spie-Batignolles jv, TGV Atlantique Tunnel, 91-Villejust.

➔ _/8x Schöma, Diepholz. Converted to 900 mm gauge, general overhaul and first cabin rebuild - lowered and control station reversed;

➔ 10/89 Denmark--MT Group (MTG), Storebælt-Tunnel, Korsør #45-22;

➔ 6/96 Schöma, Diepholz General overhaul, F12L413FW 203 kW {MNr 7106045} and second cabin rebuild;

➔ 10/96 Australia--Transfield/Bouygues jv #1, Airport Link Construction, Sydney NSW;

➔ _/99 Schöma, General overhaul, and third cabin rebuild - extra height cab now reduced in height;

➔ _/00 China--Dragages/Bouygues Travaux Publics/Zen Pacific jv (C) #1, - West Rail, Package DB320, Tsing Tsuen tunnel, Hong Kong;

➔ _/03 China--Bouygues Travaux Publics/Dragages jv (C) #1 plant equipment number #11-2001, East Rail, Package LDB201, Lok Ma Chau Spur Line Extension tunnel, Hong Kong
Advertised for sale Hong Kong 7/05

Schöma **4860** 1986 CFL200DCL -B- dh 277PS 35t 1000 .11.1986 France--Spie-Batignolles jv, TGV Atlantique Tunnel, 91-Villejust.

➔ _/8x Schöma, Diepholz. Converted to 900 mm gauge, general overhaul and first cabin rebuild - lowered and control station reversed;

➔ 10/89 Denmark--MT Group (MTG), Storebælt-Tunnel, Korsør #45-23;

➔ 6/96 Schöma, Diepholz General overhaul, F12L413FW 277 PS {MNr __??__} and second cabin rebuild;

➔ 10/96 Australia--Transfield/Bouygues jv #3, Airport Link Construction, Sydney NSW;

➔ _/99 Schöma, Diepholz. General overhaul, and third cabin rebuild - extra height cab now reduced in height;

➔ _/00 China--Dragages/Bouygues Travaux Publics/Zen Pacific jv (C) #4, - West Rail, Package DB320, Tsing Tsuen tunnel, Hong Kong;

➔ _/0x Schöma, Diepholz General overhaul, exchange engine F12L413FW 277 PS {MNr 8177667};

➔ _/03 China--Bouygues Travaux Publics/Dragages jv (C) #4 plant equipment number #11-2004, East Rail, Package LDB201, Lok Ma Chau Spur Line Extension tunnel, Hong Kong
Advertised for sale Hong Kong 7/05

Schöma **4861** 1986 CFL200DCL -B- dh 277PS 35t 1000 .02.1986 France--Spie-Batignolles jv, TGV Atlantique Tunnel, 91-Villejust.

➔ _/8x Schöma, Diepholz. Converted to 900 mm gauge, general overhaul and first cabin rebuild - lowered and control station reversed;

➔ 10/89 Denmark--MT Group (MTG), Storebælt-Tunnel, Korsør #45-24;

➔ 6/96 Schöma, Diepholz General overhaul, F12L413FW 277 PS {MNr 7106005} and second cabin rebuild;

➔ 10/96 Australia--Transfield/Bouygues jv #2, Airport Link Construction, Sydney NSW;

➔ _/99 Schöma, Diepholz. General overhaul, and third cabin rebuild - extra height cab now reduced in height;

➔ _/00 China--Dragages/Bouygues Travaux Publics/Zen Pacific jv (C) #3, - West Rail, Package DB320, Tsing Tsuen tunnel, Hong Kong;

➔ _/0x Schöma, General overhaul;

➔ _/03 China--Bouygues Travaux Publics/Dragages jv (C) #3 plant equipment number #11-2003, East Rail, Package LDB201, Lok Ma Chau Spur Line Extension tunnel, Hong Kong
Advertised for sale Hong Kong 7/05

Schöma **5024** 1989 D60 Manrider-18+4 -B- dhRC 60kW 9t 900 .1989 GrtBrt--Transmanche Link (TML), Shakespeare Cliffe (Kent) #RU 007A

➔ _/93 Denmark--MT Group (MTG), Storebælt-Tunnel, Korsør #35-08;

➔ _/96 Schöma, Diepholz (seen: 12/96) General overhaul and rebuild to 32 km/h Max speed (D60-32).

➔ 6/97 Australia--Transfield/Bouygues jv, Airport Link Construction, Sydney NSW, acquired via Pacific Tunnelling (D); {*BE 2/97 p225*}

➔ _/99 China--Dragages/Bouygue Travaux Publics/Zen Pacific jv (C), - West Rail, Package DB320, Tsing Tsuen tunnel, Hong Kong;

➔ _/03 China--Bouygues Travaux Publics/Dragages jv (C) plant equipment number #11-2005, East Rail, Package LDB201, Lok Ma Chau Spur Line Extension tunnel, Hong Kong
Advertised for sale Hong Kong 7/05

Exhibiting its third driving cabin incarnation, now with floor height almost at deck plate level, Schöma 4861 of 1985 is ready for work at the bottom of the Tempe Reserve launch shaft, on 22 March 1997. *Photo: Ray Graf, LRRSA collection.*

Where to from here

Following the completion of this project, a consolidation period followed before the four Schöma locomotives 4858-4861 and man-rider 5024 were returned to Schöma for overhaul and further modifications when selected in 2000 for use again by previous contractors Bouygues Travaux Publics on a new project in China. The Tsing Tsuen tunnel in Hong Kong was bored with a smaller diameter of 8.75 m, thus there was a requirement to reduce the extreme driver's cabin height utilised on the Sydney Airport Link project, and return to a more standard height found in subsequent tunnel locomotive designs. It was not possible to fully restore the driver's cabin to the original layout. The raised floor height remained with the result being somewhat cramped interior clearance, with both shallower rearwards-facing window and side windows. The control station remained on the right-hand side.

In this configuration, the four CFL200DCL and the D60 man-rider were used for a second project in Hong Kong in the 2003-2005 period. After finishing work here, the units were all advertised for sale in July 2005. Their disposal from here is not known, however given the continuing and frenzied expansion of Metro rail projects in the neighbouring Chinese provinces of Shenzen, Guangzhou and further afield, it is not unreasonable to surmise that the units have found further work there.

References and bibliography

1. The consortium that built the Northwest Rail Link (now known as Sydney Metro Northwest) in NSW, Thiess John Holland Dragados, in conjunction with TBM manufacturer NFM used MFVs in the twin 6.99m od tunnels there. http://www.tjhd.com.au/. In Brisbane, Qld, the larger diameter 12.45m od road tunnels, Clem Jones Tunnel and Airport Link East West Tunnel, also used MFVs from Herrenknecht subsidiary Téchni-Metal.
2. The Tunnel Boring Machine, *Australian Railway Historical Society Bulletin*, January 1997, p23.
3. K Jones, *Breakthrough: The story of the underground rail link to Sydney Airport*, Focus Publishing Pty Ltd, Edgecliffe NSW, 2000.

Thanks and acknowledgements

Inspiration for the germination of this Australian version of the Schöma tunnel locomotive listing, comes from the work of the late Raymond (Ray) J Graf who recorded exotic tunnel locomotives in obscure locations long before Schöma was known in this country.

I also wish to extend my thanks for assisting with material in this part of the article to the following people, sources and organisations:

Bahn Express (BE) German language magazine; Alain Ballmer; John Browning; Bent Hansen; Ross Mainwaring; Jens Merte; SCHÖMA, the company; Stuart Thyer; Ulrich Völz; Kevin Waid.

Glossary (The Schöma listing):

TBM - Make, Type, Model, Serial number, Name
od - Outside diameter of the boring head
' x ' - Tunnel diameter by Length of drive, '2 x' two separate tunnel drives over same distance by same TBM
{LS} - Launch Shaft at this site name

In Part 2: *Schömas on the move – Sumatra to Perth City; Draining OK Tedi; Beneath the 'Land of the Long White Cloud'.*

Industrial Railway NEWS

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

QUEENSLAND

BUNDABERG SUGAR LTD, Bingera Mill
(see LR 261 p.24)
610 mm gauge
Com-Eng 0-6-0DH locos *Burnett* (AH2967 of 1963) and *Wattle* (FD4789 of 1965) were seen on navvy duties near Ollie Brown's bridge on the Sharon line in mid May. A section of line was being rebuilt using concrete sleepers manufactured at Isis Mill. EM Baldwin B-B DH locos *Givelda* (5800.2 6.75) and *Delan* (5800.3 7.75) were repainted during the slack season.
Mitch Zunker 5/18, 6/18

ISIS CENTRAL SUGAR MILL CO LTD
(see LR 261 p.24)
610 mm gauge
During the slack season, Walkers B-B DH 6 (610 of 1969 rebuilt Isis 2002) was repainted all over yellow replacing the previous yellow and cream livery.
Brian Bouchardt 6/18

MACKAY SUGAR LTD, Mackay mills
(see LR 259 p.26)
610 mm gauge
Racecourse Mill's EM Baldwin B-B DH *North Eton* (6780.1 8.76 of 1976) was painted in Mackay Sugar's standard yellow and green livery just prior to the crushing season. For some years, it had sported an aborted yellow and red livery that had been applied to three locos only. Farleigh Mill's Clyde 0-6-0DH *Palms* (70-708 of 1970) and EM Baldwin B-B DH *Inverness* (10123.1 5.82 of 1982) are stationed at the Pleystowe depot this crushing season. Construction of a new loco shed on the southern side of the Peak Downs Highway at Racecourse Mill was underway by June. This will obviate the need for locos to travel a circuitous route via the Peri line to get to the existing loco shed on the north side of the highway once the direct link across the highway at the mill is removed as part of works associated with the building of the Mackay bypass road. The new connecting line between Racecourse Mill and Farleigh Mill's Palms line will branch off the Palms line at the eastern end of Te Kowai loop where a set of points has already been installed and the route pegged out towards the Peak Downs Highway where it will connect with new trackage that has been built westwards from Racecourse Mill along the course of the ex QR Mackay Valley railway.
Editor 4/18; Mitch Zunker 6/18

MACKAY SUGAR LTD, Mossman Mill
(see LR 259 p.26)
610 mm gauge
Com-Eng 0-6-0DH *Mossman* (B1719 of 1957) was seen passing through Mossman township with three ballast hoppers in mid May. The rear end of the loco was fitted with a substantial ballast plough.
The Exchange Hotel Facebook page 5/18

MSF SUGAR LTD, Mulgrave Mill
(see LR 261 p.24)
610 mm gauge
Significant investment was made in the rail network during this year's slack season, including $2 million spent on upgrading bridges alone. Despite this, an internal audit of rail infrastructure has found that at least two bridges fall short of new engineering standards. These are the bridge over the Mulgrave River near the mill and the bridge over Frenchmans Creek between Fishery Falls and Babinda. Until these bridges are upgraded, locos will push bins across them for collection by locos on the other side.

Farleigh Mill Clyde 0-6-0DH St.Helens (61-234 of 1961) is framed by an old cane loading gantry at Costellos 8 on 17 May. Photo: Steven Jesser

A South Johnstone Mill loco will be based at Babinda to gather Mulgrave cane from south of Frenchmans Creek where it will push rakes across the bridge for collection by Mulgrave locos on the northern side. Several other bridges and rail lines will be retired over the coming years owing to urban sprawl where it becomes uneconomic to maintain infrastructure for a diminishing cane supply. The Little Mulgrave Valley is likely to be the first casualty with what little cane is left being road hauled to the mill or a railhead.
MSF Sugar media release 8/5/2018; *The Cairns Post* 18/5/2018; Andrew Sues 5/18; Shane Yore 5/18

MSF SUGAR LTD, South Johnstone Mill
(see LR 260 p.24)
610 mm gauge
South Johnstone Mill spent $6.5 million upgrading the cane bin fleet during the 2018 slack season. Com-Eng 0-6-0DH multi-unit locos 38 (AH4695 of 1965) and 39 (AH4688 of 1965) were involved in a serious derailment at Lawrence Road near Innisfail on 13 June. A private landowner had been repairing his driveway and was working across the track with a backhoe when the locos with sixty full 6 tonne bins came round a bend. The backhoe moved out of the way but left residual material on the line which caused the locos to derail and their load to pile up behind them. 38 went down an embankment and ended up on its side while 39 ended up across the track and leaning over at an angle. The loco driver was taken to hospital for treatment and later discharged. Both locos and thirteen bins were significantly damaged. This derailment occurred on the main line north and mill cane supply shortfalls were expected until 17 June while the locos were being removed and the track rebuilt.
Shane Yore 5/18; *The Cairns Post* 18/5/2018; MSF Sugar media release 14/6/2018

NORTH QUEENSLAND BIO-ENERGY CORPORATION, Como Road via Ingham
(see LR 236 p.23)
Proposals by this firm to build a sugar mill just south of Ingham have been called off. If built, this mill would have taken around 2 million tonnes of cane from the district's existing mills' rail system and placed it on road transport instead.
Herbert River Express 23/5/2018

WILMAR SUGAR (HERBERT) PTY LTD, Herbert River Mills
(see LR 261 p.25)
610 mm gauge
Proserpine Mill's Plasser PBR-201 ballast regulator (243 of 1984) was on loan by the end of April and still here during the latter part of May. It was in the Herbert to assist with repairs to flood damaged trackage. Repair work has included upgrades to underline drainage in four locations. The QR diamond at Ingham Station was reinstated on 8 May. Rebuilding work on EM Baldwin B-B DH 19 (7070.3 4.77

Top: *Farleigh Mill's EM Baldwin B-B DH* Foulden *(7220.1 6.77 of 1977) alongside the Farleigh-Habana Road after picking up fulls from Costellos 5 siding on 9 June. Photo: Steven Jesser* ***Centre:*** *Victoria Mill's Clyde 0-6-0DH* Lucinda *(65-436 of 1965) on point cleaning duties at Macknade Mill's Central line junction on 14 May. Photo: Luke Horniblow.* ***Above:*** *The Proserpine Mill Plasser PBR-201 ballast regulator (243 of 1984) was on loan to Wilmar's Herbert Mills during May and here it is seen crossing the QR diamond at Bemerside North on Macknade Mill's Seymour line on 14 May. Photo: Luke Horniblow*

of 1977) continues at Macknade Mill and it is not expected to be ready until some time into the crushing season. It has been fitted with a Mercedes Benz V8 motor with Allison transmission and repainted in the standard Wilmar livery. The cab has been rebuilt with work including wider front windows and moving of the doors to the rear of the side walls. Also being worked on is its Solari bogie brake wagon BVAN 3 (built in 1994) which has been repainted and given an above deck refurbishment. Both are expected to go into service at Victoria Mill where they will be used in RSU remote control mode. At the Macknade Mill truck shop during the slack season, fifty-two sugar bins were fitted with new frames and bogies and approximately eighty of this year's batch of one hundred and eighty new 11 tonne bogie cane bins were assembled. Assembly of the remainder will continue into the crushing season. Also during the crushing season, approximately one hundred and eighty more 11 tonne cane bins will be manufactured at Wilmar's Ingham workshop with assembly taking place at the Macknade Mill truck shop during the 2019 slack season. A new Chinese built bogie brake wagon similar to the two others built in previous years arrived at Victoria Mill on 6 or 7 June. Once outfitted, it will probably be paired up with Walkers B-B DH Herbert II (612 of 1969 rebuilt Walkers 1993). The paired up Com-Eng 4 wheeled brake wagons BV1 (PA101 of 1967) and BV2 (PA112 of 1969) at present with this loco will probably cascade to another loco. Paired up EM Baldwin 4 wheeled brake wagons BV8 (7065.1 6.77) and BV9 (7065.2 6.77) had their centre wheelsets reinstated during the slack season, now making them 6 wheeled as original. EM Baldwin B-B DH *Darwin* (6171.1 9.75 of 1975) returned to Macknade Mill on 15 June following its slack season sojourn at Victoria Mill. It had collected its Clyde 4 wheeled brake wagon BV4 (CQ3426 of 1975) from Macknade Mill on 11 June and spent the first few days of the crushing season working for Victoria Mill. Clyde 0-6-0DH *Centenary* (64-381 of 1964) returned to service during the second week of the crushing season following its slack season refurbishment and repaint. Bodywork is now plain yellow without the freelance green band.

All locos in the Herbert are to be progressively fitted with forward and rearward facing cameras. Three more security cameras have been installed at level crossings this year, bringing the total up to eleven. The Suzuki Sierra hi-rail vehicle had been sent to Invicta Mill by 8 June.

Editor 4/18, 5/18, 6/18; Luke Horniblow 5/18, 6/18; Shane Yore 6/18; *Herbert River Express* 9/5/2018, 6/6/2018; *Townsville Bulletin* 14/5/2018, 12/6/2018

Top: *Com-Eng 0-4-0DH* Invicta *(CA1040 of 1960) and Clyde 0-6-0DH* Kalamia *(67-569 of 1967) stabled at Invicta Mill's Clare depot on 28 May. Photo: Luke Horniblow* ***Above:*** *Invicta Mill's Clyde 0-6-0DH* Kalamia *(67-569 of 1967) on ballasting duties between Mona Park loop and Browns Road on 21 April. Photo: Luke Horniblow*

WILMAR SUGAR (INVICTA) PTY LTD, Invicta Mill, Giru

(see LR 261 p.25)

610 mm gauge

Walkers B-B DH *Hodel* (687 of 1972 rebuilt Bundaberg Foundry 1995) spent the slack season at Pioneer Mill where it was fitted with a new Mercedes Benz motor and high efficiency transmission. It was also repainted in the standard Wilmar livery. The Plasser KMX-06 tamping machine (133 of 1978) was seen at the Hodel line junction near the southern side of the Haughton River bridge on 28 May. The rail mounted bridge crane was nearby in its usual spot on an isolated section of track. It has not been used for some time following OH&S banning its use. On the same day, Com-Eng 0-4-0DH *Invicta* (CA1040 of 1960) and Clyde 0-6-0DH *Kalamia* (67-569 of 1967) were at the mill's Clare depot, obviously in use by the navvies. The *Kalamia* may have spent the slack with the navvies as it was seen on the ballast train between Mona Park Loop and Browns Road on 21 April. The Suzuki Sierra hi-rail vehicle from Victoria Mill was at this mill by 8 June and was seen at the Clare depot on 13 June. Walkers B-B DH *Clare* (655 of 1970 rebuilt Tulk Goninan 1995) was involved in a rollover mishap at Mill Street, Giru during the evening of 17 June and a man was taken to hospital for treatment. A photo of the loco indicates that it suffered some damage in the incident. The Queensland state budget handed down in June stated that there was funding for cane tramway overpasses and one must speculate that this includes Invicta Mill's crossings of the Bruce Highway near the Haughton River bridge.

Townsville Bulletin 14/5/2018, 13/6/2018, 18/6/2018; Luke Corica 6/18; Luke Horniblow 4/18, 5/18, 6/18

WILMAR SUGAR (KALAMIA) PTY LTD, Kalamia Mill

(see LR 261 p.25)

610 mm gauge

Pioneer Mill's Walkers B-B DH 5803 (682 of 1972) and ex QR VTS ballast hoppers were seen at the Ayr exchange sidings on 14 May. They were there for ballasting duties on the 610 mm and 1067 mm dual gauge line to the mill and were seen parked somewhere along

the line on 19 May. A ballast plough was also in the consist on this day. As well, Pioneer Mill's Plasser Australia VTO6-16 tamping machine (41 of 1973) was packing the sugar hopper balloon loop late in May. 5803 may stay on at this mill and be used to load molassos trains. Upgrades to the line between the mill and Ayr exchange sidings have been necessary to accommodate the higher axle load trains being run by Pacific National from this year.
Luke Horniblow 5/18; Arthur Shale 5/18; *Townsville Bulletin* 12/6/2018

WILMAR SUGAR PTY LTD, Pioneer Mill, Brandon
(see LR 261 p.28)
1067 mm gauge
Walkers B-B DH *Jardine* (592 of 1968) was rebuilt with a new Mercedes Benz motor and high efficiency transmission during the slack season and was also fitted with a new cab at the end of the loco, eliminating the short, low nose that was there previously. Invicta Mill's Walkers B-B DH *Hodel* (687 of 1972 rebuilt Bundaberg Foundry 1995) spent the slack here getting the same motor and transmission rebuild. Both locos received a paint job in the standard Wilmar livery. Clyde 0-6-0DH *Maidavale* (62-266 of 1962) was seen stabled with the ballast train on the rebuilt section of track between the mill and the QR line on 21 April. Also present was the mill's Plasser Australia VTO6-16 tamping machine (41 of 1973). A new sugar hopper has been built at the mill with this straddling two tracks. It is four times bigger than the old hopper and can hold 3,500 tonnes of sugar. Walkers B-B DH 5803 (682 of 1972) and some ex QR VTS ballast hoppers were on loan to Kalamia Mill from at least 14 May to 19 May. The Plasser Australia VTO6-16 tamping machine was also seen on loan to Kalamia Mill late in May. 5803 may stay on at Kalamia Mill. Upgrades to the sugar line have been necessary to accommodate the higher axle load trains being run by Pacific National from this year.
Luke Horniblow 4/18, 5/18; *Townsville Bulletin* 14/5/2018, 12/6/2018; Luke Corica 6/18; Queensland Country Hour 13/6/2018

Top: *Pioneer Mill's Walkers B-B DH 5803 (682 of 1972) takes a break from ballasting duties on Kalamia Mill's dual gauge line to Ayr on 19 May. Photo: Luke Horniblow* ***Above:*** *Walkers 0-6-0DH* Aramac *(583 of 1968) of Pioneer Mill at Maidavale 1 siding on 11 June. Photo: Luke Horniblow*

WILMAR SUGAR (PLANE CREEK) PTY LTD, Plane Creek Mill, Sarina
(see LR 261 p.28)
610 mm gauge
Early in June, Walkers B-B DH 4 *Carmila* (676 of 1971 rebuilt Bundaberg Foundry 1996) was being test run at Proserpine Mill following rebuild there during the slack season. It returned to Plane Creek on 16 June and now carries the standard Wilmar yellow livery.
Tom Badger 6/18; Luke Axiak 6/18

WILMAR SUGAR (PROSERPINE) PTY LTD, Proserpine Mill
(see LR 261 p.28)
610 mm gauge
The Plasser PBR-201 ballast regulator (243 of 1984) was on loan to the Herbert mills by the end of April. Early in June, the rebuild of Walkers B-B DH 11 (628 of 1969 rebuilt Walkers 1996) was nearing completion with Plane Creek Mill's Walkers B-B DH 4 *Carmila* (676 of 1971 rebuilt Bundaberg Foundry 1996) being test run following the same treatment. The latter was returned to Plane Creek Mill on 16 June. Both have been painted in the standard Wilmar yellow livery. Com-Eng 0-6-0DH *Oakenden* (FB3169 of 1963) is still on roster here.
Editor 4/18; Tom Badger 6/18; Luke Axiak 6/18

NEW SOUTH WALES

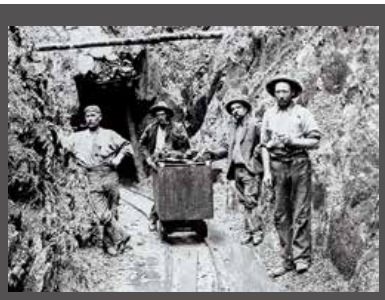
SOUTH MAITLAND RAILWAYS PTY LTD, East Greta Junction
(see LR 257 p.34)
1435 mm gauge
Orenstein & Koppel 4wDH 32 (26263 of 1963) was seen stowed here on 5 May.
Mitch Turnbull 5/18

WESTERN AUSTRALIA

COCKBURN CEMENT LTD, Parkeston
(see LR 251 p.27)
1435 mm gauge
Goninan Bo-Bo DE 49 (013 of 1961) was seen on site on 31 March.
Phil Melling 3/18

OVERSEAS

FIJI SUGAR CORPORATION
(see LR 261 p.28)
610 mm gauge
The rail bridge across the Ba River at Rarawai Mill was damaged during flooding over Easter with several spans washed away although the associated piers remained in place.
Moses Fong 4/18



Field Reports

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

Driver / Knott mill, Arkins Creek, Wyelangta, Victoria
Gauge 914 mm

My narrative on the Driver / Knott mill on Arkins Creek at Wyelangta in *The Beechy* does not show log lines because I was ignorant of any at the time. Some years ago the son of the tramline builder at this mill showed me some photographs taken in 1921 or so that depicted a log line running south-east out of the mill log yard and up a steep slope.

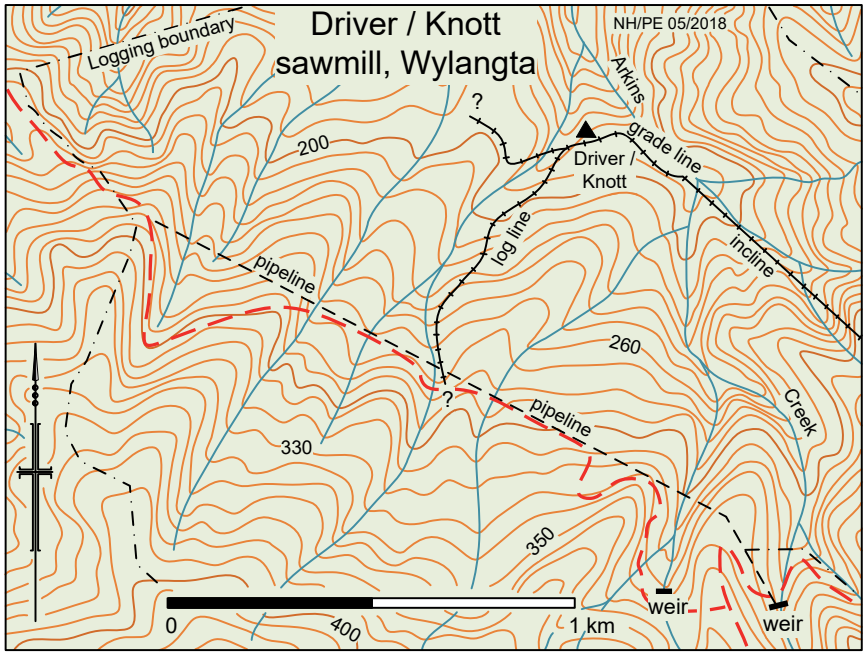
I had visited the mill site in 1991 by coming down the access tramline that ran east from the mill, but did not then poke around the site to any degree. I was on a trip with two local farmers interested in history, who asked me to show them the big bridge and top of the incline and, as a lark, walk down the incline with its 1 in 1 grade to the mill. We set off down the incline (not too steep at first but, later, incredibly steep). We eventually got to the mill, had a quick look, and then walked back up the incline. By the time we got to the top we were all thoroughly exhausted with jellied legs and bursting lungs.

In deciding to go back to check for the log tramway on 7 May 2018, I came in a different way, this time to the south-east off the pipeline road, about a kilometre above the mill site. I carefully plotted the point to enter the bush as the gullies from Arkins Creek all converge up the slope, so any mistake on my part would send me down the wrong spur. I had no idea how far the log line would come up this spur (if at all), so did not bother to look for it at the pipeline track. I went down the spur through the bush for a kilometre or so until I came across a snig track (always a good guide to a tramway or mill site), so followed it downslope. It came out on a mud-flat with fallen trees all around and thick ground litter — looking nothing like a landing or tram site, with no tram on either side that I could discern. I thought the snig line might have continued over to the next spur, so I wondered if I was on the wrong spur.

I climbed back up the spur and went right to its end where there should have been the access tram (so I thought), and slid down for a look. Below me was indeed a tramway formation. I slithered down further to the tram bench and got my bearings. The route was the wrong bearing for the beginning of the log line, so I walked east to a big gully where there would have been a bridge and the start of the incline up to the top, turned around, and walked back the other way. I had not walked this route before as, the last time I was here, my companions and I had walked down in the creek as we had wandered off the track. We had carried along in the creek until coming to a set of tram wheels in the mud, and decided the mill must be up above on the flat. It was.

The tram above the creek that I was on today was deeply entrenched in the side of a steep

Above left: *Start of the log lines at the log yard at the mill. Lower level tram to the left, photographer standing at the junction.* ***Above right:*** *The only sharp bend on the tram negotiating a little gully not far up the line. The first of the landslides starts at the top right corner of the image.* ***Below left:*** *The tram route in one of the less-densely vegetated sections. No easy walking here, just patient climbing over or under the trees and smashing through the wire grass.* ***Below right:*** *Typical example of the route covered in fallen trees, ferns, wire grass and bark litter. It is difficult to spot the tram if not right on it, and certainly impossible to see anything looking down from the spur above. All photos by Norm Houghton, and digitally enhanced to show tram route.*



slope and very difficult to walk as it was covered in fallen trees, ferns and wire grass. The route came around in a big bend, following the contour. The bench evened out and disappeared into mud-flats; I pushed through the mess of vegetation and walked past the snig track that I had earlier discounted, cursing myself for my inattention twenty minutes previously. A little further on I almost fell into the sawdust trench.

The mill site was relatively clear 27 years ago with only a bit of wiregrass about but today, the entire area is overgrown with trees and ferns, and the ground littered with a thick covering of bark, which is why I could not see the site from the spur above. There are two sawdust trenches, one main one and a smaller one alongside, separated by a machinery pit. The mill was installed to cut timbers for the War Service Homes Commission, so I presume the second (smaller) trench was for cutting weatherboards.

I walked to the log yard, found the log tram and proceeded along it. The old photographs showed the line rising steeply, but the line I was on was level and trending downwards. Then I looked up to my left and saw another tram bench, trending upwards. So there were two log lines. I followed the descending (right-hand) one for a short way just to confirm it. This line seemed to run along the contour and head towards a flatter area to the west. I had not the time to follow this one further, so climbed up to the other tram.

This second tram runs on the side of the very steep slope, deeply benched, and rising steeply. The route is mostly straight, with slight changes of direction every so often, had one sharp right-hand turn, and occasional box cuttings to carve through rises. The route was very difficult to walk and plot as it is completely overgrown with wire grass, ferns, trees, had lots of small trees fallen across it, a thick a carpet of bark and landslides every so often. The higher I went, the more the landslides had buried the route. I lost it several times, climbed over and around the slides, zig-zagged here and there, until finding it again up ahead.

The route climbed all the way. Gradually a gully on the right came in close and it and the tram converged, rising sharply with more landslides covering the formation until I reached the pipeline track. The tram has been wrecked here by pipe and road works, so I climbed over the mess and burst out onto the pipeline track – about twenty metres from where I first entered the bush! I consoled myself that, had I looked here earlier before going down the spur, I would not have identified the tram site as such because of the disturbance and landslides.

I had come a kilometre along the tram, rising 75 vertical metres, and this point was less than halfway to the boundary of the mill's logging area further up the slope. The tram might have continued on (and probably did, as where I was standing showed no sign of a landing or winch site). The road and pipeline works on the sharp bend here have destroyed further traces. If the tram had gone any further it might have done so via a horse shoe curve to the west and angled up the slope further over, or it could have continued up the gully. If I had difficulty tracing the tram while I was actually on the alignment, then I felt I had little hope of detecting it further on, thanks to landslides and vegetation cover. So I gave up and headed out of the bush.

Norman Houghton 05/2018

Enterprise sawmill, Lavers Hill, Victoria Gauge 914 mm

The Enterprise Mill at Lavers Hill on the Beech Forest — Crowes railway cut barrel staves, so should have had two sets of saws, two engines and two sawdust holes. Recent examination of the remains confirmed this. The dust hole for the drum saw cutting the staves is huge and, above it, are the remains of massive bearers, presumably to hold the saw in one piece lest the torque shake the whole foundation sideways. The drum saw would cut horizontally into the log as it was fed through, so the forces involved must have been massive.

This mill operated on what is now Mount McKenzie Track, near the Morriss Track corner from 1942. Initially, logs were secured by winching from a private block to the south and, when this cut out, a Forestry allocation was sought and granted. Logging then moved to the east and north by means of a 914 mm gauge tramway about 1.5 km in length. The tram was laid along the high ground for about 800 m, then turned down a side spur.

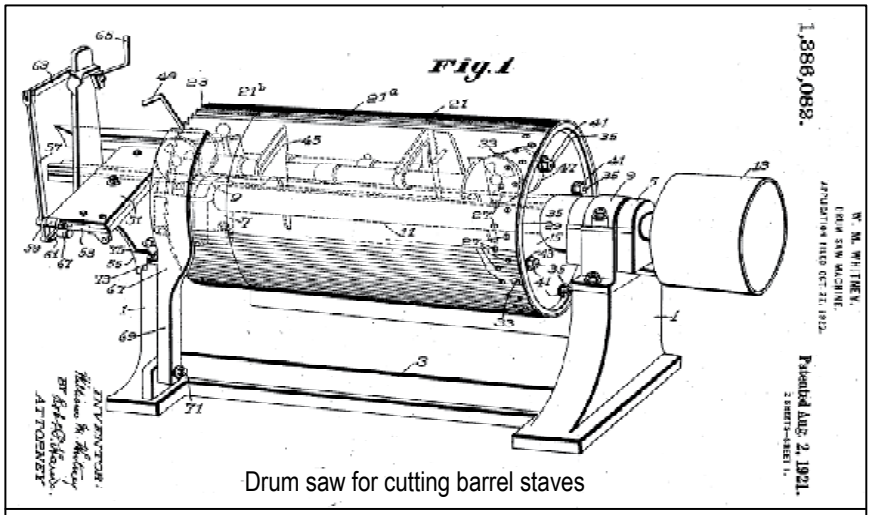
Above left: *The massive squared timber supports for the drum saw at the Enterprise mill.* ***Above right****. The precisely formed trench under the drum saw. Photos: Norman Houghton*

The mill temporarily closed late in 1944 and it is presumed the tramway ceased being used then. Subsequent operators from 1945 employed tractors and trucks for logging. The mill closed in 1956 but was not cutting staves then, and had not done so for some years prior.

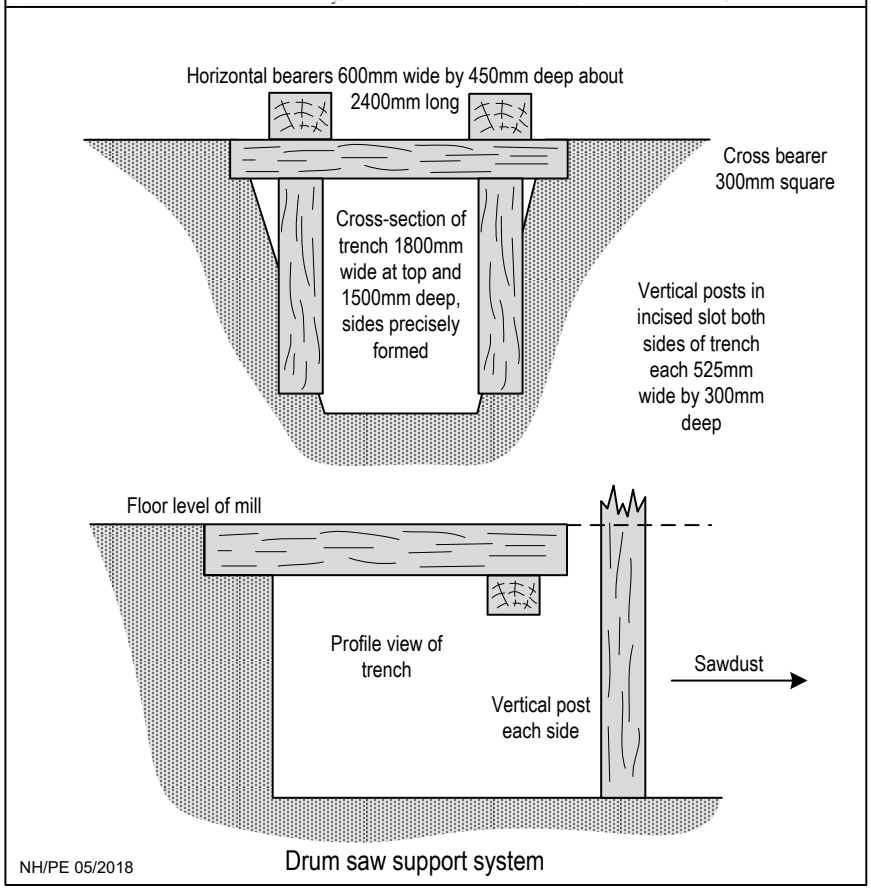
Most of the tramway has vanished, it being laid in gentle terrain in very soft soil and has been driven over by trucks and bulldozers, particularly near the mill. The surviving bits run very close to Mount McKenzie Track and can be traced on and off for about 600 metres before disappearing under modern logging debris and regeneration. The actual mill floor area is intact and represents a rare historical site, exampling a typical barrel stave mill of the 1920s to 1940s era.

Norman Houghton 05/2018

Drum saw tramway. Photo: Norman Houghton Digitally enhanced to highlight tramway.

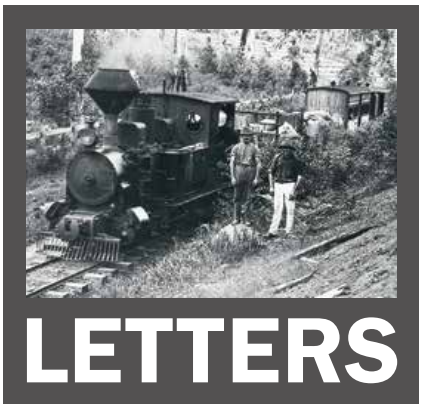


Drum saw for cutting barrel staves



Drum saw support system

Above left: *A drum saw (blade only) abandoned at the New Federal mill near Warburton. The Enterprise drum saw would no doubt have been similar to this. Photo: Peter Evans* ***Above right:*** *Raw staves and finished barrels at the MacRobertson chocolate factory in Fitzroy. Unknown photographer, State Library of Victoria image H2003.101/63.*



LETTERS

Orenstein & Koppel steam locomotives in Australia (LR 246)

Recently, a nagging doubt about whether I had correctly attributed the identities of O&K 718 and 719, the two imported to Tasmania in 1901 by The Central Mining & Tramway Appliances Co Pty Ltd, led me to re-examine in detail copies of their specification sheets from the builder's records. In the past, published sources have indicated that the one on the Magnet Tramway was 718. The specification sheets show clearly that 718 had a normal chimney while 719 had a spark arresting chimney. As the early photo of MAGNET No.2 shows it to have had a spark arresting chimney, this establishes to a fair degree of certainty that it was 719. I am indebted to Wayne Chynoweth for informing me that this number was found on the chassis of MAGNET No.2 that survives in Tasmania. This confirms that my identifications in LR 246 were incorrect.

I am also indebted to the late Peter Witts for comments he made to me before his untimely death about the locomotive that I identified as O&K 4756. Peter agreed that the photograph of the locomotive at Galena, Western Australia, is of a 30hp woodburner. However, he also pointed out the fact that it had a regulator mounting forward of the dome, and a safety valve with a single spring. An examination of the photographs in the article will show that by 1911, the year of manufacture of 4756, side mounted regulators and twin safety valves had been used for some years. In addition, the patent valve gear of the Galena locomotive would support an earlier date. These features seem to be common to the photographs of the locomotives I identified as 718 and 719, with the exception that the one that ran in far north Queensland appears to have had twin safety valves.

The information from Peter Witts creates a problem for the historian and necessitates a further re-examination of the evidence referred to in my article. The necessary citations are shown there.

There appears to be a strong chain of provenance for MAGNET No.2, now identified as O&K 719, and its chassis is still to be found at the Ida Bay Railway.

There are now two locomotives vying to be identified as 718, which was originally intended for the North Mount Farrell Mining Co in Tasmania. We know that it was instead put into store at Devonport in 1901 and was available for sale in 1902. After that the trail goes cold, but subsequently two contenders emerge. It appears that the resolution to this dilemma can only be that an additional O&K woodburner 30hp locomotive built early in the 1900s was imported, whether new or second-hand. So far, I can find no record to indicate what this additional locomotive might have been.

The chassis of the one that was photographed at Galena survives nearby in remote Western Australia at Warribanno Chimney, Ajana. It only has a sound chain of provenance from when it arrived at Galena in about 1924, but there would be a reasonable suspicion that it was one of several locomotives used at the gold mines at Lawlers, WA, within the period from 1904 to 1912. Its single safety valve is compatible with an identification as O&K 719.

The other one has a good chain of provenance from 1920, when it was offered for sale to Cairns Town Council in Queensland by a Sydney dealer, to about 1955 when its abandoned remains were removed for scrap north of Mossman. However, all we can say about it before 1920 is to repeat the story that it had come from a 'mine in NSW'. I cannot find any such mine that could be a contender for this, so perhaps it came from further afield. Its twin safety valves are not compatible with O&K 719 as built, but it is conceivable that they may have been retrofitted to conform to local requirements.

It would be extremely valuable if any help can be provided to unlock this mystery, including the identification of any mine in NSW or elsewhere at which the locomotive later at Cairns may have operated.

The early history of O&K 4756 had been a blank but a possible destination for it has recently been identified thanks to *Trove Newspapers*. In late 1911, the Chairman of the Whim Wells Copper Mines Ltd reported that "the railway, rolling stock, and plant have been largely added to, a new and larger locomotive having been added." [1] I consider that this report may well refer to O&K 4756.

Apologies for having perpetrated these misleading errors. I hope this letter will lead to the record being corrected, and be a reminder of the dangers we face in interpreting the fragmentary evidence that has come down to us. Certainty in such matters is often illusory, and conclusions frequently no more than provisional

John Browning
Annerley, Q.

References

1. *The Sun* (Kalgoorlie), 10 December 1911 page 6. http://nla.gov.au/nla.news-article211634027

Harbour Works wagons (LR 261)

Further to my letter on this matter in LR 261, I have uncovered further information as follows. I previously stated that the origins of the six-wheel side-tip wagons used on the Henderson naval base project in 1915-21, may have been the WAGR. I can now confirm that it was in part the WAGR. It now transpires that in 1915 when the Commonwealth was assembling equipment for the Henderson naval base project that some of these wagons were purchased from the PWD. The *WAGR Annual Report* 1918 states, "The 50 additional side-tip wagons required by the Commonwealth Government for the Henderson Naval Base were completed." These were built at the WAGR Midland Workshops and joined other side-tip wagons previously acquired and presumably then sold in the 1920s?

Jeff Austin
Bayswater, WA
via email

Early days of Mount Read, Willamsford and Rosebery (LR 261)

Les Morley's excellent article in LR261 has inspired me to email you a couple of photos from the 1975 LRRSA trip to Tasmania. At Williamsford, everybody was taking photos of the incline and rolling stock but I don't think anyone thought of the bottom of the incline and how the wagons went round the corner! Anyway, the photo below shows how they did it. Also attached is a photo of the rolling stock for reference (although it is much the same as many other similar photos that have been published).

Also attached is a photo of the Lune River Jetty which I have always been pleased with – you can just about feel the gentle breeze off the water!

Geoff Thorpe
via email

Torrumbarry (LR 260, LR 261) and hand tinted photographs

I would like to comment on John Browning's letter in LR 261 regarding the process which he refers to as "digital colourisation" to add colour to black and white photographs.

The term "colourisation" [or colorization] was first used around 1979 to describe the process of adding colour to old movie films using computer software, to aid in the process of colouring thousands of individual movie frames. Its use means that those who do the colouring do not have total control of the process, they surrender it to some extent to the computer. They have to, because of the sheer volume of frames to be coloured. The term "colourisation" has since then been misused to apply it to the hand colouring of black and white photographs.

Adding colour by hand to black and white photographs is a process almost as old as photography itself. In the past it has been done by applying transparent water or oil colours to a black and white photograph, using brushes or cotton-wool swab. I emphasize the word "transparent", no detail in the photograph is changed or obscured. This process is usually referred to as hand tinting" or "hand colouring".

The process which Mike McCarthy used on the cover of LR 260 and which I have used on a number of occasions is exactly the same as the traditional process, except it uses PhotoShop computer software to apply a transparent colour layer onto a black and white image. The choice of colour and its application is totally controlled by

Bottom of the Williamsford Incline showing the track arrangements and cable rollers to allow trucks to go around the corner. Photo: Geoff Thorpe

Workers passenger car and wagon at the base of the incline. Photo: Geoff Thorpe

Lune River jetty in 1975 when the LRRSA tour visited the site showing the track arrangements and some rolling stock. Photo: Geoff Thorpe

a human being, using a mouse or stylus or both. It is not a task to be undertaken lightly, from my experience it takes about 24 hours of meticulous work to complete one photograph, providing the original is perfect. And the quality of the final result very much depends on the quality of the original photograph. To guide me in the process, I use a 59 year old book on hand colouring photographs (Fanstone, R M; *All about Colouring Your Photographs*; The Focal Press, London, 1959). Once again I emphasise, no detail is changed or obscured, the colour is transparent.

John describes the process of restoring damage to a photograph as a "legitimate technique". It is. But I approach it with a great deal more trepidation than I do with hand tinting. It is not always easy to tell whether a mark on a picture is part of the original image, or a subsequent blemish, which should be removed. And trying to restore parts of an image where all traces of the original have been lost invites more risk of inadvertently changing history than does hand tinting.

I see hand tinting as a legitimate (and very traditional) technique to give the audience of today and the future a better impression of what things were like in the past. Much of the reason I do it is to help give me a better idea of what it would have been like to witness the original scene. If I, as the author, need the addition of colour to do that; then I think others – who have a less in-depth knowledge of the subject – would also find it helpful to give them a window to the past. The presence of the words "hand tinted by" or "tinted by" should give the warning that there can be no guarantee of total accuracy. It is an impression, and if the person doing the tinting knows the subject, it should be a well-informed impression.

It is desirable, I think, to include in the caption any doubts the tinter might have about the selection of colours of significant parts in a picture, for example the colour of a locomotive buffer beam.

It is not only hand tinted pictures which cannot be relied upon for accurate reproduction of colours. The same applies, but to a lesser extent to old colour photographs. All sorts of factors, such as ageing, exposure, type of film, and the printing process itself can affect the result. So does the judgement of the operator who prepares and restores an old faded colour photograph for printing.

Frank Stamford,
Emerald, Vic
via email

Torrumbarry (LR260)

I thank John Browning for his kind comments and additional information contained in his letter published in LR 261 regarding my Torrumbarry article that appeared in LR260.

John raises interesting and constructive questions about the use of tinted images in *Light Railways*. His concern arises from inaccuracies that could conceivably be introduced by the presentation of images that have been tinted.

Firstly, it must be understood that the process of "tinting" an image, when done correctly, neither adds detail nor removes detail. It applies a coloured wash to the detail that is already there. Whether done by hand or with a computer mouse the process is very much the same. Tinting has been a process undertaken on many photographic images over the past 150 years.

Its purpose is to create a closer impression of what a scene would have looked like than is possible from a greyscale image. The important word here is "impression". By its very nature, tinting is a subjective process that hinges mostly off the minds-eye of the person doing the work. The objective is to convey, as far as possible, a sense of how the scene would have appeared in real life. In the case of the front cover of LR 260 I used colours derived from the actual locality. This includes sky, foliage and earth tones. The truck colours came from existing trucks that I believed were originally acquired for the Torrumbarry works. The locomotive however is purely guesswork. We know it was painted red but that's it. Exactly what was red and what wasn't red in the detail is unknown. Also, the shade of red is not known. In hindsight, I wouldn't have tinted the counter weights at the front but probably would have done as I did on everything else. The real point however, is that it can never be completely accurate, but it doesn't claim to be. The very word "tinted" in the caption of the image immediately introduces doubt on that score. However, it is the overall impression of the scene that is the key objective of the process, not the detail, the accuracy of which could never be guaranteed.

Is this a legitimate process to be used on images in *Light Railways*? I most strongly believe it is (sparingly). Good history doesn't just give the dates and facts, in my view. It also tells a story and creates an impression of the time and place. Tinting an image can assist this immensely. It takes an image from the past and links it to the now by presenting it in a form more recognisable to readers. To me it assists to breakdown a perception that the past was a different world when, in reality, history and now are parts of a continuum of the same world.

I also disagree regarding the need to also publish an untinted version of the image. As mentioned earlier, a properly tinted image might highlight detail, but not obscure it and never add to it. The work done on the image before applying a tint is aimed at this. For this reason there is no need at all to also publish the original untinted version of the image. Where much greater concern should sit is with "repaired" images. The very nature of the process adds detail that was not present in the damaged image. This is still a legitimate and highly desirable practice but it needs to remain faithful to the original scene as much as possible and not add information that wasn't present at the time the photo was taken.

This has been a worthwhile question to raise and I appreciate the opportunity to comment on it.

Mike McCarthy
via email

Hunslet 1239 (LR261)

I would like to add a couple of additional details to the story of Hunslet 1239.

As the author points out, the British began using 60cm gauge light railways on he Western Front in a small way the latter part of 1916. Their expectation that the trench war would only be a transitory stage and would soon give way to a war of movement had led to the decision to use road transport forward to the main supply dumps, which were served by the broad gauge railways. ("Broad gauge" was the term used by the Royal Engineers for 4' 8½".)

Road transport failures during the Somme campaign led to localised use of light railways. The French were already using 60cm light railways (both Decauville and conventionally laid), so the British adopted the same gauge, rather than their preferred 2' 6" gauge that they had used in Gallipoli and Egypt.

Australians, especially the 4th Pioneers, were heavily involved in these early efforts.

From 20 July 1916, Australians would be involved in rebuilding a light railway at Albert as part of the preparations for the attack on Pozieres. Australians known to have been involved came from the 2nd Field Company Engineers, 4th Pioneers and the Railway Supply Detachment (RSD). The RSD had built and operated one of the Australian 2' 6" light railways on the Gallipoli Peninsular.

The 4th Pioneers was, at that time, led by Lt-Col Albert Fewtrell, a railway civil engineer from NSW. They would later move to Ypres where they also did light railway work. As Sir Eric Geddes' role moved from reporting on the transport needs of the Western Front to implementing his recommendations, the 4th Pioneers returned to the Somme at the end of October 1916 along with the 6th Field Company Engineers to begin the Anzac Light Railways project near Pozieres.

This was the largest British light railway project to that date and is beyond the scope of what can be included here.

The difficulties mentioned by the author that faced the British getting light railway locomotives built in Britain was due to its light railway builders having its order books already filled by the French Government. Negotiations were necessary to allow some priority to be given to the British requirements.

While some metre gauge lines were used for military purposes by the ROD, this was limited. Metre gauge was used for side of road tramways that served rural areas of both France and Belgium. These were substantial undertakings as can be seen from the accompanying postcard (below). It shows the metre gauge yard at Rexpoede, a French village southeast of Dunkirk.

Trevor Edmonds
Dorrigo, NSW
via email

Walkers B-B DH locomotive (LR 260)

Just a quick comment on the mention of the move of Walkers B-B DH 1107 in *Light Railways* 260.

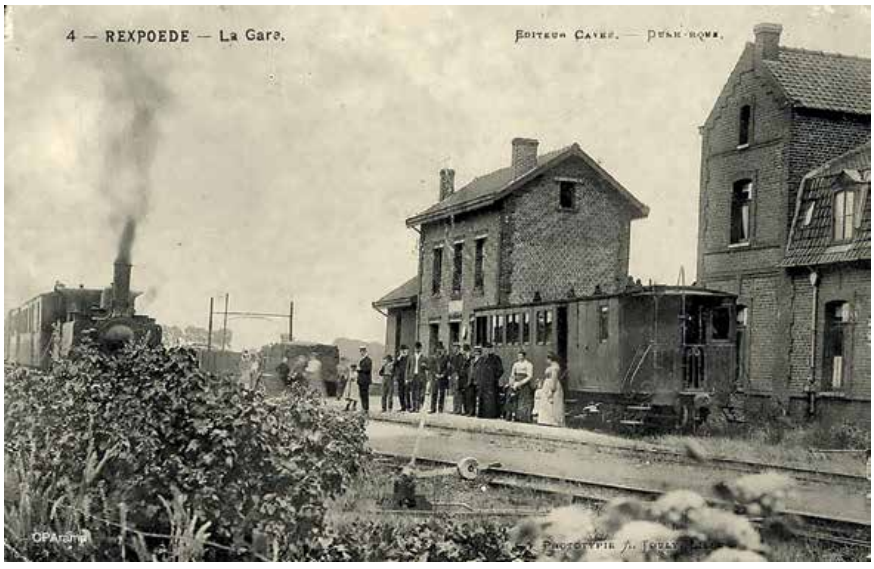
The locomotive is currently on lease to *The Q Train* from Cairns Kuranda Rail Services and is being converted to Westinghouse air braking as part of its preparation for service on *The Bellarine Railway.*

I would be pleased if you could also note that *The Bellarine Peninsula Railway* name was changed in the 1990s when the region dropped the word peninsula from its identification, and the railway did the same.

David Price
President & Chairman - *The Bellarine Railway*
via email

Book Review – *Speed Limit 20 Plus* (LR 260)

When I was compiling one of my articles a month or so ago for the *Thomson Times*, and using my copy of the original *Speed Limit 20* as a reference, I noticed something that did not quite gel regarding the first passenger train to Walhalla on 26 March 1908. Listed among the worthy guests at the bottom of page 105, was State Premier (John Murray). However, to my knowledge from research, Mr. Thomas Bent was the State Premier at the time and as he had a great deal to do with completion of the railway, he was a guest on that first passenger train. So, when I went to the new copy of the book I was very pleased to see that the correction



had been made. Thus I would like to express my congratulations to the editors of the new edition in picking up the small error.

David Lowe
Editor of the *Thomson Times* (and regular driver on the Walhalla Goldfields Railway)
via email

Editor's Note:
The first train to Walhalla did not run in March 1908, the train referred to only ran as far as Erica (but it wasn't called Erica then, it was Upper Moondarra). It was another two years before the track was completed to Walhalla.

Munitions Factory light railways at Villawood and St Mary's – an overview (LR 261)

Jim Longworth's documentation of these light railways is welcome. He mentions the possible presence of narrow gauge internal combustion locomotives at St Mary's.

In spite of the veil of secrecy over the site, we can be fairly confident that 2ft gauge Com-Eng 4wDH G1148 of 1961 worked at St Mary's. There is a photograph of it new at the Com-Eng works at Rocklea in Brisbane, with flameproofing equipment clearly visible. In 1971 it was obtained by Fairymead sugar mill at Bundaberg and remodelled there with an enclosed cab. It is now privately preserved in Victoria.

I have reports of several other 2ft gauge internal combustion locomotives at St Mary's that have been passed on to me anecdotally over the years by fellow researchers. Unfortunately I do not have clear provenance for these reports. Perhaps a reader may be able to supply the necessary details, or some enquiry at the National Archives of Australia may prove to be of value. The 2ft gauge locomotives I have reports of at St Mary's are as follows:

- Ruston & Hornsby Model 20DL 4wDM 218002 of 1943, which arrived at Farleigh sugar mill in 1960 carrying the plate of Machinery Merchants E.A. Marr & Sons Pty Ltd.
- Three Malcolm Moore Ministry of Supply Ford V8 type 4wPM locos – 1012, 1023, and one unidentified – offered for sale in new condition at St Mary's in 1973. One or more of these may have been sold to Bullens, who operated a number of Lion Safari Parks. 1023 is now at Alexandra in Victoria.

Jim mentions a standard gauge Clyde diesel obtained in 1958 for use at St Mary's. According to Clyde records it was delivered to Utah Construction Co on 26 June 1958. It was a Model DHI 71 0 6-0DH (58-187 of 1958), with a circular numberplate "1" on the cab sides. I would assume that Utah were involved in the construction of the Munitions Filling Factory. In 1988 it went to the Mountain High Railway at Tumut, and is now at Dorrigo.

John Browning
Annerley, Queensland
via email

Light Railways of Australia Facebook Group

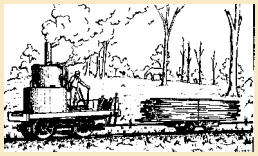
The *Light Railways of Australia* Facebook Group which was recently set up by the LRRSA has been very active over the past few months, and currently has 518 members from around the world. You do not have to be a member of the LRRSA to join. The Group is managed by three LRRSA Committee members.

You will find it here:

https://www.facebook.com/groups/LightRailwaysAustralia/

The Group is for people interested in the types of railways described in *Light Railways* magazine, and is intended to provide a meeting point and means of communication for all those interested in its aims.

Amongst the many items discussed in the last two months were Marchbank's peculiar Malcolm Moore tractor at Weeaproinah, Victoria (top picture); and the Irvinebank 2 ft gauge tramway in far north Queensland (bottom picture).



LRRSA NEWS

MEETINGS

ADELAIDE: "More of The Beechy"
We will discuss the Beechy in Victoria in 1959 again for another view – including what should have been shown at the last meeting. News of light rail matters will be welcome from any member.
Intending participants would be well advised to contact Les Howard on 8278 3082 or by email lfhoward@tpg.com.au, since accommodation is limited.
Location:
1 Kindergarten Drive, Hawthorndene.
Date: Thursday 2 August 2018 at 7.30pm

BRISBANE: "Nambour steam"
Bob Gough will show DVD's from Nambour betweeen1997 and 2000 including steam with ANGRMS BF No. 5 hauling sugar cane up Howard Street and empties to the Howard Street yard.
Location: BCC Library, 107 Orange Grove Road, Coopers Plains.
Date: Friday 17 August 2018 at 7:30pm

MELBOURNE: "AGM and from the Ray Graf collection – part 3"
Following the Annual General Meeting, a range of colour slides will be shown utilising our vintage steam-powered slide projector (celebrating its 42nd birthday).
The slides will cover an eclectic mix of locations both within Victoria and southern NSW). Included will be a number of tunnelling, tourist and industrial operations, now all long-gone.
Location: Ashburton Uniting Church Hall, Ashburn Grove, Ashburton.
Date: Thursday 9 August 2018 at 8pm.

SYDNEY: "The oil shale industry at Murrurundi, NSW"
The British – Australian Oil Company operated an oil shale refinery at Murrurundi, connected to the NSWGR by a short branch line leaving the main line near Temple Court station. Oil shale was brought to the works from the shale mine at Temi, several miles to the north, by an aerial ropeway. Noted author Mark Langdon has extensively researched and published about this interesting subject. His presentation will summarise the history and illustrate the then-and-now of this once busy industrial centre.
Location: Woodstock Community Centre, Church Street, Burwood. Free Council car park behind building (entry via Fitzroy Street) or close-by street parking. Only 10 minutes easy walk from Burwood railway station.
Date: Wednesday 22 August 2018 at 7:30pm.

Heritage & Tourist NEWS

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

QUEENSLAND

WOODFORD RAILWAY, Woodford

610 mm gauge

In March, the railway was successful in obtaining a state government Gambling Fund grant to upgrade Woodford station platform. This work involves raising the platform height to match the higher section at the Peterson Road end, as well as upgrading the platform face. As this platform is a major part of the public image when passengers visit the railway, obtaining this grant is very welcome news.

Work has continued on sleeper replacement, while on the rollingstock front, work has continued with the overhaul of linecar 117, on the replacement ballast wagon, and on the Perry locomotive and passenger car PL111.

As well as upgrading the platform at the Woodford station, the platform at Peterson Road is also badly in need of a facelift, particularly in light of all the work put in at the café. This work will commence at the same time as work on the Woodford platform with some materials relocated to this platform. As there is a fair bit to be done, the work will continue for some time. Both of these platforms are part of the railway's front face that passengers see, so it is very important they present a good impression.

The Playstowe trolley has been given a much needed facelift along with some repairs. This trolley is now back on site and on display in the display room.

Work has also continued on the Perry with the driving wheel springs removed and sent away for inspection and testing. During May the new boiler tubes for the *Melbourne* and *Bundy* boilers were delivered and are now stored in the new loco storage shed until required.

Durundur Railway Bulletin, May/June and July/August 2018

Clive Plater's ex-Moreton Mill locomotives Maroochy *(above) and* Coolum *(below) enjoying a day out in the sunshine in June 2018. Photo: Clive Plater*

VICTORIA

PUFFING BILLY RAILWAY, Belgrave

762 mm gauge

Thursday 24 May saw the first solo trip on a timetabled revenue train to Gembrook by locomotive 14A since its conversion to oil firing. All appeared to go well as the fireman and driver attested at Lakeside. Further operation of the locomotive has continued, including double-heading with other locomotives, as new adjustments such as the refitting of the ashpan to reduce the primary air flow, are made. Training information for crews is currently being prepared and it is expected that training will commence in the next few weeks.

Management has received the final report from the Victoria Police regarding the incident at the Menzies Creek level crossing on 6 March, in which the police concluded that the bus driver was at fault. The PB internal investigation made the same conclusion. As a response to the incident, the Railway is undertaking a comprehensive safety review. In the meantime, the status of suspending passengers from sitting on the carriage sides remains in place. Numbers of passengers since the ban have been a little down, which may or may not be due to the banning of leg dangling.

Among other interesting new safety procedures will be the requirement for all Conductors to carry and operate two-way radios and for guards to have the use of two two-way radios; one for communication with conductors and locomotive crew and one for communication with the Belgrave station master.

Left: *Climax 1694 waits to depart Emerald on a Photographers' Special in September 2017. Photo: Austin Harrison*

Right: *Interior of 14A showing modifications made for the conversion to oil firing. The fireman no longer has to shovel coal and the firebox door is clearly sealed, but he or she now has to control the oil flow to maintain boiler pressure. Photo: Andrew Webster*

Below: *14A leaving Lakeside on its first solo trip on a timetabled revenue train to Gembrook since its conversion to oil firing. Nothing outwardly appears to have changed but inside the cab and in the coal box, changes are clear. Photo: Andrew Webster*

The new shed to house the converted X1 trams at Walhalla. The shed built by Ron Kain is at the rear. Since this photograph was taken, the doors have been added but these will have to be removed and rehung due to incorrect installation. Photo: Andrew Webster

Modified door locks are also being installed on the NBH cars so that they may not be opened accidently from the inside.

During the period of the rebuilding of the Cockatoo heritage station and buildings, the Gembrook train does not stop at Cockatoo station.

Monthly News June 2018, July 2018

WALHALLA GOLDFIELDS RAILWAY, Walhalla

762 mm gauge

The new shed that is to house the converted X1 trams is almost complete at Walhalla. The shed is an extension of the existing shed at the end of the runaway siding at Walhalla yard, but triples its length. When the tram conversion to run on the Walhalla line is complete (management is suggesting that they will be running before the end of June 2019) both trams will be housed in the new shed and will be used on Mondays, Tuesdays, Thursdays and Fridays and on any day when passenger numbers are too low to warrant a locomotive hauled train, such as during the operation of the winter timetable.

Work on converting the trams to railmotors continues. The bogies have been cut to accept the new 762 mm gauge wheel sets, and the wheel sets are due to be delivered from Puffing Billy Railway. The new railcars will have a driving position at each end. It was originally intended that the operation would be by one person, but with the possibility of the two railmotors being used in tandem, two person operation will be the normal model; a driver and a guard/conductor who will be responsible for all operations including ticket sales and station operations. Training programmes for the operation of the railmotors is being prepared and will commence soon.

Dogspikes and Diesel May 2018

TASMANIA

IDA BAY RAILWAY PTY LTD, Ida Bay

610 mm gauge

In October last year the railway's operator, Meg Thornton was joined in the railway by a business partner, Hugh Yang, who has skills in rail, business and tourism. Meg and Hugh are now embarking on a development plan working with both Parks and Heritage as well as Huon Valley Council, to put in place a plan acceptable to all parties that will put the Ida Bay Railway on the map to compete with the major tourism players in Tasmania.

First off there is a major event on 29 and 30 September, and 1 October this year, co-hosting with Sheffield Steam, to bring Steam Age Ida Bay to the railway for this three-day event.

It is also 100 years last year since limestone started being carted by timber rail using the timber mill rails and taken by boat from Lune River to Brick Point Jetty. The steel rails were laid to Brick Point for use in 1922. For this three-day event as well as celebrating the centenary of the limestone trade, workers are getting the site ready and replacing the old platform as well as many other site area improvements. Flyers are being distributed and the program being finalised for a weekend of fun, steam, heritage, arts, crafts and entertainment.

Meg Thornton, 14 May 2018

SOUTH AUSTRALIA

COBDOGLA IRRIGATION AND STEAM MUSEUM, Cobdogla

610 mm gauge

Following the Bagnall locomotive's (B/No.1801 of 1906) annual boiler inspection last year, the boiler inspector requested a change of the 112 year-old Ramsbottom safety valves for modern ones. A chance conversation with a retired engineering workshop owner resulted in the donation of four suitable, unused, safety valves, two of which have been fitted to the Bagnall and the other two will go on the Aveling & Porter steam roller, N^{o} 12090 of 1928, currently under restoration.

In conjunction with the fitting of the new valves, all the steam plumbing around the locomotive has been renewed. This included new check valves and stop valves, which are now plumbed correctly. The original check valves and stop valves were contained in single castings, but were the wrong way around, ie, the check valves were against the boiler, followed by the stop valves. This meant that the check valves could not be serviced while the boiler was in steam, such as when something lodged between the seat and the valve. This did happen on an open day, resulting in the failure of the loco for the rest of the day.

After the July open day, the Bagnall will be taken out of service for an overhaul of the connecting and main rod bearings and journals, and to have some welding done on the boiler around the fusible plug hole. An extra wash out plug will also be installed in the backhead and an electric oil heater installed in the oil bunker in the tender.

Other maintenance work has been carried out on the carriage couplings and on some of the works wagons. A tool rack for shovels, crow bars etc. has been installed on the bogie flat wagon, the tool wagon has had a new generator/welder fitted and the wagon painted and new lifting jacks fitted to the hydraulic rail bending Jim Crow.

A number of sleepers were replaced in the track during the summer, and a winter program of

more sleeper replacement and rail straightening is under way. The railway has a small stock of cut and drilled sleepers on hand, but when these are used up, workers will have to cut and drill more using the sleeper production line which was built in-house and consists of a swing saw to cut second hand broad gauge sleepers to length. The cut sleepers are then rolled along to a four-head drill, which drills all four holes at the same time. After this, the sleepers are rolled to the end of the line for manual stacking onto pallets. This last step is the only manual lifting on the line as the broad gauge sleepers are placed at the start of the line by forklift. The system was loosely based on the one at Whiteman Park in WA.

Quite a lot of the rail at the railway has kinks in it, possibly from being dropped or carelessly handled when the contractors pulled the track up on the Pinnaroo line when that was upgraded. The railway received a fair bit of the 62 lb rail at the time and the kinks in the rail make for an "interesting" ride. The Jim Crow was designed and built in-house some years ago to straighten these kinks in situ, usually at the same time as adjacent sleepers are being replaced. It is an ongoing program, best not done in the heat of summer, although this has been done so when necessary.

The two Motor Rail Simplex locos, *Farleigh* Nº 7369 of 1939 and *Peter* Nº 9861 of 1953, continue to give sterling service, being used for works trains, charter work and casual train rides. They both had their annual services in June.

The Fairmont Section Car, out of service for a number of years with engine problems, has had a new crankshaft seal fitted and been returned to service.

Over the past 12 months the railway has carried in excess of 3,200 passengers over approximately 600 km. The current track distance is 2070 metres.

Elsewhere in the museum, both Fowler engines have been retubed during the past year or so, and cable stays have been fitted to the crane on the B6 after the original wrought iron stays were found to be cracked.

The restoration of Aveling & Porter H Class steam roller Nº 12090 of 1926 is well under way with most of the bits and pieces already refurbished. Currently, the boiler in being prepared for an acid washout, following which a new front tube plate will be fitted and some welding done on the boiler.

The main news is that the recommissioning of the Humphrey Pump after a major upgrade is expected to happen later this year. The date of this event will be announced on the railway's web and FaceBook pages.

Denis Wasley, Secretary Cobdogla Steam Friends Society Inc.

General station site area improvements including a new platform at Lune River Railway. Photo: Meg Thornton

WESTERN AUSTRALIA

BENNETT BROOK RAILWAY, Whiteman Park

610 mm gauge

The Management Committee has approved funding for 2-8-2 locomotive NG15 123's boiler repairs and re-tubing. This will be carried out at Willis Engineering in the coming months, with the return to operation intended for Ashley Day May 2019.

The 0-4-2 Perry is having a spring repaired and once reinstalled, the newly cleaned and inspected boiler will be refitted to the frames. Some new bearings have been replaced on the motion and workers have been painting the chassis. The tentative plan is to be running for Ashley Day 2018.

The Ruston is having an air train brake system installed, a new air horn fitted and repairs made to the cab and bodywork.

The two Planet locomotives are the mainstays of current operations with minor attention given as required. The Atlantic Planet No.7 is due for bodywork and repainting, but is waiting for another locomotive or two to become available to free it from its duties.

Another locomotive at the railway, *Rosalie*, was built in 1950 by John Fowler & Co. in England. The 0-6-0DM was built for the Isis Central Sugar Mill in Bundaberg, Queensland, which operates an extensive 610 mm gauge rail network. The loco was initially numbered D2 and painted in a cream and light blue livery, with a large front headlight. Within a few years, the loco's appearance had drastically changed; it was re-painted in a yellow livery, the headlight had moved to the front of the cab, a warning light had been placed on the top of the cab and it had a new coupling system. In 1992 the Fowler was sold to the BBR, and was transported across the country for preservation. It arrived at Mussel Pool Depot on 20 January 1992 and was restored to service with a maroon livery, differentiating it from the other locomotives at BBR. The engine received the name *Rosalie* in memory of park ranger Rosalie Heaney, who died in a rockslide whilst on a holiday in the USA.

Rosalie is similar to the 0-6-0DM Fowler operating on most days at the Walhalla Goldfields Railway in Victoria. This locomotive was built in 1951 by John Fowler & Co. and was formerly used on the State Electricity Commission of Victoria's railway at Yallourn. It was regauged from 900 mm to 762 mm while *Rosalie* was always 610 mm gauge.

The Bennett Brooklet April/May 2018

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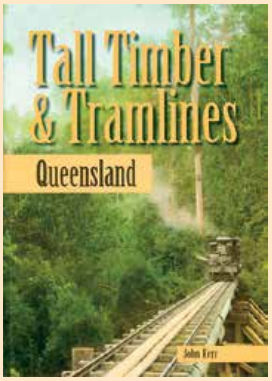

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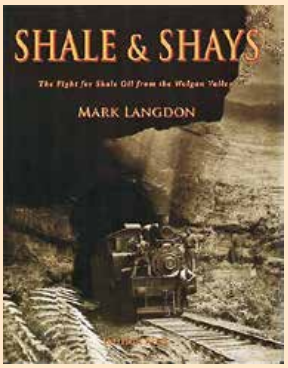

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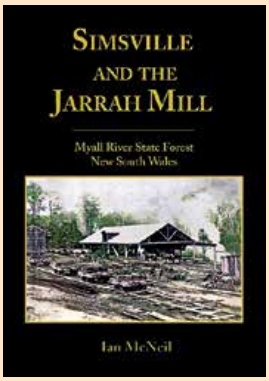

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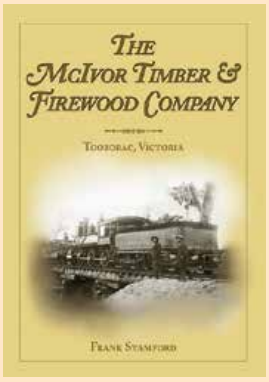

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