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Australia's Magazine of Industrial & Narrow Gauge Railways



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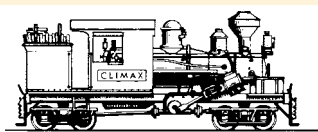
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Imperial to metric conversions:

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



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Contents

Plateways around Melbourne	3
The Buyers locomotive and its successors	16
Book Reviews	25
Industrial Railway News	26
Field Reports	30
Letters	32
Research	35
Heritage & Tourist News	37

Editorial

The main article in this edition is a good example of original research, carried out by Phil Rickard on the use of roadside plateways in early Melbourne. Whilst plateways were part of the evolution of steel railways as we know them today, their main use in Australia came after conventional railways had been introduced here.

LRRSA members Jim Longworth and Phil Rickard have done extensive research into the general subject of early railways, plateways and rutways and have presented technical papers at the Early Railways Conference in Wales in 2012 covering some of the early railways in Australia before 1855. They followed this in 2016 at the next conference, in England, where they covered the development of Australian plateways and rutways.

The article (part one, of two) in this issue is a more in-depth look at those plateways in Melbourne from 1880 onwards and puts them in the context of the rise and expansion of Melbourne, the land boom, and the 1890s Depression. To date we have not been able to find any other similar published material on this subject.

I trust that you will enjoy this fascinating subject.

On Behalf of the Editorial team and the Council of the LRRSA, I would like to take this opportunity to wish all our members, readers and contributors a very Merry Christmas and all the best for 2018. Next year promises to be another good year for those interested in light railways with another six editions of this magazine and some other publishing projects coming to fruition.

Richard Warwick

Front Cover: Few railway turntables have a more appealing setting than that of the West Coast Wilderness Railway in Queenstown, Tasmania. A white picket fence and flowering rhododendrons make for the picture perfect scene backed by towering mountains. It is a little after midday on 13 October 2012 and ex Mount Lyell Mining and Railway Company's No. 1 (Dubs and Co., 3369/1896) has just been turned and will now head back through Queenstown station to the depot. The superbly turned out 1067mm gauge 0-4-2T Abt rack locomotive has recently arrived with the North Mount Lyell disaster commemoration 'Rescue train' from Regatta Point. Originally this train ran in 1912 to bring in the rescue equipment to reach the miners trapped underground in the North Mount Lyell mine fire. Photo: Ross Mainwaring

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.

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Articles, letters and photographs of historical and current interest are welcome. Contributions should be



Plateway in Centre Road, Bentleigh, just east of the railway level crossing and station, c. 1923, looking south-west. The image, titled "Terrace of modern shops recently erected in Bentleigh", is from a real estate poster issued by H C Costello & Co, advertising the auction of the Marriott Estate, Bentleigh, in January 1925. The shops are still there today. An overhead stanchion for the then-recently electrified railway to Mordialloc is just visible at right. The railway is now below the road.

Image courtesy: State Library of Victoria

Plateways around Melbourne

Part 1 – Sarah Sands to the Sand Belt

by Phil Rickard

Preamble

During the long evolution of the railway to what we know today – flanged wheels on edge rails – several variants emerged, only to fade away. Plateways were one of those technological cul-de-sacs. Most will know of the classic British plateway, from the early 1800s, with its iron, L-shaped rails, laid on stone sleeper blocks and designed to cater for non-flanged vehicles. This article is about plateways which, rather than using purpose-built rolling stock, catered for ordinary horse-drawn road wagons and carts with plain iron or steel tyres. The plateways described herein were usually beside a road – specially laid iron or steel 'ways' which invariably incorporated some form of guidance. That act of 'guidance' effectively separates these 'ways' from ordinary roads and puts them onto the railway evolution 'tree'. The use of plateways enabled one horse to do the work of two that would be required on an ordinary paved road; or of four or more required on an unmade road, due to the reduced friction of having steel on steel.

These tracks went by various names – iron cart track, iron tramway, ironway, plateway, wheelway, tramroad, channel plate track, plate tram, steel tramway, road plates, tram plates and others. They existed in Australasia from the 1870s until the 1930s. To standardise the terminology I have called these various metal ways 'plateways'. Australian plateway tracks had some of the same features as early British plateways – a horizontal running surface and a vertical flange – though the measurements differed greatly. In addition to metal ways, there were also 'ways' made

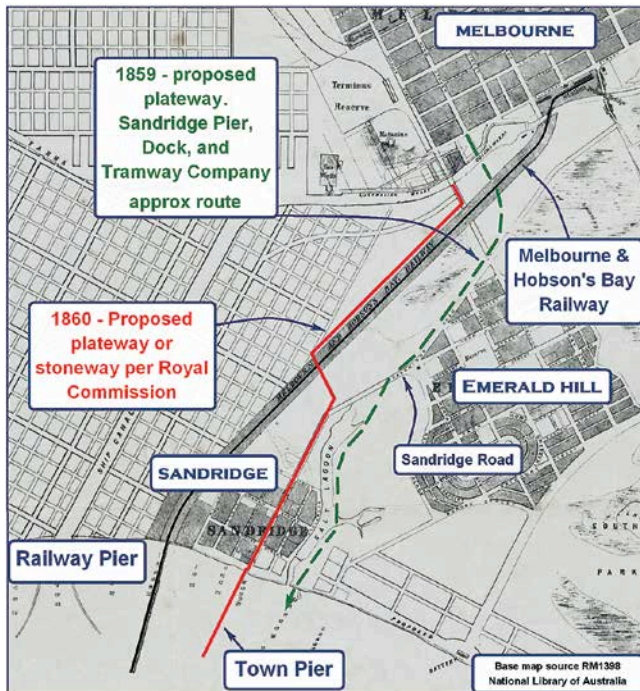
of stone that were often called 'stone tramways'. There were several proposed and at least one built near Melbourne, and for completeness it is included. To harmonise with current British practise I have referred to them as 'stoneways'.¹

Introduction

Subsequent to the demise of the 1830s convict-powered wooden 'plateways' on Tasman's Peninsula in Van Diemen's Land, the use of non-flanged vehicles running on guided 'ways' does not seem to have re-emerged in Australia until the 1870s, near the wharves in Sydney, where broad metal plates were utilised on some roads. However, it was in Victoria that the use of metal road plates reached their greatest extent. Following the discovery of gold in 1851 the new colony of Victoria grew at a great rate. In 1851 Melbourne's population was about 26,000 persons; a year later it had doubled. The 1871 census counted 207,000 persons; by 1881 it was 284,000 – 25% larger than Sydney. Ten years later, on the eve of the 1890s depression, almost half-a-million people lived there and it was often said to be the second largest city in the British Empire.* This growth, particularly during the "land boom" of the 1880s, led to a huge demand for building materials and agricultural products which in turn put an enormous strain on transport infrastructure. Roads, largely a responsibility of the various municipal councils, were consuming an increasingly large part of those councils' budgets, leading them to be receptive of ideas on how to reduce road maintenance costs.

In 1860, the Victorian government established a Royal Commission on 'Harbour Improvements and a River and Harbour Trust'. Part of its work was to examine the transport difficulties between the bay piers at Sandridge (Port Melbourne) and the City. It recommended construction of a stone or iron tramroad 'for common drays or waggons' from Town Pier to Spencer Street² i.e., either a stoneway or a plateway.

* One could debate this until the cows come home – other contenders are Glasgow and Calcutta.



The royal commissioners surely got their plateway idea from the abortive Sandridge Pier, Dock, and Tramway Company. Formed in October 1859 with great flourish, it proposed a wrought-iron double-track plateway from King Street in the City, southwards across the Yarra, the Hobson's Bay railway and the Sandridge Road to the eastern side of the Saltwater Lagoon. The company planned to dredge the lagoon, build docks, and a pier into Hobson's Bay. Total length would be about two miles. From the engineer's description the 10 in-wide plates were to have a flange $1\frac{1}{2}$ in high x $3\frac{1}{2}$ in wide and be affixed to longitudinal sleepers. A metallised horse-path was to be laid between the plates and all types of road drays, carts and wagons were permitted thereon. The project failed within six months due to a stock market slump and intense pressure from the Melbourne and Hobson's Bay Railway.³

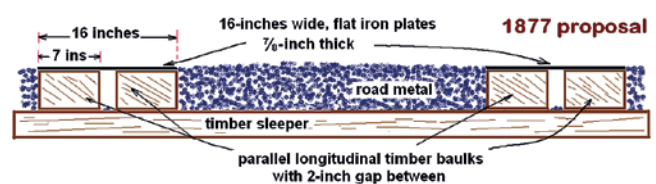
A few years later, in 1865, the Fitzroy Borough Council requested its engineer to prepare a report on the laying of a stoneway on Nicholson Street, north of Reilly St, for the conveyance of, appropriately, the stone traffic from the nearby quarries.⁴ Nothing further seems to have eventuated. Almost certainly both authorities got their inspiration from the 1829-built stoneway that was then in use along Commercial Road in London, as did the proponents of an 1872 scheme for a stoneway along Sandridge Road between the bay and the city.⁵ The London example cited was a two-mile-long double line of longitudinal granite blocks laid along the south side of Commercial Road specifically to bear the wheels of heavily-laden carts coming from the West India docks.⁶ Whilst most of that 'stone tramway' was laid in stone, there were also two sections of iron plates. Furthermore, by 1859, the section of iron track at Limehouse Weigh House had hardly deteriorated in thirty years when compared with the granite sections.⁷ Unsurprisingly, the then engineer of the Commercial Road Trust, John Baldry Redman CE, was in favour of 'iron wheelways' for heavy road traffic. This view was soon known in Australia – a number of colonial newspapers made reference to the Commercial Road stoneway.⁸ In 1867, the Central Roads Board in South Australia considered a similar stoneway at Gawler.⁹ By the 1870s the need for something similar was most pressing on the main road heading north from Melbourne.

Parkville – Sydney Road (Royal Parade)

About five kilometres north of the city, in the suburb of Brunswick, were many of Melbourne's brickworks whilst further north in Coburg were numerous stone quarries. To reach the city, large quantities of bricks, tiles, and stone had to traverse Sydney Road, the main thoroughfare. It was the city-end of that road that saw the first use of a plateway in Victoria. By the mid-1870s the condition of Sydney Road was somewhere between bad and atrocious, despite consuming more in maintenance costs than it brought in by way of tolls. In August 1875, at a meeting of council representatives from the City of Melbourne (MCC), the Shire of Brunswick and the Shire of Coburg, the MCC town clerk, Edmund FitzGibbon, suggested that 'a double line of stone tramroad' – a stoneway – might be the answer to the never-ending maintenance requirements of the road.¹⁰ The matter was referred to the Public Works Committee. FitzGibbon was a civic administrator of great ability and would certainly have recalled the earlier Fitzroy and Sandridge Road proposals. It seems likely he had also seen the stoneway along Commercial Road, London, as he had lived there for twenty years until emigrating in 1852.

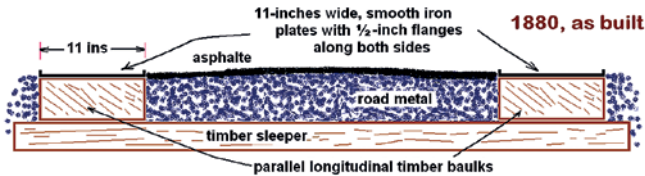
In June 1876 the city surveyor (engineer), William Watts, presented his first proposals – for a plateway rather than a stoneway. It was for a line from the municipal boundary, at a location often known as 'Sarah Sands' (after the adjacent hotel), southwards along the Sydney Road, (also, from 1878, known as Royal Parade), to Grattan Street, Haymarket, a distance of 115 chains [2.3 km]. It would be principally for the use of heavily-laden brick and stone wagons heading southwards, and thus be along the eastern side of the road. Some on council thought the cost, about £5820, too high and the plans unclear so the matter was referred back to the MCC's Public Works Committee for further investigation. The surveyor's plan called for two lines of 16 in-wide x $\frac{7}{8}$ in-thick iron plates, each plate being fixed atop of two parallel 7 in x 4 in bearers, with an air gap between; the bearers to rest on 6 in x 4 in sleepers spaced about six feet apart. A horse path composed of road metal filled up all gaps to plate level. There was no flange for guidance.¹¹

Nine months later, in March 1877 it was moved in council that estimates be prepared for "... the cost of constructing a tramway for heavy traffic, along the Sydney Road, within the city, (1st) with wheel tracks of bluestone; and (2nd) with redgum bearings, plated with iron ...".¹² By the end of the month the surveyor had revised his costings for an iron plateway down to £3820 though the actual design, which seems over-complicated, was unchanged. The cost of a stoneway of parallel bluestone blocks with a central horse-path of road metal was estimated at £2600.¹³ A month later, following further investigation, the plateway cost was revised down again, to £3080. Stone pitching of the horse path (instead of road metal) would add another £530.



For two years little was heard, though the Minister for Railways and Roads, John Woods, thought it a good idea. One suspects that the interval was used to obtain information and details of available plates from England. Finally, in late April 1879, the city surveyor presented the Public Works Committee

with three new sets of costings.¹⁴ The committee subsequently recommended to council that the 'tramway' [plateway] be constructed to the revised design and that alternate tenders be invited using the following materials; (a) iron, at an estimated cost of £3978; (b) Harcourt granite, est. cost £3264 and (c) Pentridge bluestone, est. cost £2352.¹⁵ After much discussion over several months, and following the call for various tenders, that of Strong Brothers and Lord, a local contracting firm, was accepted. It was for an iron plateway at £3058 16s 3d.



At this point council politics intervened with a vociferous minority opposing any plateway, demanding instead an asphalted roadway. For many weeks during the winter of 1879, they campaigned to overturn the decision even though Strong Brothers and Lord had signed the contract.¹⁶ Eventually the majority prevailed and the plateway proceeded; plates were duly ordered from England and preliminary works started.¹⁷ The revised design had 1/2 in-thick iron plates, 11 inches wide and affixed to the top of single longitudinal redgum bearers, held at correct spacing by redgum cross sleepers laid about four-feet apart, the woodwork being held together by wrought

iron spikes.¹⁸ The plates were smooth (without ribbing) and incorporated side flanges of about half-an-inch in height to aid guidance. The plates arrived in several shipments; actual platelaying starting around the end of March, 1880.

In early May, with a third of the plates laid, a problem was noticed – once spiked down to the timber longitudinals there was no allowance for expansion of the 16½ ft long plates. The city surveyor quickly did some investigating and £60 had to be expended on cutting slots.¹⁹ Details are lacking but the simplest way would have been to elongate the spike holes to allow some longitudinal movement. It is assumed that a gap had already been allowed between adjacent plates, as on a normal railway, for expansion in hot weather. The last shipment of plates arrived in late April and the finished track, through what is now known as Parkville, is thought to have opened in late July 1880. The Hoffman Brick Company, the largest of the Brunswick brick manufacturers, immediately directed all its drivers to use the plateway for city-bound journeys.²⁰ Nonetheless some complaints arose – omnibuses found it a much smoother ride than the rutted, metalled roadway and were said to be sometimes forcing the brick wagons back onto the road!

During the last week of both July and August, 1880, the City Surveyor arranged for a detailed traffic count on the road – both surveys being a Monday to Saturday period between 7am and 6pm. Total traffic (in and out) had increased by 86 per cent in the month following the plateway's opening, indicating that the track was attracting traffic, particularly general goods



Plateway in Dynon Road on the west side of the North Melbourne railway bridge, early 1930s. This fully pitched track with ribbed plates was laid in 1913. Some of these steel plates came from Royal Parade, Parkville where they had been laid in 1890 and some were purchased new. The murky sky is due to the adjacent North Melbourne locomotive sheds. The advertising hoarding is a harbinger of the future. A subsidiary of the Akron Tyre Company was Akron Broadcasting, founders of Melbourne radio station, 3AK in 1931. Photo: Public Record Office Victoria VPRS 12800/P3 item ADV 0899, Public Transport Corporation photographic colln

traffic, from other north-south roads. The August survey of goods traffic on the road shows 7537 wagon loads (both southbound and northbound) of which only 431 were on the 'normal' metalled roadway – the plateway carrying 7106 vehicles, or 94 percent of all goods traffic.²¹ How all this traffic (107 wagons per hour) managed on a single track is unknown – Did traffic move in convoy at particular times? – in and out having allotted times? The original intent of it being solely for southbound traffic seems to have been forgotten though that traffic surely had right-of-way if any empty northbound wagons were encountered. One thing was certain, the plateway was making life a lot easier for the hard-worked horses.²² The central horse-path was laid in asphalt but was quickly found to be too soft and in 1882 was replaced with bluestone pitchers at a cost of about £1500. By 1885 the plateway's usefulness was such that other municipalities were keen to emulate it. The MCC was also considering building another one itself – on St Kilda Road, south of the Yarra River, where both plateway and stoneway proposals were submitted to council by the surveyor.²³

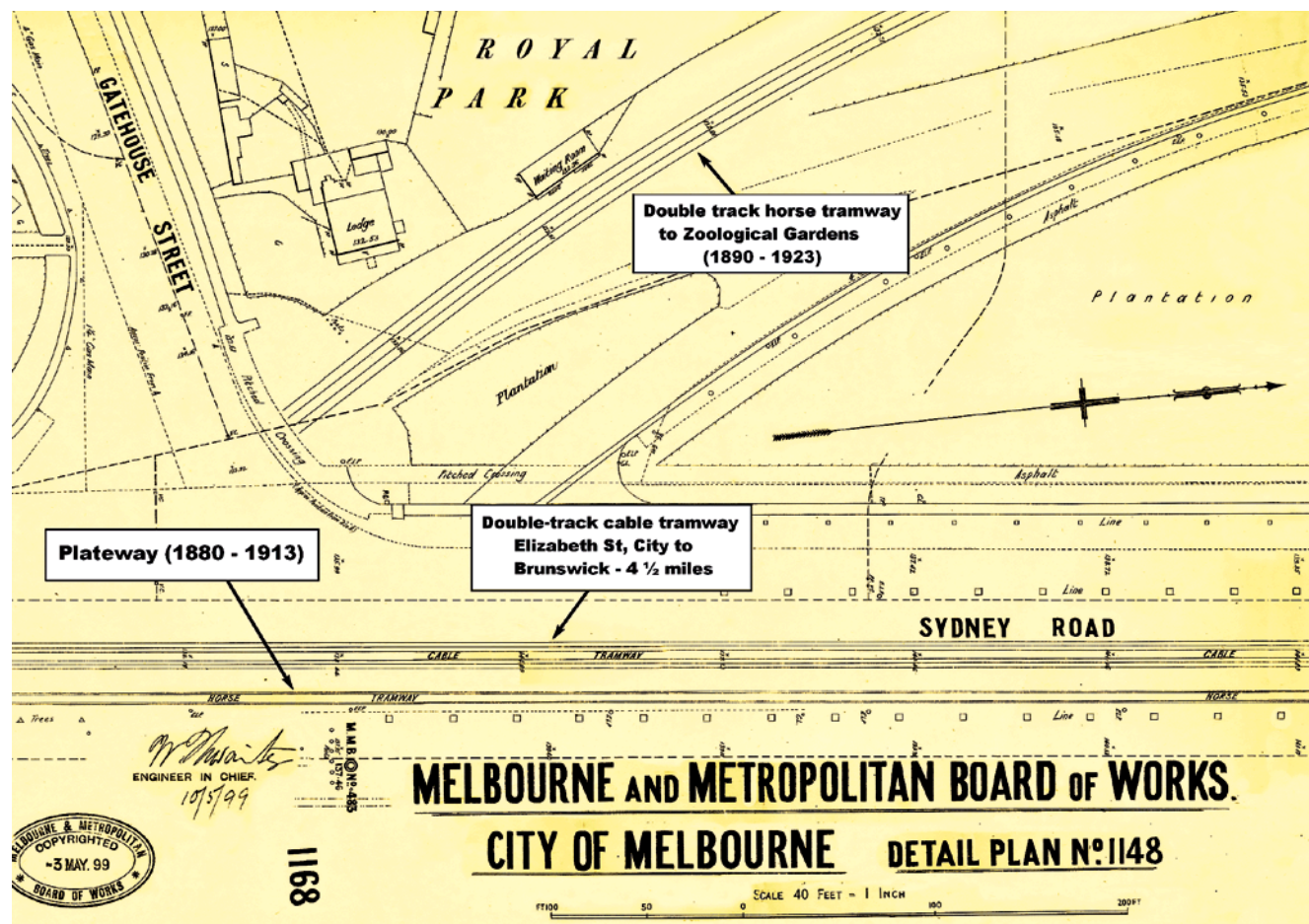
In early 1890 the MCC called tenders for new steel tram plates for the Royal Parade line.²⁴ The new plates were of a ribbed variety in lieu of the existing smooth iron plates. The cost was about £7000, a substantial increase over the original £4000, mainly due to a large increase in the price of steel.²⁵ The transverse ribs presumably gave horses some grip on the plates when they had to walk over them. The old plates were subsequently sold to St Kilda council who used them on part of the Centre Road plateway in East Bentleigh – see Point Nepean Road notes below. Some idea of the traffic along the Sydney Road can be gauged by an 1896 newspaper report that noted 62 loads of bricks passing the Sarah Sands hotel between noon and 2pm²⁶ – one imagines the reporter having a long lunch whilst doing his research! In 1887 a

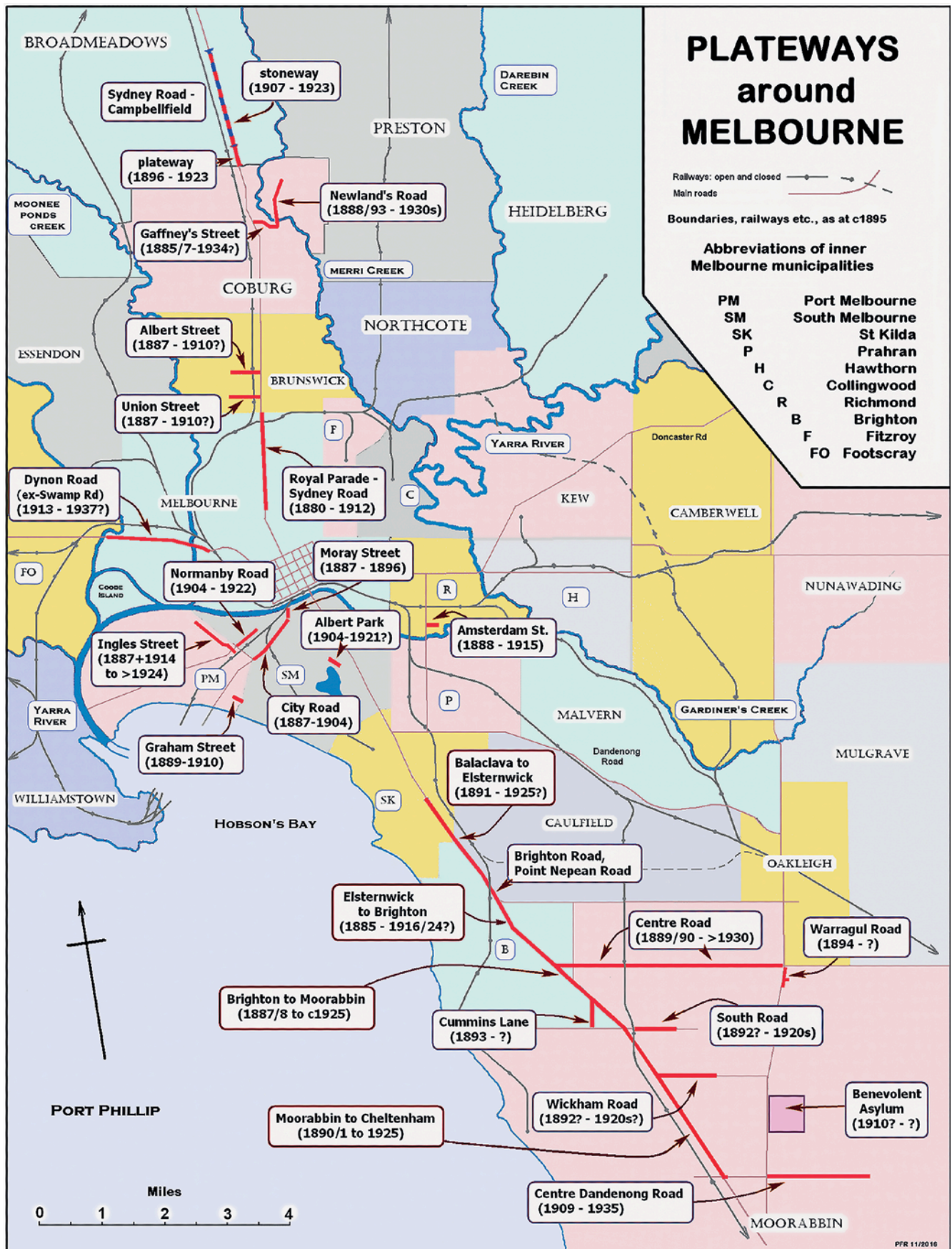
double-tracked cable tramway was constructed along the middle of Sydney Road and a picture of multiple transport systems in close proximity emerges, especially when crossing the bridge over the North Carlton railway and upon passing the terminus of the horse tram to the Zoological Gardens. Despite much searching the author has not been able to locate any photos depicting these interesting locations, however excerpts from a Melbourne & Metropolitan Board of Works (MMBW) plan is attached to show the layout.

By 1910 the traffic patterns along Sydney Road had changed – there was now little brick traffic but much more general traffic, including motor vehicles, plus cable trams every minute. The steel plates were showing their age and most councillors wished to remove the plateway and replace it with wood blocks to provide a wider carriageway. Following much council discussion the plateway was removed, most likely in 1912, and the plates re-laid along Dynon Road in 1913 to provide one of the two plateways on that thoroughfare – for details see section 'West Melbourne - Dynon Road' in a future part of this article.

Point Nepean Road system

As well as the increase in brick traffic on the Sydney Road, the rapid expansion of Melbourne in the 1870s and 1880s also caused growing pains to the south of the Yarra River. There, the demise of market gardens close to the city was evident as the suburbs started their inexorable sprawl. Yet, conversely, with the population rapidly growing there was an urgent need for more market gardens. Lying some 15 to 25 kilometres south-east of the city is a large, flat to gently undulating area characterised by deep soils of a sandy loam nature. In the 1830s it was considered as 'the wastelands' but by the mid-1840s supported some pastoral, agricultural and viticultural pursuits – albeit on the areas closer to Melbourne – like Brighton!





By the 1930s it was being referred to as 'the sand belt', a name that has stuck to this day. In the 1880s this area fell largely within the Shire of Moorabbin – formed in 1871 from the old Moorabbin Roads Board – and was soon to become home to vast acreages of market gardens, poultry farms and small holdings.

The shire's primitive roads were not equipped for the movement

of market drays, being dusty in summer, muddy in winter and invariably deeply rutted. The traffic was not all heavy dray-loads of vegetables heading north to the City markets – heading south every night were increasing numbers of horse-drawn wagons heavily loaded with iron tanks containing night-soil. Most of this traffic was along the Point Nepean Road which traversed several

municipalities including St Kilda, Brighton and Caulfield before reaching Moorabbin. The colonial government gave little assistance for roads apart from occasional special grants – local shires were expected to maintain roads from local rates, a near impossible task, made harder following the abolition of toll gates. The success of the Melbourne City Council's iron plateway along Sydney Road did not go unnoticed and soon led the four councils to propose that such a solution would also work on their much abused outer suburban and semi-rural roads. Ultimately this led to the largest system of such plateways in Australia, extending alongside some 24 km of 'roads' through the sand belt.

Point Nepean Road

Along its route from Melbourne to Moorabbin the Point Nepean Road undergoes several name changes. Known generally today as the Nepean Highway, in the 1880s it was, successively from the city, St Kilda Road, High Street, Brighton Road, Arthur's Seat Road and Point Nepean Road. In early 1883 the Moorabbin Shire requested other councils along the road to join with it and build a plateway similar to that on Sydney Road, each council to construct the section within its own boundary.²⁷ The first section to come to fruition was that passing through the Brighton municipality. During 1884 planning by that shire for a steel (rather than iron) plateway commenced. Active lobbying of the government by the Brighton mayor (Thomas Bent[†]), resulted in Brighton securing a government grant of £800 to supplement the funds from a municipal loan it had raised.²⁸ In late July 1884, tenders were called by the Town of Brighton for 200 tons of tram plates for the first section of line along the Brighton Road in the suburbs of Elsternwick and Brighton.²⁹ Construction started towards the year's end on the formation, almost three kilometre long, by well-known contractor David Munro and Company. The actual plates, 1148 of them, arrived from England in late January 1885.³⁰ The line was opened on the 23 March with some fanfare.³¹ Cost of construction was £2408 per mile – a figure that would be reduced on subsequent lines. Only a single-line track was laid, on the eastern side of the existing roadway, commencing from the municipality's northern boundary at Glen Huntly Road, Elsternwick, and heading south, probably to Union Street.

This first stretch proved successful and soon the surrounding councils were emulating Brighton, which also extended its own line further southwards. Some 6½ km of Point Nepean Road was in Brighton municipality or jointly shared with neighbouring councils. Within a short period the plateway had been extended the full distance to Brighton's south-eastern corner, at South Road, South Brighton (today's Moorabbin). In April 1888, the Borough of St Kilda, to the north of Brighton, floated a large loan, £3225 of which was

† Bent (1838 – 1909). In addition to being mayor of Brighton, was also chairman of the Moorabbin shire and the local MP, all concurrently. In his earlier days he had been a market gardener and was fully cognisant of their plight. The suburb of Bentleigh is named after him.

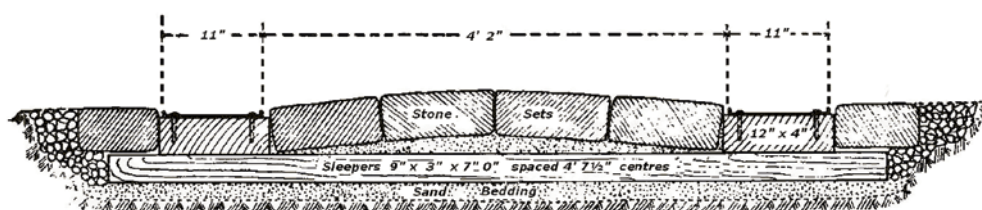
earmarked for a 'steel tram'. Events there moved slowly but eventually, in late 1890, St Kilda ordered 100 tons of tram plates from Britain (as part of a joint shipment with the City of Melbourne). Cost of the plates was £1472 11s 9d.³² The tender for construction was awarded to Charles Hamilton, a local contractor, for £1506.³³ When received the plates were used on Brighton Road, from Grosvenor Street, Balaclava to Glen Huntly Road, Elsternwick (1.4 km) where they met the Town of Brighton's tracks. Interestingly, at Glen Huntly Road, the boundaries of three municipalities converged and in the event it seems that 2½ chains [50.3 m] of track had to be jointly constructed with the Shire of Caulfield to make a complete connection.³⁴

St Kilda had its tracks fully pitched with bluestone pitchers laid either side of, and between the tracks, thus greatly reducing future maintenance.³⁵ It seems that full pitching allowed them to use flangeless plates, recessed half-an-inch below the pitchers, creating a guiding channel. Further south, in Brighton, Caulfield and Moorabbin, flanged plates were used. In Brighton, some plates were similarly recessed, but also had a flange, of minimal size. Initially, some Brighton track was not pitched but maintenance issues led to part-pitching in the 1890s – that is, bluestone pitchers were added on the western side of the respective lines of plates whilst the centre pathway was 'metalled'. In rural Moorabbin, with funds always scarce, it was usual to have 'road metal' – crushed stone – alongside and between the steel plates. Whatever the external appearance, the actual construction started with seven-foot-long transverse redgum sleepers, laid about 4 ft 6 in apart, onto which longitudinal wooden baulks were fixed. Lastly, the steel plates, eleven inches wide and ¾ in thick, were spiked to the upper face of the longitudinals. Plate length seems to have been variable – mention has been found of nine feet, 18 feet and 22 feet plates; presumably sleeper spacing was adjusted accordingly so that plate ends abutted above a sleeper. The plates were positioned at a 'gauge' that permitted vehicles with a distance between their wheels from around 4 ft 6 in to 5 ft 8 in. Market gardeners' wagons, needing to negotiate the streets of Melbourne, were of a smaller size than the large wool wagons typically seen in rural areas and were closer to the lesser gauge mentioned. Plates generally cost from £10 10s to £13 per ton; James McEwan & Co., ironmongers of Melbourne, being the principal local importing agent pre-1900. The actual manufacturers of these early plates, apart from a shipment for South Melbourne, are not known, but were certainly British.

Centre Road and others

In Moorabbin that shire raised a loan in mid-1885 which included £3800 for its Point Nepean Road plateway and £1425 for the Centre Road plateway.³⁶ In August 1885, tenders were called for 240 tons of 'tram plates' with the condition that they 'must be rolled in the colony'.³⁷ Council must have quickly realised the impossibility of this, calling new tenders a month later.³⁸ The following February, with

Cross section of steel plateway as laid along Point Nepean Road within Brighton municipality. Image from Australasian Roads: A Treatise, etc., by JM & HE & JM jnr. Coane, 1908. John Montgomery Coane snr. was consulting engineer for Brighton from 1899 to 1921.





At the corner of Centre Road and Jasper Road, Bentleigh. A wagon, probably loaded with bran or chaff, is being unloaded outside J L Smith's produce store. It is facing east and has almost certainly just arrived from Bentleigh railway siding and would have reached the store along the plateway in the foreground. Photo: Vic Smith, courtesy Helen Stanley

the plates to hand, tenders were called for the construction of 122 chains [2.45 km] of plateway on Point Nepean Road.³⁹ The Centre Road works, initially isolated from the Point Nepean Road system, started from the Brighton/Moorabbin boundary at Thomas Street. Heading eastward along Centre Road, the line crossed the Mordialloc railway at East Brighton (today's Bentleigh) station. Continuing over Jasper Road, it reached East Boundary Road in 1890. A further eastward extension to McGuinness Road is thought to have been made the following year.⁴⁰ By this time around £6000 had been expended on almost five kilometres of steel tram in Centre Road. The Town of Brighton finally built the missing 400 metres, possibly in 1893, to connect the Centre Road line to the Point Nepean Road line.

Further south, in 1890-91, the Moorabbin council was extending the Point Nepean Road line from South Road to Centre Dandenong Road (Cheltenham), a distance in excess of 4½ kilometres. The period 1885 to 1893 was the 'plateway boom' on the sand belt – a period that ended with the deepening of the 1890s depression. In the early 1890s South Road (about a kilometre), Cheltenham Road (Wickham Road East from 1915, about 1½ km) and probably Cummins Road (500 m) all received steel plateways. Plans were also made to lay a plateway at the northern end of Bluff Road but were rebuffed by ratepayers. Fragmentary snippets also suggest that North Road, which was the boundary road between Moorabbin and Caulfield Shires, received a short stretch of plateway. In 1889 Moorabbin approached its northern neighbour to jointly construct about half-a-mile of plateway along North Road at "Reid's Hill" (exact location unknown).⁴¹ Caulfield declined to assist but despite this it seems Moorabbin may have proceeded alone as several council resolutions refer to providing road metal for the 'North Road tram'.

It is thought the Cummins Road steel track was completed in early 1893, even as Moorabbin council's finances were being severely ravished by the economic depression. Though not actually in the Moorabbin Shire Cummins Road was less than a kilometre from that shire's headquarters; it ran between the Point Nepean Road and South Road, across a far-flung corner of Brighton's territory. So desperate were the market gardeners and residents in the area to get a plateway, they subscribed £62 10s to assist the Brighton and Moorabbin councils who jointly financed the track.⁴² By 1896 the Moorabbin Shire had 107 miles of normal metalled roads in various conditions of which just over ten miles of

the heaviest trafficked roads had a plateway on which some £19,000 had been expended.⁴³ It was also in considerable debt – the depression had slashed property valuations, from £157,586 in 1892 to just £57,620 by 1898. This resulted in a huge decrease in council rate revenue – from £16,635 in 1891 to £7946 four years later – and a plea to the Victorian government for assistance. Despite many delegations to the government such pleas, extending over many years, usually fell on deaf ears, though the reclassification of Moorabbin from a first-class shire to a second-class shire saw some increase in government assistance. In 1901, taking advantage of the *Municipalities' Loans Extension Act* 1898, Moorabbin negotiated lengthy extensions of up to 20 years for several plateway-related loans.⁴⁴ The formation of the Country Roads Board (CRB) in 1913 did little to help Moorabbin as it was not classified as 'country', thus only receiving funds from the CRB at its discretion. Even by the mid-1920s, whilst most of the Point Nepean Road north and south of Moorabbin was in a fair condition, the same could not always be said for that within the shire – this sometimes led to road crashes with injuries and fatalities.⁴⁵

Nightsoil traffic

As previously mentioned, large amounts of nightsoil were transported to the Moorabbin area from the inner suburbs. The sanitary 'industry' south of the Yarra quickly found that the steel plateways were a good way of shifting its heavy loads more cheaply over longer distances to market gardens in the 'sand belt' where it could be sold or dumped. Over time the transportation and use of nightsoil was subject to increasing regulation until it was banned from being used to fertilise market gardens. Various nightsoil contractors opened depôts within Moorabbin shire for the trenching (burying) of the material. In the early 1890s it was reckoned that about 430 tons of the malodorous material was transported southwards each week with the night-carts often being the main traffic on the plateway, to the detriment of the market gardeners for whom it had been mainly intended. Moorabbin also regulated the hours during which nightsoil could be transported although this was subject to challenges in court.

In 1894 an inter-council agreement was made between the City of St Kilda and the Shire of Moorabbin whereby St Kilda contributed three-sevenths of the cost for extending the Centre Road plateway, so that St Kilda's nightcarts could reach that council's nightsoil depôt situated off Warrigal Road, south of Centre Road. About 30 chains [600 m] of new plateway was required to reach the road near the depôt which was situated on land leased from Mr A Basto.⁴⁶ To offset the cost further, Moorabbin asked the adjacent Borough of Oakleigh to pay for some of the cost of the extended line which clearly was also of great use to that borough's market gardeners – in due course some £161 was forthcoming.⁴⁷ A request for a contribution from Prahran council, whose contractors also used the road, was refused.

Included in St Kilda's contribution to the final extension of the Centre Road track was 30 tons of second-hand tram plates, purchased from the MCC at £2 10s per ton.⁴⁸ Allegedly these plates had previously been used in Sydney Road. That being the case, the plates must have been the original iron plates dating from 1879, that the MCC had replaced with steel plates in 1891, and put up for sale in October 1892. This would account for the cheap price. In June 1894, the tender for the Centre Road extension was awarded to Grant and Sons, at £236 5s 10d and the work duly carried out. The actual St Kilda nightsoil contract was held by Messrs Turner,

Williams and Nance. Six years later, with the lane into the East Bentleigh sanitary depôt being almost impassable, the current contractor, Mrs Elizabeth Williams (trading as the Australian Sanitary Engineering Co.) asked council for a loan of some tram plates that had been lying unused in the council's yard for many years. Some ten tons of plates were identified, the remains one presumes from St Kilda's plateway along Brighton Road, and sufficient for at least 160 yards of plateway. The plates, which had originally cost £12 10s per ton were duly leased to Mrs Williams.⁴⁹

The hours of nightsoil transit through the Moorabbin shire were severely restricted – sometimes one could see a row of nightcarts lined up at the shire's western boundary in Centre Road awaiting for 11pm to arrive! This traffic continued (officially) until the building of sewers in the inner southern suburbs in the late 1890s and early 1900s by the recently formed MMBW. Another odorous traffic that continued until the 1920s, when motor vehicle use became widespread,

was the transport of, mainly, stable manure derived from the thousands of horses that frequented the City and inner southern suburbs. The manure, often mixed with straw, was used by the market gardeners for improving the fertility of the sandy loam soils. The St Kilda nightsoil depôt extension was almost certainly the last track built during the plateway boom; henceforth the task was maintaining and repairing the steel plateways.

The tracks, accidents and maintenance

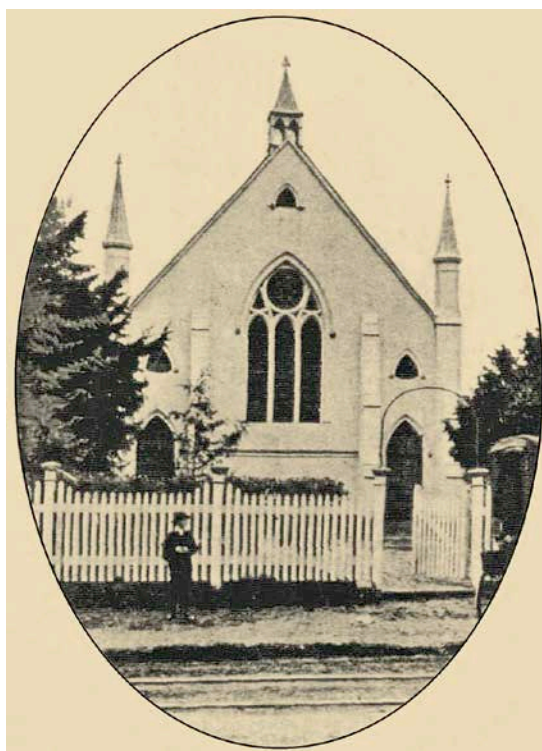
As previously alluded, there were two forms of track in use around Melbourne – unflanged and flanged. The Point Nepean Road system (apart from the St Kilda stretch) was built using flanged plates, albeit of differing types, over the years. We can be sure of this, as in 1896 the South Melbourne council offered Moorabbin some tram plates lifted from Moray Street. Following inspection by the Moorabbin engineer, he reported to council that the plates were without flanges and thus they were worthless for Moorabbin's requirements.⁵⁰ Clearly, South Melbourne was using flat plates, probably recessed an inch below the adjacent bluestone pitchers which acted as the flange. As Moorabbin did not use track set in bluestone pitchers, it required plates with a raised lip – about an inch along both edges of the plates was sufficient to keep the wheels in alignment provided the horse plodded in a straight line. It was not unknown for the drivers heading home to fall asleep at the reins, while the horse ambled onwards. This practice of being 'asleep at the reins' was noticed from the earliest years of the plateways – in November 1887 a driver received a severe lecture plus a £1 fine in the Caulfield court where the Bench said the dangerous practice must cease before a serious accident happened!⁵¹ Another hazard of falling asleep was the risk of robbery – in October 1891 Henry Follett, a market gardener from Mordialloc, was robbed of his watch and chain on Brighton Road.⁵²

Alas, in early February 1896, another Mordialloc market gardener, Edward Hawkes, paid the ultimate price. In the early hours one morning whilst *en route* to market Hawkes fell asleep whilst passing through South Brighton, and was killed. It was surmised from his injuries that, in falling from his wagon, he was kicked by his horse and then run over by the wagon wheels. Hawkes, aged 36, had been at work since 4 a.m. the previous day and had left home at about mid-night, heading to the City.⁵³ Just three years later, in February 1899, one Richard Wilcox, a market gardener from King's Swamp, beyond Cheltenham, fell off his homeward-bound wagon-load of manure near the South Brighton (now Moorabbin) railway station. His head struck the tram plates and a wheel passed over his body severely injuring him.⁵⁴

Eighteen years later there were two fatalities within a few months along Point Nepean Road. In both cases homeward-bound drivers fell asleep at the reins and were then jolted off their wagons, falling onto the track and being

run over by their wagons. The first was in late June, 1917, near Garden Vale and involved one George Prior of Centre Road, Bentleigh. Then in November, Patrick 'Paddy' O'Connor, a labourer employed by Bentleigh market gardener Mr P Malane, died whilst hauling a load of stable manure. Both fatalities seem to have occurred due to either mis-aligned or missing tram plates causing severe jolting of the wagon. This prompted renewed calls by some Brighton and Caulfield residents for the removal of the 'market gardeners' tracks', contending that if there was no plateway the market gardeners would not go to sleep as they would have to stay awake to maintain proper control of their horses!⁵⁵ Seven years later, in January 1925, a motor car overturned when one of its wheels got caught in a deep rut beside the raised edge of a rail. Two passengers were killed.

Common problems encountered with the plateways were the deterioration of the buried wooden sleepers and longitudinal baulks, the loss of the metal horse path as it was pounded into the ground, ruts beside the plates where carts and wagons had left the plates or rejoined when passing and the lifting and mis-alignment of the plates' ends when the spikes worked loose. When wagons wished to pass in opposing directions one wagon had to move off the plates, which sometimes resulted in the wheels becoming stuck in the rutted road surface. Getting back onto the plates could be difficult, even resulting in a broken axle. To try and alleviate this, Brighton council set a row of bluestone pitchers on the western side of each rail and spread a good depth of road metal between the plates. Interfering with local surface water drainage patterns was another complaint levelled at the plateways. Due to their channel-like construction the plates often acted as water courses in wet weather. Plateways crossed the Mordialloc railway line twice – Centre Road at East Brighton and Point Nepean Road at South Brighton. In 1894 the Victorian Railways' (VR)




Taken from the south side of Cheltenham Road, South Brighton (today's Wickham Road, Moorabbin), showing the plateway outside the Wesleyan Church. Photo: Australasian, 25 August 1906. State Library of Victoria

Engineer of Existing Lines wrote to the Moorabbin council for authority to remove one length of tram plate at each crossing. At East Brighton the plateway was badly laid and a danger to the railway,⁵⁶ whilst at South Brighton the plateway was channeling rainwater onto the railway line,⁵⁷ to the detriment of the track bed. In both cases the VR wanted to substitute the plates with bluestone pitching and this was subsequently done.

Final extension – Bochum Union plates

Following the 1890s depression it would be many years before further construction occurred, though not for want of trying. The market gardeners along Centre Dandenong Road, east of Cheltenham, started campaigning in the mid-90s for a steel plateway – the cost then reckoned at over £5300 or about £1700 per mile. The plates alone would cost £800 per mile.⁵⁸ As the rates collected from those living along the road would not even cover half the cost of the loan interest, nothing eventuated. Ten years later, the road was so bad that many wagons required two horses to get them to the existing plateway at Point Nepean Road. In late 1906 renewed moves were made to get a steel plateway along at least a one-mile length of the road, east of Moorabbin Road, when residents formed a ‘tram extension committee’. It was believed that council would fund £1400 by the raising of a loan if the ratepayers came up with £200; at its initial meeting the committee gathered £83 in subscriptions.⁵⁹ Within a

fortnight the ratepayers had raised £202 10s including some from market gardeners within Dandenong Shire, further east along the road.⁶⁰ In the event there were delays in obtaining the municipal loan monies, fortuitously as it happened. In early 1907 the Moorabbin shire’s engineer, Alexander C Smith, made exhaustive enquiries of other types of track and became aware of a German ‘road rail’ that didn’t require any supporting timbers. The rail, of ‘’ shape, with a small flange, was filled with concrete and laid in two parallel trenches on a bed of road metal.⁶¹

The patented design of steel road rail (German patent 148,425), offered through the local agency of Lohmann & Co. (and later Diercks & Co.) is characterised by its strength and durability and, importantly, was cheaper, enabling a greater length of line for the available funds. In July 1907 the council decided to test the maker’s seven-inch-wide plates and proceeded to order from Lohmann enough to lay a two-chain [40 m] length of track. These flanged plates arrived in early October and following much discussion it was decided to lay them in ... Centre Dandenong Road!⁶² This was done in early December, outside Keighran’s Cheltenham Hotel, on the north-eastern corner of Point Nepean Road and Centre Dandenong Road.⁶³ In January 1908 council enquired from Lohmanns the possibility of obtaining a wider plate – seven inches being found a little narrow. Lohmanns advised that 11-inch plates – the width of the council’s existing plateways – would cost about 40 per cent more. The seven-inch plates were duly ordered, enough to make about 1½ miles using the available funds, the cost being £855 per mile, plus 2½% tariff duty payable to the federal government.⁶⁴

By mid-1908 matters had not progressed and residents were getting agitated as another winter of near-impassable road loomed. The delay was a hold-up in getting the new loan floated – this did not occur until August.⁶⁵ The tram plates arrived from Germany in early 1909 and by late January were being unloaded at Cheltenham railway siding. Construction proceeded over the next six months, along the northern side of Centre Dandenong Road, from just east of the Moorabbin Road corner, heading eastwards. Recognising that this was the first usage of this new plate rail in Australia, the council held back two pieces, to be laid on opening day, set for 9 August 1909. Under the supervision of the engineer, A C Smith, and the interested gaze of a number of municipal dignitaries from surrounding shires, the last two pieces of rail were filled with concrete, placed in position and fish-plated together. They were set to a plateway gauge of 4 ft 6 ins, inside to inside of a normal market gardener’s wagon wheels. Total cost was £1700.⁶⁶ The State government reneged on an earlier implied promise of £200 in assistance, and granted just £75 – upon the news of which one councillor exclaimed “Could they spare it?”⁶⁷ Existing 11-inch flanged plates continued in use elsewhere.^{68 69}

The new track, of Bessemer steel, was manufactured in Germany by Bochumer Verein (Bochum Union) and was utilised by a number of German municipalities and businesses. Known as ‘Fuhrwerksbahnen’ (waggon cart tracks), they were usually laid in cobblestone roadways.[‡] In 1910 Mr Detlef Diercks, of Diercks & Co., claimed that around 250 miles had been laid in Europe, though the Bochum Union catalogue states 250 km!⁷⁰ The rail was hollow, 3/8-inch thick, in 33 ft (10 metre) lengths and had a running surface width of seven inches plus a 10 mm (approx 3/8-inch) flange along one side. Before being laid each rail weighed

‡ In some respects they are not dis-similar to the ‘step rails’ introduced in New York streets around 1860. The step rails accommodated ordinary road traffic on an 8”-wide flat plate AND tramcars on a 1in-high, 1½in-wide flange. See bibliography – D Kinnear Clark

LOHMANN & Co.

493 Collins Street, Melbourne.



Patent Steel Road Rails

As Supplied to the Moorabbin Shire Council.

Chief Advantages:

- Greater Durability.**
- Less Cost in Maintenance.**
- Great Saving in First Cost.**



Full Particulars and Estimates on application to
SOLE AGENTS FOR AUSTRALASIA:
LOHMANN & CO.

Lohmann & Company’s Australian advertisement for Bochum Union’s plateway track. The rails were marketed in Germany as Fuhrwerksbahnen and over 250km were said to have been laid. Image: Australasian Roads: A Treatise, etc. (op cit)

Page from the Bochum Union's English-language catalogue extolling the usage of their road plate rails for carts and wagons. Bochum Union's experiments with such rails dated from 1889 when they were tried in the coastal areas of the State of Hannover where good road stone was lacking. Image: Bochumer Verein catalogue No. XV c1908, Miller and Co (Machinery) Pty Limited colln, University of Melbourne Archives.



about four hundredweight [200 kg]. When being laid in the prepared trench the hollow was filled with concrete, resulting in a dead weight of over half a ton per rail and making them immovable. The rails were connected by four-hole bolted fishplates, which fastened them top and bottom and from side to side.⁷¹ When properly laid they could safely be used with up to five tons axle load – more than adequate for market gardeners' waggons.

This new Bochum Union track was much cheaper – £1300 per mile, fully laid – than the existing track which was generally reckoned at about £2000 per mile.⁷² This new mode of plateway was subsequently used in South Australia (on the Port Road, Port Adelaide and Edithburgh, Yorke Peninsula) and in New Zealand by the Cook County Council, in Gisborne, on the North Island where it catered for heavy brick traffic.⁷³ In November 1909, two members of the Port Adelaide council travelled to Cheltenham to examine the new Bochum Union track and subsequently reported favourably on its use.⁷⁴ The surface width of seven inches compared with eleven inches of most older plates and required drivers to be more attentive to keep their horse on a central path.

Benevolent Asylum plateways

In mid-1906, also in the Cheltenham area, an interesting proposal was made by the Melbourne Benevolent Asylum. The previous year the asylum had obtained land in Moorabbin Road (now Warrigal Rd) for its new establishment, to replace the existing over-crowded site in North Melbourne. The asylum committee proposed a 5 ft 3 in-gauge roadside tramway from Cheltenham station to the asylum, a distance of three kilometres, using horses to haul VR trucks – coal and potatoes were seen as likely goods. Ex-VR sleepers were arranged and the asylum committee proposed that the council could also use the sleepers to lay a steel plateway for the road traffic – whether this was to be laid beside or astride the tram rails is not clearly stated. In the event neither the plateway nor the horse-drawn railway was built – the VR wanted £500 for the connection plus 2s 6d per truck moved over the tramway.⁷⁵

By February 1907, the asylum committee abandoned the roadside tramway option in the face of some opposition from

the Moorabbin shire council and the cost demanded by the VR. Subsequently, the asylum's main building contractor (C Wade & Company) had more success and built a steam-powered 2 ft-gauge tramway from the station yard, eastwards along Tulip Street and Centre Dandenong Road, then northwards along Moorabbin Road. This was used for the duration of the construction – July 1908 to November 1910. A crossing of the new Centre Dandenong Road plateway was avoided as that was laid eastwards from near the corner of Moorabbin Road. Nonetheless the two lines must have been in close proximity at the corner but no photograph showing them has emerged.

Sometime in late 1910, as the asylum buildings neared completion, the asylum committee purchased some 70 plateway plates with a view to laying them from the lodge gates to the boiler house. Alexander Smith, the shire engineer, was engaged to oversee the construction.⁷⁶ Since 1905 the committee had observed the traffic on the various plateways in the shire and were favourably impressed.⁷⁷ Despite this it would seem that the work was not immediately done as in February 1912 the Moorabbin shire was investigating whether to try and purchase the plates from the asylum.⁷⁸ Six months later, in August, ratepayers in Warrigal Road, in the far north-east of the shire, wanted the Centre Road plateway extended southwards from the existing terminus, some quarter-mile to Fitzgerald's bone mills, near the corner of Old Dandenong Road. The shire again asked the asylum at what price they would sell its tram plates and again nothing seems to have transpired.

In 1915, the asylum purchased more tram plates – enough for 4½ chains [90 m] of plateway. These were Bochum Union rails of the same type as the Moorabbin shire had laid in Centre Dandenong Road and which Diercks & Co had remaining in store upon the outbreak of the Great War. Having failed to sell them at a discounted price to Port Melbourne council (who rejected them as they were of German manufacture), Diercks sold them to the asylum who, presumably, had no such qualms. It seems the asylum had actually laid its 1910 shipment and were now planning to lay further track. One can assume the asylum had a heavily-trafficked internal road in mind when it purchased these plates.

In early 1916 the Moorabbin council became aware that the asylum had some Bochum Union plates and tried to negotiate a price, to no avail. By mid-1917 the condition of Tulip Street, between the Cheltenham railway station and Point Nepean Road was in an atrocious condition and it was suggested that 4½ chains [90 m] of plateway would solve the problem. Coincidentally, that was the length of Bochum Union plates lying unused, at the asylum. The asylum committee now indicated it would sell the plates for £12 10s, the same it had paid.⁷⁹ In the event, the shire engineer decided it was cheaper to fix the drainage in Tulip Street to alleviate the problem and the plates remained at the benevolent asylum. The fate of all the asylum's plates is unknown to the author.

Centre Dandenong Road again

Within four years of the opening of the shire's plateway in Centre Dandenong Road there were calls for it to be extended, to fill the gap between Point Nepean Road and just past the Moorabbin Road corner, a distance of three-quarters of a mile. That stretch had not previously been done as the road was in a better condition than that further eastwards, however it would seem that the plateway along the middle section of the road was now attracting traffic from further east and thus now causing damage to the 'good' stretch! It was also proposed to extend the existing track eastwards to the Dandenong border. In mid-1913 proponents from the Heatherton Progress League 'did the rounds' of the local residents along the road, both in Moorabbin shire and Dandenong shire to 'test their pockets'.⁸⁰ Despite considerable support Council seemed to be ambivalent, possibly worried about having to raise yet another 'steel tram' loan.

Plateway supporters advanced a novel idea to reduce costs of a future extension – using second-hand rails from the VR, turned upside down and laid in pairs in each of two parallel beds of concrete. The shire engineer did some investigation and found that a running surface of about 9½ inches would thus be obtained for each track. He advised that by using rails of either 60 lb or 75 lb per yard, available at a cost of around £4 7s 6d per ton, a plateway similar to the present Centre Dandenong Road track could be laid for £13 3s per chain [20m].⁸¹ In the event nothing seems to have eventuated – for several reasons. In late October 1913 the newly-formed Country Roads Board declared the road a 'main road' and intimated that it would fund

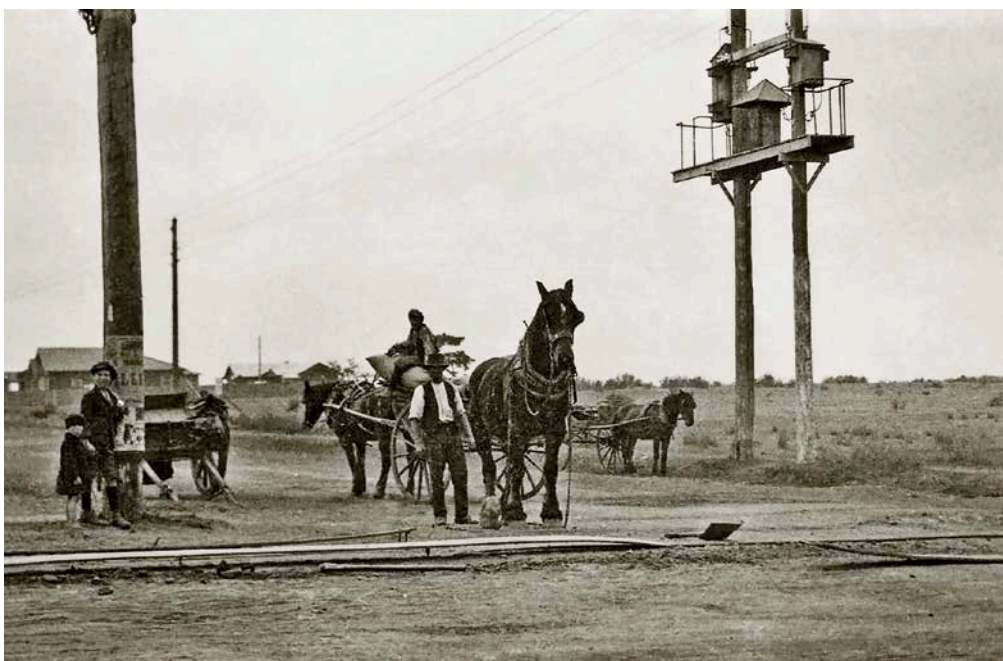
some maintenance. Council promptly asked the CRB whether it would consider extending the plateway right through to Dandenong – a proposal that seems to have received some consideration.⁸² Certainly some of the CRB maintenance funds were specifically earmarked for the 'steel tramway' in addition to the actual road. Then, in August 1914, the Great War started, effectively ending any further extensions to the network.

Removal

With the gradual increase in motor car traffic the calls soon started for the removal of the plateways. In mid-1914, virtually concurrent with plans in Moorabbin to lay more plateways, the Town of Brighton planned the first removal of any of the Point Nepean Road system, between Bay and Union Streets, Brighton (about 240 metres) though due to a funding mix-up it is thought the works occurred in mid-1916.⁸³ From 1916 the Garden Vale Progress Association was at the forefront of calls for removal of the plates. In October 1917, another section, from Bay Street to North Road – a distance of about 800 metres, was funded to allow plate removal and road restitution.⁸⁴ The next section earmarked to go was from North Road to Glen Huntly Road – almost two kilometres. As this section paralleled the Caulfield municipality, discussion between the two councils took place in mid-1918 to settle various details, though when the actual removal took place is not known – it was still there in January 1919.⁸⁵ Moorabbin shire, on behalf of its market gardeners, protested but it was fighting off the inevitable.⁸⁶

It is worth noting that Brighton's road-making programme was much in advance of many other councils, due in no small part to being a much wealthier council than most, plus the advanced road-making practised in that municipality under the eminent civil engineer John Montgomery Coane.⁵ Post-war and into the 1920s, with increasing motor traffic, accidents involving the plateways and wagons thereon were rising, particularly on the Point Nepean Road. Much of that traffic was associated with the rapid growth in holiday and leisure traffic which used that road to reach the Mornington Peninsula – a favoured holiday destination.

§ Coane, with his two sons, wrote the first comprehensive handbook on Australian road construction, maintenance and administration, (*Australasian Roads*) which ran to five editions between 1908 and 1937.



During 1927 the plates were removed at several cross-roads along Centre Road due to their interference with traffic on the main intersecting roads. The Age of 6 August 1927 reported that the Moorabbin council had authorised the plates' removal at (East) Boundary Road and Tucker Road, with further to follow. This photo shows the removal at Jasper Road. Photo: Vic Smith, courtesy Helen Stanley

Wagon loaded with approximately 35 dozen cauliflowers (weighing around $\frac{3}{4}$ of a ton), ready to depart from Vic Peterson's market garden in East Boundary Road, East Bentleigh. Their route to Melbourne will be along the Centre Road plateway and then the Point Nepean Road plateway. Photo: Peterson family, courtesy Box Cottage Museum, Joyce Park, Jasper Road, Ormond



In Moorabbin, matters finally came to a head at a council meeting in February 1925 when it was proposed that its plateway be removed from Point Nepean Road.⁸⁷ This was just a few weeks after a fatal accident in which two motorists died after their car hit a large rut beside the plateway. Despite a rear-guard action by some councillors the motion was passed six to three, much to the chagrin of the Market Gardeners' Union.⁸⁸ Yet, by this time, many market gardeners were using motor trucks and the Point Nepean Road was now in a much better condition than it had been forty years previously. It was also stated that all the other roads with plateways would be kept – though the writing was surely on the wall.⁸⁹ A few months later, in July, St Kilda council estimated it would cost about £2000 to remove its section of plates and extend the road pavement.⁹⁰ In mid-August 1925 the CRB stepped in with £1600 to help the Moorabbin shire with the initial removal – that of plates between South Road and Centre Dandenong Road and assist in widening the road pavement. Removal works must have started soon afterwards as by the end of February 1926 the Moorabbin shire was calling tenders for the sale of 29,000 feet of tram plates. Three months later some plates were still for sale – at three shillings each!



Clearly illustrating the results of almost forty years of wear and tear on a rotting sub-structure. Taken in Centre Road, Bentleigh, in 1926, opposite J L Smith's produce store. It shows the shifting of the old Baptist Church on Marriott's jinker, turning the corner into Jasper Road, not long before the plates' removal across the intersection. Photo: Vic Smith, courtesy Helen Stanley

Brighton council, having started removal in 1916 at the northern end of its bailiwick, still had some track in place in May 1927 when the Moorabbin council requested that the plates at the intersections of Brewer Road and Centre Road with Point Nepean Road be lifted. Brighton estimated the cost at £30 for lifting and fixing the roads. The Brighton engineer also stated that to remove the remaining 88 chains [1.77 km] of track along Point Nepean Road would cost about £880.⁹¹ Eighty-eight chains equals the length of the shared boundary of the two councils along the road. Around the same time, Moorabbin council decided to remove plates in Bentleigh where Centre Road intersected Tucker Road and East Boundary Road, thus creating a series of isolated tracks.⁹² This was done for the convenience of north-south traffic, so it didn't have to bump its way across the plateway. In mid-1930 Moorabbin was conducting yet another sale of old tram plates.

The main feeder plateways, now disconnected, lasted into the thirties and another depression. The Centre Road tracks were still being used in 1930 when, on a clear June night in Bentleigh, a milkman's wagon travelling east on the plateway, was hit by an erratically-driven motor car. The milko's horse had to be destroyed; the motorist was subsequently convicted of negligent driving.⁹³ The Centre Road tracks were removed in the next couple of years. In 1935, when Centre Dandenong Road was being reconstructed, the inside rail was removed leaving the outside rail as the edge of the new road. In 1937 Moorabbin council called for more tenders to dispose of 40 tons of tram plates, though that must have been just a tiny portion of its total. Effectively, it seems, all the plateways were gone by this time. In the early 1990s the last few pieces of Bochum Union track were removed from the edge of Centre Dandenong Road and preserved locally.⁹⁴ The City of Moorabbin Historical Society also maintain a short section of reconstructed track, together with a market gardener's wagon, at its museum at Box Cottage, Jasper Road, Ormond.

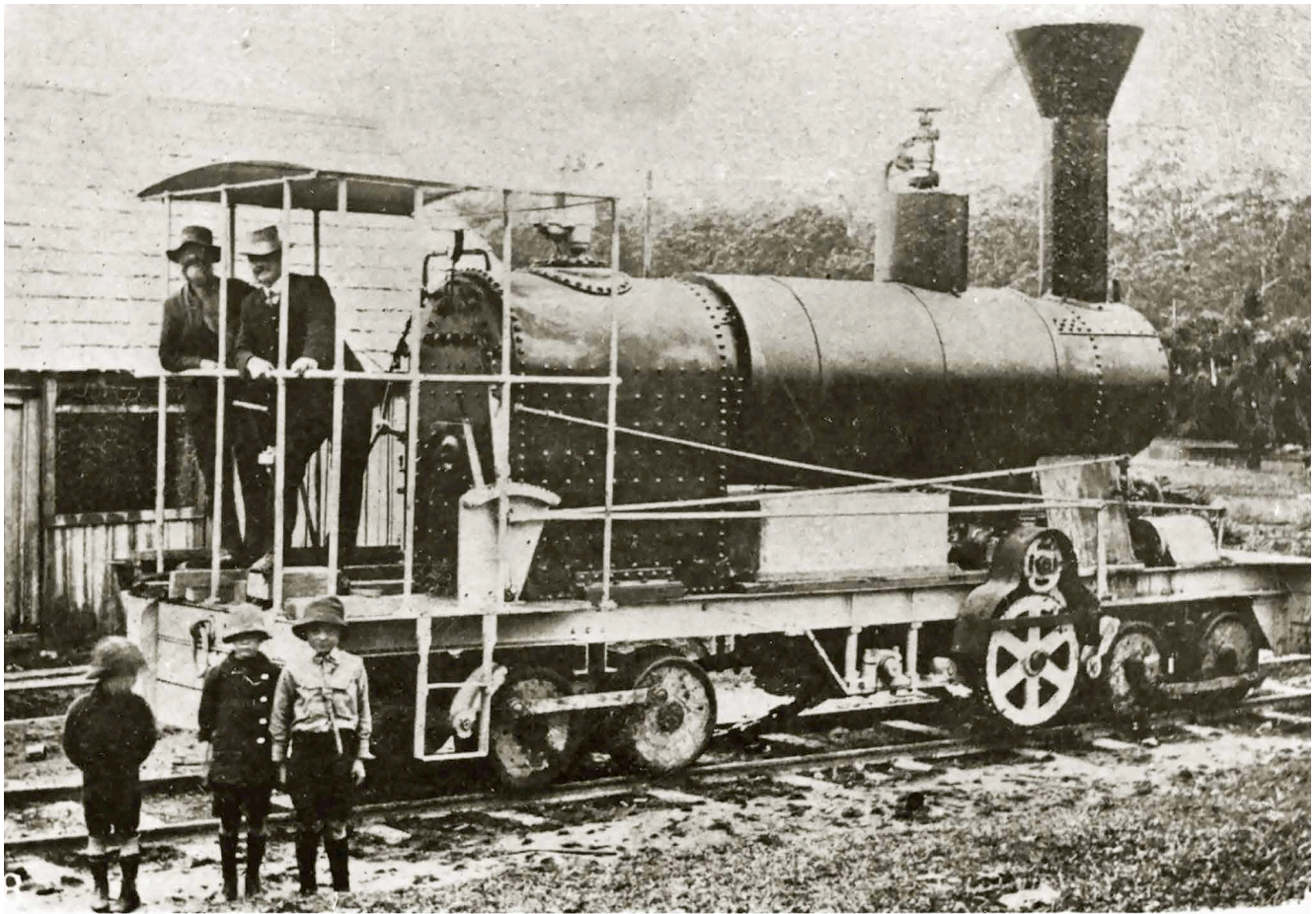
(Part 2 of this history, to appear later, will include all other known lines around Melbourne, including Brunswick, Coburg, Richmond, West Melbourne, South Melbourne, Port Melbourne and Campbellfield.)

The preserved market gardener's wagon at Box Cottage, Ormond. It was built at Pengelly's Junction Carriage Works, North Brighton c.1883 and originally owned by a Dandenong market gardening family. Stored at Nobel Park (original spelling) in 1938; it was donated in 1969 by Messrs A & D Corrigan to the PBPS museum at Menzies Creek. Transferred to Box Cottage c.1992. Bochum Union track, set in cobblestones, is how the Germans (who called it *Fuhrwerksbahnen*) used it. In Cheltenham, however, it was laid with road metal for the horse path. Many market gardeners, like the Alberni brothers of Rouville, would make a bee-line to the nearest plateway as their preferred route to the City. In the 1920s the Albernis would meet with a number of other market gardeners at the end of the Centre Road plateway in Oakleigh South and head to the Queen Victoria market in caravan mode with the first driver meant to stay awake! Photo: author September 2017



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The 3 ft 6 in gauge Buyers locomotive when new. It was designed and built by Andrew B Buyers of Hobart in 1912 for Chesterman & Co.'s logging tramway at Raminea, near Dover, southern Tasmania. Photo: Jim Casey collection

The Buyers locomotive and its successors

Raminea, Tasmania

by Mark and Angela Fry

This article is condensed from selected extracts of the authors' first volume of their book On Splintered Rails-The Era of the Tasmanian Bush Loco due out Christmas 2017. The book is only available directly from the author:

Introduction

In 1870 - 71 Mr William Henry Andrewartha established a sawmill beside the Esperance River in southern Tasmania. The mill site later to be known as Raminea was only part of a 700 acre purchase by Andrewartha at Port Esperance near the present day town of Dover. In 1883 after constructing some four miles of timber tramway Andrewartha sold out to the firm of Chesterman and Co. who progressively increased the length of the logging tramway, so much so that by 1911 the practicalities of a steam locomotive for the tramway were realised. The locomotive that eventuated was to be one unique for Tasmanian logging tramways and it would become known as "The Buyers locomotive".

The Buyers locomotive

What in many ways typifies the ingenuity of the Tasmanian manufacturers and sawmillers was the improvisation of steam machinery into powered bogie locomotives. These

locomotives totalling four in number (with a possible fifth example) pushed the limit of what could be done locally at this time and featured a number of innovative solutions for getting steam power from the cylinders to the bogie wheels.

The first of these marvels, took place in 1912 at the Hobart engineering firm of A B Buyers. Andrew Buyers was a native of Aberdeen and had served his apprenticeship with Messrs Hall, Russell and Co., a well-known shipbuilder of that city. In 1888 the young consulting engineer emigrated to Australia settling initially in Melbourne where he became a partner in the firm of Pye, Buyers, and Campbell. While he was connected with that firm, it carried out some important works, such as the building of one of the largest suction dredges in Melbourne at that time, as well as several mining and milling plants. The partnership was dissolved in 1890, and saw Andrew Buyers move to Hobart and buy out the engineering business of a Mr W Pitfield. The new firm soon expanded into producing equipment for sawmilling and logging, producing a log hauler for Chesterman and Co. in 1899 for use at Raminea¹. The company had ongoing business dealings with Chesterman and Co. even after Buyers business was sold to Johnson and Wells many years later until that firm finally closed its doors in 1984².

A B Buyers designed this innovative locomotive with the assistance of Henry Chesterman (Chesterman and Co.) who was also a very talented and knowledgeable blacksmith³. This 3 ft 6 in gauge locomotive bore a strong resemblance to a New Zealand bush locomotive manufactured by G and D Davidson of 1907-1908 vintage for a logging operation at Hokitika, Westland, New Zealand. According to Bob Chesterman of Hobart, the family had strong established trade links with



The Buyers locomotive, showing the cylinders mounted in front of the smokebox driving a transverse crankshaft connected by spurgear to the main transverse countershaft. From there chains connected with the inner axles of each bogie. Photo: Colin Ellingworth Collection

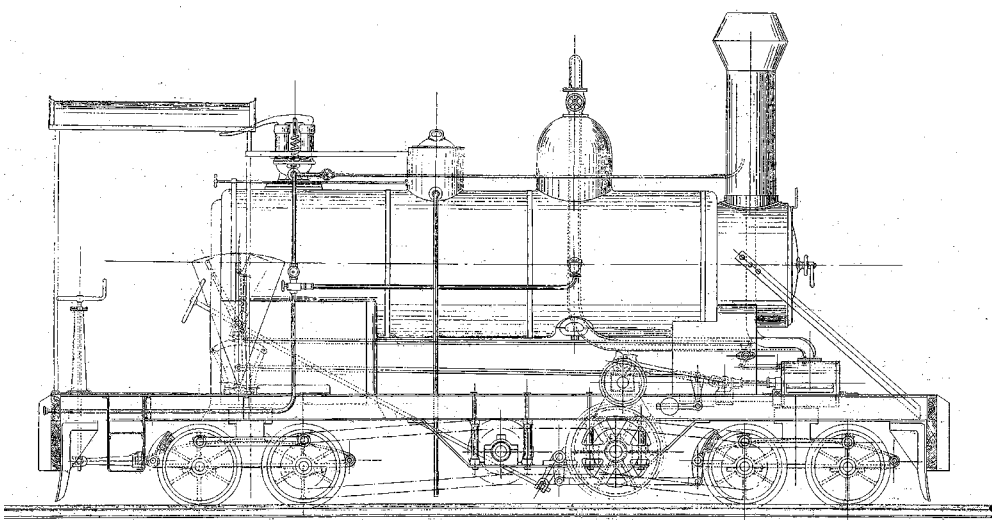
the South Island of New Zealand during this period and there is a possibility that a Davidson locomotive may have been observed by a family member or business associate on occasion, whilst working on one of the numerous logging tramways found there⁴.

The Tasmanian design utilised a Cowley boiler (b/n: 1892) of 16 hp (140 lb/sq.inch)⁵ mounted on an 8 in x 3½ in steel channel frame. Its wheel base was 13 ft 4 in and rode on two bogies fitted with four solid disc wheels of 24 in diameter with 5 in wide tyres and deep flanges for working on sawn wooden rails when required⁶. Mounted forward of the smoke box were originally two horizontal 7 in x 14 in cylinders, later altered to 8²⁷/₃₂ in x 11¼ in⁷ that were positioned within and slightly above the channel frames of the locomotive. The two cylinders drove a transverse mounted crankshaft, which was positioned 9 ft 3 in from the front of the locomotive and extended outside of the right channel side frame where it was fitted with a spur gear. Meshing with this small gear was a larger diameter gear wheel on the transverse mounted main countershaft (a gypsy shaft) the two gear wheels giving a presumed 3:1 reduction⁸. The spur gears were initially protected by a sheet metal fender, this being removed at an unknown later date⁹. From this countershaft two sprockets transmitted the drive via a specially made link chain. One

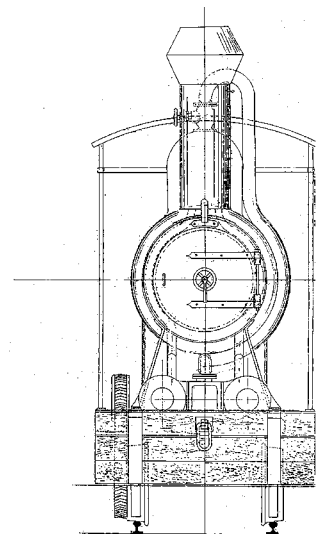
sprocket and chain drove a second countershaft located further to the rear and this in turn drove the inner axle of the rear bogie via sprockets and chain. The drive was transmitted to the outer axle by coupling rods. The front bogie received its drive direct from the second sprocket on the main countershaft shaft to the inner axle via sprockets and chain. Side rods were used to power the leading axle of the front bogie¹⁰. The use of coupling rods was the main difference between the New Zealand Davidson locomotive (chain drive to all axles) and the Buyers locomotive. Whether this was undertaken to avoid patent issues with Davidson is unknown, nevertheless it was a one-of-a-kind for its time within Tasmania¹¹.

All sprockets used on the Buyers locomotive were of 15 in diameter and had purpose built collars to ease the chains onto the teeth, especially when tracking around curves. All chains used on the locomotive were of a specified link type with 6 in centres. The bogie frames were constructed from 8 in channel steel with an overall measurement of 5 ft 8 in long and 3 ft wide and had a wheelbase of 2 ft 10 in¹². Braking for the locomotive was achieved (not too successfully) through a lever arm in the cab that had pushrods connected to lever arms above the rear bogie axle wheels and the inner axle of the front bogie wheels. Originally the locomotive was to have been fitted with a screw brake wheel for the front bogie and a separate brake wheel for the rear bogie located in the rear of the cab, but this seems not to have been used on the actual locomotive¹³. Brake blocks were forced onto the tyres of these wheels. The new locomotive carried its water in a large rectangular metal tank located beneath the boiler and immediately forward of the firebox¹⁴ though it had been originally intended to carry its water in two separate small side tanks beside the firebox¹⁵. Water could be collected via an injector system and siphon hose kept in the cab¹⁶. The original plan provided for a rear pipe attachment connected to the injector(s) to supply water from a proposed auxiliary tender¹⁷. The wood fuel was stored just as on the Davidson locomotive at the rear of the footplate, which was adorned with a simple metal-post curved flatiron roof.

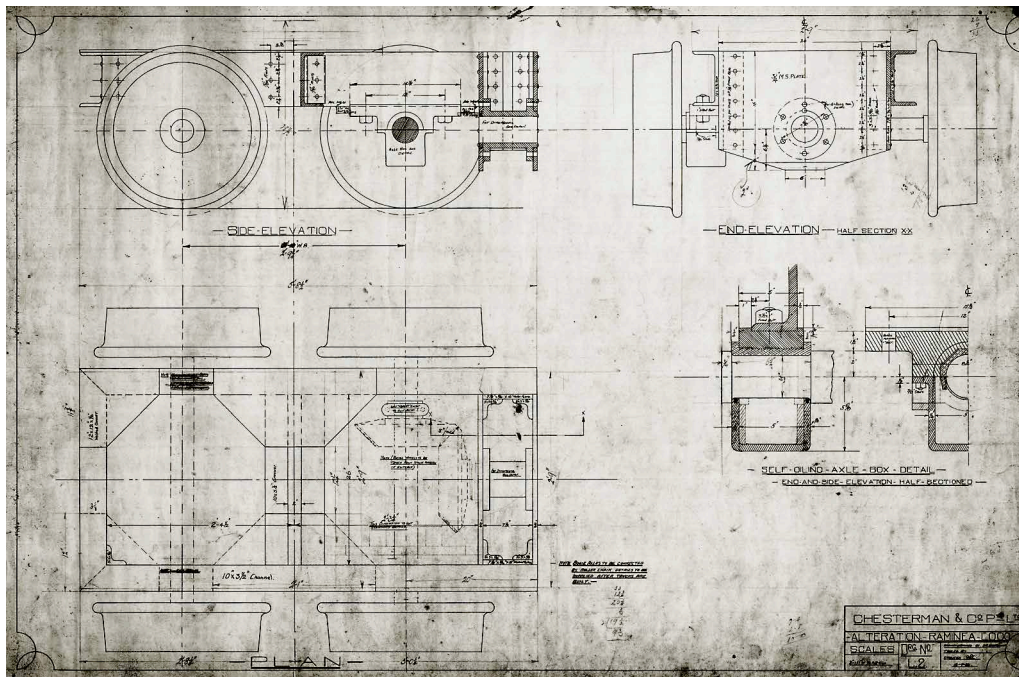
As soon found with the early Davidson locomotives, the chain drive on the Buyers locomotive was its 'Achilles Heel'. Lloyd Briggs, who worked at Chesterman's Raminea sawmill between 1912 and 1916 recalled that the Buyers locomotive broke chains regularly, due to the castings for the chain links not being strong enough for the loading placed upon them. This problem was alleviated to some extent when a local German blacksmith forged new chains for the locomotive.



This drawing was prepared prior to the construction of the Buyers locomotive.



Ted Lidster collection



The design of the bogies for the Johnson & Wells locomotive. They were of significantly heavier construction than the bogies of the Buyers locomotive, and had bevel reduction gearing as proposed in the 1928 plans. Russell Allport Plan Archive

New Zealand logging locomotive designs. As mentioned earlier, the original Buyers locomotive bore more than a strong resemblance to that produced by Davidson in New Zealand. Could Dick Chesterman have seen or heard (via family business trans-Tasman connections) about the geared locomotives of Climax and Price that were both operating on the South Island of New Zealand on logging tramways at this time? We may never know but something was about to happen that seemingly put an end to any further development or thought about the proposed rebuild of the Buyers locomotive – The Great Economic Depression of 1929. Throughout the six long years of the Depression the Buyers locomotive continued to operate, though on a considerably reduced basis (due to infrequent timber orders). The original chain drive system continued to be unreliable – it was now time for change.

It was not until 1934 and with an improving economy that Dick Chesterman returned to his drawing board and rejuvenated his ideas from 1928²⁶. What emerged was a new and significant geared steam locomotive. To the onlooker at

first glance it appeared to be the original Buyers locomotive – but it certainly was not! The new version still used the original Buyers 16 hp locomotive boiler but now with 7 in x 10 in cylinders in front of the smokebox, and the unusual solid disc 24 in diameter wheels with their broad wooden-rail type tyres, but this was where any similarities ended. To begin with, the boiler and cylinders were to be carried by a new larger and much stronger chassis constructed from 10 in x 3½ in BHP channel steel beams, in lieu of the original 8 in x 3½ in channel frame, though the overall length remained the same at 23 ft 5 in. The drive system proposed by Dick Chesterman in 1928 was retained in the new drawings produced by him in August 1934, the only change being made was to retain the side rods on the bogies in lieu of the proposed chain drive of 1928, despite being shown on the plan as a chain drive²⁷.

The second major change in design lay in the new powered twin axle bogies.²⁸ The location of the bogie centres was altered creating a wheelbase of 14 ft 8 in compared to 13 ft 4 in in used previously²⁹. Each axle was located in self-oiling axle boxes³⁰.



In this photograph work has commenced on the building of the new locomotive at Ramine. In the background is the discarded original Buyer's locomotive chassis and bogies. The new engine's chimney and smokebox saddle can be seen on the trolleys. Photo: Jim Casey Collection



Construction of the Johnson & Wells locomotive at the Raminea sawmill. The locomotive was sent to Raminea in sub-assemblies and re-erected there. The heavier steel chassis used in the new locomotive is quite evident. In the background the reconditioned boiler is awaiting placement onto the chassis.

Photo: Jim Casey Collection



The Buyers locomotive with a log train crossing the "Swing Bridge", a framed headsill type bridge.

Photo: Colin Ellingsworth

Braking was achieved through a massive 14 in x 4 in cast iron brake drum located on the bevel gear main counter shaft at the opposing end but within the frame. This differed to the Buyers locomotive's externally fitted brake. The brake presumably was activated from the cab, though no details exist of how this was done³¹.

Another difference found between the old and new locomotives was the support structure on the chassis that carried the bevel reduction gearing. Suitably sized bearings housed the bevel gear reduction counter shaft within the mild steel plate assembly. This assembly is the most immediate visual difference between the Buyers locomotive and the Johnson and Wells locomotive³².

Despite being new and improved, the Johnson and Wells locomotive was still only able to pull log loads of three and a half to four thousand feet, which was the equivalent in those times of four good sawlogs. The new locomotive continued to operate just as the Buyers locomotive had done before it by reversing its empty log bogies back out to the bush log landing for loading. Details of the new locomotive are very limited but it continued to operate with the original boiler until late 1940 when it was retired and its work taken over by an internal combustion locomotive.

The final ignominy came when parts were used for an internal combustion locomotive employing part of the original bevel drive gearing, during the mid 1940s. This new locomotive received the nickname of *Yellow Belly* due to its power plant being a converted Caterpillar crawler tractor³³! The first internal combustion loco to be employed by Chesterman's was however a Russell Allport eight-wheel drive tractor locomotive named *Jingle Bells*.

Jingle Bells

Towards the end of 1940 a decision was made by Chesterman and Co. that its double bogie steam locomotive was to be retired. It would be replaced by an eight-wheel drive Russell Allport tractor locomotive, aptly named *Jingle Bells* due to its noisy crown wheel/pinions system³⁴. As to why the steam locomotive was withdrawn so soon after its introduction circa 1934 remains uncertain though its ageing boiler may have contributed to this decision.

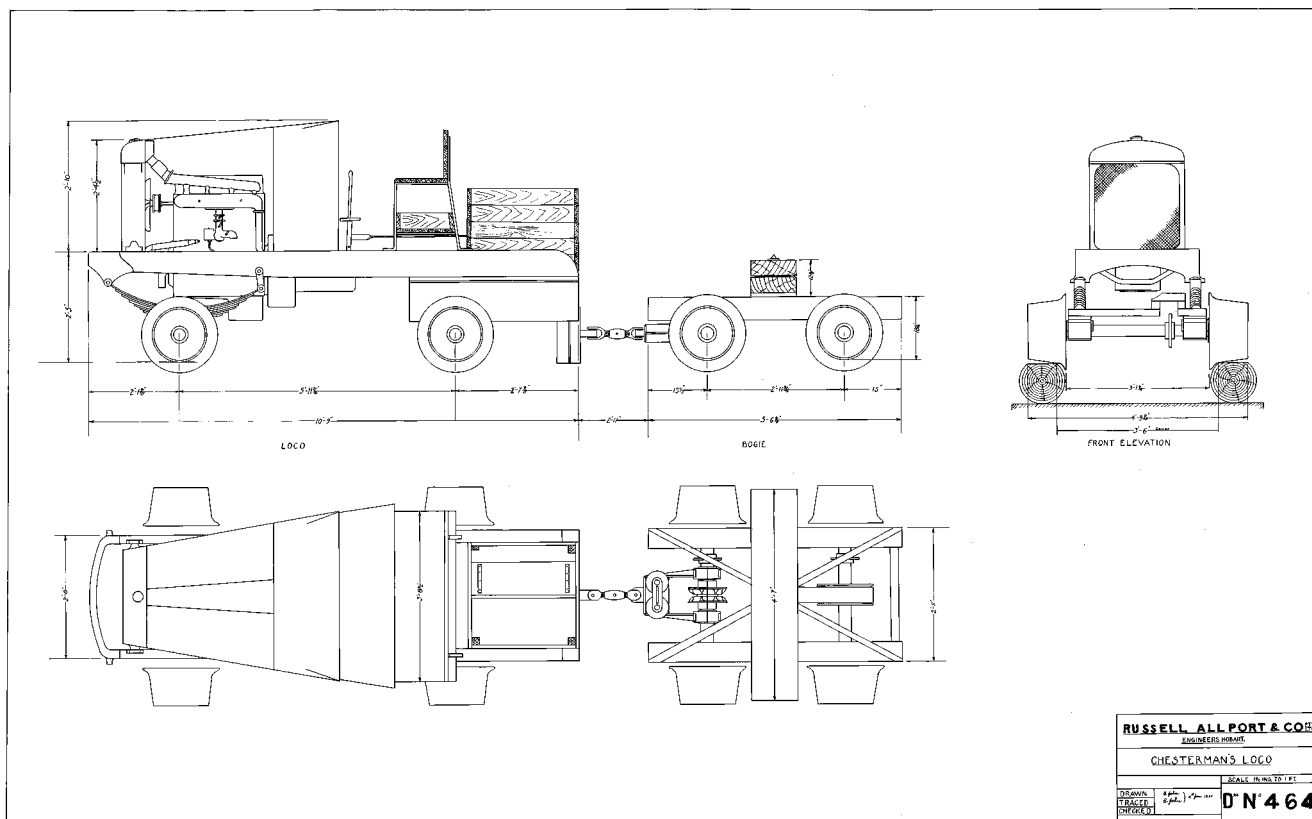
Research undertaken by historian Wayne Chynoweth during the early 1990s revealed that the Johnson and Wells locomotive worked up until at least September 1940. After this its boiler was removed and used by Chesterman and Co. at Hobart and Moogara finally ending its days driving a sawmill for O Hansson, Snug Plains, between 1956 and 1963. It is Wayne Chynoweth's belief that the new *Jingle Bells* tractor locomotive was obtained not only as a replacement for the Johnson and Wells steam locomotive but also to be used in the construction of a new logging spur known as the Peak Rivulet branch³⁵. The arrival of this tractor occurred prior to the retirement of the steam locomotive.

Jingle Bells was a product of the Hobart engineering firm of Russell Allport, having first been conceived on the drawing board in late 1936 under the design team of John Hood. Following some design proofing the final conceptual drawing for the locomotive was completed by January 1937. As to when the locomotive was erected and where it may have first operated (if it did so) remains unclear but it was received by Chesterman and Co. at Raminea in circa late 1938/39. *Jingle Bells* was one of a number of near identical bush locomotives built by Russell Allport for the Tasmanian logging industry. The design owed its origins to the original George Purdon/Russell Allport gypsy chain drive system when first introduced in 1932 on its pioneering pre-1921 'H' series International motor lorry powered tractor locomotive. For these early gypsy

drive locomotives the permanently attached log bogie was of wood construction with diagonal metal strapping/bracing. The drawbar coupling between the locomotive and the bogie resembled a drive shaft with universal-like knuckle couplings at each end but was in fact a massive turnbuckle that could be wound in or out to adjust the gypsy chain tension as wear and tear on the locomotive from day to day use took its toll with stretching chains becoming somewhat of a problem³⁶. It was usual practice at Russell Allport to erect a wooden box like structure over the crown wheel assembly and thus protecting it from the elements, however after a while these structures were removed for one reason or another³⁷. A result of having no cover over the whirling crown wheel and pinion was that it could flick a lot of oil onto the back of the driver particularly if over-oiled, needless to say a retrofit enclosed oil bath for such was a much welcomed addition! It was the cacophony of the metallic ringing of the engaged pinion and crown wheel when in operation that gave the locomotive its name³⁸.

Not surprisingly a braking apparatus was not included on these early gypsy chain drive tractor locomotives. Braking was only achieved through prudent use of the gearing and/or through the action of the brakeman or driver pulling on the rope and sheave blocks attached to the log bogie(s) brake lever arm(s). The simple system of braking used at Raminea required a minimum of two men and possibly three including the driver when returning to the mill with a full load of logs. *Jingle Bells* could only bring in two logs but due to the steepness of the tramway, considerable skill was needed to arrive safely. John Casey who worked at this operation for all of its operating life describes how it was done:

You had an offsider on the back with rope that went along trolley to trolley. You had very little braking system on the loco itself, it was nearly all done by the brakeman. The brakeman was on his own at the end of the log standing on a board. He done all the braking.



You see he could tell what was going on from the back. Often you'd have to sing out "come on a bit" or "come off a bit" the driver would say but most of the time the driver knew exactly what to do. The brakeman had a long rope, you'd do the first log (that is the driver would) the brakeman done the other two logs [on *Yellow Belly*] and when we worked the little loco *Jingle Bells* the brakeman done both logs. I had no runaways with *Jingle Bells*... *Jingle Bells* had spar wheels like the Cadillac but with different flanges.

John's older brother Jim recalls an incident with *Jingle Bells*: I did have one runaway with *Jingle Bells*. We was coming onto the "Wet Bridge" and she went off the road and the logs went that way and I went that way! She just jumped the line, travelling too fast. Dad drove *Jingle Bells* first.

It was soon realised that a larger more powerful internal combustion locomotive was needed. One that could bring in the equivalent log loads that the former Johnson and Wells steam locomotive was able to do, that being three log loads. Thoughts soon turned to the discarded steam locomotive and what could be done with it to provide the basis for an internal combustion version for the mill³⁹.

Chesterman and Co. 10 wheel drive tractor locomotive

Upon retirement in late 1940, the bogies/chassis of the Johnson and Wells locomotive had been retained and kept at the Raminea mill until the mid-1940s when the decision was made to return parts to Johnson & Wells engineering works in Hobart⁴⁰. There is little doubt that Dick Chesterman had a major influence in the design of this new internal combustion locomotive. It incorporated many, if not all, of the original proposed changes of the drive chain of the Buyer's steam locomotive described in detail earlier. Perhaps the most compelling evidence of this is in the modifications to the new powered bogies. Here the side rod drive was removed completely and replaced by an internal sprocket and chain drive located within the bogie side-frames that linked the two axles. This alteration was that which Dick Chesterman had proposed and drawn to specification for the Buyers locomotive back in 1928.

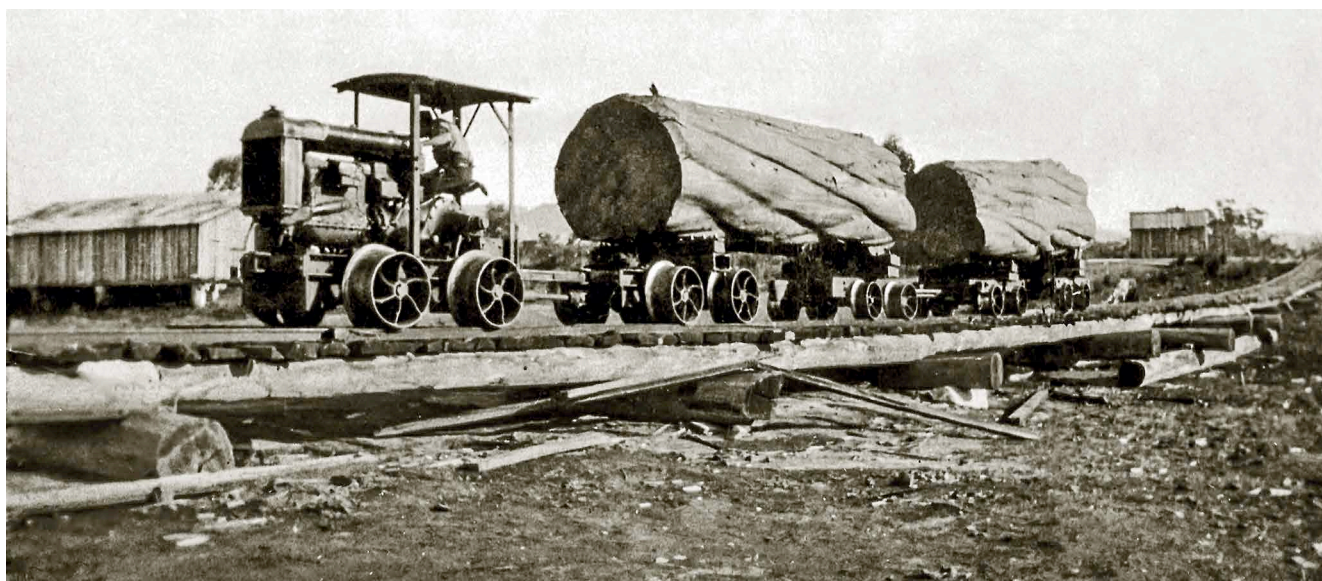
The bevel gear telescopic shaft drive train was still retained to take the drive to the front bogie and to the rear permanently coupled log bogie from a single (fifth) powered axle located

between the powered bogies, thus making it a unique 10 wheel drive locomotive⁴¹. This additional axle carried the rear half of the locomotive chassis. The axle received its drive via a chain and sprocket from a crawler tractor sprocket drive located above it.

The new engine for this locomotive was that of a former Caterpillar RD-7 four-cylinder diesel crawler tractor⁴². The crawler unit with its cab was fitted high on top of the front set of powered bogies and the rear single axle. The excessive height of this new locomotive was because the Caterpillar's motor was an integral part of the chassis structure of the crawler and thus could not be separated or made any lower⁴³. All the wheels used were of the same unusual design as those found on the original steam locomotive of Chesterman's and continued to suffer from high wear just as before and required regular changing! The name *Yellow Belly* stuck until its final demise⁴⁴.

With its ungainly height *Yellow Belly* was prone to being a little top heavy, making for some exciting trips when returning with a load of logs (three log bogie sets) in tow! Needless to say with such a reputation finding willing drivers proved somewhat difficult⁴⁵. On several occasions the ten-wheeler left the rails during a runaway and one time on a notorious section of the tramway known as "Red Cutting" and another when it crashed into the Esperance River. During an interview with Jim and John Casey in 1998 John recalled some of these incidents:

I had two runaways with *Yellow Belly*. I'll never forget the first one! We was working up at what is now called Casey's Road at the top of it. We left the landing, in them days we had a little winch up top with an extra wire on it to lower you around the steep bend, the winch helped in lowering the train. The loco got into a skid because of all the mud and that on the wheels and I sung out "Come onto her a bit she's in a skid" and he came onto it too hard with the brake, he just went 'chomp' with the brake and that snapped the winch rope and that caused a bigger skid and me offside jumped off and left me with it. I jumped in between the logs because she was away and also because there was a wire coming back cracking like a whip. She [*Yellow Belly*] hit the corner went straight over and the logs pushed her down the bush. The offside who was the brakeman when he run down all he was worried about was his billycan because he had his tea in it! The



A further development of the telescopic drive eight-wheel tractor loco occurred during the late 1930s, originating from the engineering firms of Johnson & Wells and Saunders & Ward, both of Hobart. This seemingly logical development concerned the transfer of the rear axle drive to the front axle of the loco via a drive shaft and a set of bevel gears. The best known example of this tractor type was that from Johnson & Wells used by Chesterman's at their Lune River mill.

Photo: Jim Casey Collection



This underside view of the abandoned Lune River Mill locomotive built by Johnson & Wells. The bevel gear drive and connecting shaft between the front and rear axles can be made out amongst the accumulated debris littering the locomotive.

Photo: Ted Lidster Collection

second runaway was the last trip we were going to use the loco. We were rebuilding the tramline – it was pretty steep anyway. I was pushin' up this load of tramroad spars. All we had to do was unload them and it was blowin' a gale and then we were knocked-off for the day. I sung out to the fellas to chock her because it was pretty steep and all they were doing was laughing and so the wheels run over a little dry Celery Top Pine stick that the wind had blown across the tramway and she was gone – it ran away and I bailed out then. The loco ended up in the river. We had to lift her out. When we crashed we didn't bother using that bit of tramline!

Jim Casey recalls his second rollover with Yellow Belly:

When I rolled *Yellow Belly* we were coming down the "Red Cutting" and just before we hit the bottom of the cutting she left the rails and away she went! I had Tom Drake with me on the loco and we had the brakeman standing at the back of the last log wagon. And she rolled over, he [the brakeman] jumped for it and when he landed it took his boots clean off. I'm sitting there dazed somewhere near the loco and the brakeman comes down to us and he couldn't say anything he was in shock his mouth just kept going up and down and nothing was coming out, he just couldn't get nothing out so then we shut the motor off. I said, "I wonder where Tom is?" when a voice answered, "In the bush!" so we got him out. Anyhow none of us got hurt. It was caused by the rails getting a bit wet – there'd been a storm and we'd got a bit of a shower and made it a bit slippery⁴⁶.

Don Seabourne who was brakeman for John Casey on this last occasion recalls the incident:

The last runaway with *Yellow Belly* crashed her into the river via a shunt spur. We normally used this spur for storing the workers' trolley cars. Someone left the points open and that's how we ended up in the river. Fortunately the trolleys weren't there. There was another time when we were being lowered down the line by the winch. It had 1,000 yards of rope on it. The winch lowered the loco and three log wagons with the brakeman riding on the last log wagon. His job was to slow the train by braking the last two log wagons but he couldn't let it skid whilst the driver braked the first log wagon sitting on the loco. Anyway one day she got into a skid and away she went – we jumped for it. *Yellow Belly* got smashed up a bit but she was repaired⁴⁷.

Later in its operating life the locomotive would receive a much welcomed canopy over the cab, which as Jim Casey remembered was a vast improvement rather than sitting in the open during heavy rain when the soft cushion seat would well up with wet cold rain water when sat upon⁴⁸! *Yellow Belly* was retired in 1951, being replaced by another eight-wheel drive tractor locomotive *The Cadillac* purchased from Ernie Bennett's logging tramway at Geeveston following its closure⁴⁹.

The Scooter

In 1946 another locomotive of sorts was added to the collection of weird and wonderful machines now found at the Raminea mill in various states of disrepair and/or operational. A small rail motor fitted with a Ford A model engine and known fittingly as *The Scooter* (a common name shared among such contrivances on a number of locomotive worked logging tramways in Tasmania) was introduced to the mill workers for their personal transport to and from the bush⁵⁰. John Casey describes the simple 'rail-bus'

The only time we had two locos running was when we had the little thing the men used to ride to work on of a morning and at the end of the day, the little "Scooter". It was powered by an A – Ford, the driver was at the back and it had a floating bogie set of wheels in the front. The men sat on it along the sides and across the back of it. It carried about 10 or 12 men. Everyone had 'a seat' on it and my word you got into trouble if you were sitting in their seat, and we were always first on because we'd pick up a few going up the line. At the back of it it had a four gallon drum filled with sand and when they'd leave of a morning they'd stick half a gallon of petrol in the sand and light it. It would burn all the way to the bush just the heat coming up occasionally you'd give her a stir up to flare it up and that kept your hands warm. It had no roof... We used the Scooter right up till when we bought the first truck and then we travelled in that out to the turntable right up to the end of the tramway use.

Despite having no roof *The Scooter* was fitted with a bonnet to protect the engine located at the front. The railmotor required its own removeable turntable which was used to turn it around when ready to return home of an evening⁵¹.

The Cadillac

The Cadillac internal combustion locomotive used after *Yellow Belly* was retired was yet another Russell Allport product built specifically for Ernie Bennett's sawmill near Geeveston. The Bennett family was related to John Hood, the dynamic engineer and manager of Russell Allport. John Hood had earlier built the last of the Sentinel steam wagon conversions for Ernie Bennett, the only Sentinel type turned out by the firm in 1935⁵².

Following the retirement of the Sentinel locomotive in 1938 Ernie Bennett received his first internal combustion 30 hp Leyland petrol powered eight-wheel drive machine. The drive train was similar to that used on Chesterman's *Yellow Belly* locomotive with a shaft-driven permanently attached rear powered-log-bogie. This machine was to remain in use with Ernie Bennett's operation as its main logging locomotive until it was replaced by a diesel powered version, also of the same eight-wheel drive configuration⁵³. The diesel had a unique powerplant – a German "Buzzing Nag"

motor – the only one of its kind used on a Tasmanian logging tramway. This locomotive ended up working on another tramway in the north of the state, and was one of the very last internal combustion tractors, (albeit with a different motor) in operation in Tasmania in 1974.

The Leyland locomotive was however retained as a spare and was eventually fitted with a 42 hp V8 Cadillac motor, one of three such engines Bennett had stored at his mill⁵⁴. This conversion appears to have taken place prior to being shipped to Ramea before the closure of Ernie Bennett's milling operations circa 1955⁵⁵.

In operation at Ramea, *The Cadillac* proved to be adequate, however despite it being considered a powerful locomotive it still only managed to bring in two log loads per trip, the same as *Jingle Bells*. Unlike its previous two internal combustion stable mates, this locomotive appears to have never been involved in an accident – quite a feat for the Ramea tramway system! The locomotive did however have one annoying aspect as John Casey explains:

I drove the Cadillac for a while. I'd only done a few trips on the Cadillac and then I went into the bush 'fallen' [falling]. It was a V8 Cadillac motor. It wasn't an old motor it was actually a pretty late model motor and it was a powerful machine but she'd only bring two logs... The thing I used to go crook about was the thing would boil going back out. It would get overheated only because it was going backwards and you wasn't getting the draft.

Jim Casey had a higher opinion of the "Cadillac":

I was on it for a while. It was a lot better than Jingle Bells because it wasn't as noisy. She was open no cab, you could bail out quicker if you didn't have a cab. You just sat out in the open with just a cape on.

The Cadillac remained in use at Ramea until the second of two consecutive disastrous floods destroyed all of the tramway bridges in 1954⁵⁶.

One Final 'New' Loco

By the late 1930s a new type of shaft-driven eight-wheel drive tractor locomotive had been developed. The new locomotive did not originate from Russell Allport but rather from the engineering firms of Johnson and Wells and Saunders and Ward, both of Hobart. This seemingly logical development concerned the transfer of the rear axle drive to the front axle of the locomotive via a drive shaft and a set of bevel gears⁵⁷. This eliminated yet another chain drive and sprocket from the drive system, and was considered by some drivers to be an improvement. The most well known example of this tractor type was the Fordson-engined one used by Chestermans at its Lune River mill, which was built by Johnson and Wells during the late 1930s⁵⁷. A lesser known example of this efficient drive was produced by Saunders and Ward circa 1937 for George Heather at his Moss Glen Mill in the South⁵⁸. It was at the Lune River Mill of Chesterman's, which would become the last 'new' locomotive to operate at Ramea and only after the damaging floods in June 1954. John Casey recalls the floods and its aftermath:

The '54 floods took the tramway bridges, that folded up the tramways. A flood came through and took 6 or 7 bridges and we'd just rebuilt them all and then it flooded again and took them all again. That finished it and so we went logging in the Hartz using our old crawler up there the old D7 Cat⁵⁹.

The June floods were devastating to the Ramea operation of Chesterman's. Thirty-thousand super feet of sawn timber and the sawmill shed were lost, apart from the tramway system and its bridges. With such significant losses and the timber supply beginning to dwindle it was decided to abandon the tramway and log by road and lorry further afield. In order to

recoup some of the financial loss, the tramway was salvaged for scrap value in sections and this would play out to be the swansong of the logging tramway and its locomotives.

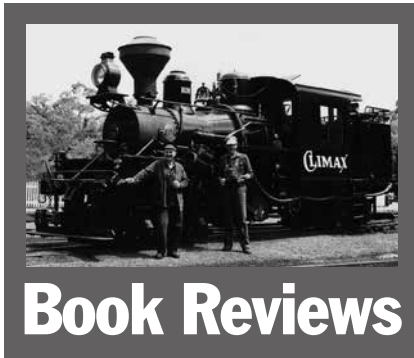
To begin with, *Jingle Bells* was brought back into service one last time to assist in retrieving the steel rails. It was moved by lorry down to the tramway at the Ramea end of "Pear-tree Flat". At this time the ex- Lune River Mill locomotive described above was trucked to another section of the tramway and used to bring in rails from what was left of the first bridge (the "Dry Bridge") over the Esperance River and the remaining track work back to the mill. The D7 Cat crawler tractor referred to by John Casey was used to do the remaining salvage work in those areas unable to be accessed by the locomotives. Here the rails were dragged up to the nearby roadway where they were collected⁶⁰. With these salvage operations complete the end of the locomotive worked logging tramway era at the Ramea Mill had been reached after some 41 years.

Acknowledgements

Our thanks to Wayne Chynoweth for the loan of his research notes concerning the Buyers locomotive, and to Wayne Weatherstone for his work with the photographs used in this article. Without the valued help of these two friends this article would be found lacking.

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Book Reviews

SHALE AND SHAYS

The fight for shale oil from the Wolgan Valley

by Mark Langdon

Published by Eveleigh Press. 300 pages portrait format 279mm x 215mm with a hard cover. There are many photos, most are black and white, but a number of available colour images have been used. Some of these images had been hand-coloured by the original photographer. Available from the LRRSA online bookshop – \$78.00 plus postage (\$70.20 plus postage for LRRSA members)

The author, Mark Langdon, is an upper Blue Mountains resident and a trained historian and presents a fascinating look at the shale-oil mining days between 1906 and 1932 in the Wolgan Valley in New South Wales. The book has been thoroughly researched from primary source material including existing company and government documentation and newspaper reports of the day. There is an extensive list of references and a detailed bibliography.

The story begins with details of the Commonwealth Oil Corporation (COC) that was financed and managed from London. The enterprise was based on Scottish shale mining experience and the officials and many of the technical staff came from Scotland. Work in establishing the railway, the township of Newnes and the shale works commenced in 1906. A route for the railway from the NSWGR at Newnes Junction to the work site was surveyed and three options were developed. The book includes a copy of original plans showing all of the routes in a fold out format and showing much detail. The railway was completed in 1908 and four Shay locomotives had been delivered. There are many photos of the works showing an incredible amount of detail of the various buildings and retorts and rail connections. Many of the photos have been printed as double page spreads. The COC operated the works until 1914 when John Fell and Co. took over and operated it until 1924, including through World War 1. In 1930 attempts were again made to start up the works but it was stalled by the Depression. The Commonwealth Government became involved and formed the Shale Oil Development Committee and restarted the operation and included refurbishing the four Shay locomotives. In 1932 the government sold the operation to

the Australian National Shale Oil Company but that was not successful and the works closed in 1932.

The spectacular railway line is described in a novel way compared to many other railway books. After a short introduction of words there is a combination of several detailed maps and many photographs that show the salient features of the route and of the operation of the railway. The maps prepared by Dean Oliver deserve special mention as they show an incredible amount of detail. Most maps give details of the contours of the land showing the steepness of the land through which the line passes, the various locations of tunnels and adits and the lease boundaries of the mines. This reviewer was able to build up a picture of what it was like in his mind, and imagine what it would have been like to actually be there.

The rolling stock used on the line is described in great detail with extensive use of photographs and diagrams and line drawings of most rolling stock. The four Shay locomotives are fully described and each vehicle type built specifically for, and purchased by, the COC is covered with a history and photos and a scale drawing of each vehicle type included. The work is rounded out with superb Phil Belbin painting.

Throughout the book there is a lot of emphasis on the social and human side of living and working at the various work sites. At various times there were up to 700 people living at Newnes and this needed to be supported by schools, shops, cricket clubs etc and these are described in an interesting way.

The book is written in an easy to read and interesting style and has been produced to a very high standard with many high quality and quite detailed photographs. Many of the photographs are reproduced as double page spreads and provide a fascinating and detailed look at the works and the railway line. Also included are many original diagrams and plans of the works and of the retorts, some are two or three page fold outs.

This book is highly recommended to those interested in the former shale industry and the railways that carried the materials out through the spectacular scenery of the Wolgan Valley.

Richard Warwick

Iron Roads in the Outback

by Nick Anchen

Hardbound (laminated cover), 208 pages, 282 x 224mm landscape, 230 b&w and colour photos, ISBN 9780992538828, rrp \$65 + postage. Sierra Publishing. Available from LRRSA Sales (note: 10% discount for members)

Sub-titled "The Legendary Commonwealth Railways", this is not a book that would ordinarily fall within the ambit of *Light Railways*, yet two of the three railways featured – the North Australia Railway and the Central Australia Railway – were in many ways big light railways and somewhat quirky. Light track, 3ft 6in gauge, leisurely scheduling, with loads

of 'character' and 'characters' all contribute in making much of this an exceptional book.

Presented in a large format, I found this a very hard book to put down. Filled with wonderful stories, beautifully written, photos galore – both historic images redolent of the past plus many beautiful current images by Nick to 'set the scene'. Good historic summaries of each of the three railways of the Commonwealth are included – the Trans-Australian Railway being the third and the youngest of the three, this year celebrating its centenary of completion. These main sections are sandwiched between a chapter giving an interesting background to the Outback and at the end with the Pichi Richi Railway, the only surviving section of the narrow gauge lines.

Whilst the photographs, most of which your scribe has never seen, make this a beautiful 'coffee table' book, it is the very human stories of the workers on these three railways that elevate this tome to exceptional status for me. Firemen, drivers, conductors, chefs, foremen, guards and the odd traveller or hardy railfan, all tell wonderful stories. But not forgotten are the women who lived for days and weeks on end waiting for fathers and husbands to return to their home in some dusty railway outpost in the Outback. Accidents, incidents, poignant moments, funny stories and sad events – all get a well deserved place in the book.

My favourite story is that of Wolf Markowski. In 1945 he was 16 and in the Wehrmacht crewing a Panzer tank, in 1947 a prisoner of war, in 1949 a fireman for the DR on Class 52 2-10-0s, in 1951 a fireman for the Commonwealth Railways based at Quorn firing CR NM-class and SAR T-class locomotives. Welcome to the Outback! Another great story is that of Cathy Beek. Her family moved to Cook on the Trans-Australia line when she was eight. At 17, she was married and living at Forrest. By 1989 she was about 31 and back at Cook, with her second husband. The late Weston Langford's journey on the Larrimah Mixed in 1965 is unforgettable as is Jim Prentice's couple of years on the 'Never-Never' line during the Second World War. These are just four of a 'baker's dozen' stories that make this book really bonzer.

As is usual with a review, the reviewer has to find something that doesn't please them. Well, I searched but could find no typos, no errors of fact, no contradictions, no photos printed back-to-front or too dark, no captions transposed. A couple of photos have been enlarged a bit too far and are grainy but the historic nature of them is such that it can be overlooked. Also, farmers might choke at seeing paddocks of Paterson's curse being called Salvation Jane! Hardcore railfans will bemoan the lack of really detailed maps (though these are available elsewhere); they are not really the job of this book. These are but minor quibbles.

To summarise, do yourself a favour – write Santa a letter today and ask for a copy for Christmas – if you can wait that long! Recommended.

Phil Rickard



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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 257 p.28)

610 mm gauge

EM Baldwin B-B DH *Givelda* (5800.2 6.75 of 1975) was seen running between Fairymead and Bingera on 22 and 23 September. Walkers B-B DH *Kolan* (633 of 1969 rebuilt Bundaberg Foundry 1996) was seen working at various places on the system on the same two days. A section of narrow gauge track set in concrete exists under a short rail bridge alongside Witts Road near the Meadowvale QR crossing. It is said to have been used to run a farm irrigation pump down to a water course. Bundaberg Sugar has a system in place that alerts loco drivers when level crossing flashing lights are not functioning. The drivers then have time to pull up before the crossing and wait until technicians correct the fault.

Lincoln Driver 9/17; Ken Date 9/17; Troy Goodhew 9/17; Matthew Beveridge 9/17; *News Mail* 25/9/2017

CENTRAL QUEENSLAND UNIVERSITY, Bundaberg campus

(see LR 257 p.28)

1067 mm gauge

Trackage here consists of two parallel 120 metre straight sections connected by a crossover. Ex Queensland Railways English Electric Australia Co-Co DE 1603 (A.064 of 1963) and ex QR National passenger carriages MCS 1535, MBC1448 and MBS 1481 were unloaded here on 14 September. The loco had been loaded up at Ipswich on the previous day. A section car on loan from the Bundaberg Railway Museum is also on site.

Luke New 9/17; Jan Kretschmer 9/17; Paul Donaldson 9/17; Mike Knott 9/17; Bill Dell 9/17; *News Mail* 14/9/2017

ISIS CENTRAL SUGAR MILL CO LTD

(see LR 257 p.29)

610 mm gauge

Isis runs a standardised fleet of Walkers B-B DH locos with the sole interloper in daily service being EM Baldwin B-B DH 11 (10130.1 6.82 of 1982). This loco was seen arriving with loaded bins at the full yard on 16 and 19 September. A car collided with Isis bogie brake wagon 1 (built in 1995 using frame of Walkers 654 of 1970) at Knockroe Road on 8 September. A set of level crossing flashing lights was taken out in the collision. A 36 kilometre extension to Isis Mill's rail system costing \$14.3 million has been approved by Bundaberg Regional Council. It will run from Cordalba to Duingal via Booyal, providing access to 400,000 tonnes of cane in the Gin Gin/Wallaville area and will take 27,000 heavy vehicle movements off the Bruce Highway. Brian Bouchardt 9/17; Luke Horniblow 9/17; *News Mail* 8/9/2017, 22/9/2017

MACKAY SUGAR LTD, Mackay mills

(see LR 257 p.29)

610 mm gauge

Tractors collided with Racecourse Mill trains at a siding south of the mill on 18 August and at Munbura on 13 September. In the latter collision where a tractor and trailer were parked too close to the line, substantial damage was incurred to over fifty cane bins. There have been eight level crossing collisions on the Mackay Sugar rail network in the past four years.

Daily Mercury 15/9/2017

MSF SUGAR LTD, Mulgrave Mill

(see LR 257 p.30)

610 mm gauge

NQEA 6 wheeled brake wagon 2 (built in 1972) is being converted to a rail measuring vehicle. By October, it had been painted in gray primer and the middle wheel set had been removed to be replaced by a small floating wheel set



Top: EM Baldwin B-B DH Inverness (10123.1 5.82 of 1982) picks up a rake of fulls at Farleigh Mill's Ossa 10 siding on 13 September. Photo: Mitch Zunker **Above:** Clyde 0-6-0DH multi-unit locos Palmyra (63-273 of 1963) and Pleystowe (64-321 of 1964) on Farleigh Mill's Etowri line on 10 September. Photo: Peter Jenkinson

that will measure the track horizontally and vertically. It is expected to be in operation, towed by a loco, on the Mulgrave Mill and South Johnstone Mill networks by the end of the year. Com-Eng 0-6-ODM 2 (A1001 of 1955), Motor Rail Simplex 4wDM (10450 of 1954), EM Baldwin 4wDM 10 (6/881.1 6.64 of 1964) and the 4wDM "Pie Cart" built by the mill in 1962 have been donated to the Atherton-Herberton Historic Railway at Herberton on the Atherton Tableland and all were moved there during the latter half of September. During school holidays in September, an alarming spike in dangerous behaviours was being experienced around the rail network. These included cane bin surfing and the placing of objects on the track to cause derailments.

MSF Sugar media release 20/9/2017; WIN News Cairns 25/9/2017; ABC Far North 4/10/2017; Shane Yore 10/17; Pyramid Views October 2017; *The Cairns Post* 4/10/2017

MSF SUGAR LTD, South Johnstone Mill

(see LR 257 p.30)

610 mm gauge

Com-Eng 0-6-ODM 27 (A157111 of 1975) returned to service with the navvies during late September following a rebuild which included being fitted with a discarded cab and hood from other Com-Eng locos at the mill. It has been repainted yellow with a black hood top. On 18 September, EM Baldwin B-B DH 32 Liverpool (10385.1 8.82 of 1982) was seen working the Nerada line with Hockey 6 wheeled brake wagon 4 (built in 1982) instead of the more usual South Johnstone bogie brake wagon 6 (built in 1990). Other locos seen out and about on the same day were EM Baldwin B-B DH locomotives 24 (5477.1 8.74 of 1974) and 26 (7244.1 8.77 of 1977) having a cross at Cowley Loop and EM

Baldwin B-B DH 25 (6470.1 1.76 of 1976) at Goondi. As well, Com-Eng multi unit 0-6-ODH locos 38 (AH4695 of 1965) and 39 (AH4688 of 1965) were seen heading north through South Johnstone township and later on at Ashfords Loop. Com-Eng multi unit 0-6-ODH locos 6 (C2234 of 1959) and 7 (AD1239 of 1960) were seen in the Silkwood area on 7 and 29 October. Bill Horton 9/17; Luke Horniblow 9/17, 10/17; Editor 10/17

WILMAR SUGAR (HERBERT) PTY LTD, Herbert River Mills

(see LR 257 p.31)

610 mm gauge

Victoria Mill's Clyde 0-6-ODH *Lucinda* (65-436 of 1965) was on loan to Macknade Mill from 3 October and was back at Victoria by 8 October. Macknade Mill's EM Baldwin B-B DH *Wallaman*

(6400.3 4.76 of 1976) and EM Baldwin 6 wheeled brake wagon BVAN 2 (7065.5 6.77 of 1977) were on loan to Victoria Mill for one or two days during the period between 30 September and 2 October and from 10 October to 13 or 14 October. Victoria Mill's Hudswell Clarke 0-6-0 *Homebush* (1067 of 1914) ran passenger trains on the Nyanza line as part of the festivities associated with the annual Maraka Festival on 14 October. Victoria Mill's Clyde 6 wheeled brake wagon BV7 (CQ3477-3 of 1976) has been refurbished as a spare. This unit had been running with EM Baldwin *Homebush II* (6400.1 4.76 of 1976) until early this crushing season when its place was taken by Clyde 4 wheeled brake wagon BV6 (CQ3477-2 of 1976) formerly with the *Wallaman*. The new Chinese built bogie brake wagon at Victoria Mill was still being fitted out in late October.

Editor 9/17, 10/17



Top: South Johnstone Mill EM Baldwin B-B DH locos 26 (7244.1 8.77 of 1977) and 24 (5477.1 8.74 of 1974) cross at Cowley Loop on 18 September. Photo: Luke Horniblow **Above:** EM Baldwin B-B DH 32 Liverpool (10385.1 8.82 of 1982) has just crossed Pin Gin Hill on South Johnstone Mill's Nerada line as it heads out on 18 September. Photo: Luke Horniblow

WILMAR SUGAR (INVICTA) PTY LTD,

Invicta Mill, Giru

(see LR 257 p.32)

610 mm gauge

On 28 September, Walkers B-B DH locos *Scott* (669 of 1971 rebuilt Bundaberg Foundry 1995) and *Cromarty* (708 of 1973 rebuilt Bundaberg Foundry 1996) were seen performing a manoeuvre to place the former's load into the last vacant line in the mill full yard. *Cromarty* waited inside the Shirbourne line not far from the mill while *Scott* passed by with its load then followed to the full yard where *Scott* cut off so the *Cromarty* could propel the load into the vacant line. Navy loco Com-Eng 0-4-0DH *Invicta* (CA1040 of 1960) on a rake of ballast hoppers was seen stabled at Zapps Loop along with Tamper STM-XLC tamping machine (94952 of 1993) on 3 October while Walkers B-B DH *Kilrie* (632 of 1969 rebuilt Bundaberg Foundry 1992) passed through with a rake of fulls for the mill. Clyde 0-6-0DH *Kalamia* (67-569 of 1967) is still in service at this mill.

Luke Horniblow 9/17, 10/17; Jamali Labelak 10/17

WILMAR SUGAR PTY LTD,

Pioneer Mill, Brandon

(see LR 257 p.33)

1067 mm gauge

Clyde 0-6-0DH *Colevale* (65-438 of 1965) was seen working the Colevale line on 29 September.

Luke Horniblow 9/17

WILMAR SUGAR (PROSERPINE) PTY LTD,

Proserpine Mill

(see LR 257 p.34)

610 mm gauge

Locos seen out and about during a visit on 14 October were Clyde 0-6-0DH 3 (58-195 of 1958) on the Waterson line, Clyde 0-6-0DH 8 (65-443 of 1965) at the QR crossing on the Up River line and EM Baldwin B-B DH 10 (9816.1 10.81 of 1981) at Fausts siding.

Luke Horniblow 10/17

NEW SOUTH WALES

MANILDRA FLOUR MILLS PTY LTD,

Manildra

(see LR 247 p.22)

1435 mm gauge

Goninan Bo-Bo DE MM03 (4970 of 1961) was seen at work here on 28 August.

Barry Trudgett 8/17

SOUTH AUSTRALIA

GENESEE & WYOMING AUSTRALIA,

Whyalla

(see LR 257 p.34)

1067 mm gauge

Seen at work during a visit in mid June were Downer EDI Co-Co DE locomotives GWN001 (12-2590 of 2013), GWN003 (12-2592 of 2013), GWN004 (12-2593 of 2013) and GWN005 (12-2594 of 2013), Clyde Bo-Bo DE locomotives 1301 (56-109 of 1956 rebuilt MKA 93-BHP-004 of 1995), 1304 (61-236 of 1961 rebuilt MKA 93-BHP-003 of 1995) and CK3 (67-500 of 1967) and Goodwin



Top: Com-Eng 0-4-0DH multi-unit locos 39 (AH4688 of 1965) and 38 (AH4695 of 1965) of South Johnstone Mill do some street running through the township as they head out with empties on 18 September. Photo: Luke Horniblow **Centre:** EM Baldwin B-B DH Rynne (5423.1 9.74 of 1974 rebuilt N+P 2009) crosses Victoria Mill Road in Ingham on the final straight before the mill full yard on 7 August. Photo: Luke Horniblow **Above:** EM Baldwin 0-6-0DH 14 (6/2490.1 7.68 of 1968) crosses Dungeness Creek as it nears Lucinda with a load of sugar from Macknade Mill on 7 August. Photo: Luke Horniblow



Victoria Mill's Hudswell Clarke 0-6-0 Homebush (1067 of 1914) heads off along the Nyanza line with another load of passengers on 14 October.
Photo: Christopher Hart

Co-Co DE locomotive 907 (83826 of 1960). On 8 September, 1304 and GWN004 were seen on the Iron Knob branch. On 29 September, the following locos were seen working the system, Downer EDI Co-Co DE locomotives GWN001, GWN002 (12-2591 of 2013), GWN004, GWN005 and Clyde Bo-Bo DE locomotives 1301, 1302 (56-116 of 1956 rebuilt MKA 93-BHP-006 of 1995), 1304 and CK4 (67-501 of 1967).
John Phillips 6/17; Barry Trudgett 9/17; Steve Caines 9/17

OVERSEAS

FIJI SUGAR CORPORATION

(see LR 257 p.34)

610 mm gauge

By 20 September, eighteen cane bins had been manufactured and placed in service by FSC. CEO Clark has stated that there have been no track upgrades yet but the more heavily used sections will be prioritised. Enquiries have been issued for engineering work and it is hoped to

commence the design of the upgrade to the rail system shortly after the end of the 2017 crushing season. The crushing season at Lautoka Mill had finished by the end of October.

Tourist train operator Train Farer Fiji is now looking to Ontrak Engineering of Maraylya in New South Wales, Australia to build a train for them.

Fiji Sun Online 19/9/2017, 20/9/2017; Ontrak Engineering 10/17; Fiji Broadcasting Corporation 30/10/2017



Proserpine Mill Clyde 0-6-0DH 3 (58-195 of 1958) on the Waterson line on 14 October. Photo: Luke Horniblow



Field Reports

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

Anderson's tramway Marysville, Victoria Gauges 914mm and 1028mm

One of the most iconic images of the timber tramway period would have to be the curved-spoke wheel. Constructed in their thousands by numerous foundries, they also represent one of the few tangible archaeological remains of this fascinating pioneering era. The following tells the story of one unique wheelset and its history.

It all began way back in the early 1970's when I was investigating the remains of one of Victoria's last two operating tramways at Anderson & Row's No.2 sawmill, near Marysville in Victoria. Adjacent to the mill site there was a pile of discarded bogies and, contrary to LRRSA policy that all relics be left in situ, I decided with my mate Joe to 'save' a set. (Editor's note: Not only is it against LRRSA policy, but such an action would today attract a heavy penalty under the Heritage Act Victoria 1995). So we duly snuck up to Marysville, loaded a bogie set into a trailer, and transported it to my parents' home at Warrandyte.

Life moved along, and my mate Joe took custody of the wheelsets, and they finally made their way to his home in Christmas Hills above the Yarra Valley. Then came the 2009 Black Saturday bushfires. Sadly, Joe's home was destroyed; strangely however, the wheelsets were not touched by the flames. Then, one day about three years ago, Joe called to say he no longer needed the bogie set and I, with my son, duly collected the wheels and took them to my home in Kangaroo Flat and thus was reunited with the wheels from my youth.

Upon arriving at home to unload them, I set some timber rails to the 'correct' tramway gauge of 3 ft (914mm) and, when the wheels rolled off the trailer, they were wider than the rails and went straight 'into the dirt'. I thought nothing of this at the time. A few years later we moved again, this time into the centre of Bendigo, and it was then that I noticed the unique shape of one wheelset (which I will call the 'S'-shaped curly spoke), and began to wonder about its unique gauge. After measuring a gauge of 3 ft 4½ in (1028 mm), it could be argued that this wheelset must have come to Anderson's tramway from the Rubicon Forest, as the tramlines of Clarke & Pearce were 3 ft 4½ in gauge (1028 mm).

(Editor's note – Anderson & Row operated a mill in the Rubicon Forest from January 1932 to March 1935, and their timber had to travel over Clark & Pearce's tramway system, hence the requirement for wheelsets of that gauge. No sawmiller ever threw anything away that might possibly be re-used, so the bogies must have been carted back to Marysville, even though the gauge at the Marysville mill was 3 ft (914 mm). As the 'S'-shaped spoke seemed different to the standard design, I looked at literally hundreds of photos of wheelsets in my collection of books and magazines to try and find a suitable candidate and, to my surprise, I could only find two photos of this unusual design out of hundreds. One was in Mike McCarthy's book *Mountains of Ash* (pages 54 and 55) which, by a quirky chance, was also on an 'Anderson's Mill' tramway; however, the design was slightly different as the flange-side of each spoke seemed to have an extra strengthening ridge. The other example was in Norm Houghton's book *The Beechy* (page 25), depicting the same 'S'-shaped spoke design on the lime tramway at Kwarren. Looking

closely at my wheelset I could not see any manufacturer's markings and, as this design was slightly more complicated to make (and, I assume, more expensive), perhaps it fell out of favour and the standard-spoke curly wheel became the norm.

So it appears my chance recovery of this particular 'S'-shaped spoked wheelset was fortuitous in saving a unique tramway wheelset design, which is probably over 100 years old. Its companion wheel on the bogie is also slightly different from normal designs, as it has seven spokes compared to the standard five spokes (which appears to be the norm); again, it may have been found that five spokes were sufficient (and cheaper to manufacture). Today, this relic of the pioneering age of timber tramway technology now resides peacefully in a Bendigo garden. It is indeed a unique survivor of our fascinating tramway history, and I must get around to preserving the original timbers (now over 40 years old since 'saved' and, who knows how long before that, when first constructed).

Tony Sedawie 09/2017.



The pile of discarded bogies at Anderson & Row's No.2 mill in the early 1970s. Photo: Tony Sedawie



The preserved wheelsets in Bendigo, 'S'-shaped spokes on the left.

Photo: Tony Sedawie

Ruby Creek mine, near Oberon, NSW

Gauge unknown

An information board at Mt Werong (South East of Oberon, NSW) shows a map of the nearby Ruby Creek mine. The map shows a 'railway' (presumably some kind of powered haulage) leading down into Ruby Creek and the mine. The mine seems to have been started in 1909 by Messrs Bennett and Billett.¹ Although a tunnel was driven to cut the lode, nothing of any magnitude seems to have been done until after the First World War. The Ruby Creek Silver and Lead Mine Company was floated in 1920 and purchased winding engines and boilers and installed an air-compressor.² In June 1921 it was announced that the Company

... has completed the installation of plant, including an aerial tramway, to bring up ore from the gorge, a distance of 1100ft. The company is now inviting tenders for hauling ore from the mine to Tarana station. The ore is rich in silver and lead, and the faces are opening up well and improving.³

The mine disappears from newspaper reports in the 1930s. It would be appreciated if a reader could follow this information up and submit a field report on the tramway system.

John Paff 08/2017

References

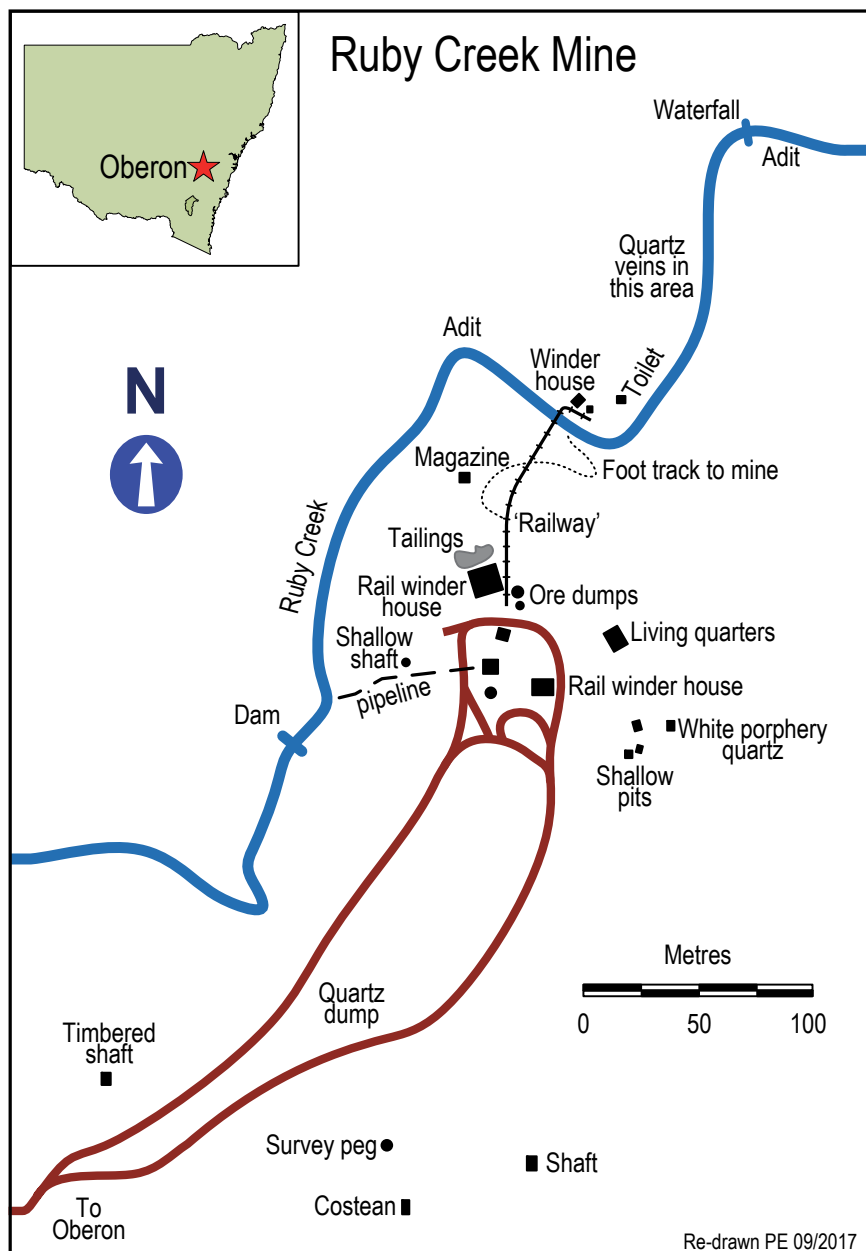
1. *The Bathurst Daily Argus*, Friday 12 March 1909, page 2.
2. *Lithgow Mercury*, Friday 29 October 1920, page 3.
3. *The Sydney Morning Herald*, Thursday 16 June 1921, page 11.

Milk tramway, Manning River, NSW

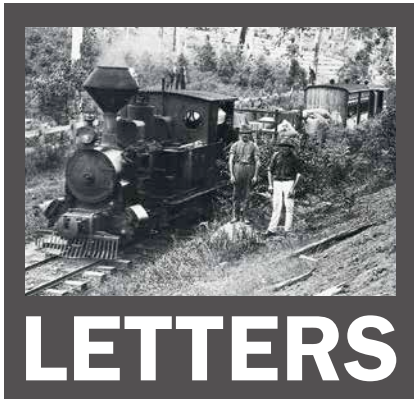
Gauge unknown

I was recently at a wedding at Old Bar on the north coast of NSW Australia. The wedding was held on a dairy farm, and I noticed a flat section of ground and thought that it looked like some sort of right of way. Sure enough there were rails under the grass, as well as the remains of the trucks use to cart milk down to the Manning River.

Austin Harrison, via Facebook Narrow Gauge Enthusiasts Group 09/2017.



Left: The formation of the milk delivery tramway with the Manning River in the distance. **Right:** The remains of a truck once used on the tramway. Photos: Austin Harrison



A harbour for Port Fairy (LR 256)

Members of the Port Fairy Historical Society wish to thank the LRRSA, and especially Peter Evans, for the great article in the recent LRRSA publication. Those who have read the article have been delighted to piece together evidence around the town that has interested them.

The article is a valuable addition to our collection.

Judith Kershaw
President Port Fairy Historical Society

The later years of the Marawah Tramway - Part 2 (LR 257)

The ownership of *Fantail* before its migration to Tasmania has become clearer in recent years as the Public Record Office Victoria has made accessible the records of the Melbourne Harbor Trust (MHT) and Victorian Public Works Department (PWD). The following notes summarise the movements of the engine until its arrival at Forrest.

In December 1884 Robert Thornton was awarded a contract by the PWD to cover sandhills on the eponymous Sandridge Bend (now Fishermans Bend) with silt supplied by the MHT as that body deepened and widened the River Yarra. The object of the contract was to encourage vegetation that might restrict drift sand. Finding himself lacking motive power for his tramway, Thornton immediately sort to purchase one of the MHT's two 3 ft 6 in-gauge Baldwin locomotives (B/N 7108 and 7111).

The MHT obtained a quotation of £950 from the Baldwin agent in Melbourne, Newell & Co., for a new locomotive of the same type and, as Thornton was prepared to pay £1050 for the second-hand engine, this was promptly accepted. By 19 January 1885 Newell & Co had cabled an order to Baldwin and the MHT had handed engine No.2 to Thornton. The new Baldwin locomotive (B/N 7556) entered service with the MHT in August 1885 identified as No.3, despite the Trust now having only two locomotives.

By 1892 the MHT had completed filling the low-lying land under its control so No.3 engine was no longer required. (No.1 had been sold to David Munro in December 1885 for use on his New Princes Bridge construction contract.) Surplus plant, including the locomotive, was advertised for sale in June of that year but the sale was subsequently cancelled. An offer to purchase No.3 was received from Captain Schutt

during 1893 on behalf of 'a friend'. As Schutt was a director of the Australian Seasoned Timber Company (AST) there is little doubt that the friend was R A Robertson, the manager of that firm. This sale fell through, as the £350 offer amount did not meet the MHT's price of £700. Eventually the surplus MHT plant was offered for sale at an auction held on 29 November 1894. This time the locomotive was sold for £325—less than the offer made two years earlier—and was in service with the AST at Wandong by the next February.

AST operations came to a close in 1903 and the company was liquidated. The liquidator's accounts report the sale of an 'engine' to Lugton Bros for £228 5s 6d which is consistent with the following advertisement that appeared in the *Argus* of 4 September 1903: 'Locomotive for sale, splendid order and condition, 3 ft. 6 in. gauge; very cheap. A Lugton and Sons, engineers'. Presumably Alex Sanderson acquired *Black Angel* from this firm.

Sources:

Australian Seasoned Timber Company Ltd company file, VPRS 932/P0, Unit 129, File 2750
PWD outwards letter books, VPRS 975/P2, Unit 69
MHT correspondence files, VPRS 7966/P1, Units 31 and 36
MHT notice papers, VPRS 7986/P1, Unit 9
MHT inwards correspondence, VPRS 7979/P1, Unit 1
MHT minutes of Works, Dredging & Stores Committee, VPRS 7988/P1, Unit 3
The Leader, 2 Feb 1895

Colin Harvey
Via email

Singleton Target Range light railways (LR 257)

A minor comment on the article in LR 257.

In Jim Longworth's article on the Singleton Target Range Light Railway, p.22, he mentions '...locally made Matilda tanks...'

Whilst the Australian Army did use Matilda tanks in the fighting in New Guinea, and no doubt trained with them on the Singleton

Range, no Matildas were built in Australia, they all came from the U.K. Australia did build a series of Cruiser Tanks, (Matildas being Infantry Tanks), these being the AC1, AC2 and AC3, which were intended to equip the Australian Armoured Division, but the changed circumstances of the war in 1943 meant that this Division was never really formed, and the few AC (Australian Cruiser) tanks built, never saw active service.

It is possible that during testing of the AC tanks that some of them could have got to Singleton for armament testing.

Bill Pearce
Melbourne
Via email

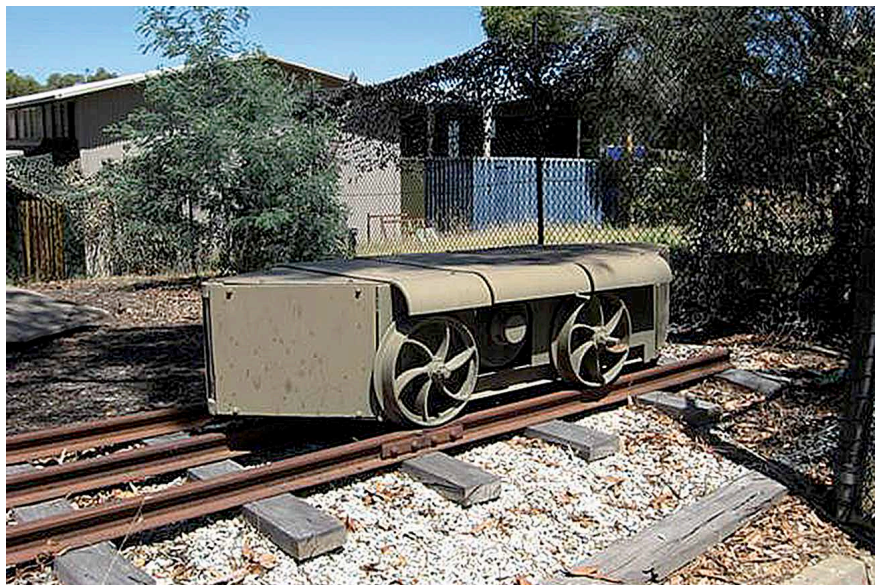
Singleton Target Range light railways (LR 257)

Thank you for the article. It was very enjoyable and brought back memories.

The Matilda tanks mentioned as firing on the Singleton Target Range were in fact produced by the Vulcan Foundry at Warrington in the UK. One famous World War 2 Matilda, ACE, has recently been restored to working order by members of the NSW Lancers Memorial Museum at Parramatta NSW. Web link http://www.lancers.org.au/site/Matilda_Tank.asp

In 1953 or 1954, as a young CMF soldier in the Royal NSW Lancers, I had the opportunity to fire the 2-pounder gun of a Matilda on the Singleton Range. My memory as to the exact date, and if the moving targets were in use, is hazy. A couple of years later, still as a Lancer, I fired the 20 pounder gun of a Centurion tank at moving targets on the range at Puckapunyal Victoria. I do not know if the Puckapunyal equipment was the same as Singleton's, but one of the Puckapunyal 'target trolleys' is preserved at the RAAC Memorial & Army Tank Museum at Puckapunyal together with some 70 tanks, including Matildas and Centurions.

Terry Boardman OAM
Via email



One of the Puckapunyal 'target trolleys' preserved at the RAAC Memorial & Army Tank Museum at Puckapunyal together with some 70 tanks, including Matildas and Centurions. Photo: Terry Boardman OAM

Singleton Target Range light railways (LR 257)

I think there is a mistake in Jim Longworth's article "Singleton Target Range light railways" in *Light Railways* issue 257.

There were a number of such target range railways in the UK, operating with targets carried by similar trolleys. Although I have never personally visited these, according to published accounts the trolley track runs in a trench with a bank on one side, so that the track and trolleys are hidden from view of the gunners. This is so that they were protected from stray rounds, which otherwise would soon rip them apart.

In his article Jim says that the tracks "ran almost entirely along the top of built-up embankments, varying in height from 2m to 5m." I think this arrangement is most unlikely, as the track and trolleys would soon be wrecked by "(un)friendly fire"! The photo at the bottom of p.23 shows the remains of one of these "embankments" and I suggest that the tracks actually ran in the trench behind the bank, next to the "electricity posts", with the bank affording the necessary protection from the shells.

Brian Rumary
England
Via email

Treasures from Trove – Herbert River bridge (LR 257)

I refer to the "Treasures from Trove" article in LR 257 that covered the tramway bridge across the Herbert River. The newspaper account on page 35 was reprinted in the *Herbert River Express* on 24 May 1988.

At the time, the Macknade Mill employed a wide range of other nationalities, as well as the Malays.

I do not think that the attached photo was taken near the Macknade Mill. I cannot

come to terms with the photo of the bridge. The construction of the bridge itself looks correct but the far bank looks too steep – maybe it is an optical illusion. If it is the correct bridge then it was probably taken earlier than the nineteen twenties owing to the lack of the telegraph/telephone line. This bridge was replaced in the mid twenties. John Browning agrees with me that the photo in the magazine is not that at Macknade and we both think it is Russian Jack's bridge at Long Pocket which spanned the same river a lot further upstream.

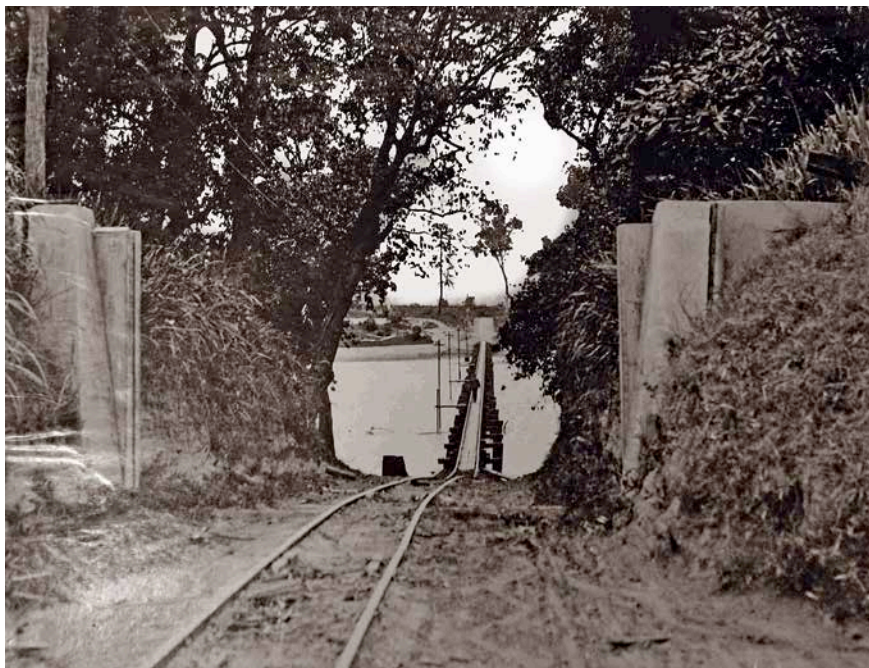
I think a quarter of a mile in length for the bridge is an exaggeration and I have worked out the length to be around 800 to

900 feet, which is significantly shorter than a quarter of a mile. It probably seemed longer to those people! The full trucks did not have enough momentum to make it up the mill side and a capstan winch driven by a horse was necessary to haul them up the incline.

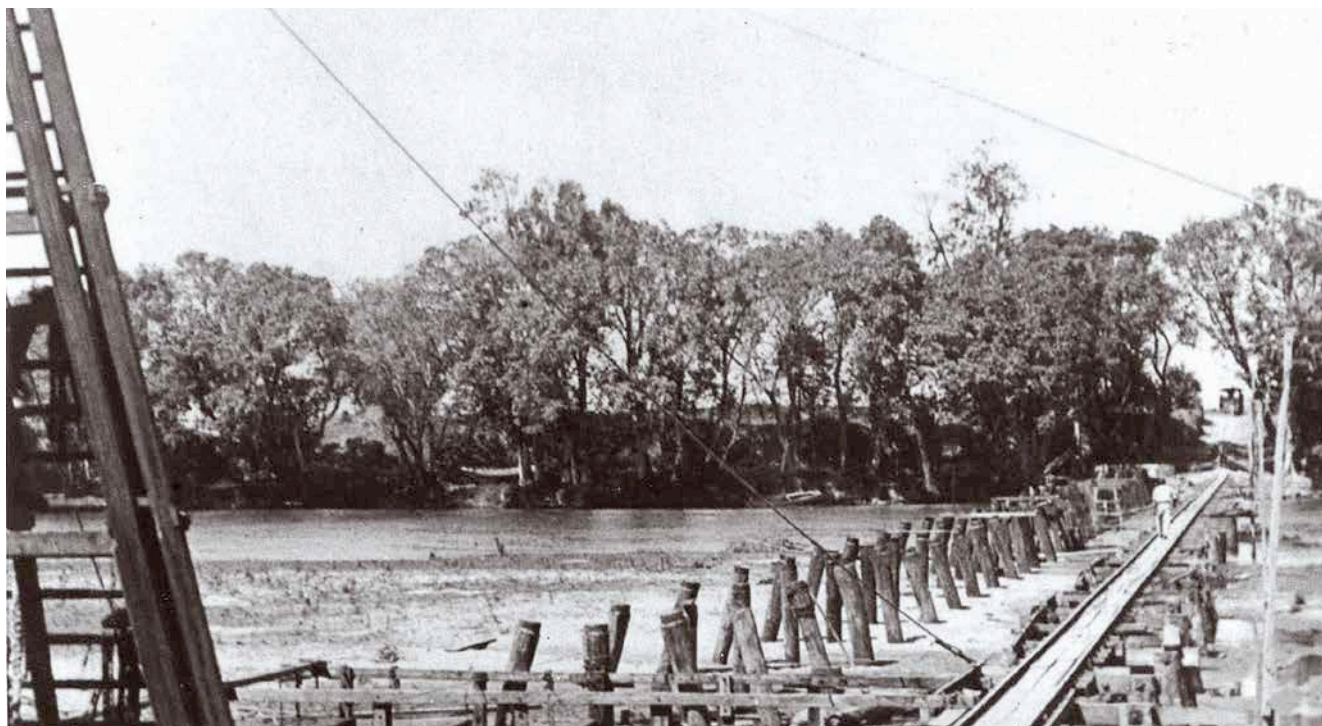
The slope on the other side was gentle enough for the horses to drag the empties away in normal fashion.

Attached are two photos that came from the Waring Family Collection and the Australian National University.

Chris Hart
Ingham Queensland
Via email



A 1911 view looking across Macknade Mill's Herbert River bridge towards Cordelia from the mill side. Photo: Butlin Archives of the Australian National University



This scene from 1924 depicts the bridge that the singers were on being replaced by a new loco worked bridge. Standing by on top of the bank in the distance is what appears to be Decauville Couillet 0-4-0T Fives Lille (16 and 624 of 1883). Photo: Waring Family Collection

Heritage and Tourist News (LR 257)

I have some comments and corrections about a couple of items about the Burdekin Machinery Preservationists Workshop at Brandon that was reported in the Heritage and Tourist section of LR 257.

There is a Mitsubishi 2 ft gauge panel van at the Burdekin Heritage Precinct at Brandon. This was obtained as such from Invicta Mill and there is a photo of it at the top of page 25 in LR 251. Is this the same vehicle reported on in the latest issue? If so, there has been some misunderstanding regarding its origin.

Regarding the report on the same page about Hunslet Pioneer, this was not Pioneer Mill's first loco. That honour went to Barclay 0-4-0ST *Mary Ann* (268 of 1883) which the mill had obtained by 1893. So far as I know, it has been at the Burdekin Heritage Precinct since around November 2015.

Chris Hart
Ingham, Queensland
Via email

An interesting rail wagon (LR 257)

Thank you to Ian Barnes for providing the interesting photograph of a rock-carrying truck used in WA for the Henderson Naval Base.

This was a massive Commonwealth undertaking begun during WW1 but abandoned by the early 1920s. It was located at Woodman Point, south of Fremantle, and there is still a suburb 'Naval Base' just south of the site. The base is worthy of detailed

CORRECTION

In the Industrial Railways News report on the Wollongong Coal Limited in the LR 257, the spelling of Wollongong was incorrect in three places. We apologise to our readers and the good folk of Wollongong for this error.

research for a railway history as it involved an extension (opened 1913) of the WAGR Coogee line, a considerable internal works railway system (1067mm gauge) and a quarry at Wungong, near Armadale, that had a WAGR siding and internal rail system.

It is possible that the rock-carrying truck could have been used at the quarry but there may have been lines of a narrower gauge at Henderson. Unfortunately for any WA researcher, the majority of National Archive files are located in Melbourne and Canberra. There are some digitised items and an interesting 1922 file records the removal of 12.5 miles of 46 lb/yd rail from Henderson to Canberra. I wonder if a Melbourne reader would be interested in visiting the local NAA office to research Series MP150/1 control symbol 569/204/133, item barcode 5806157 Henderson Naval Base, Western Australia – disposal of plant and material – inventory of assets (1921-1942) and sharing any list of railway equipment? It may record the rock-carrying trucks.

David Whiteford
Belmont, WA
Via email



Light Railways of Australia Facebook Group

A new Facebook Group has recently been set up by the LRRSA called *Light Railways of Australia*. 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. You will find it here:

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

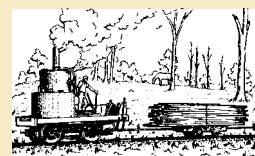
There are already 194 members from around the world, and you do not have to be a member of the LRRSA to join. The Group is managed by three LRRSA Committee members. Illustrated discussions have covered diverse subjects, such as: Warburton timber tramways; Victor Harbor horse tramway; NSW PWD harbour works; BHP diesel locomotives; How to identify a TACL tractor; an 1899 Nambour horse tramway movie clip; Grubb's tramway at Zeehan; Mount Kembla rail incline winding gear; and sugar tramways/railways in NSW and Qld.

Ian Barnes published the photograph at right on the Group, seeking identification of its location.

It came from the *Australian Forestry Journal*, May 1920 and led to 11 responses, resulting in the location being identified as Broome, WA, and the date being before 1907.



JARRAH JETTY ON THE NORTH COAST OF WESTERN AUSTRALIA



LRRSA NEWS

MEETINGS

ADELAIDE: "Czech light railways - part 2"

Our topic for this meeting will be the second part of the light railways of Czechoslovakia, presented by Gerry Ohmer. News of any other light railways 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 7 December 2017 at 8.00 pm

BRISBANE: "Mike Loveday photo competition"

The meeting will feature the late Mike Loveday photo and slide competition that is open to all members.

Bring a plate of Christmas goodies for supper.

Location: BCC Library, 107 Orange Grove Road, Coopers Plains.

Date: Friday 15 December 2017 at 7:30pm

MELBOURNE: "Industrial archeology in Cornwall and Wales"

Society Treasurer Colin Harvey will provide an overview of his recent trip to Cornwall and Wales. He will be presenting some magnificent photos and details of some fascinating sites that he visited whilst there.

Location: Ashburton Uniting Church Hall, Ashburn Grove, Ashburton.

Date: Thursday 14 December 2017 at 8:00pm

SYDNEY: No meeting in December

The next meeting of the NSW Division will be in February 2018 and details will be provided in the next *Light Railways*.

For Sale [regretful]

2 ex VR outrigger trolleys, 1 metal frame, 1 wooden frame. Design suits multiple gauges up to 5 ft 3 in. Includes 1 Honda clone motor and gearbox. \$700. Located in Melbourne. Contact peterjohn.j@edumail.vic.gov.au for further information.



Please send contributions to:
Research Editor, Stuart Thyer
e-mail: research@lrrsa.org.au

Global Positioning Systems – the Software side

Dr Iain Stuart
JCIS Consultants

This is a follow up to the earlier article in *Light Railways* (LR 251) on Global Positioning Systems (GPS). While the earlier article looked at how to capture data in the field, this article looks at how to export the information. At the heart of a GPS unit is software to allow it to record location information and export it, typically to be placed onto some form of map.

To begin though, some technical information needs to be digested. Data collected by a GPS is in the form of points with three-dimensional information associated with them (basically the X, Y and Z of a Cartesian system). High-end GPS units transform these into three classes of information, points, lines and polygons (or areas). Lines and polygons are series of points linked together.

More modest GPS units record location information in two classes; waypoints (points with extra data) and 'tracks' or lines. These are exported in one (or both) of two software formats, GPX or KML.

GPS eXchange Format (GPX) is a de facto standard for saving the results from a GPS receiver. This standard format allows GPS waypoints and tracks to be saved and shared. GPX files collect points in two ways: waypoints and tracks. Waypoints are generally single unrelated points while tracks make up a route or collection of related points with a start and end point. In GPX files all coordinates are relative to the WGS84 datum, all measurements are in metric units and time is UTC time.

Keyhole Markup Language (KML) is a format for storing geographic data and associated content. KML files have either a .kml or .kmz (for compressed or zipped KML files) file extension. In KML files all coordinates are relative to the WGS84 datum.

KML is typically used to overlay tracks and waypoints onto a map such as Google Maps or Google Earth, or an app on the phone so that you can get real-time information about your

location or trip. You can also share data with non-GIS users as it can be easily delivered on the Internet and viewed in a number of free applications, including Google Earth and Explorer for ArcGIS.

Software

Mobile phones have quite an array of 'apps' that use their GPS to track your location, usually recording the tracks and overlaying them on Google Maps as a base map. Typically, these apps are fitness based and are often bundled with your phone so they are virtually free.

Currently I use a Samsung App "S Health" which records your walks and runs (then calculates walking speed, elevation and so on). On your phone you can see the tracks on either Google Maps or Google Earth. The data from each session can be exported as a GPX file.

While doing fieldwork, I often have this app running in the background as it collects the data and at the end of the day I have a rough idea of where I have been. As the GPX files have times

for each waypoint, you can use this to locate where you took photos by matching with the time stamp on the image metadata. There are software tools that allow you to geotag your images from GPX files.

A more sophisticated 'hiking' app is Handy GPS which is designed by Anthony Dunk from Binary Earth, based in Gosford. It is available for Android, Windows and iPhones with both basic and paid versions.

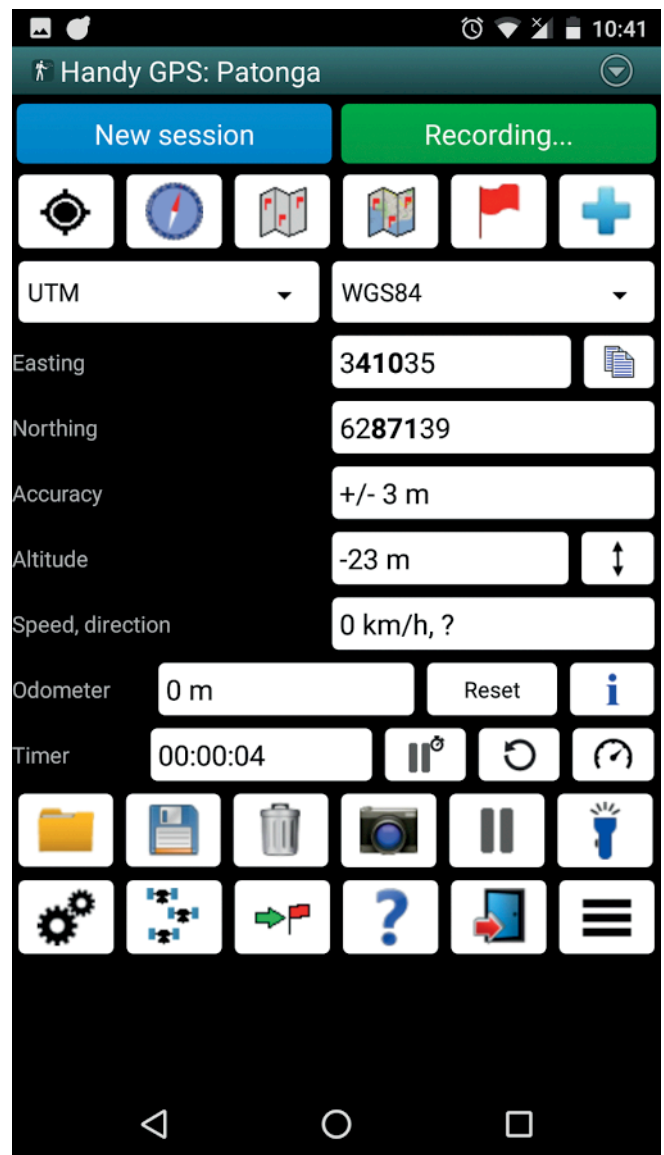
With Handy GPS you can record your tracks and waypoints as well as import tracks and waypoints, thus explore someone else's findings in the field. Different datums and map projections can be used. You can rely on Google maps on-line or import your own map tiles; it has a compass and can take georeferenced images. Importantly Handy GPS allows you to have maps and tracks stored on your phone (cached) for those times when you are out of data or phone reception and

so cannot use Google maps. There is the ability to create a "waypoint" which is simply a point in space, and add data about the waypoint. This is very useful for making brief records about finds.

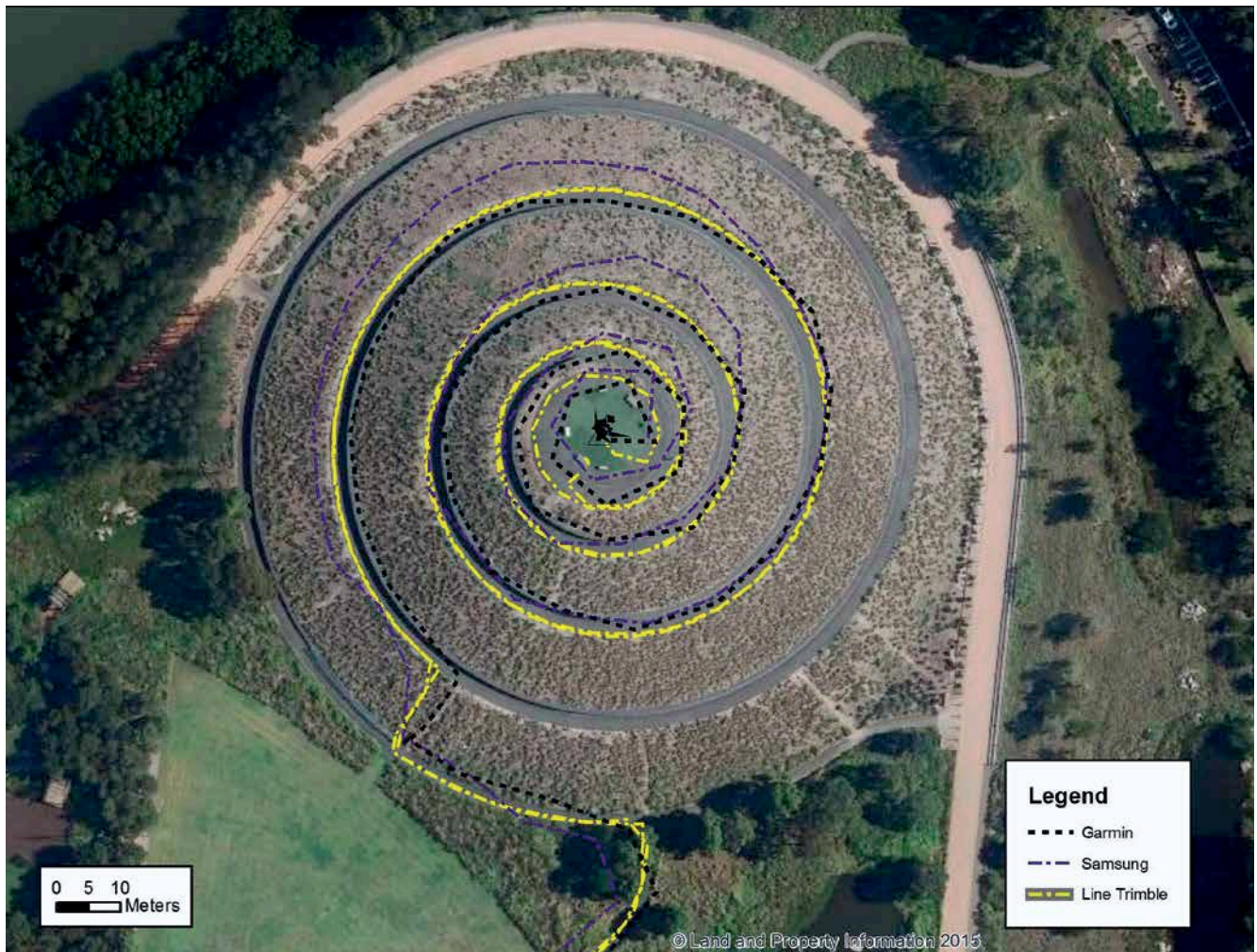
I use Handy GPS quite often. It is a useful tool to have on my phone so that if I suddenly need to record something such as a site, I can record it as a waypoint and take a georeferenced photo with little hassle.

I have also used Australian Topo Maps which again, comes in free (with ads) and paid versions. Like Handy GPS, it allows importing and caching of maps as well as offering a wide variety of Australian base maps by drawing on on-line services such as SIX maps, but its interface is more orientated towards viewing maps rather than recording tracks and waypoints.

There are also a number of apps that allow you to collect geo-located data such as ESRI's Collector or Trimble's Terra Flex. These are very useful for data collection as you can set up a pro-forma set of fields to be recorded and, when you come to a site you can fill them in, take a picture and the



With a well-resourced website to answer any query, the Handy GPS software is a very capable tool for working in the field. Combined with a GPS enabled smartphone, it is a powerful system within easy reach of the average user.



A comparison of recording accuracy from three GPS units. Not surprisingly, the Trimble unit gave the most accurate track, justifying its expense for professional operators. The Samsung phone was the least accurate but for typical light railway work plotting lines and features in the field, the result would still be acceptable.

location is recorded, and the record synced or added to a database (located wherever you want it). This software is commercial so you have to pay or have purchased related commercial mapping software like ArcGIS.

When planning a field trip it is worth considering two points. Firstly, you will likely be off-line which means you need an app with the demonstrated ability to use cached maps. Cached maps are maps stored on your phone or GPS. Without this ability you will still be able to record tracks and waypoints but you won't be able to see them projected onto a map.. Most apps will automatically cache maps of areas that you regularly frequent but you cannot rely on this.

Secondly, you need to consider battery life. Running the apps chews up power (and data) and, by applying Murphy's Law, your phone will run out of battery power just when you have found the most interesting site. I carry portable power banks to provide sufficient battery life for the phone.

As the GPS needs to see the satellites, consider where you will carry it in the field, stuffed deep in pockets otherwise hidden will cause errors. I have a phone sized pouch which clips to my belt for my Galaxy 4 or my Montana which seems to keep satellites in view.

Mapping

I use a Geographical Information System (GIS) to map data from my GPS's. A GIS is simply a system designed to capture, manipulate, manage, and present spatial or geographic data. A map is a primitive GIS. Google Earth is a GIS and has GIS like properties such as the ability to overlay maps and images. The premier product is ArcGIS and its derivatives (published by ESRI) but is not cheap for commercial use (although there is a reasonably cheap home use option). This is matched by the open – source product QGIS which offers similar functionality and is free, but takes time to learn. Google Earth is an alternative which has much less capability but is readily available.

I have no preference on which system to use as it depends on what you want to use them for. There is a learning curve for all GIS products but there are ample videos on-line to help in overcoming the learning curve and get started. A typical workflow for me involves downloading files from GPS to computer and then bringing them into a map created in the GIS as a layer. The tracks and waypoints form a layer in the map and can be overlaid on base plans such as aerial images, historical aerial images, historical maps, current topographic and cadastral maps. There is often a phase of looking at where we were and where we thought we were and

then interacting with maps of various types to interpret and understand what we have recorded. At this point I often also georeference any images I have taken. The output is maps of varying types or data packages ready to share with your colleagues or clients.

However, GIS systems while good for mapping and analysis of historical information often lack finesse and cartographic qualities in presentation. A cartographer would take a GIS output and improve it using a graphics software program like Adobe Illustrator, turning a crude but functional map into a more visually pleasing image. *Light Railways* is well known for the quality of its maps.

Conclusion

Overall it is easy, with minimal outlay, to get a quality suite of software apps to run on your phone which will give a relatively accurate set of locations and tracks to help in recording sites and landscapes relating to light railways. The outputs of these apps can then be overlaid on other maps and aerial images in relatively cheap software packages such as Google Earth to produce simple location maps. These are great tools and as someone who once recorded sites by putting pin pricks through aerial photos they are a welcome improvement in the way field research is undertaken.



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

FRIENDS OF ARCHER PARK STATION AND STEAM TRAM MUSEUM, Rockhampton

1067 mm gauge

The museum has commenced a major refurbishment, which includes the painting of the building, replacement of any rotted timber and replacement of the carriage shade over the rolling stock. Works for Queensland funding from the State Government has provided \$500,000 for this work and the station will look like new when it is done. The refurbishment is well underway with the platform wall and foyer looking great and more like a railway station of the late 19th century. The new colour scheme is classic cream with Indian Red trim, making the station a lot brighter than the freight shed brown it was painted in 1990.

The front of the building and the carriage shade over the platform tracks will be the next major tasks to be undertaken. New roofing will be installed on the carriage shade and some woodwork around the station will also be replaced.

It has been a big year for track work at the Museum. All the work begun in July has been completed including tamping. Track workers have continued replacing sleepers in the platform road and turnout three with the help of a few Jobs Queensland workers. The track supervisor and safety officer have been carrying out the annual track inspection and the sleeper replacement plan is being updated from this information.

The Central Queensland University media studies project is now complete with all sensors working around the museum, each one telling a story of an exhibit found in the museum.

The Tram and Billard are both performing well. Only three or four jobs have to be undertaken on the Tram but they are not a priority. The repacking of the conrods and valve slides has been completed and all oil leaks stopped. The refractory cement in the firebox will have to be inspected at the end of the year as some has fallen out.

Tram Tracks Volume 11 Number 5, October 2017

WOODFORD RAILWAY, Woodford

610 mm gauge

Work on getting the Railway's Notice of Accreditation varied to allow for the track extension from Petersen Road is steadily progressing, and management is still waiting on advice from HQ Plantations regarding earmarking a future corridor through their area.

The renovation work on the café at the Peterson Road end of the line is progressing well with the new owners now talking about opening around Christmas. With the recent high patronage days resulting in several full trains, the Railway needs to rethink the best way to cater for the reopening of the café. A way needs to be devised that does not result in passengers returning from the café being inconvenienced by having to wait for another train. This does not happen all of the time but it is something that needs to be thought through.

Whilst the trackwork and internal concreting of the shed has been the main focus for some time, some external concreting remained to be completed on the access ramps to the two personnel doors and for the picnic shelter that had to be relocated to avoid the shed earthworks. The formwork and reinforcing steel was set up over several weeks for the four separate areas of concrete pours (which amounted to 4.3 cubic metres of concrete) that were undertaken on Saturday 30 September 2017. Fencing around the access ramps and picnic area has commenced and when completed will mean the end of the project. When this work is finished, the Railway expects to receive final building certification and will be able to start using the shed.

With the track work for the locomotive storage shed nearing completing, the Railway will have a concentrated push on main line maintenance over the next few months. Future track days will concentrate on renewing defective timber sleepers in steel or concrete in the mainline.

Durundur Railway Bulletin, Volume 38 Number 348 November/December 2017



Ex Pioneer Mill Hunslet 0-4-2T Pioneer (642 of 1896) on display at the Brandon Heritage Precinct in July 2017. Photo: Brian Bouchard

NEW SOUTH WALES

RICHMOND VALE RAILWAY, Richmond Vale

1435 mm gauge

A fire, burning out of control and fanned by 60 kilometre-per-hour winds, burnt approximately 700 hectares of bushland in the Richmond Vale area. The fire caused substantial damage at the former Richmond Main Colliery which is a heritage-listed building and is now home to a railway museum.

At the time, Museum director Graham Smith told the ABC that some artifacts had already been lost. "It appears that our complete line of restored four wheel coal hoppers has been destroyed and a stainless steel passenger carriage has been destroyed," he said. "The number one bridge under the railway line from Richmond Main to Pelaw Main is also on fire."

Mr Smith said six railway museum volunteers took shelter in a building as the fire approached. Reports indicate that the fire has gone right through the site and out the other side. With only six volunteers members on site at the time the fire broke out, Richmond Vale was indefensible.

John Garaty, an interested observer, in an on-line forum, reports that the Richmond Vale Museum can be added to the list of NSW transport-heritage organisations that have suffered major fire damage loss to significant heritage items and infrastructure. Past victims in NSW include the Zig Zag Railway, Loftus, Valley Heights, State Mine Museum and Parramatta Park. He further explains why fire protection at rail heritage sites was not compulsory.

Currently in NSW, Transport Heritage NSW [THNSW] has the responsibility for managing an annual state-guaranteed budget disbursed to them through Transport NSW in the order of about \$4M to \$5M each year for all NSW transport heritage, apart from ferries. Under the current financial deal between THNSW and the NSW government through Transport NSW, grant funds are available for affiliated

transport-heritage organisations, like the Richmond Vale Rail Museum and others. Items such as fire protection and sprinkler systems are specifically excluded as suitable items in the annual grant program. Under the 2017 grant application terms, in the list of exclusions is "track and infrastructure" items, which includes fire prevention equipment such as fire main and hydrant upgrades, sprinkler systems in main exhibit areas and workshops.

John states that he did write a successful grant application for a rail heritage organisation in previous years under the current scheme, and is consequently fully familiar with the fire equipment exclusion. He was specifically advised at the time of writing the application that fire protection systems or enhancements were excluded by the terms of the grant process. He is presently not affiliated with any transport-heritage organisation in NSW, so his views are those of an interested observer watching from the sidelines, but who has previously had some significant input into heritage organisations.

The number of dollars handed out annually to other parts of the NSW transport-heritage sector is a really miniscule amount (about 2% of his estimate of about a \$16M total transport-heritage budget over the four year period so far). Also written into the grant guidelines is the idea that amounts over \$10,000 are unlikely to be successful, e.g. a quotation to protect a relatively small three-road shed with sprinklers came in at about \$40,000 some years ago. As such, a grant application for that amount would have been unlikely to get up, even if it was permitted under the current NSW transport-heritage grant guidelines. As a consequence, it is virtually impossible for rail heritage organisations to buy fire insurance.

Until something changes, John can foresee more fire losses on THNSW-affiliated sites like the RVRM and similar organisations.

John also included an excerpt from a posting on the Richmond Vale Railway Museum Facebook site that lists some of the damage as:

- three stainless steel passenger cars
- 90 percent of the non-air-hopper collection which includes ten restored ones and an ex South Maitland Railway brake van
- the entire collection of mostly timber freight vehicles stored along the western fence
- approximately 400 sleepers in the rail corridor to Pelaw Main plus about 100 within the Richmond Main site

There has been NO damage to the timber passenger cars, or any of the locomotives stored or operational or site buildings.

ABC On-line 13/9/2017; LocoShed at Yahoo, 13/9/2107

VICTORIA

DAYLESFORD SPA COUNTRY RAILWAY

1610 mm gauge

This railway is outside the scope of LR but this item has significance for the preservation movement. Significant thefts occurred recently from the Railway. During the week ending 29 September, almost all of the neatly stacked 75 lb fish plates

were stolen from near the rolling stock storage shed. Later the thieves returned, taking the remaining fish plates, drilling out the lock of the shipping container there and stealing multiple tamper work heads.

Although the value of the items stolen is c.\$60,000, it is the theft of the 75 lb fish plates that will really affect the railway with planned rail replacement now on hold.

Although almost certainly stolen for scrap, the Railway asks fellow enthusiasts to keep an eye out if their railways are approached with such items for sale.

The theft has been reported to police and it may be a worthwhile exercise for other enthusiasts to review their railways security arrangements as those involved may now see similar groups as very soft targets.

Daylesford Spa Country Railway email, 10/10/2017

RAILWAY FOR SALE, Trafalgar

Malcolm Dow reports that he recently came across a collection of railway items near Trafalgar while on a Council inspection. It was part of a railway on a property at Porepunkah owned by the late John Bale, possibly known to some LRRSA members. It is now in possession of his son Robert Bale (0402 313 702) who stated that the family is not interested in the collection and is planning to sell it. As well as the rolling stock, there is a pile of rails and a home signal and there may be more material stashed in the shed. LRRSA members may be interested in the sale.

Email 10/10/2017 via Bill Hanks

WALHALLA GOLDFIELDS RAILWAY, Walhalla

762 mm gauge

Four volunteers recently attended Erica Council storage depot to take delivery of a Motor-Generator set (donated by Engie, ex Hazelwood Power Station after its closure). This unit is fitted with a V 12 Caterpillar D348 engine which will eventually be installed into the 10 class loco as it is a similar

model to the one currently fitted to the locomotive, but with a significantly greater power output than the current engine. The rest of the unit will probably be scrapped.

On the DH locomotives, drawings and weld specifications have been prepared by ADRA Group (Traralgon) in preparation for quotations from local engineering firms for the modification of the locomotives to 762 mm gauge. An additional source of funding will be required particularly for the conversion of the wheelsets.

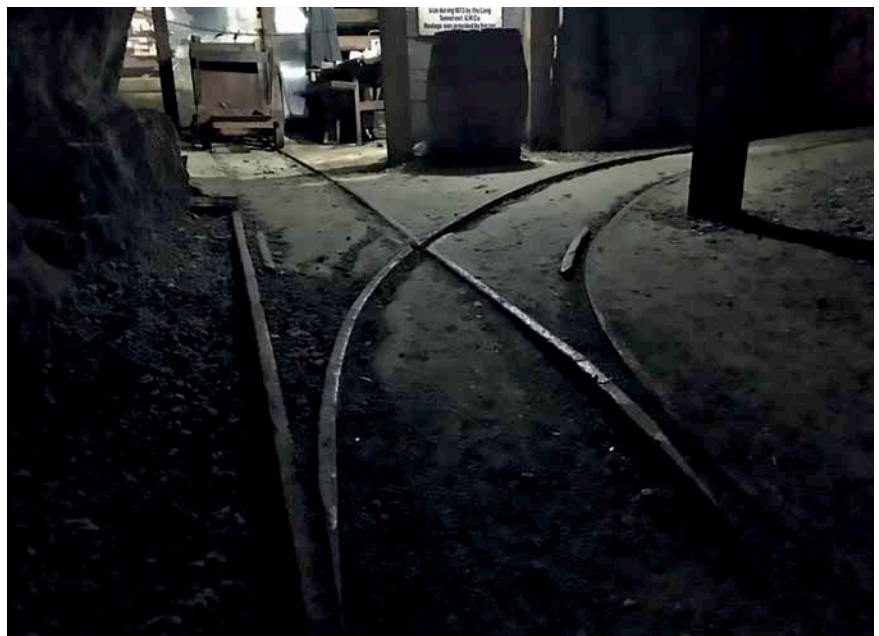
Two more ex-Z2 tram bogies for the second X1 tram have been located and purchased. These bogies have now been relocated to the Erica Council storage compound, however one bogie is being relocated to Thomson Works area in readiness for detailed measurement for gauge conversion.

At the loco shed at Thomson, workers have relocated the rear baulk to make room for a carriage and the 10 class loco. The 10 class now has a home under cover after many years of exposure to the elements. The new location will also assist with its starting in cold weather. Workers also relocated the Tamper from the carriage road to the old Kasey storage road in the shed. In order to do this, it was necessary to use its inbuilt jack to lift it and turn it so that the wide end was on the straight to go through the doorway. The other way round it would not fit due to the curved approach.

The much discussed relocation of Kasey to the modified loco shed at Walhalla has finally occurred. The locomotive is now permanently stationed at the Walhalla end of the line in case of train failure or line blockage requiring rescue from the Walhalla end. Kasey will still be used on days when only one or two carriages are required on running days.

The remaining Greenbatt locomotive (which is to be placed in the Puffing Billy Museum at Menzies Creek) is still awaiting confirmation of a delivery date.

Diesel and Dogspikes, August



At the Long Tunnel Extended Gold Mine, Walhalla, there is a 2 ft gauge tramway which extends from inside the mine to a siding which ends with a tipper to deposit the mine tailings. Near this there is a collection of mine rolling stock.

Photo: Michael Leaney



Former Sandhurst Town (Bendigo) Ruston locomotive hauling an ex Brisbane tramcar on 19 May 1983. Sandhurst Town closed some years ago and is now the site of a Buddhist Temple. The track was 610mm gauge and 1.6km long. Photo: Bruce McLean

TASMANIA

THE TASMANIAN TRANSPORT MUSEUM SOCIETY INC., Glenorchy

1067 mm gauge

The General Manager of the West Coast Wilderness Railway (Anthony Brown) visited the museum in early June. There was an interview on ABC radio that Sunday morning when it was revealed that the WCWR was interested in acquiring Abt 2 for restoration and return to service. Later, during his tour of the museum, Anthony told some members of the Board that whilst WCWR had three operational locos, one of those was always out of service for maintenance or repairs. During summer, they needed the other two to meet scheduled demand and if one broke down they had no option other than to put on a V class diesel. When this happened there was much anger and wrath from some of their customers who vented their anger through social media. After discussing a suggestion with his Board (and with the approval of the TTMS Management Committee), there is an in-principle agreement to exchange Abt 2 for diesel loco V9. The WCWR will also assist the museum with any other rolling stock or equipment that they are able to release. Before this exchange can proceed, the WCWR need to get funding from the Tasmanian Government to enable the restoration of Abt 2 and there needs to be an exchange of documents that acknowledges that Abt 2 will be returned to the TTMS should it no longer be required.

The museum now has good CCTV coverage throughout the site and buildings. There are eight cameras in total, covering the back fence behind the roundhouse, the station platform, roundhouse forecourt and the yard. There are also internal cameras inside the entry building and road transport building. They record 24/7 and store up to a fortnight of recordings.

Tasmanian Transport Museum Society Inc. Newsletter September/October 2017

SOUTH AUSTRALIA

MILANG LIGHT RAILWAYS CENTRE, Milang

1610mm, 1067 mm and 610 mm gauges

The SA Light Railway centre building is to be doubled in size, since the exhibits now do not fit. It will be extended across the broad gauge track, in which it is intended that an extra rail for 3 ft 6 in gauge will be fitted to accommodate the Price jetty tractor.

Last December the Milang group received a grant from History SA for \$8,680 to tell the story of how the railway benefitted the Milang community. To achieve this, the interior of the station building is being restored to its original appearance but with the addition of several displays. These displays are interactive and tell how the Milang railway worked, what it looked like and how the community used it.

The station master's desk has been re-created and a dummy station master will soon be sitting at it. Visitors will then be able to use a touch screen to ask questions and the station master will answer verbally.

From 1938 to 1971, a small diesel locomotive helped to harvest salt and gypsum at Stenhouse Bay on the Yorke Peninsula. It is a 48 HP diesel with a mechanical transmission and was manufactured in Lincoln, UK by Ruston & Hornsby.

When the Stenhouse Bay railway closed, the locomotive, with two others, was donated to what is now the National Railway Museum. It was stored at various locations for the next 45 years. In the course of those years, it lost its starter motor but was otherwise maintained in fair condition.

Last April, the Ruston was loaned to the Milang Railway Museum for restoration back to running order and it duly arrived by truck. After a difficult unloading, the Ruston was moved to the Light Railway Centre and is now being restored by volunteers. An early problem was finding a 1938 starter motor. After a worldwide

search, members had some good fortune and an example in good condition was found on a derelict locomotive in Broken Hill. They got permission to remove it and, late in August, it turned the Ruston's engine over for the first time in 45 years. However, at the time of writing, the engine has yet to run.

Members are busy working with the local Council on a number of matters. The lease expires at the end of September and is being re-negotiated. Council also requires the Centre to install a \$5000 grease arrestor and members are seeking a donation from them to help with the cost. They have also applied for a grant to extend the Light Railway Centre to accommodate rolling stock which currently has to be stored off-site.

The Lakes Railway News, The Newsletter of the Port Milang Historical Railway Museum, September 2017; Record of the meeting of the SA Group, LRRSA 5/10/2017

WESTERN AUSTRALIA

BENNETT BROOK RAILWAY, Whiteman Park

610 mm gauge

The end of the steam season at BBR is near and it is time for the 0-4-2 Perry's 10 yearly strip down and inspection. This involves exposing the boiler shell to enable a detailed inspection by removing the cab, tanks and cladding. Workers hope to attend to a few minor repairs while this is going on. The Fowler unfortunately has failed with a leaking torque converter that, coupled with engine and wheel problems, will put this locomotive out of service for the time being.

The Atlantic Planet has been running as backup for weekend running and will be the Railway's primary locomotive coming into summer.

Workers are reasonably confident of having found the Dorman Planet's fuel starvation problems, narrowing it down to the lift fuel pump diaphragm that had split as the most likely cause of air in the fuel lines.

Ashley has been running midweek and school holidays reasonably trouble free.

Workers have been chipping away at some of the smaller components of NG15 123, including repairs to the drain cock linkage, while they await news on the boiler repairs.

Work has also been done on the 0-6-2 Perry, reassembling the non-worn parts and assessing any future repairs for when funding becomes available.

The recent Ashley Day held on Sunday 10 September was a great day. While the day was cloudy, there was little rain, and the cloud cover kept the day warm. 2,200 tickets were sold, meaning hardly any trains were not full, but trains rarely left any passengers on the platform. Because not all families who come out to Whiteman Park ride the trains, it is estimated that there would have been close to 3,000 visitors. The event went smoothly, with no major problems. Local writers, Peter Gould and Donna Franklin, used the day to launch the fifth book in their Ashley series, *Dorman the Magnificent*.

The Bennett Brooklet October/November 2017

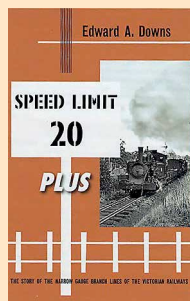
Books from LRRSA Sales ...

Speed Limit 20 Plus

The Story of the Narrow Gauge Branch Lines of the VR
By Edward A Downes

Revised edition published by Puffing Billy Preservation Society, November 2017

Over 130 pages, 210 x 135 mm, hard cover, many photographs and track diagrams.



Long out of print, this is an updated version of the much sought-after book originally published in 1963. It is a history of the Victorian Railways' five 2 ft 6 in gauge lines, and it includes an additional chapter to cover events since 1963.

Price \$49.95 plus postage

(\$44.95 to LRRSA members)

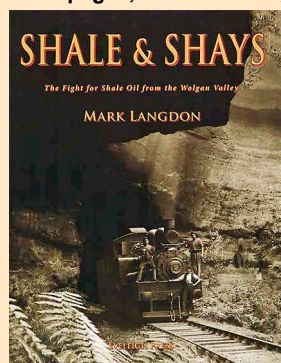
Weight 550 g

Shale & Shays

The Fight for Shale Oil from the Wolgan Valley
By Mark Langdon

Published by Eveleigh Press.

300 pages, 279 x 215 mm, hard cover, many photographs.



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

Price \$78.00 plus postage

(\$70.20 to LRRSA members)

Weight 1,400 g

Simsville and the Jarrah Mill

Myall River State Forest, New South Wales

By Ian McNeil

Published by the LRRSA

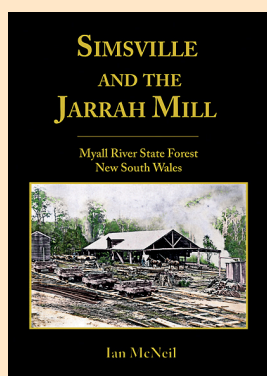
Soft cover, 96 pages, A4 size
55 photographs, 12 maps and diagrams, references, and index.

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

Price \$29.00 plus postage

(\$21.75 to LRRSA members)

Weight: 490 g



The McIvor Timber & Firewood Company

Tooborac, Victoria

By Frank Stamford

Published by the LRRSA

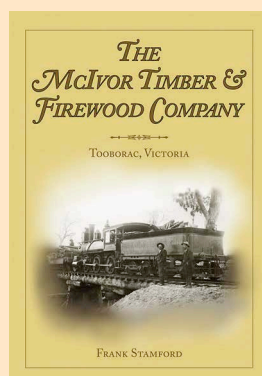
Soft cover, 104 pages, A4 size
104 photographs, 23 maps and diagrams, references, and index.

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

Price \$30.00 plus postage

(\$22.50 to LRRSA members)

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