

*Australian*

JANUARY 2017 | VOLUME 69 NO 951 | \$8.40 (INC GST)

# RAILWAY

## HISTORY™



FOR ALL WHO ARE INTERESTED IN RAILWAYS

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### **THREE WAYS TO GOULBURN**

The 1848 Railway Route surveys

### **RICHARD WATKINS**

National railway contractor and engineer

### **RED HILL MAYDAY**

Train 480 in the 'mud' at No. 3 Red Hill tunnel

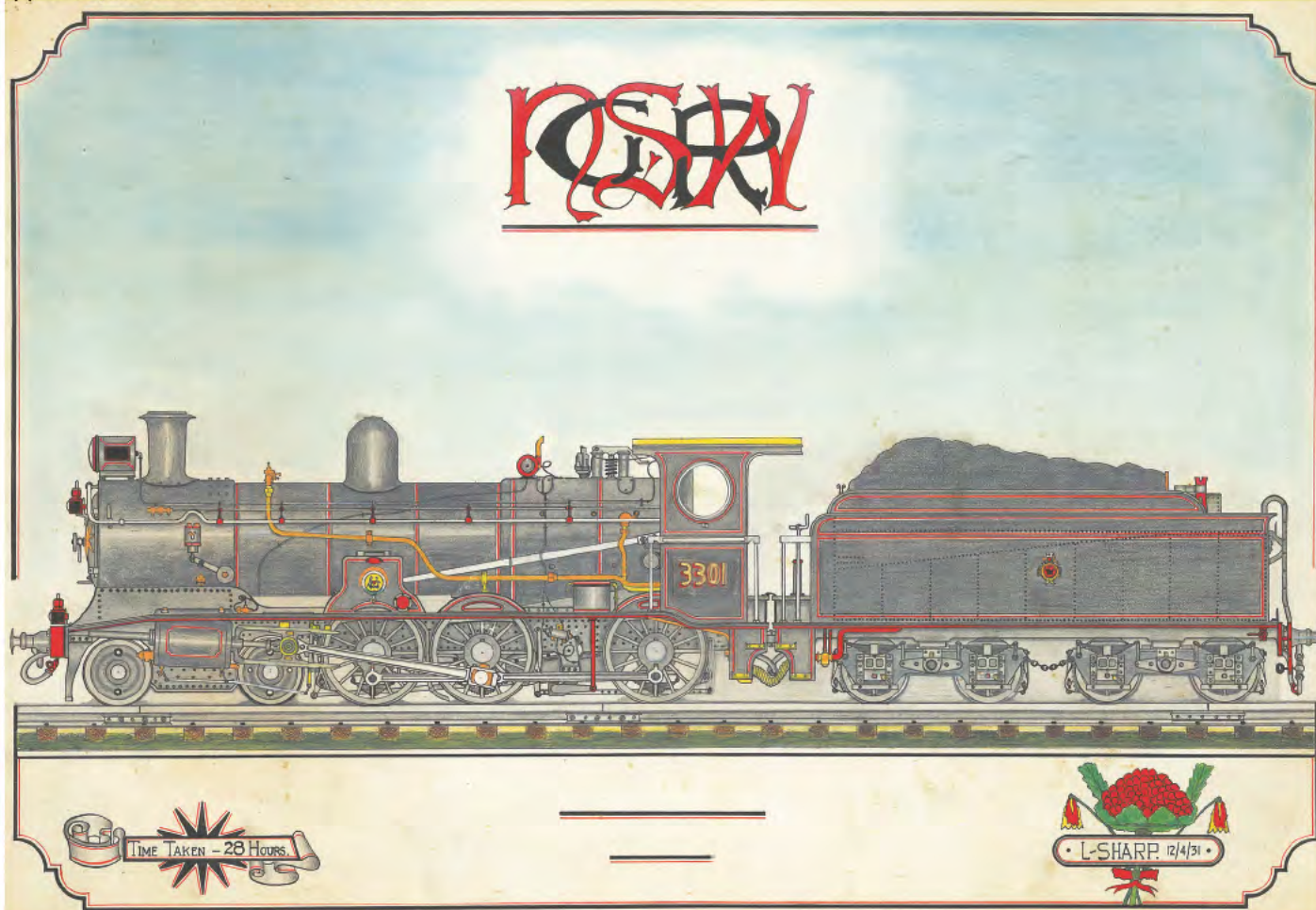
### **ARHS RRC TREASURES**

*Journal of the Australian Railway Historical Society*





ABOVE: An early photo of a group of railway officials and their families posing on the Stony Creek railway bridge with the falls in the background. The article on Richard Watkins, who was involved in the 1892 Arbitration case on the Cairns Range Railway contractor's claims starts on p9. ARHSNSW RRC, 120708 BELOW: Lance Sharp's drawing of C32 Class locomotive 3301 prepared on 12 April 1931 (see item pp26-28). ARHSNSW RAILWAY RESOURCE CENTRE





## EDITORIAL

Welcome to our first issue of *Australian Railway History* for 2017. We have a full schedule of articles from across Australia over the coming months with a broad range of subjects.

This issue commences with a short article from Austin Mooney documenting additional research he undertook following his article 'How the Railway came to Goulburn' in last January's issue. This provides further details of the three routes that were surveyed for the Great Southern Railway to enter the township of Goulburn.

Following the two-part article on the contribution of railway contractor William Watkins to the building of the main line railways across the Blue Mountains and to the 'fertile plains beyond', the fascinating story of his son, Richard George Watkins, is featured this month.

Richard's early railway experience was with his father on the Orange to Dubbo and Werris Creek-Gunnedah lines and he subsequently undertook jobs with the New South Wales Railways as a consulting engineer. In 1892 Watkins was selected as a Queensland Government arbitrator in the legal case brought by John Robb, the contractor who built the Cairns Range Railway, following the refusal by the Queensland Rail-

ways Commissioners to pay his supplementary claim for expenses. He also became involved in legal claims by other contractors at this time, before returning to New South Wales seeking further railway contracts.

Richard Watkins moved to Western Australia with his family in 1897, obtaining the position of Resident Engineer at Coolgardie on the Eastern Goldfields Railway for three years before returning to Sydney. He subsequently served as municipal engineer of Marrickville Council and as mayor and engineer of Waverley Council in Sydney.

Garry Hayes documents the unusual accident which befell the crew of diesel-electric locomotive 4450 heading a Pick-Up Goods train through No. 3 Tunnel on Red Hill near Coffs Harbour when it ploughed into a mass of mud that had blocked the tunnel. Fortunately, the crew survived to tell the tale! Bill Phippen rounds off the issue with an update on new treasures at the ARHSnsw Railway Resource Centre that emerged from the image on p32 of the August ARH.

*Robert Fenwick*

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**Cover Image:** Cairns Railway Baldwin-built 2-6-0 No. 3 was hired by John Robb for the Cairns Railway construction. It poses on Bridge No. 11 with No. 4 tunnel in the background.  
J L N SOUTHERN COLLECTION

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**Publisher:**

Australian Railway Historical Society,  
NSW Division ACN 000 538 803

**Printing:** Ligare Pty. Ltd. Print Post  
Publication No. 100000887

**Division and Branch Details:** New South Wales Secretary: G Thurling Phone: 02 9699 4595 Fax: 02 9699 1714  
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**Subscriptions:** Subscription is included in membership of the NSW Division, which costs \$95 a year for Australian residents. Rates for non-members are available on application. All are renewable on 1 May.

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**Hours:** Noon-4pm Tue, 10am-3pm Sat

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**Letters:** We publish a selection of letters depending on space allowances. Letters should be kept to around 250 words and preferably be sent via email.





Etching of Goulburn Station as its construction neared completion, circa October 1868. GOULBURN HISTORICAL SOCIETY

# THREE WAYS TO GOULBURN

Austin Mooney

## EARLY DAYS.

Major Mitchell originally laid out the Great South Road to avoid building bridges and constructed his road over the summit of the big hill (now known as Governors Hill) on the northern approaches to the town. With the new road in 1837 a causeway was constructed crossing the Mulwaree River at the bottom of Grafton Street near Keeley's brickyard.<sup>1</sup> Following damage caused by the 1842 flood and initial repairs, this was replaced about 1848 at a cost of £40 (equivalent to \$69,300 in 2014 terms).<sup>2</sup> This was in turn replaced by the 1854 road bridge at the current location.

Thomas Woore had a starting point fixed when he commenced his survey at the terminus point on the shores of Darling Harbour in Sydney, while his survey reports show the route to the southern terminus as:

Near Towrang, crossing Mulwarri Ponds, to about a quarter of a mile from Goulburn, at 46 miles from Bong Bong, and 132 from Sydney, and 2103 feet above the sea; that from Bong Bong to Goulburn £73,009, averaging £1587 per mile.<sup>3</sup>

Woore's crossing of the river was described as: 'after passing through 'Stewarts' place then bridging the river'.<sup>4</sup> From this we must assume that he was always going to cross the Mulwaree for the entry into Goulburn. Woore's bridge of choice was to be a timber trestle that was reasonably cheap and easy to build using local materials. The necessity that was the driving force was to find the route which was the most economical to construct and operate a tramway or railway using ironbark rails, with either horse or mechanical traction as a means of propulsion. G Ryder Peppercorne, who had obtained a British patent in 1838 for a horse-drawn railway, would have influenced thinking in favour of horses. With the aim of finding the lowest cost railway, Woore's choice would

therefore have been horse-drawn over wooden rails.

## STEWART'S PLACE

A search of old parish maps shows that 'Stewarts place' was located to the east of the confluence of the two rivers. A contemporary report from the *Goulburn Herald* of 1848 states that Stewart's property at the junction of the Wollondilly and Mulwaree Rivers, was leased by Mr Ball 1848. It was owned by Mr T Grunsell from 1861. A *Goulburn Evening Post* correspondent visited Mr Grunsell at his property known as Stewart's at the junction of the Mulwaree and Wollondilly Rivers in 1889, together with a 'newer portion' situated on the old Sydney road just on the other side of the Fitzroy bridge.<sup>5</sup> The railway runs on the eastern side of the whole property.

This article identifies its location, while Arnheim's map of 1859 has the land to the west on the Wollondilly belonging to Andrew Allen, while on the eastern side of the Mulwaree at end of the hill south of the current quarry blocks were held by Stewart and Shelley. Shelley would be later recognised in the naming of Shelley Street. This identifies the crossing point.

## THE 1848 ROUTE

Thomas Woore planned to follow the river on its eastern bank around the flank of Governors Hill to Stewart's property, and then take a route diagonally across the flood plain to the river crossing on the skew near the Mortis Street Cemetery, adjacent to the causeway. This would carry the line to the rear of Grafton Street to his terminus near Bradley Street, but progress further south would have been blocked by the Presbyterian Church.<sup>6</sup>

If Woore was planning only a horse-drawn railway, the terminus would only require minimal facilities for the stabling



of horses and passenger facilities. His goods yard would have been separate, being located at the end of Mulwaree Street.

Mulwaree Street was already formed in 1849 when a bakery was advertised for sale, while Phillip Dignam was advertising blocks of land for sale there in 1850 suitable for building near Sterne Street. In 1851 the following advertisement appears:

SMALL FARM TO LET, ADJOINING Grafton Street, Goulburn, and fronting the **New Line** and Mulwarre Ponds, consisting of TWENTY ACRES. RENT Low. Apply at the Argyle Store.<sup>7</sup>

This may be the block of land William Bradley offered for the railway terminus.

## THE 1854 BRIDGE

With work on the railways suspended, the Department of Works continued improvements to the road into Goulburn, including building the bridge at the crossing point suggested by Thomas Woore. The new road bridge (175 yards long, 26ft 3in wide and 25 feet high) was constructed across the Mulwaree Ponds in 1854 before the railway surveyors arrived. The bridge was piled of timber construction and was completed and opened for traffic within six months. The *Goulburn Herald* reported:

The whole of the piles have been driven down and a considerable amount of the planking laid on the Goulburn side; the excavating has been commenced and a great portion of the hill cut through, which will bring the road from the bridge to the level of the plain with a gentle incline hardly perceptible.<sup>8</sup>

This indicates that the contours of the land were altered to facilitate the approaches to the bridge, thus altering the flood plain and providing protection for the subsequent railway route. The *Goulburn Herald* later criticised the excessive cost of the new bridge, with £7000 voted for the timber bridge compared to the estimated £3000 for a four-arch stone bridge built using local stone. It also stated that the bridge would not last 60 years. On this point they were

correct, as it was replaced in the 1880s.

## 1856 SURVEYORS AND ROUTES

When the railway surveyors arrived in June 1856 they found Woore's proposed crossing effectively blocked by the road bridge. Accordingly, they laid a new survey from the curve at the southern end of the cutting across the flood plain to cross the Mulwaree near St Saviour's cemetery; then through the police paddock to follow the ridge around the lagoon, before crossing Grafton Street to pick up Woore's route into the terminus. It would leave all his facilities in place.

This route required a palisaded road 1240 yards long to approach the river to ward against floods, but it lacked the protection afforded by the approaches to the road bridge. The surveyors would have designated the paddock as a railway reserve for future use. With the development along Woore's corridor in Mulwaree Street it was no longer suitable so the following was adopted, although they continued the survey south through the Broughton estate for the future expansion.

Conscious of costs, they decided to truncate the line before the end of the hill with a temporary terminus at Stewarts, while the balance of the facilities were organised on the Up side of the line at the northern side of the quarry in a linear fashion towards Sydney thus: carriage shed, goods shed, engine shed, turntable and watering facilities.

All these facilities would be relocated to the terminus in Goulburn in 1869. With the transfer of these facilities it was essential to build a gatehouse to cover the Goldsmith level crossing, tenders for which were called in September 1869.<sup>9</sup> Following lobbying surveyors were at work laying out location of cattle yards and contract let for erection at North Goulburn in July<sup>10</sup> replaced in 1878.<sup>11</sup> First recorded use was the unloading of a Durham bull in August account John W Chisolm.<sup>12</sup>

The station masters house was put out to tender in May 1870<sup>13</sup> to complete the station layout, it is assumed that pending its completion the stationmaster used the acquired



An early photograph taken from 'Stewart's place' towards Goulburn with the Fitzroy Road Bridge dominant in the centre-right. GOULBURN DISTRICT HISTORICAL SOCIETY COURTESY J COGGAN



Presbyterian manse as his home, it was later used by Traffic Inspector Alexander Crawford.<sup>14</sup>

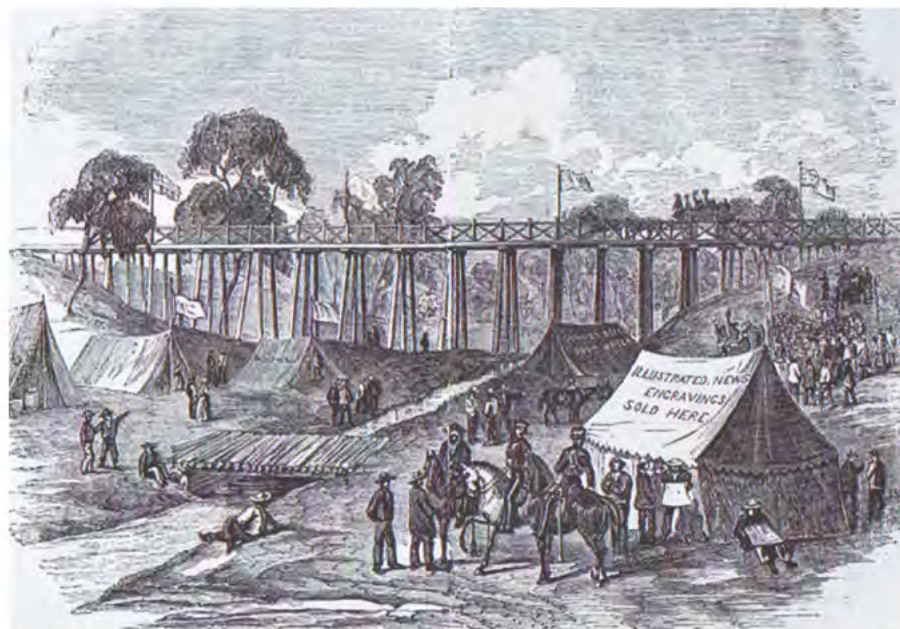
## PREPARATIONS

In 1854 Columbus Fitzpatrick, while digging for gold at the end of Cole Street, struck water. He dug a well, and installed pumps along with a pump-keeper's cottage in readiness for the establishment of the station.<sup>15</sup>

September 1862 saw the turning of the first sod at Picton by Mr G M Antill JP in front of a large crowd with much toasting and feasting and other festivities including an impromptu cricket match. The citizenry of the newly proclaimed city were reassured in that the railway south was finally on the march, which hopefully would be rapid. During his address Mr. Antill said:

He hoped the men, by their industrious and peaceable habits, would be a credit to this great work and their employers, and that they would not require his interference, as a magistrate, to restrain any lawless or violent acts. The people in this community were happily a quiet, contented, and peaceful set, for which in some measure he must take credit to himself for he always advised a settlement of any differences by conciliatory measures rather than the strong arm of the law, and in numbers of instances it had had a most beneficial effect.<sup>16</sup>

Following lobbying by the citizens of Goulburn in 1863, the Government assented to the extension of the line into South Goulburn terminating at



J R Clarke's 1857 engraving of the Fitzroy Road Bridge across the Mulwarree River depicts its official opening in 1854. Note the official coach crossing the bridge in the background. NATIONAL LIBRARY OF AUSTRALIA, PIC-AN800828

Clinton Street. The station would be located at the end of the line, with the carriage and goods sheds just to its north. The engine shed, turntable and watering facilities would be added after the 1869 decision to locate all facilities at the terminus.

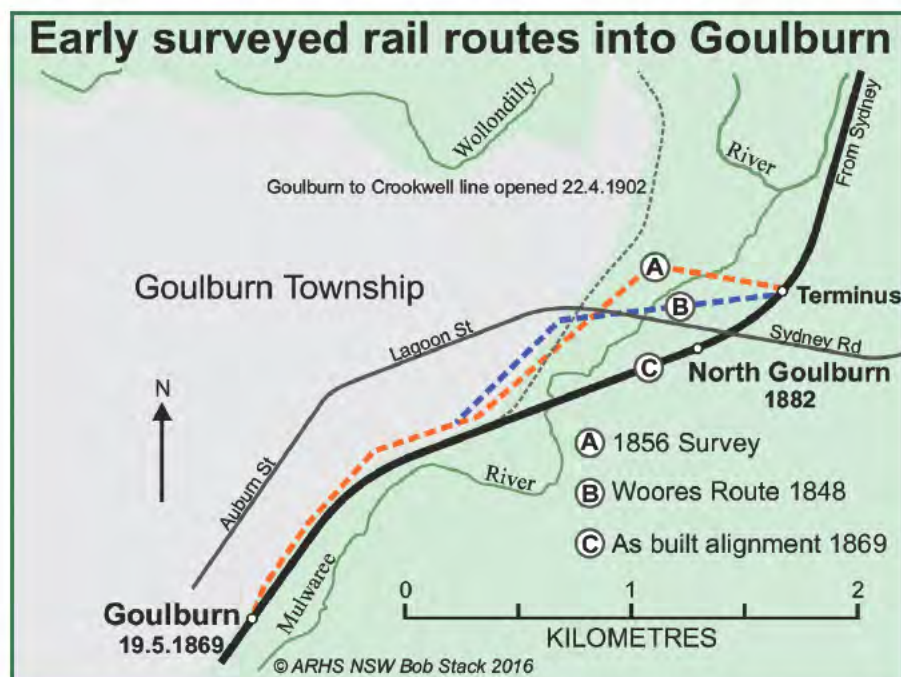
## 1864 AND FAVIELL

This decision also meant that a new crossing point had to be found using the road bridge as a starting point. John Whitton, Mark Faviell and his engineer James Moore settled on a point to the east of the road bridge and using the Great Southern Road as a levee, curved the route to its east crossing the

road on its way to the river. The map they used was one of Robert Hoddle's, drawn in 1833 of the County of Argyle. A section of a map showing the farms of Passmore, Cole and Stuckey in the Parish of Towrang, would also have been used by Thomas Woore.<sup>17</sup>

Their viaduct was to be a brick and stone construction measuring 313 yards long and 12 yards to the bottom of the ironwork. This reflects the changes that had taken place in ten years between the methods of construction of the two bridges, timber to brick and iron. The purchase of land for the viaduct was not complete until July 1866, meaning construction would not have commenced until after this date.

Exploring the three options for the best route shows that the final one selected was the best option based on the following assessment. The first two routes were more flood-prone, being exposed to the full force of the floods across the flood plain. The construction of the road bridge and the building of its approaches provided a level of protection, and the availability of spoil from the cutting around the hill to raise the level of the line to the bridge on the northern side. Materials for the building of the bridge were readily available on the Goulburn side from the timber and clay there. The lack of housing on the approach also reduced the cost of land required, together with the amount of traffic crossing the Great Southern Road inside the city limits. This ensured that the two towns could coalesce into one without cross-





ing the railway. There is a possibility that Faviell and Moore worked on the troubled Windsor tramway. If so, their experience there guided the selection of the best path to reduce the flood risk at Goulburn. Whitton also had concerns over the Windsor line and on this basis approved their choice.

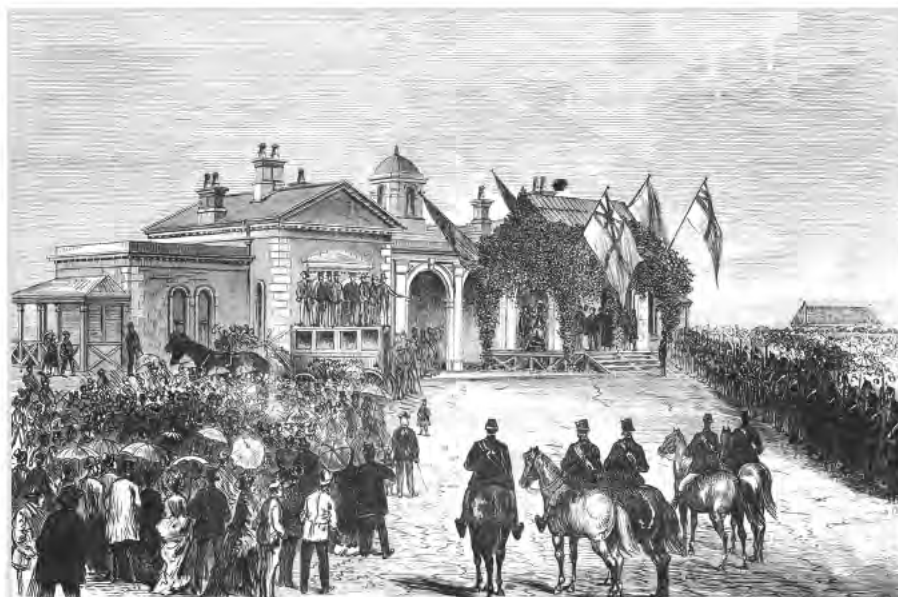
Negotiations had to be undertaken with elders of the Presbyterian Church for right of way to the terminus. After hard bargaining, the Reverend William Ross ceded the rights to the corridor on favourable terms from the railway so the way was clear to the terminus, with the railway acquiring the manse.<sup>18</sup>

The site for the station was chosen to minimise floods from the river. Nevertheless, it was below street level and therefore prone to flooding from the west on occasions. The first of these occurred late in 1869. There were many more floods over the years, including one while I was working in the booking office at Goulburn Station between 1969 and 1971. This occurred one Sunday afternoon following a severe drought, when a sudden storm overwhelmed the drains with runoff from the Verner Street hill. I recall issuing tickets in the dark with a hand-lamp under my arm, with water up to my knees and gushing out of the drains between the platforms up to the communications channels affixed thereto.

The water was so high that diesel-electric locomotives could not be attached to carriages at the platform for No. 36 Passenger train. To ensure its on-time departure, a steam locomotive was attached to haul the train out of the platform to the central signal box, where it was detached and replaced by the diesel-electric locomotive. The problem had cleared by the time train No. 18 Passenger ex-Canberra arrived.

Government lack of consideration for its clients' need was exhibited in February 1869 when, as part of the 'Day of Humiliation' to atone for the drought, no trains were scheduled to run on the Saturday. Unfortunately, residents at Goulburn were not informed of this, so passengers arriving to catch the train from Marulan found there would be no train until Monday, while the subscribers to the *Sydney Morning Herald* did not receive their paper.<sup>19</sup> The 'Day of Humiliation' brought heavy rain, so its activities were cancelled and a Service of Thanksgiving was substituted.<sup>20</sup>

The first freight train left Sydney on



The large crowd that assembled to welcome the Governor, Sir Hercules Robinson and Lady Robinson to Goulburn during their visit in 1872. STATE LIBRARY OF VICTORIA, IAN31/12/72/248

the night of Tuesday 1 June 1869 for Goulburn, comprising 15 heavily laden goods wagons. Two passenger trains departed Goulburn on the following day for Sydney were the first train services under railway control.<sup>21</sup>

## UNIFORM AND ACCURATE TIME

In conjunction with the 1855 opening of the Sydney to Parramatta Railway and the commitment to extend the lines to Goulburn and Bathurst, uniform and accurate time was vital to the ongoing success of the undertaking. Uniformity of timekeeping could be achieved by the telegraph system as it was extended to cover the state by the transmission of a daily time signal to all stations. In 1858 it was reported in the Bathurst press that:

UNIFORMITY OF TIME.—From a recent paragraph in one of the Bathurst papers it would appear that the Telegraph authorities have intimated their willingness to transmit daily messages, announcing when it is noon in Sydney, if the inhabitants will provide the apparatus of a time-ball for making it known. It is to be presumed that the same advantage would be conferred on the people of Maitland on the like condition. The great convenience that would result from the possession of such a standard by which to regulate the time-pieces of the town is sufficient to call for some effort on the part of our townsmen to secure it.<sup>22</sup>

This was achieved by 1862 when the *Sydney Morning Herald* reported that: 'The correct time is also indicated at

every station in circuit daily on the drop of the time-ball, so that from Deniliquin to Tenterfield, Sydney meantime is reported'.<sup>23</sup>

The question of calculating time was resolved with the construction of the Sydney Observatory complete with its time-ball and astronomer-in-residence, who could perform the observations at noon and maintain the accuracy of the chronometer. This would be communicated by the dropping of the ball at noon, providing a visual signal so people could check the time. Pending completion of the observatory in 1857 it was announced that an audible signal would be provided from Fort Macquarie:

TWELVE O'CLOCK GUN.—Notice is given in yesterday's Gazette, that until the proposed Time Ball shall be completed, and in operation, arrangements have been made to fire a 24 pounder gun from Fort Macquarie, daily, at noon, as a means of making known the correct time throughout the city with greater precision than at present.<sup>24</sup>

The firing was later transferred to Fort Denison in 1906, until it was stopped in 1942 due to World War II. It has since been resumed, although the time ball can no longer be seen from the fort, the gunner now obtains the time from the talking clock.

By 1858 the time-ball was in operation and synchronised with the gun with the time of dropping altered to one p.m., this change was to ease the workload on the astronomer:

A notice appears in this afternoon's



Government Gazette, stating in future the time ball at Fort Phillip will drop at one p.m. instead of noon; it will be elevated for five minutes, the time ball may now be relied upon as sufficiently accurate for the purpose of rating chronometers.<sup>25</sup>

It was up to the local towns how to inform residents of the correct time, some installed time-balls, and others time guns, bells or clocks. Goulburn chose a time ball installed on the telegraph office, Queanbeyan discussed selling its public sundial to fund a gun, Tumut opted to use a church bell until they found that it had been sold and opted for a public striking clock instead.

Both problems having been resolved by the time the railway reached Picton, the way was clear for the colony to proceed with its rail system guaranteed of accuracy in its ability to run to a standard time.

## CONCLUSIONS

The ultimate tribute was recorded in the Melbourne newspapers of June 1869, when observing that their line to the north-east would be of a lesser standard than the newly opened line to Goulburn. Mark Faviell, his sub-contractors and workmen ensured that a new benchmark had been set for railway construction in the colonies. The heavy construction work between Picton and Mittagong was done by Messrs Larkin and Wakeford who also laid the rail right through to the end of contract No. 6. Between these three contractors they completed the railway into Goulburn in less than five years.

There is one mystery: Why was the railway reserve acquired at the site of the current prison so early?

Thomas Woore, or the surveyors that followed him, decided that there was a possibility of insufficient land for the goods yard along Mulwaree Street leading to the terminus so this area of land was reserved for this and also to provide connection with a line to Bathurst.

Deputy Surveyor-General Thompson's brief was to survey the line southwards to Melbourne. Thompson set out on his survey at Christmas 1856 from Goulburn and returned with the route set from Goulburn to Albury then onwards to Melbourne. He realised that it was not necessary to conduct a second survey from Bathurst or Wellington as ordered. In anticipation that a direct rail link might in the future be constructed to Bathurst or other places west or northwest, the land was reserved.<sup>26</sup>

The one o'clock time signal was transmitted over the railway telephone system well into the 1970s.<sup>27</sup> For nearly a hundred years the workday in Goulburn was regulated by the whistle organising the day in the Perway Workshops. For this period the railway reminded the citizens of the commencement and closing of the working day in the city, with the result it became the *de facto* regulator of working hours.

## END NOTES

1. Geoff Coggan places it between the road bridge and the viaduct.
2. *Sydney Morning Herald*, Monday 5 August 1850, p2. This bridge was damaged by the 1850 flood, which was bigger than that of 1843. The height for its replacement would have been taken from the damage caused.
3. *The Sydney Morning Herald*, Wednesday 26 January 1848 p2
4. *Sydney Morning Herald*, Wednesday 26 January 1848, p2
5. *Goulburn Evening Post*, Saturday 23 November 1889, p3.
6. The land grant for the Presbyterian church surveyed November 1838.
7. *The Goulburn Herald & County of Argyle Advertiser*, Saturday 11 January 1851 p 5.
8. *The Goulburn Herald*, xxx 1854, p?
9. *The Goulburn Herald and Chronicle*, Wednesday 29 September 1869 p 2 Article re Gatehouse
10. *Queanbeyan Age*, Thursday 22 July 1869, page 2
11. *Queanbeyan Age*, Saturday 27 July 1878, page 4
12. *Wagga Wagga Advertiser & Riverine Reporter*, Wednesday 1 September 1869 p 2.
13. *Goulburn Evening Penny Post*, Tuesday 3 October 1922, page 4. The house replaced the residence of John Horton's family in 1852
14. On the Sydney side of Blackshaw Road level crossing, on the down side of the line between the railway and the Mulwaree River, opposite Connolly's mill, still standing.
15. Undertaker, alderman, writer on early Catholic Church in Sydney. Saved people along with Rev. William Ross during 1852 flood using tanning vat as boat.
16. *The Sydney Morning Herald*, Thursday 18 September 1862 p 5 Article.
17. State Archives [2787] G.6.708 Goulburn R Hoddle Oct 1833 Survey of farms of Passmore, Cole and Stuckey on the Wollondilly River, Parish of Towrang. Annotations indicate land resumed for Sydney - Goulburn Railway Line, 1865
18. Two acres was granted in 1837 for the erection of the church, survey conducted by James Larmer.
19. *The Sydney Morning Herald*, Thursday 18 February 1869, p5.
20. *The Goulburn Herald & Chronicle*, Wednesday 17 February 1869 p2.
21. *Empire*, Thursday 3 June 1869, p2.
22. *The Maitland Mercury & Hunter River General Advertiser*, Thursday 26 August 1858 p 2 Article. Also see end note 16
23. *The Sydney Morning Herald*, Wednesday 11 June 1862 p4 Article. This only applies to towns connected to the telegraph, Taralga not connected until the 1880s.
24. *Empire* Wednesday 22 July 1857 p3.
25. *The Maitland Mercury & Hunter River General Advertiser*, Thursday 26 August 1858 p2.
26. *The Maitland Mercury & Hunter River General Advertiser*, Saturday 30 May 1857, p2 extract. Thompson route included one by Collector over top of escarpment to the west of Lake George.
27. Why the one o'clock gun? Because the astronomer took his sighting at 12 noon, so to give him time to perform his calculations, it was decided to fire the gun one hour later.





QR locomotive 1641 heads a tourist train from Cairns to Kuranda past Robb's Monument, the large rock selected in 1889 to commemorate the workers who built the Cairns Range Railway. J LUNT PHOTO, ARHSNSW RAILWAY RESOURCE CENTRE, 257204

## RICHARD G WATKINS

Railway contractor and Municipal engineer

Bob McKillop

The Richard George Watkins we are concerned with here has previously been introduced in the articles on his parents, William and Martha Watkins. He was born in the Sydney suburb of Redfern on 18 December 1856. During the family's holiday back in England and Wales from early 1870, Richard was a boarder at Queen's College, Taunton. Following the family's return to Sydney in December 1873, he was articled to the prominent Sydney civil engineer John Neal. Richard Watkins later became a prominent member of the Institution of Civil Engineers and was also a fully licensed surveyor.

While travelling by train to (or from) Orange during construction of the Orange to Dubbo extension of the Great Western Railway, Richard met Agnes Frederica Brewer and romance blossomed. They married at Orange on 14 July 1881 when Agnes was still 18. Richard and Agnes had five children, Muriel Dora (1882–1931), Maud (1883–pre-1923), Bessie Flora (1888–?), Reginald Thomas (1888–1967) and George Philip (1892–1958).<sup>1</sup>

### RAILWAY CONTRACTOR

As discussed in the November 2016 issue of *ARH*, Richard joined his father William on the contract to construct the Great Western Railway extension from Orange to Dubbo in 1877. Following William's death in October 1878, responsi-

bility for the contract fell on Martha Watkins as the executor of his will, but Richard assumed the task of managing completion of the line through to Dubbo.

There were challenges in constructing the piers for the railway bridge across the Macquarie River at Wellington, which delayed the contractor's ability to lay the permanent way west of the river. Once one of their locomotives was transferred to the western side, the line was rapidly completed and it was formally opened to Dubbo on 1 February 1881.

Following his return to Sydney, Richard undertook a number of railway engineering assignments. For instance, he prepared the cost estimate for 'duplicating' the line from Goulburn to Cooma for the Minister for Public Works John Sutherland. Richard's estimate, less the cost of bridges, which was prepared separately by Mr Townsend (but not accepted by the authorities), was £18,287. In March 1888 John Sutherland advised the Legislative Assembly that the cost of the work to date was £10,200, and the cost to complete it would be £6409 [equivalent to \$1.28 million and \$804,000 in 2013 terms].<sup>2</sup>

Evidently, Richard had expectations of additional railway contracting work, for in 1879 he ordered a locomotive from Beyer, Peacock & Company to the design of the A93 Class 0-6-0 goods engines then being built for the NSW Government Railways (NSWGR), being that builder's works number 1877. When the anticipated contracting opportuni-





NSWGR railwaymen pose with Manning Wardle 0-6-0ST locomotive No. 31, *RICHMOND*, at the original Sydney Terminal Station. Richard Watkins purchased this locomotive in 1890. R S FOKES COLLECTION, ARHSNSW RAILWAY RESOURCE CENTRE, 005462

ties failed to materialise, Watkins sold this locomotive to the Box Vale colliery at Drapers Creek.<sup>3</sup>

In late 1886, Watkins purchased a second contractor's engine of the A93 0-6-0 type, this one being Beyer, Peacock works number 2297 of 1882, which had been imported by agents for Cobb & Company who used it on construction of the Northern Line from Glen Innes to Tenterfield. Named *Segenhoe* by Cobb & Company, the locomotive was purchased by Watkins following completion of the contract on 1 September 1886. As opportunities for contract work faded, Watkins resold the engine to the NSWGR on 2 January 1890, who numbered it 395 in its A93 Class. It was renumbered 1960 in 1924 and scrapped in October 1937.

One of the three NSWGR Manning Wardle 0-6-0 box saddle tank locomotives imported for the lightly-laid Richmond line in 1863 was now surplus to requirements. No. 31 *Richmond* (Manning Wardle 89 of 1863) was sold to R G Watkins on 28 November 1890. He subsequently sold this engine to the Public Works Department (their No. 19) and it eventually went to A Goninan Limited for scrapping in May 1923.<sup>4</sup>

## THE QUEENSLAND RAILWAY ARBITRATION CASES

As the 'railway boom' faded into the deep depression that commenced in 1889, railway construction work dried up. Richard G Watkins looked further afield, becoming one of two engineers retained by the Queensland Government to assist its Railway Commissioners in resisting the contractor's claims on the Cairns Range

Railway, Queensland, in 1892–1893. This celebrated arbitration case followed turbulent years of Queensland politics and economic upheaval in the 1870s and 1880s.

The key figures in the saga were the dominant men in Queensland politics, Sir Samuel Walker Griffith, the former Premier and then Chief Justice from March 1893; and Sir Thomas McIlwraith, a ruthless capitalist and thrice Premier of Queensland (and a railway civil engineer by profession). McIlwraith was a central figure in three of the major financial scandals in Queensland history, while the rivalry between these two men over railway, land and education policies dominated Queensland politics between 1874 and 1892.<sup>5</sup> The third player was John Robb, probably Australia's most notable railway contractor, who had commenced

his work building lines in Victoria from 1863 and later undertook extensive railway construction projects in Tasmania, South Australia and Western Australia.<sup>6</sup>

The opening of the Hodgkinson Goldfield at Thornborough (west of Mareeba) in 1876 and the discovery of tin at Herberton (south of Mareeba) in 1880, brought pressure for rail access to an east coast port. In February 1882 the Queensland Government decided that a railway was warranted. A report by Surveyor Monk in 1884 culminated in a government decision on 10 September to select Cairns as the terminus over Geraldton (now Innisfail) and Port Douglas. It would be one of Australia's most difficult railway building projects through rugged mountain terrain.

The Queensland Parliament approved plans for the line on 30 October 1885 and the first contract was awarded to Mr P C Smith on 1 April 1886. This was for the easily graded section from Cairns to Redlynch at the foot of the range [11.567km]. Smith ran into difficulties and the contract was transferred to Mr W McBride who also failed to complete the section. Section 1 was finally completed by government day labour and it opened on 10 October 1887.<sup>7</sup>

Section 2 of the line through to Myola [26.2km] was awarded to John Robb of Melbourne on 28 January 1887 at an estimated cost of £290,094 [\$36.35 million in 2013 terms]. The poor quality of the surveys through the range section was a major issue for Robb and a large number of deviations were made from this proposed route. Accordingly, there were a number of



John Robb (front row centre) and a group of engineers and other officials pose on the Cairns Railway's recently completed Stony Creek Bridge with the Baldwin-built 2-6-0 construction locomotive No. 3 circa 1890. GEORGE BOND COLLECTION



agreed additions to contract costs to address challenges on the ground. Section 2 of the line involved 15 tunnels, 98 curves, ten steel bridges and 59 timber bridges, while there were 23 confirmed deaths of construction workers. The total workforce on the contract reached 1500 at one stage.

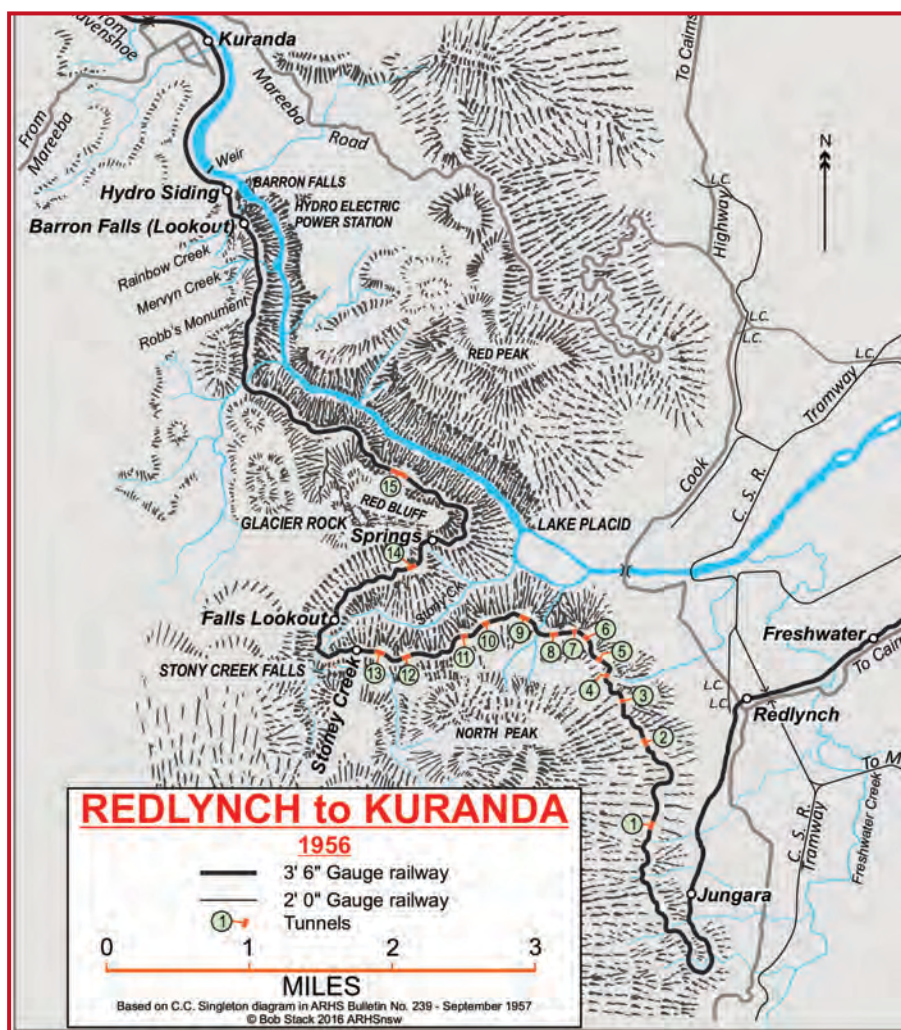
As construction neared completion in 1889, a large rock beside the track between Tunnel 15 and Barron Falls became an appropriate monument to the huge construction task and was named after the contractor (see cover photo).

On completion of the contract, Robb was paid £589,421 [\$76.84 million in 2014 terms] following the opening of the line on 15 June 1891, but in June 1892 he submitted an additional 'Final Statement of Claim' for £263,311 [\$34.3 million in 2014 terms].<sup>8</sup>

The Railway Commissioners refused to pay this amount and Robb took them to arbitration. This case brought Richard Watkins to Queensland. He arrived in Brisbane on the steamer *Arawatta* in the week of 22 August 1892, and left on Saturday the 27th 'for the North by the *Aramac*'.<sup>9</sup>

Initially, Watkins travelled to Cairns in order to undertake on-the-ground inspections of the Cairns Range Railway. Following these inspections and discussion with the relevant QR engineers, he then made numerous appearances as an expert for the Queensland Government during the protracted court case which involved 83 days of submissions. The arbitrators for the government were the noted barrister Mr E Mansfield (chairman) and civil engineer the Hon J Thorneloe Smith, MLC, while civil engineer Mr J Reid appeared for the contractor. The government was also represented by the Attorney-General Sir Samuel Griffith (who resigned and took up the position of Chief Justice on 13 March 1893), the Solicitor-General (the Hon T J Byrnes), Mr J G Drake, MLA, and Mr Shand, instructed by the Crown Law officers. John Robb's counsel were Mr Virgil Power, Mr Edwyn Lilley, Mr Rutledge and Mr Woolcook, instructed by Messrs Macpherson and Feez. Robb made 69 claims, each being treated as a separate case.<sup>10</sup>

Proceedings commenced on Monday 10 October 1892. Richard Watkins was the first witness called in claim No. 4. On the basis of his on-site assessment, he stated that the measurements



which had been taken by QR engineer Mr Annett were the right ones. Watkins contended that 'the measurements of the contractor were wrong and generated some amusement by maintaining that "the contractor's engineers had got bushed in their figures"'.<sup>11</sup>

When the case resumed on 10 November 1892, Watkins gave extensive evidence regarding the cost of work required in deep cuttings, citing his experience on the Orange to Dubbo contract in New South Wales. He also questioned the contractor's claims that the cuttings in question were in hard country and noted that the cuttings on the deviations would have been easier to excavate than on the original survey route for the line. Watkins estimated that the price of work in cuttings ranged from 3s 6d to 1s per cubic yard, and the average was 2s 2½d per cubic yard.<sup>12</sup>

In his evidence on John Robb's claims 10 to 14, Watkins stated that the highest price he put on the cuttings at Red Hill was 8s 6d per cubic yard. He was also asked to interpret the contract clause regarding the use of iron fastenings or trennels to secure logs

on culverts. He acknowledged that the QR plans appeared to be hurriedly prepared causing some ambiguity, but an experienced contractor should have recognised that the logs needed to be secured with iron fastenings. As the Chief Engineer had ordered extra work to secure the logs, the contractor was bound to carry it out.<sup>13</sup>

The contractor's case took 60 days of court hearings and the arbitrators took another 23 days to wind-up the case. They ruled that Robb's final payment should be £20,837 4s 5d [\$2.77 million in 2013 terms], just eight per cent of his initial claim.

While in Queensland, Richard Watkins also served as an arbitrator for the contractor, Mr G C Willcox, who claimed he was underpaid by £16,000 for his work on Contract No. 4 of the North Coast Railway. Mr W A Cross was appointed by Willcox as the Commissioner's Arbitrator when they were slow in making the appointment, while Cross and Watkins appointed M B Gammon as a third arbitrator. The case lasted for 12 sittings and resulted in the contractor being awarded £7401 8s 9d [\$984,000 in 2013 terms].<sup>14</sup>





Richard Watkin's attempt to construct a private railway from Jerilderie to Berrigan failed when the decision was made by the government to extend the line to Berrigan and on to Tocumwal. Here 12 Class 4-4-0 locomotive 1247 heads a short War Commission inspection train at Jerilderie on 26 November 1940. C CORBET-SINGLETON PHOTO, ARHSNSW RRC, 006999

## BACK TO NEW SOUTH WALES

On his return to Sydney in late February 1893, Richard Watkins resumed his work as a consulting engineer for rural-based groups seeking to have branch lines constructed to their localities. He had returned to an economy still in the grip of the severe economic depression that had commenced in 1890 and increasingly country areas were under the influence of the decade-long 'Federation Drought'. During 1893, Watkins was behind a private enterprise proposal to build a 'tramway' from Berrigan to Jerilderie in southern NSW. The branch line from Narrandera had opened to Jerilderie on 16 September 1884 and this had stimulated mixed farming in the Berrigan district, some 22 miles to the south. By 1893 the Berrigan district was producing 'half-a-million bushels of first-class wheat' and its farmers had been agitating for an extension of the NSW branch line to serve their needs. In addition, the Victorian railway commissioners were reducing their freight charges with an aim of capturing the Berrigan wheat traffic.<sup>15</sup>

A leading firm of Sydney solicitors contacted the Berrigan Farmers' Union to advise that an engineer was travelling to Berrigan with a view to building the Berrigan tramway line as a private enterprise initiative.<sup>16</sup> That engineer turned out to be Richard Watkins, who was evidently seeking an opportunity to lead a private consortium to construct and operate the line.

Watkins wasted little time in inspecting the route and he put forward a proposal for construction of the line by private enterprise. It envisaged a line 24 miles long with construction costs of £1500 per mile. A public meeting in Berrigan on Saturday 26 January 1894 decided to form a syndicate, with a capital of £1000, to make preparations for carrying a Bill through Parliament and for the purchase or arrangement in regard to the land. A large proportion of the shares were taken up in the room, and it was hoped that the matter would be pushed on with all haste in order to complete the line by next harvest.<sup>17</sup>

Alas, the enthusiasm was short lived. On 23 May 1894, a delegation comprising Mr Hayes and residents from Berrigan waited on the Minister for Public Works, Mr Lyne, requesting that extension of the government railway

from Jerilderie to Berrigan be referred to the Public Works Committee as soon as possible. Mr Lyne replied that the Railway Department considered the cost would be £2000 per mile, but in any case it would be impossible to refer it to the Public Works Committee due to the forthcoming election.<sup>18</sup>

A further meeting was held in Berrigan on Saturday 26 May 1894 to hear the report of the delegation, who considered there was little hope that the government would construct the line in the near future. Mr Hitao, representing Richard Watkins, attended the meeting and made a proposal to construct the railway by December 1895 if a guarantee was given to pay three per cent of his costs. It was agreed that the guarantee would be provided in an enabling Bill, which would be prepared and submitted as soon as the new Parliament meets.<sup>19</sup>

That was the end of the private railway proposal. By early December 1894, the Minister for Works advised that the proposal for a government railway would be submitted to the Public Works Committee before the Legislative Assembly rose for the Christmas break, so Watkins was cut out of this project. The extension from Jerilderie to Berrigan opened on 14 October 1896 and a further extension to Finley on 16 September 1898.<sup>20</sup>

During this period, R G Watkins undertook private engineering work in the Sydney metropolitan area and continued trading in locomotives for contract work. For instance, he purchased the N67 Class 0-6-0 tank locomotive No. 71 (Henry Vale & Sons, 11 of 1875) from the NSWGR in February 1892.



Richard Watkins purchased the delightfully proportioned N67 Class 0-6-0T locomotive No. 71 from the NSWGR in February 1892, but sold it to the Public Works Department. By 1904 it was at the Lithgow Steelworks where the driver and fireman posed for their photo. ARHSNSW RAILWAY RESOURCE CENTRE, 207395



These delightfully proportioned locomotives, based on the Stroudley 'Terrier' engines of the London, Brighton & South Coast Railway, were used for Sydney suburban trains, but were replaced by powerful engines from 1885. Evidently the hoped for contract work did not materialise and Watkins on-sold No. 71 to the Public Works Department for construction work on the Grafton to Coffs Harbour line. It passed into the ownership of G & C Hoskins Limited in 1904 and saw industrial use at the Lithgow and Port Kembla steelworks where it was named *Dingo*.<sup>21</sup>

A puzzling entry in the *Daily Commercial & Shipping List* of 3 December 1896, quoting the daily imports to Sydney for 2 December, lists R G Watkins as having imported from Victoria to Sydney, 'one locomotive, four buffers and one funnel'.<sup>22</sup> No further information on this transaction has been located and Watkins had moved to a new position in Western Australia by this date.

## WAGR RAILWAY ENGINEER

Richard Watkins took up the position of District Engineer for the Western Australian Government Railways (WAGR) at Northam on 1 March 1897 and he appears to have been transferred to Coolgardie in mid-1897 with his salary increased to £450 per annum [\$70,000 in 2013 terms]. Agnes and the children had arrived in Albany on 2 December 1896 on the *SS Adelaide* so Richard was apparently in Perth seeking a position with the WAGR before his appointment.<sup>23</sup>

Gold discoveries at Southern Cross (1888), Coolgardie (1892) and Kalgoorlie (1893) brought a boom for the western colony at the time when the eastern colonies were experiencing a major economic depression. This boom brought political pressure for railway construction to the

new goldfields. The Yilgarn Railway, as it was then called, was opened from Northam to Southern Cross on 1 July 1894, but by then there was pressure for its rapid extension to the new goldfield to the east.

The contract for the extension to Coolgardie (subsequently amended to Kalgoorlie) was awarded to the New Zealand contractors J and A Wilkie on 1 July 1895, who had submitted a price of £64,125 13s 7d, some £13,000 lower than the next lowest tender. Controversially, they appeared to have significantly underquoted in comparison with their six competitors, but their strategy was to work the line as it progressed with their own locomotives and rolling stock. The contract also included provision for this working by the contractor to continue beyond the opening of the line for a specified period.<sup>24</sup>

From an engineering perspective, the line presented few difficulties, being practically level the whole way. The only cuttings of any magnitude were those at the Yellowdine Lake and Coolgardie. The line from Southern Cross to Boorabbin (60m 75ch) section was opened in early 1896, with the section to Coolgardie (53m 45ch) being formally opened by the Governor of Western Australia, His Excellency Lieutenant-Colonel Sir Gerard Smith, on Monday 23 March 1896.

Coolgardie's population had already reached 10,000 and—in a speech to the banquet that evening, the Governor prophesied that:

There would be fully 20,000 [people] 12 months hence. Today the colony had entered on the race of progress on fair forms with the other Australian colonies, and five years hence it would stand to the front abreast of the other colonies. Coolgardie stood fairly north and south between the coast and the goldfields, and shortly they would see the railway duplicated ... and running to



Officials and the huge crowd pose with the Ministerial train at Hines Hill during the official opening ceremonies for the Eastern Goldfields Railway extension to Kalgoorlie on 8 September 1896. STATE LIBRARY OF WA, 013072D



WORKING RAIL							WAYS DEPARTMENT			
Record of Service Book.							Way and Works Branch.			
RECORD OF SERVICE OF							Richard Watkins			
First entered the service of the Government in the Department							Branch, on 18....., aged..... years and..... months.			
Entered the service of the Working							Railways Department, Way and Works Branch, on 18....., aged..... years and..... months.			
Record No. of File of Papers bearing on the subject as far as is known							No. 3281/98			
Date		Grade	Railway	Locality	Rate of pay per day or per week, £s.	Inspector	Other allowances (if any) and character thereof	Remarks		
Day	Month								Year	
Entered Service	1	March	1897	Res Engineer	Grigam	£350 per annum				
Leave of absence	2	June	1897	"	"	"				
Increase of pay	29	June	1897	"	"	£450		£5.1.337/197		
Action regretted by enquiry board	8	July	1899	"	"	"		" 267/98		
allowance reduced	1	"	1899	"	"	"		£5.1.22.51/99		
Censured				"	"	"		£5.1.15.24/99. £5.1.17.90.9.		
Retrenched	30	June	1900	"	"	"		£5.1.15.24/99. £5.1.17.90.9. falsifying accounts £5.1.15.24/99. M. Watkins ceased duty on 19.2.00 & was paid up to 30.6.00.		

Richard Watkins' WAGR service record card for his time at Northam and Coolgardie between 1 March 1897 and 30 June 1900. STATE RECORDS OFFICE OF WA, COURTESY DAVID WHITEFORD

Mount Burgess and Niagara [cries of Esperance] until it struck East Murchison.<sup>25</sup>

Coolgardie's prospects were soon overshadowed by the richness of the 'Golden Mile' at Kalgoorlie. The contract for the 23-mile extension to the rich new mines to the east was awarded to Wilkie Brothers on 17 February 1896. The extension was quickly completed and the Premier, Sir John Forrest and Lady Forrest, Governor Sir Gerard Smith and Lady Smith, F H Piesse, the Commissioner for Railways and numerous other parliamentarians were back in the east on 'the largest passenger train that had ever travelled over the railways of the colony of Western Australia ... bringing 300 passengers from Fremantle to Kalgoorlie' for the opening on Tuesday 8 September 1896. Some 3000 people lined the gaily decorated street to welcome the Governor and other official visitors to the town.<sup>26</sup>

At the banquet that evening, the Commissioner for Railways advised:

The traffic was doubling almost every month. Last year from January to July they took over the pier at Fremantle 80,000 tons, while for the corresponding period of this year the tonnage was

184,000. During the past week there was no delay in supplying trucks to ships at Fremantle. His policy had been to despatch the goods away up country as quickly as possible, instead of allowing it to rot, as it would do if exposed to the weather. It had, therefore, been necessary to allow a great deal of the cargo to remain in the ships until they could deal with it. By the end of the year he hoped they would be able to completely overtake the traffic and to deal with it upon more satisfactory lines. The rates to the goldfields had been assimilated, and by the first of January next it was hoped that the Government would be able to take over the Kalgoorlie railway from the contractors, which would enable the people on the fields to secure a great advantage from the lesser freight.<sup>27</sup>

This was the context in which Richard Watkins took up his position as Resident Engineer at Coolgardie in mid-1897. While Kalgoorlie now rivalled the community in which the family was based of some 10,000 residents, it would soon dominate its fading neighbour to the south-west, becoming the 'capital' of the Eastern Goldfields region due to the richness of the 'Golden Mile'.

It would seem that Richard and his family kept out of the limelight as far as local newspapers were concerned, although he was an apology at a formal WAGR function in June 1898 at Wilkie's Hotel in Kalgoorlie for Mr W J Lord, who had returned to the post of station master at Kalgoorlie, following six months secondment to the position of District Superintendent in Perth during the time that the General Manager of Railways, Mr John Davies, was away in England.<sup>28</sup>

Muriel, her sisters and brother Reginald—and presumably George by the time he was old enough—attended school in Coolgardie. It was an experience she would look back on as a great adventure. The Watkins family appear to have returned to Sydney from Albany on the SS *Australien* in March–April 1900.<sup>29</sup>

Details from Richard Watkins's service record card suggest that he left the WAGR under a cloud. There is an entry for 1 July 1899 stating that Richard was 'censured' on 1 July 1899 and his salary was reduced, with the notation 'falsifying records' in the 'Remarks' column. The card shows that Watkins ceased duty on 19 February 1900 and was formally retrenched on 30 June 1900, being paid up to that date.<sup>30</sup> As noted above, Richard and his family had returned to Sydney by April 1900.



Loading luggage and mail onto a Perth-bound passenger train headed by a G Class 2-6-0 locomotive at Coolgardie Station in the 1890s. STATE LIBRARY OF WA, 026073PD



## SECOND-HAND MACHINERY DEALER

Following his return to Sydney, Richard Watkins was again engaged as constructing engineer by the NSWGR for a brief period. He also continued to deal in railway contractors' locomotives as R G Watkins and Company, second-hand machinery dealers.

In this guise, he purchased the 0-6-0 inside-cylinder goods locomotive built by Beyer, Peacock & Company (works No. 1891 of 1879) in 1909. This engine had been imported by railway contractor Messrs J McGuigan & Company for the Gunnedah to Narrabri line, which was let on 14 December 1880. Following completion of that contract, it was purchased by the NSWGR, becoming No. 291 of their A93 Class in February 1893. Watkins sold the engine to the Public Works Department, becoming its PWD No. 9. It was returned to the NSWGR and, following a rebuild, it became 291X of their A93 Class in 1922. Renumbered 1929 in 1924, it was withdrawn in March 1932 and scrapped October 1937.<sup>31</sup>

The veteran 0-6-0 box tank locomotive built by Manning Wardle (their works number 38) for the contractors Peto, Brassey & Betts in 1861, also came into Richard's ownership. It had arrived in Sydney by June 1862 and, named *Pioneer*, it was initially used to extend the Great Southern Railway from Campbelltown to Picton. On completion of this work, *Pioneer* was taken over by the NSWGR for use on the Great Northern Railway, before going to various colliery lines in the Newcastle area. By 1910 it was identified as No. 394XX and it was sold to R G Watkins in January of that year. The locomotive does not appear to have been used by Watkins and in May 1913, it was sold to the Public Works



The Watkins daughters, Maud, Muriel Dora and Bessie Flora circa 1913. COURTESY JOHN WINDEYER

Department, which renumbered it as PWD No. 15.<sup>32</sup>

## MUNICIPAL ENGINEER

Richard Watkins was appointed as engineer to Marrickville Council in Sydney during 1903, so his trading in locomotives and machinery noted above was very much a side-activity. In his new role, Richard demonstrated a progressive approach that embraced new technologies and he gained a reputation in the engineering profession.

In October 1905, Watkins appeared as a witness for a friend being sued for negligent driving of a motor vehicle which collided with a horse and sulky. The claim against William Rowe was brought by Annie Cole of Strathfield, who was thrown from the sulky and alleged that she: "sustained a serious shock of the nervous system, was confined to her bed for a long time". Watkins told the court that:

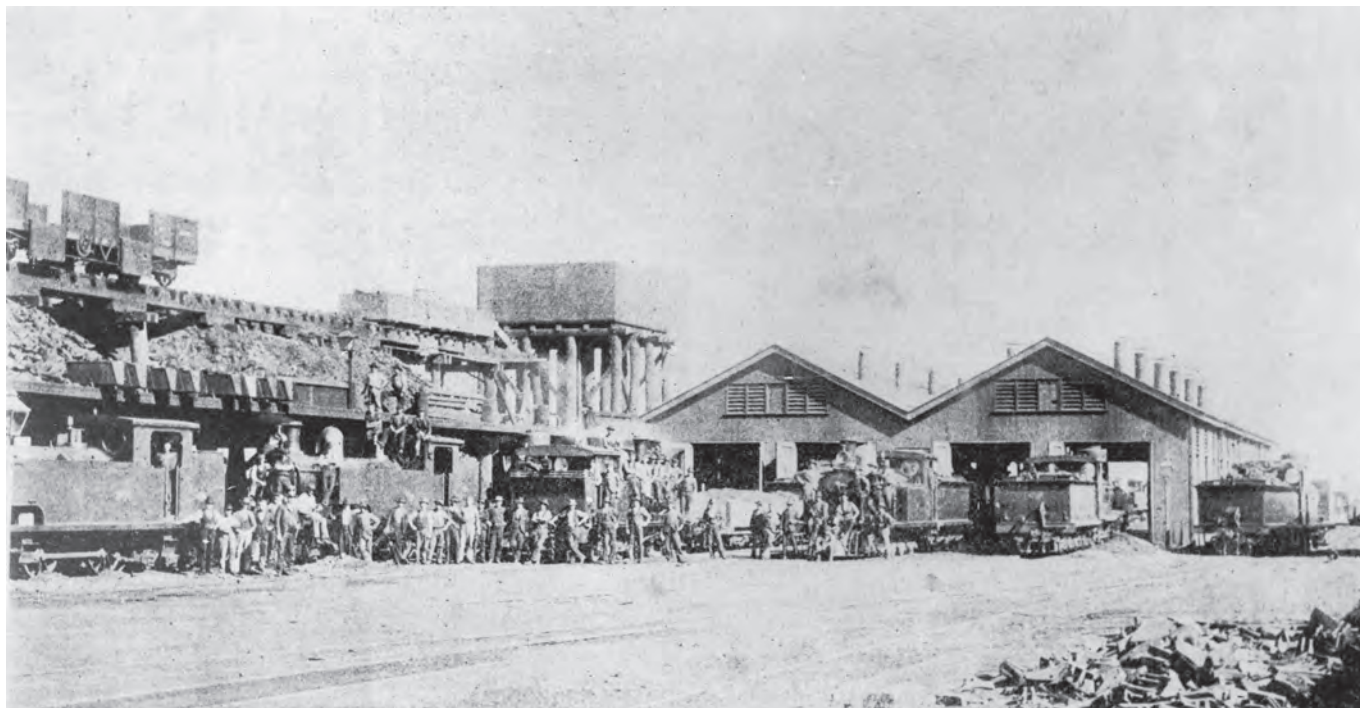
He was in the car with his wife when the collision occurred. He was sitting in the front with Mr. Rowe, who was driving. The car was going at the rate of five or six miles an hour. When he first saw the sulky it was in the centre of the road, and the horse seemed to be jibbing. Mr. Rowe tried to get as near the pavement as he could, and the sulky backed into the car. Mr. Rowe did everything possible to prevent the collision. Mrs. Cole was excited, and she accused Mr Rowe of furious driving. Mrs. Cole, speaking to Mr. Rowe, said 'You were going 40 miles an hour. Everyone in the motor car should be shot'.<sup>33</sup>

Four years later, Richard and Agnes' eldest daughter, Muriel, was among the passengers injured when the Mudgee mail coach had an accident on Sugarloaf Mountain.<sup>34</sup> Evidently her injuries were not serious and on 18 June 1913, Muriel Watkins married George Alexander McKillop. Initially they lived in Orange, but in 1918, George and his family moved back to the family property *Buddah* north of Narromine to manage the recently established orange orchard. Designed by George, their new home was a remarkable example of a Californian Bungalow house in a country setting next to the stylish brick packing shed. In April 1924, George moved his family to another fine Californian bungalow home in Sydney's North Shore suburb of Cremorne where he entered the motor trade. Sadly, Muriel died at her home in the Sydney suburb of Cremorne, in February 1931 aged 49. She left a young family, namely Allison Betty (aged 14), Alexander (12) and Ainslie Flora (10).



Richard Watkins in his robes as mayor of Waverley Council circa 1909. WAVERLEY COUNCIL LIBRARY LOCAL HISTORY IMAGE COLLECTION





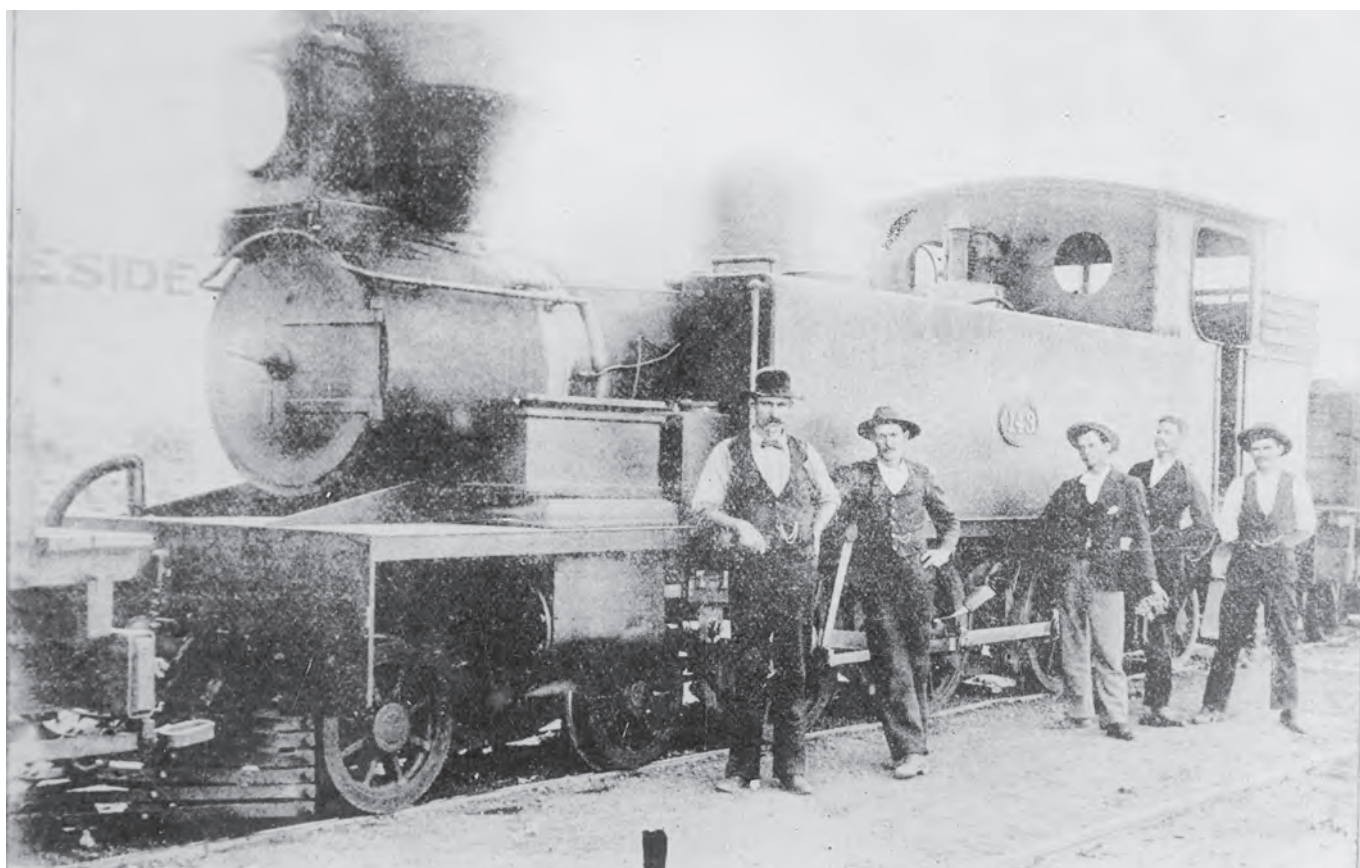
Kalgoorlie soon outstripped Coolgardie as the dominant centre on the Eastern Goldfields. Here workers at the Kalgoorlie locomotive depot line up for the camera in this 1903 photograph. Three tank locomotives, probably 4-6-2T Q Class, stand at the coal stage, with three ubiquitous G Class 2-6-0 tender locos outside the running sheds.

E A DOWNS COLLECTION, ARHSNSW RAILWAY RESOURCE CENTRE, 024859

Richard and Agnes Watkins established strong links with the prominent Vale family when their second daughter, Maud, married Henry John Vale, the manager of the foundry and engineering works of Henry Vale and Sons at Auburn in western Sydney, in May 1907. Henry Vale and Sons built a number of locomotives for the NSW Railways and private operators and the site also included

the Caldwell-Vale Motor & Tractor Construction Company Limited's operations.

Professionally, Richard Watkins was a foundation member of the Institute of Local Government Engineers of Australasia, and was also a Member of the American Society of Civil Engineers. When a woman was swept to her death into a drain pipe at Leichhardt during a heavy storm on



Railway workers pose beside Q Class 4-6-2 tank engine No. 143 at Kalgoorlie loco depot in 1900. Six of these locomotives were introduced in 1895. ARHSNSW RAILWAY RESOURCE CENTRE, 128248



27 February 1909, Richard immediately joined with the Mayor of Marrickville in inspecting the drain pipes in their borough and, at the council meeting two evenings later, the Council unanimously adopted his report to reduce the future risk of such accidents in Marrickville.<sup>35</sup>

Richard Watkins also played a prominent role in his community. He was elected as an alderman to Waverley Council soon after his return to Sydney and he served as Mayor of Waverley from 1906 to 1910. He was 'tendered' a public banquet on 9 August 1909, which also marked the jubilee of the borough.<sup>36</sup>

In late April 1911, Richard Watkins took up the position of Municipal Engineer for Waverley Council. Two years later he was a vice-chairman of the New South Wales branch of the Institute of Local Government Engineers of Australasia.<sup>37</sup>

Watkins resigned as Waverly Municipal Engineer in 1915 due to ill-health and retired with his wife to Mosman on the North Shore. He died at his home in Rangers Avenue, Mosman on 8 August 1923.<sup>38</sup>

His funeral at Rookwood Cemetery was attended by a large number of personal friends and relatives of his own family. The service at the graveside was conducted by Archdeacon Boyce, assisted by the Rev. J. Newton Stephen, both old personal friends of Mr. Watkins. In an address at the graveside Archdeacon Boyce referred to the service rendered by Mr. Watkins in the public life of the districts in which he resided.<sup>39</sup>

## EPILOGUE

Muriel Watkins looked back on her time at Coolgardie with fondness. Her granddaughters, Betty Windeyer (née McKillop) and Ainslie McKillop vividly recalled their mother's stories of her time living at Coolgardie in Western Australia. In the 1970s they travelled to the Eastern Goldfields Region to explore the locations that Muriel had told them about as young children. Much had changed

since their grandparents (and their children) had lived at Coolgardie, but they found it an enriching experience to explore the locations that Muriel had recounted to them many years previously.

## ACKNOWLEDGEMENTS

Thanks are extended to the late Betty Windeyer and her son John for their recollections of Richard Watkins and his wife Maud, together with family images, to John Knowles for his contribution to the Queensland arbitration case and to Joan Antarakis of the Willoughby Historical Society for her research into the Watkins family. Acknowledgement is also extended to Sophia Smiley of Waverley Council Library for assistance with the image on page 15.

## ENDNOTES

1. Author's database on the Watkins family.
2. *Sydney Morning Herald*, Wednesday March 1888, p5, 'Parliament of NSW'. The term 'duplicating' appears to be misplaced as this long branch line was still under construction, with the last section from Michelago to Cooma did not open until 31 May 1889.
3. Box Vale Colliery sold the locomotive to the NSW Government Railways in September 1890, becoming its second No. 5 of the A93 Class. Renumbered 1935 in 1924, this locomotive was withdrawn in August 1931 and scrapped in April 1937.
4. Grunbach, Alex, *A Compendium of NSW Steam Locomotives*, Redfern, ARHSnsw, 1989, p22-23.
5. Joyce, R B, 'Griffith, Sir Samuel Walker (1845-1920)', *Australian Dictionary of Biography*, Volume 9, Melbourne University Press, 1994.
6. John Lack, 'Robb, John (1834-1896)', *Australian Dictionary of Biography*, Vol. 6, Melbourne University Press, 1976.
7. Engineering Heritage (Australia), 'Nomination for the Cairns-Kuranda Scenic Railway for Recognition as a National Engineering Landmark', 7 July 2005. 'Historical Notes'



Construction workers and officials pose with the contractor's (J and A Wilkie), G Class 2-6-0 locomotive *Maori Chief* at Coolgardie after its arrival with the official train for the opening ceremony on 23 March 1896. COURTESY STATE LIBRARY OF WA



8. Alan Smith, 'Construction of the Cairns–Kuranda railway line, 1886–1892'; [https://espace.library.uq.edu.au/view/UQ:241834/Lectures\\_on\\_NQ\\_History\\_S5\\_CH6.pdf](https://espace.library.uq.edu.au/view/UQ:241834/Lectures_on_NQ_History_S5_CH6.pdf). Ellis, R F, *Rails to the Tablelands: The story of the Cairns Railway*, ARHS Queensland Division, Brisbane 1976.
9. *The Queenslander*, Saturday 3 September 1892, p474, 'Current News'.
10. *The Queenslander*, Saturday 7 January 1893, p12, 'Legal'.
11. *The Brisbane Courier*, Saturday 29 October 1892, p6, 'Robb Arbitration Case, Claims 4 and 5'.
12. *The Brisbane Courier*, Friday 11 November 1892, p2, 'Robb Arbitration Case'.
13. *The Brisbane Courier*, Wednesday 23 and Thursday 24 November 1892, p6 and p7.
14. *The Queenslander*, Saturday 7 January 1893, p12, 'Legal'.
15. *The Sydney Morning Herald*, Saturday 14 October 1893, p7, 'Letters; Jerilderie–Berrigan Railway'.
16. *The Sydney Morning Herald*, Friday 29 December 1893, p5, 'Berrigan Tramway Proposal'.
17. *Australian Town & Country Journal*, Saturday 3 February 1894, p44, 'Jerilderie–Berrigan Railway'.
18. *The Sydney Morning Herald*, Thursday 30 January 1894, p12, 'Country News'.
19. *The Sydney Morning Herald*, Thursday 24 May 1894, p2, 'Jerilderie–Berrigan Railway'.
20. *The Sydney Morning Herald*, Friday 7 December 1894, p4, 'Jerilderie–Berrigan Railway'; Quinlan, Howard, and Newland John R, *Australian Railway Routes 1854–2000*, ARHSnsw, Redfern 2000, p9.
21. Grunbach, Alex, *Op. cit.*, pp39–40; McKillop, Bob, *at al*, *Furnace, Fire & Forge: Lithgow's Iron and Steel industry 1874–1932*, Melbourne, Light Railway Research Soc. of Australia, 2006, pp 237, 246 and 238.
22. *Daily Commercial & Shipping List*, 3 December 1896, p3, Daily Imports, Dec 3, 'Sundries'.
23. *Western Mail*, Friday 4 December 1896, p22, 'Shipping News'. Interview with Maud's daughter, Betty Windeyer (née McKillop) at Raymond Terrace on xxx.
24. *The West Australian*, Tuesday 24 March 1896, p3, 'Opening of the Coolgardie Railway'.
25. *Ibid.*
26. *The West Australian*, Wednesday 9 September 1896, p3, 'Kalgoorlie Railway Opening'.
27. *Ibid.*
28. *Kalgoorlie Western Argus*, Thursday 2 June 1898, p20.
29. *Western Mail*, Saturday 31 March 1900, p24, 'Port of Albany Departures'.
30. WAGR Record of Service book entry 2907/98 for Richard Watkins, State Records Office WA, courtesy David Whiteford.
31. Richard Horne, 'Notes on R G Watkins locomotives'.
32. Grunbach, Alex, *A Compendium of NSW Steam Locomotives*, Redfern, ARHSnsw, 1989, p24; Ron Madden, 'Pioneer: A very important engine indeed', *Australian Railway History*, April 2004, pp149–154 and May 2015, p28–29.
33. *Evening News* (Sydney), Wednesday 11 October 1905, p3, 'Action for Damages'.
34. *Evening News*, Tuesday 16 March 1909, p1, 'Brevities'.
35. *Evening News*, Wednesday 3 March 1909, 'Dangerous Drain Pipes'.
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37. *Sydney Morning Herald*, Tuesday 2 May 1911, p11, 'Manly Beach Pavilion'; *Sydney Morning Herald*, Thursday 20 March 1913, p14, 'Local Government Engineers'.
38. Richard Watkins, NSW Death Certificate 12043/1923, NSW Registrar of Births, Deaths & Marriages, 28 November 2015.
39. *Sydney Morning Herald*, Wednesday 22 August 1923, p12, 'Mr Richard Watkins'.

## In this month's **Railway Digest**

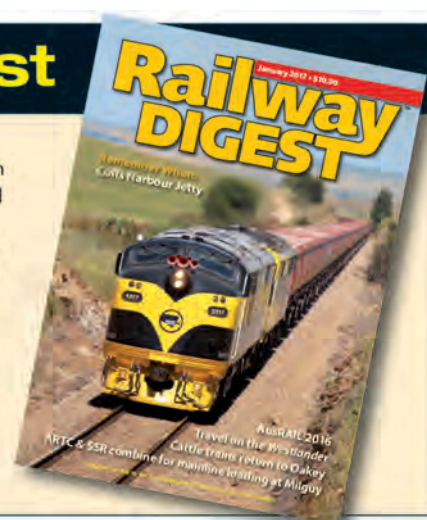
### Travel on the *Westlander*

Rumours have been rife for quite a while that QR's long distance service *The Westlander* may be coming to the end of its journey, due to high running costs and a lack of patronage. Recent evidence suggests it to be, per capita, the most heavily subsidised of all Queensland Rail's Traveltrains. It travels from Roma Street Station, Brisbane, to Charleville in south west Queensland, taking some 17 hours to travel the 777 kilometre distance. Seasoned traveller Robert Gill thought it may be wise to take a trip on *The Westlander* while he still had the chance.

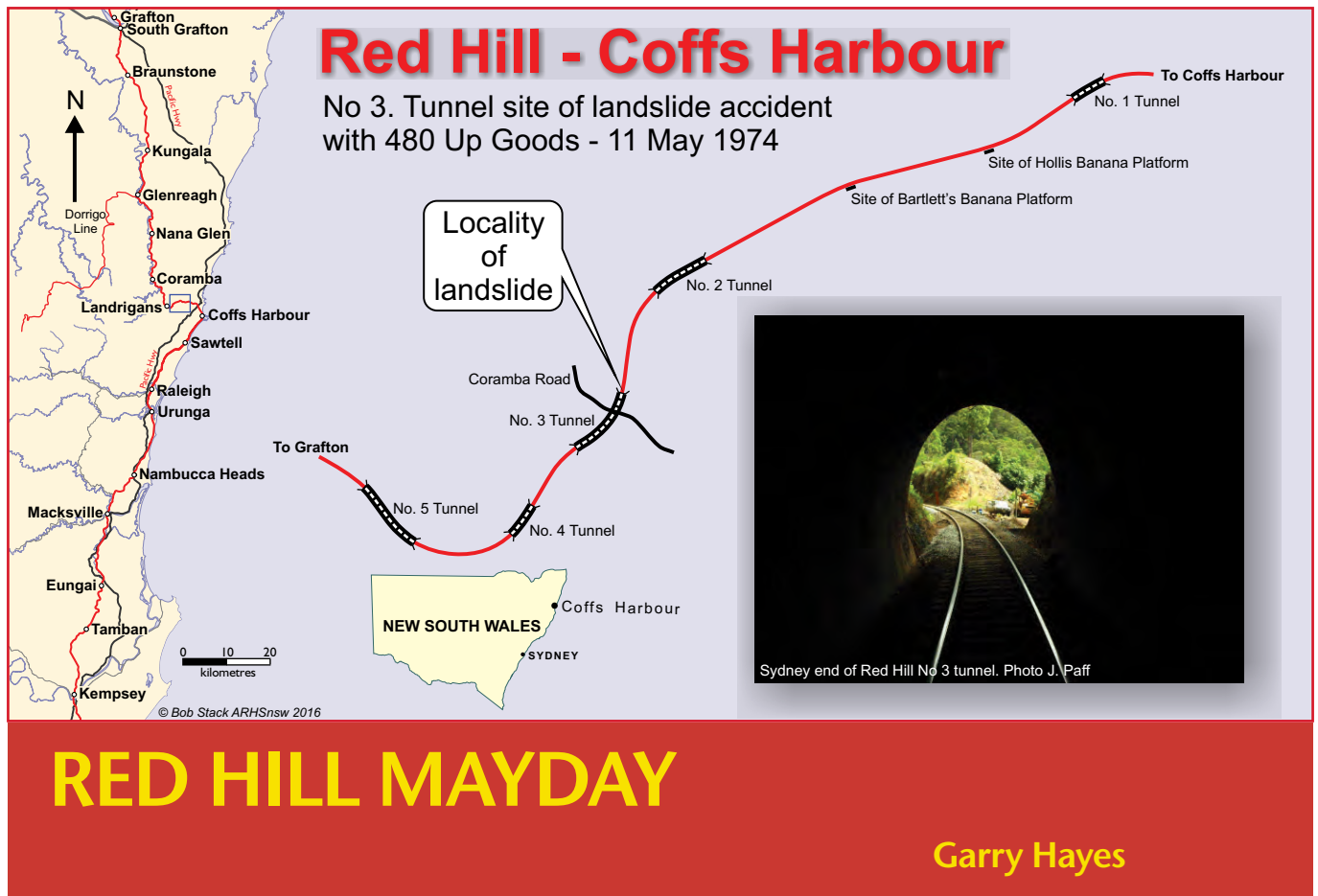
### Cattle trains return to Oakey

Many local residents and media turned out on Wednesday, 30 November to photograph and welcome the first cattle train to traverse a reopened and rebuilt 1.3 kilometre section of the closed Oakey – Cecil Plains line and reach Oakey Beef Exports' meatworks, located on the western edge of Oakey, 30 kilometres west of Toowoomba. The first train was the culmination of a four-year campaign to have the line reopened. John Hoyle was there.

**Plus all our regular features**







## PREAMBLE

**M**y interest in the particular incident covered here goes back to the very day it occurred, (11 May 1974), and subsequently continued over the years.

In 2010 I released a book entitled, *Just Between You & Me and The Next Signal Box*, which detailed my experiences, the work and stories about my time with the NSW railways over the previous 30 years. In this book, I mentioned the incident described here, based on the information I knew at the time, which was as follows.

Saturday 11 May 1974 happened to be the second day of the annual Coffs Harbour Agricultural Show, which I attended. During the day, I distinctly remember the main ring announcer at the Show making an urgent announcement on behalf of the then Coffs Harbour Shire Council to the effect that because of a severe interruption to the town water supply, townspeople were likely to experience little or no water pressure in their homes, and all efforts to conserve water should be used until repairs could be made and the normal resumption of the water supply could take place.

At this stage, nobody at the show understood or knew what had happened to bring about this situation. It was only later on that day when I was going home from the show to our family farm at Karangi (some 10–15kms north-west of Coffs Harbour), that the full extent of circumstances became very clear to me at least.

This article seeks to set out further details of this incident based on the memories and recollections of one of the key people involved in the incident, namely the train driver. I obtained these details during an interview with the now retired driver at his home on the 11 February 2015.

The incident was the accident involving main-line diesel-electric locomotive 4450 (No. 2 end leading) hauling Pick-Up goods train No. 480 from Grafton to Taree. The driver was Don Munro of Grafton depot (generally known as 'Darby' Munro), fireman R Dudgeon of Casino depot and guard Wilfred Hannah based at Kempsey.

Personally, the details very much bring to life this incident, which very few people either recall or know anything about, yet at the time, it was quite a serious situation. They also bring a sense of closure and provide answers to a few questions I had about the event, and I am very grateful to have had the opportunity to help bring this story to the attention of others. I hope you enjoy reading it as much as I did researching it.

## BACKGROUND

On 10 May 1974, train driver Darby Munro, whilst working a Down goods train from Taree to Grafton, noticed quite a lot of water seeping in and around the southern entrance portal of Number 3 rail tunnel, in the Coffs Harbour–Landrigans section. He duly reported this information to the signalman at either Landrigans or Coramba, probably via a note attached to the staff ring as the train crew exchanged the Miniature Electric Staff with the signalman as they passed each location. After doing so, Darby probably thought no more about it, concentrating on getting his train back to Grafton, and then knocking off work for the day. This was not the end of the matter.

The following day, Darby signed on duty at South Grafton locomotive depot expecting to be working a Down goods train from Grafton to Brisbane, as per his rostered shift, but instead he was informed that his rostered shift had



been changed. Now, instead of going north to Brisbane, he would now be going south to Kempsey with No. 480 Pick Up goods, probably the least liked job on the roster. On top of that, his usual fireman, Jack Sewell, would not be going with him, being replaced by R Dudgeon, a young man who had recently been relocated to the Casino depot, and who Darby had both never worked with before and knew nothing about. This trip would be the new fireman's first trip south of Grafton, and one he undoubtedly would never forget. Undeterred by these changes in plans, Darby took it all in his stride and set off on his new assignment.

The reason No. 480 Pick Up goods was the least popular job on the roster was because, as the name implied, this train stopped and shunted at every and any siding or station that needed to be shunted along the way, picking up and dropping off loaded or empty wagons. In addition to this, it was also stowed away to make way for more important trains to pass by, thus increasing the elapsed time. This meant that during a normal shift, the driver and fireman very rarely made it as far as Kempsey, where they were usually relieved by a fresh crew, as their rostered time had expired. When this happened, the new crew usually met them at Macksville or Eungai to take the train further south, whilst the Grafton crew had to make their way back home as best they could on any available northbound train.

As you can imagine, not many train crews volunteered to be rostered on No. 480 Pick Up, but it was one of those jobs that needed to be done. Whilst it may have lacked the glamor and speed of other trains, it served the vital need of shunting the many sidings and stations that were once in operation on the busy North Coast Line. In many ways, it was trains such as No. 480 that helped keep the whole system working. But back to activities on 11 May.

## NO. 480'S JOURNEY

There were no dramas as No. 480 left South Grafton and proceeded south, passing through Braunstone and Kungala, before arriving at Glenreagh, where it shunted the many sidings there. When that shunting finished, No. 480 moved on again, through Nana Glen and then to Coramba, where again it shunted the local siding. By this time, the number of wagons attached to No. 480 had reached 40, and consisted of both four-wheel and bogie vehicles.

Whilst at Coramba, it was decided by the Train Control Officer to 'put away' No. 480, to allow the Up Express passenger trains, (No 2 *Brisbane Limited Express* and No 4 *Gold Coast Motorail Express*) to 'run through' it. To 'put away' means that No. 480 would have been left standing in the loop, to allow the main line to remain clear, and to 'run through' means to allow one or more following trains heading in the same direction, (ie, Nos 2 and 4 Expresses), to pass another slower train heading in the same direction, (No. 480).

After the Coramba shunting had been completed, and No. 4 had cleared the Coramba-Landrigans section, a miniature electric staff was withdrawn at Coramba to permit No. 480 to proceed towards Landrigans, and then down through the five tunnels of Red Hill into Coffs Harbour, where more shunting was to take place.

At about 2.15am, Darby was handed the staff, and after checking its authenticity, they set off for the easy run over to Landrigans, taking about 10–12 minutes running time,

where the Coramba-Landrigans staff was exchanged for the Landrigans-Coffs Harbour staff. Soon after passing the signal box at Landrigans, the line begins the decent as it passes through No. 5 tunnel. Between No. 5 and No. 4 tunnels, No. 480 passed the Landrigans Down Distant signal before plunging into No. 4 tunnel. Upon exiting, the line curves around to the left and No. 3 tunnel looms in front of the train. No. 3 tunnel, at 261 metres in length, is the second longest of the five tunnels on Red Hill, with a curve in the middle of it, meaning that even in daylight, a train driver cannot see through it until close to the exit. This point, along with the fact that No. 3 tunnel also passes under a main road linking Coffs Harbour and Grafton via Coramba and Glenreagh, all came into play in the ensuing drama.

As Darby guided No. 480 through these three tunnels, he was reminded of the fact that the headlight on 4450, like the headlights on all 44 Class locos when running No. 2 end leading, were not the brightest or the most accurate. He had problems with them before, and that night was no different. Poor headlight or not, nothing could have prepared him for what he saw ahead of him as he rounded the curve in No. 3 tunnel and moved towards the exit, or where the exit should have been.

## THE ACCIDENT

Instead of seeing the arched shadows of the tunnel exit, silhouetted against the night sky and the line in front of him, Darby was confronted with a wall of red clay mud, rocks, trees and branches, sealing off the exit of the tunnel. This certainly was not supposed to be happening, nor expected and Darby's immediate thought was that the tunnel had collapsed internally.

With only about two or three seconds to react, Darby slammed the throttle back to the idle position, made an emergency brake application and braced himself for the impending impact. He yelled out to his fireman to duck for cover, and Darby instinctively crouched over down in his seat, to protect himself. Even though he had applied the emergency brakes, the momentum of the train meant that it continued for a period of time, which to Darby seemed like an eternity.

The train careered into the landslide at approximately 60km/h, setting off several different forces that had a profound effect on all players concerned. The first effect was that the combined speed of the train hitting the immovable object of the pile of debris forced the locomotive's centre cab door to burst open inwards and the cab immediately started to fill up with thick gooey red mud, completely covering Darby and the fireman in their crouched position. As the mud quickly entombed him, Darby seriously thought he might die.

The level of mud in the already cramped crew cab was now up to within about half of a metre from the cab ceiling, and this space would have filled up as well, if the internal door between the crew cab and the engine room behind had not sprung open under the force of the invading mud and thus relieving the growing pressure in the cab. The mud continued to flow into the engine room, almost through to the rear cab at the No. 1 end. This fact probably saved Darby and his mate's lives, even though they were in no position at this stage to realise or appreciate it.

Back in the cab, the train had shuddered to a halt, and



remarkably, the engine was still running. Thankfully Darby had remained conscious throughout the ordeal, and when he felt that the train had stopped moving, his sense of self-preservation immediately kicked-in, driving him to get out of this mess as soon as possible. His first natural instinct was to gasp for air, and he then remembered that prior to the crash the window beside his seat was open about 50mm. He always liked to have the window open a little bit as he travelled along, despite the outside weather conditions, to give a fresh air intake into the cab, which could become stuffy very quickly if closed. He now desperately hoped that the window was still open!

Through the mud, he managed to reach around behind himself and found that the window was open. So he pulled it open as far as he could. He was then able to slowly get his head into a position where he could stick it out the window and fill his lungs up with fresh air. He breathed in deeply a few times, savouring it with each mouthful. It was then that Darby thought about his mate. He called out to him, not knowing if he had survived or not. To Darby's surprise, the fireman had already extricated himself from the mud covering him in his seat, and was somehow standing up inside the cab. Once they established that both were indeed alive and not injured, they set about getting themselves out the cab. There was really only one way out, and that was through their respective cab side-windows.

Darby continued to squeeze himself through his window, whilst the fireman did the same on his side of the locomotive. When they were both finally free from the cab, they found that they were standing on a great pile of mud, about three to four metres above the ground, and so they slowly scrambled down on to solid ground, at rail level. Both were in a degree of shock, cold, wet and caked in red mud. Added to that, it was dark and drizzling rain in the middle of May at 2.30am, so naturally it took some time for them to collect themselves, their thoughts and to decide what to do next.

They looked around as best as they could in the darkness and gloom, and noticed that the locomotive was seriously at angles from where it should have been. It was later on, with



A view of the No. 2 end driver's cab taken through the side window following the accident. The driver's control stand to the left, while the pile-up of mud dominates the remainder of the view.  
PHOTO DARBY MUNRO

the benefit of daylight that they realised that when the locomotive hit the landslide inside the tunnel exit, the second of the forces mentioned earlier came into effect against it. What happened this time was that the 107-tonne locomotive started to climb up the mud pile, and in doing so, the wheels and front bogie lost contact with the rail and with the force of train behind it, pushed it upwards and to the right of the line, towards the edge of a steep embankment. When the momentum finally ceased, it was estimated that the locomotive stopped about one engine length from the edge of the embankment.

Darby now realised that for them to get out of this situation as quickly as possible, either he or his fireman would have to go for help, and so he scrambled back up to his cab window and reached in to try and find the train staff for the Landrigans-Coffs Harbour section. Luckily it was still hanging on the hook in the cab where it normally was, and was thus easy to find and extract from the cab. In locating the staff, Darby knew that if a rescue train were going to come up from Coffs Harbour, it would need to travel on the authority of that train staff for the section. Now that the staff was secure, Darby decided that it was his role and responsibility to remain with the train, and so he instructed his fireman to set off on foot towards Coffs Harbour, to raise the alarm and to organise help and rescue.

You can imagine the thoughts now racing through the young fireman's mind. Here he was, on his first trip south of Grafton, on a section of line he was unfamiliar with, having just survived a very traumatic ordeal, in pitch black darkness and drizzling rain and he was cold, wet and muddy, now being directed to walk along an unlit railway line as fast as he could, towards Coffs Harbour which lay nine kilometres away. On his way, he had to pass through the remaining two tunnels on Red Hill, through terrain where, in 1974 unlike today, there were very few houses, and certainly none he could see in the darkness. But, off he went as asked and finally he came across the level crossing at Mackay's Road, approximately six kilometres towards Coffs Harbour station, where he noticed a house close by the line. He went to the house and banged on the door. The lady who lived at the house was awoken when she heard the noise outside and was naturally terrified that someone would be banging on her door at that very early hour. She was even more terrified when she opened the door, to be greeted with the sight of the bedraggled fireman standing on her doorstep. After hearing of his predicament, she woke up her husband who then drove the fireman the remaining distance to the Coffs Harbour Railway Station, where he was able to raise the alarm and from where the rescue and recovery phase was initiated.

## RESCUE EFFORTS

Back at the derailment site, Darby couldn't do anything else but sit and wait, not knowing how long it would take the fireman to get to Coffs Harbour, or how long it would take before someone came to rescue him. Meanwhile, at Coffs Harbour Station, the Assistant Station Master (ASM) on duty was no doubt startled and shocked when the fireman finally arrived, telling him of what happened to train No. 480.

After the ASM advised the Train Controller on the Control phone of what he had just heard, he would have then been directed to phone the local perway ganger, to summon him and is gang of fettlers to the station as soon as possible, to



go and find No. 480, and to assess the situation. Once the gang of men had assembled at the station, they set off on fettlers trikes (three of them) back up Red Hill. One has to bear in mind that in 1974, the only access into a lot of the railway line corridors was either on foot or by trike. The first trike arrived at No. 3 tunnel at about 5.30am and by then, dawn was slowly breaking over the site of the derailment. It was then that all those present could gain some visual understanding of just how much destruction and damage had taken place.

Darby was waiting patiently, and was very glad to see the rescue party arrive. Sometime later, the District Locomotive Engineer (DLE), arrived from Grafton, and he asked Darby what happened. When Darby replied that he had smashed into a landslide, the DLE took Darby completely by surprise by asking him why he hadn't managed to shut down the locomotive engine, which despite all the drama that it had been through, was still sitting there idling, as if nothing had happened at all! Darby wasn't quite quick enough, (for obvious reasons), to inform the DLE that one reason he had not shut the locomotive down was because the 'shutdown switch' was situated in the number 1 end cab, which the DLE should have known, and which Darby could not access.

It should be noted at this stage that no one knew where Wilf Hannah, the train guard was, or whether he had been injured in the derailment. In these pre-radio communication times, Darby had no way of communicating with him, nor could he access the rear of the train because of the landslide blocking the entrance to the tunnel, and because of the derailed wagons inside the tunnel itself. It was presumed by Darby that once Wilf had worked out what had happened, he would have applied the handbrakes to his guards van and then walked back the kilometre or so to Landrigans signal box, through tunnels four and five, laying the required warning detonators on the track to protect the rear of the train as he went.

Eventually Darby was taken by fettlers trike back down Red Hill to Coffs Harbour Station, where there was a scene of organised chaos taking place. By this time, No.1-the Down *Brisbane Limited Express* and No.3-the Down *Gold Coast Motorail Express* had arrived



Looking down on the stranded locomotive 4450 after the clean-up had commenced. By this stage, most of the mud from the landslide had been cleared away and re-railing of the locomotive was about to commence. COURTESY THE LATE CEC COX

and were being terminated there. This meant that all passengers, luggage, parcels and mail had to be off loaded and transhipped by road coaches to stations north of Coffs Harbour, including Grafton, Casino, Kyogle, Brisbane, Lismore, Byron Bay and Murwillumbah. When Darby climbed off the trike, he was met by the ASM on duty who suggested to Darby and his fireman that it might be a good idea if they cleaned themselves up a bit, before getting on a bus that was going to take them to Grafton. This they gladly did, washing off some of the red clay mud that they were caked in.

Unfortunately, despite their horrendous ordeal, there seemed to be a problem convincing those in charge of the importance of getting Darby and

his fireman back to Grafton as soon as possible. There was a reluctance to make a seat available to them on the buses going north, and it took a union official to step in and demand that they be given a seat home. When they arrived back in Grafton, Darby was sent home in a taxi. He got out of the taxi at his home, and his wife Lorna was surprised to see him, to say the least. She was still under the impression that he was working a goods train heading towards Brisbane, as he was originally rostered to be, and had no inkling that not only had his roster had been changed, but also she had not been informed of the accident by anyone from the South Grafton depot. So here he was, standing there with no shoes on and still smeared with





Locomotive 4450 after being extracted from the No. 3 tunnel portal. A crowd has gathered above the tunnel on what was previously the local road. Neither No. 2 cab wind-screen was broken, though the centre door was pushed open by the force of the impact. COURTESY THE LATE CEC COX

mud, and it was only after he told her of what had happened that they both really understood just how lucky he was to be still alive.

No doubt there were many tears of sadness and relief at the Munro household that day.

## AFTERMATH

Remarkably, as a result of this incident, the North Coast Line was only closed for the relatively short period of time of 24 hours, and reopened the next morning (Sunday), no doubt under a serious speed restriction. The fast work of the fettlers, plant operators and other railway and council staff in not only clearing away all the debris of the landslide, but then re-railing 4450 and

the other derailed wagons and moving them down to Coffs Harbour meant that the sizeable backlog of trains that had started to build up each side of the site could soon be relieved. The temporary repairs made to the water pipe which caused the landslide in the first place did not hold out, however, and it burst again later on Sunday afternoon, resulting in the line being closed again until the next day (Monday), after further and more permanent repairs could be carried out to the pipeline.

Locomotive 4450 and its train were towed down to Coffs Harbour yard, where the locomotive was detached from the train, and then stored in the Shell siding in Coffs yard, whilst the wagons of the train continued on to

their destinations on another pick up train sometime later. Locomotive 4450 remained in Coffs Harbour to be cleaned up sufficiently to be forwarded to Sydney to be properly cleaned and then be assessed for any damage that may have occurred.

Several years later, not long after I started work at Coffs railway station in 1976, I recall being shown patches of red clay in and around the Shell siding site, and I was told that this clay was from Red Hill, and it was where 4450 had been cleaned out. Until I recently spoke to Darby I was never really sure if what I had been told was true or not, but now I am certain that it was. Who knows, maybe if you looked around in the grass today where the Shell siding was, you might still be able to find some of that infamous red clay still lying there?

After the accident, Darby Munro had about a month off work, as the trauma had affected him profoundly, as to be expected. When he was ready to resume work, he was first assigned to light duties in the locomotive charge-man's office for a period of time before being rostered back onto mainline driving duties. To help in his return to full duties, Darby requested the roster clerk to roster him on trains heading north of Grafton for a few days, to help him to get his confidence back again. But, when the day arrived for his first day back in the driver's seat, he was rostered for No. 430, a south-bound train, from Grafton to Taree. He reluctantly took the job, and was going well until he came to Landrigans Signal Box. By this stage, the anxiety was too much for Darby, and he stopped the train there and informed the signalman, and in turn the train controller, that he could not take the train any further. The train controller seemed to understand his predicament, and so he asked Darby to stow and secure the train in the loop before he relinquished duty, which Darby dutifully did. Luckily for Darby, the signalman was from Grafton, and as it was close to his finishing time, Darby caught a ride with him back to Grafton, and signed off-duty. The train, fireman and guard were forced to remain at Landrigans until alternative arrangements could be made for them.

Darby was off work for a further two weeks, and when he was deemed fit enough to resume duties, he again was rostered for another southbound train,



despite his repeated request to be sent north. However, this time there were some contingency plans made, just in case Darby again could not take the train past Landrigans. When he left South Grafton, Darby wasn't aware that a relief driver was riding in the guards van, as the emergency backup. And just as well he was there too, for when Darby again arrived at Landrigans, he again found that he could not go on. This time, however, the emergency plan kicked in, and when the relief driver appeared at the locomotive, Darby was relieved of duty. As a northbound goods train was due to cross (pass) Darby's train at Landrigans, he was able to travel back to Grafton on it, where he signed off and went home, for another two weeks off work.

Third time lucky came around again for Darby, but this time, common sense finally prevailed, and he was finally sent north for a couple of trips, to regain his confidence and allow himself time to face up to the fact that he would eventually have to go south again and through No 3 tunnel. Subsequently, when he was rostered for a south-bound train, he again stopped at Landrigans as his anxiety level had built up again. The difference this time was that Darby knew that if he let it beat him he would never break the stranglehold it had over him. So he took a few deep breaths and slowly released the brakes on the train and set off down Red Hill, for the first time since the accident. When he came to No 3 tunnel, he reduced the speed of the train and crawled through it at 10 km/h. When he had cleared the tunnel, he felt ok with himself and resumed normal track speed. He continued this practice for some time afterwards, on both Up and Down trains, until he felt he was able to go through the tunnel at normal speed, thus eventually putting it out of his mind as best he could.

Even though Darby Munro recovered from this incident and continued driving trains for quite a few years afterwards, he never really fully got over it. He still carried a lot of stress and anxiety from it, and it was only in recent times, 40 years after 11 May, 1974, that he could fully relate and re-tell what really had happened to him. Up until then, not even his wife or family or close friends really knew the whole story of what happened on that fateful night of the terror on Red Hill.



Locomotive 4450 stored at the Shell Siding in Coffs Harbour awaiting cleaning prior to being sent to Sydney. It returned to service shortly after the incident and remained in operation until July 1990. PHOTO DARBY MUNRO

## OTHER IMPACTS

As mentioned in the opening paragraph, Darby Munro had noticed a lot of water in and around the entrance to No. 3 tunnel whilst working a Down goods train on the day prior to the landslide. This was just one of many warning signs that something was not right at this location. No. 3 tunnel not only passes under Coramba Road, part of the link between Coffs Harbour and Grafton via Glenreagh, but also passes under the main Coffs Harbour water supply pipeline that carried water from a supply reservoir situated above and on the western side of the line, to a second reservoir further down Red Hill. It was this water pipeline that was the cause of the landslide.

Some time prior to 11 May, there had been several reports by passing train crews, as well as fitters, of water and mud falling on the line at No. 3 tunnel. As the source of these water leaks was naturally attributed to the water pipe above, these reports were forwarded onto the proper authority, namely the then Coffs Harbour Shire Council, for immediate attention. Obviously, whatever attention, if any, was given

to these reports, it was not enough, for the pipeline finally burst sometime shortly after the passing of No. 4 *Gold Coast Motorail Express*, on the morning of 11 May. Thankfully, it held off just long enough until these two express passenger trains had safely passed, for you can only imagine what chaos and mayhem and possible loss of lives would have unfolded if either No. 2 or No. 4 trains had hit the landslide.

When the pipe burst, it immediately brought hundreds of tonnes of thick red gooey mud, (from where Red Hill gets its name), rocks, trees and water, as well as half of the roadway forming Coramba Road, crashing down onto the line approximately 60 metres below.

Such was the damage to the roadway, that for many months afterwards, road traffic was reduced to a single lane, controlled by traffic lights. Eventually, major road works was carried out on Red Hill by cutting back the entire side of the hill above the railway line, to accommodate the new roadway, which saw the road again restored to two lanes. This not only restored two lanes for traffic, but it also eased the curve of the corner immediately before the site of the landslide.



Another improvement to the road, brought about by this incident, was the installation of street lights to help guide motorists through the landslip area during darkness, especially when the road was reduced to a single lane. These street lights are still *in situ* and still come on at night, even though the original reason for installation has long since passed or been forgotten.

## POSTSCRIPT ON THE MAIN CHARACTERS

Darby Munro now lives comfortably in retirement in Taree, with his wife Lorna. Unfortunately nothing is known of the fireman, R Dudgeon. Darby lost contact with him soon after the inquiry into the landslide. The train guard, Wilfred Hannah, continued service after this incident and retired some years later.

Locomotive 4450 (which entered service on 24 October 1960), was returned to service soon after this incident, and continued to operate until it was condemned on 20 July 1990. It finally met its end at the hands of the scrapper sometime thereafter.

The five tunnels, known as the Red Hill tunnels, were all opened for traffic on 17 July 1922, when this section of line between Coffs Harbour and Glenreagh was opened for rail traffic. Due to the extensive tunnelling works required and the rugged terrain, this section, (Coffs Harbour to Glenreagh), was the final section to be opened between South Grafton and Macksville, with the sections between Coffs Harbour and Macksville to the south, and the line between Glenreagh to South Grafton to the north, both opening seven years earlier, in 1915.

Details of the tunnels are as follows;

No. 1 tunnel; located at 615.400km is 92 metres in length,

No. 2 tunnel; located at 617.000km is 208 metres in length,

No. 3 tunnel; located at 617.600km is 261 metres in length,

No. 4 tunnel; located at 618.100km is 121 metres in length, and

No. 5 tunnel; located at 618.600km is 273 metres in length.

All five tunnels still play a vital role in the daily operations of rail traffic on the North Coast Line, whilst above a road traffic passes over the tunnel, oblivious to what happened below at that location.

Landrigans Signal Box was located at 619.709km. It opened on 16 December 1943 and closed in the 1990s after the introduction of Centralised Train Control. It was retained as a crossing loop for some years, but the crossing has since been removed.

## NOTES

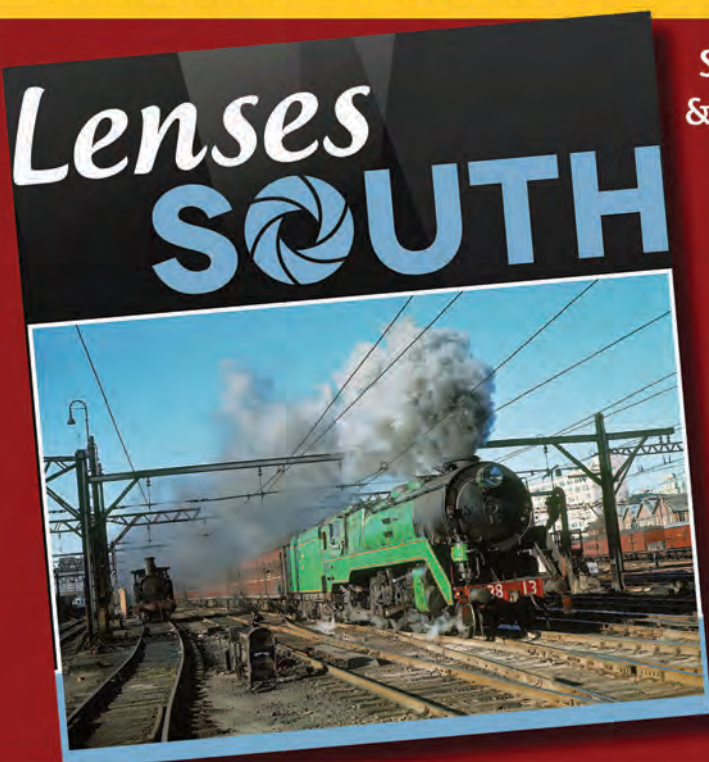
**Perway** is an official term, short for the Permanent Way, ie, the railway line.

**Ganger** is the man in charge of a gang of men responsible for the maintenance and repairs to a section of railway line.

**Trike:** a small trolley machine, either hand or mechanical powered, used by the railways to convey men and equipment along the railway line, for inspection and maintenance purposes. They could be either three or four wheeled.

All **distances** shown (km) are measured from the terminal end of Platform 1 at Sydney Central Station.

*We have the remaining stock of Lenses South. Buy your copy before they are all gone!*



## Steam's Last Years around Sydney & in the South of New South Wales

By Malcolm Holdsworth, Graham Cotterall,

John Gaydon and others. 192 pages, hard cover, over 300 colour photographs and six maps and tables. *Railway Digest's* Shane O'Neil describes this book in his July 2016 review as: "this is the best photographic book on the subject of NSW steam that I have ever seen without doubt. It has built further upon the results of *Northern Exposure* from 2014 and gone beyond it, if that is possible.

Highly recommended"

Price: \$85, 10% members discount applies.

ARHSNSW RAILWAY BOOKSHOP, 67 Renwick Street, Redfern 2016, Monday–Friday 10am–5pm, Saturday 9am–4pm, ph: 02 9699 4595; [www.arhsnsw.com.au](http://www.arhsnsw.com.au)





The photo of Robert Ferguson (right), wearing the 'H' pin presented as a memento to the Royal Tour train crew for the Duke of Gloucester's visit, with his friend Lance Sharp photographed outside Sydney Terminal Station in the mid-1930s. This photograph is one of the new 'treasures' added to the ARHSnsw Railway Resource Centre in late 2016 as documented below.

## NEW TREASURES AT THE RRC

Bill Phippen OAM

The recent article on the railway travelling arrangements during the 1934 visit to Australia by the Duke of Gloucester concluded with a photo on the back cover of the August issue showing the presentation by the Commissioner to the train's crew of a mounted photograph of that train. The Railway Resource Centre (RRC) has within its collection three examples of that item. It is signed by both Commissioner Hartigan and Deputy Commissioner Garside.

Close scrutiny of the presentation photo makes it clear that some other small object is being presented in the Commissioner's other hand. This is a lapel pin of the letter 'H' (for Henry, the Duke's name) and all of the other recipients in the group seem to be wearing their pin.

The third copy of the photograph has only recently come into the possession of the RRC, and the donor was able to identify the original recipient as Robert (Bob) Ferguson. The photograph was well treasured, passing to Bob's mate Lance Sharp in whose home it was displayed until the donation by Lance's daughter, Robyn, to the RRC. She was also able to locate photos of Bob Ferguson and her father, at Sydney Terminal Station, one with Bob wearing the 'H' lapel pin. From all reports, he wore it very proudly for many years (see above).

The recent publication of the article had made the subject and the photo very familiar to the RRC manager, and per-

haps at another time he would have not noted the significance of the small picture in its discoloured frame on the wall when he called to collect the bequest. At this time the RRC collection does not include an example of the lapel pin.

Among a lot of other papers and objects given to the RRC on that day, we found a letter which Lance had written to the *Sydney Mail* describing the Duke's carriage. The *Sydney Mail* had returned the letter unpublished, but now 82 years later it appears in *Australian Railway History* (see next page). The Railway Refreshment Room branded cigar box from the collection has been already passed on to the Transport Heritage NSW collection.

A small cardboard box contained 12 glass plate negatives from 1915, taken at Cleveland Street 'tunnel' as the steam tram motor delivering the rebuilt ambulance electric trams passed. These have been presented at the Annual General Meeting of the ARHS NSW Division on 14 September 2016.

Additional treasures from Lance Sharp are two magnificent coloured drawings of 32 Class locomotives he prepared in the 1930s. These are presented on page 2 and the rear cover of this issue of *ARH*.

Treasures do exist out there and we need to ensure as time passes they find a permanent home in a publicly accessible repository, the Railway Resource Centre or any similar archive.



**Editor:** The following is the text as amended by Lance Sharp, which was hand-written on three small sheets of paper. A scan of the third page is also inserted.

60 Station Street,  
Tempe  
24th Nov 1934

Dear Sir,

Further to 'Call Boy's' article appearing in last issue of the Mail, the following information about the Railway carriage to be used by Prince Henry may prove of interest to your readers. These details are somewhat sketchy owing to limited space in your columns but cover the main features of the car.

This luxurious coach is 66ft long over the body and is 8ft 6in wide overall. The trailing end is occupied by an observation room 11ft 6in long, the full width of the car. It contains a desk, table, settee and three easy chairs, the upholstery being of blue and gold damask, relieved by blue silk cushions.

Each of the three bedrooms have bedspreads and bolster cases to match. On previous Royal visits the bedspreads had the Royal crest worked in the centre. From each bedroom, access is provided to toilet arrangements, which include a shower bath. Bedrooms are done out in cream with gold scrollwork. The dining saloon is 12ft 6ft long and 8ft 6in wide, with a small compartment at one end containing a gas stove and locker and also two Pullman berths. Upholstery here is of blue leather whilst on top of the dinner wagon is the appropriate Coat of Arms covered by a polished

glass top. The table has a blue and gold damask runner, and the servery has lace mats lined with blue also under polished glass.

The leading end of the car has a vestibuled platform standard to Pullman Cars which provides communication with the rest of the train.

The exterior bodywork is of NSW red-cedar painted a handsome red with gold borders and inlaid designs. Centrally on each side of the car is a circular fitting in which is moulded the Coat of Arms. The interior is principally of English Oak and the whole coach is a magnificent tribute to the skill and artistry of Australian workmen. The carving, painting and decorating are all exquisitely carried out and the designers and artisans of Eveleigh have wrought a work of great beauty.

The whole vehicle is carried on two well sprung six-wheeled bogies and rides exceptionally smoothly and quietly as it is built on timber underframes with a 6 inch space beneath the floor

filled with sawdust and shavings to deaden noise.

Floors are covered throughout with plain blue Hilton pile carpet. The spacious windows are dressed with gold taffeta curtains, held back with blue and gold silk loops. Blinds are of Royal blue silk and run in gold plated wires. The car is now electrically lit having one centre fitting and four small fittings in each corner of the rooms.

Outwardly, the car has the graceful lines that express symmetry, stability and safety—inwardly, luxurious comfort and dignified beauty are the predominant features.

(Signed) '3313'

P.S. Unfortunately I cannot locate the photos I have of the carriage, else I would make them available to you. Enclosed is a reproduction of the dining room which you may be able to use.

Yours Truly,  
Lance Sharp

3

bogies & rides exceptionally smoothly & quietly as it is built on timber underframes with a 6" space beneath <sup>the floor</sup> filled with sawdust & shavings to deaden noise.

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Yours Truly  
Lance Sharp

RIGHT: The scan of page 3 of Len Sharp's letter to the Sydney Mail of 24 November 1938, which is now held by the ARHSnsw Railway Resource Centre.



# TOUR OF H.R.H. THE DUKE OF GLOUCESTER

OCTOBER - NOVEMBER - DECEMBER, 1934



ROYAL TRAIN—NEW SOUTH WALES

*Hartigan  
3/12/34  
Sydney*

The third copy of the 1934 Royal Train that was presented to Robert Ferguson by the Commissioner for Railways, Mr Thomas Hartigan, on 10 December 1934. This copy was passed onto Lance Sharp and has been donated to the Railway Resource Centre by his daughter, Robyn.

The Editor of the "Sydney Mail" regrets, he is unable to make use of the contribution returned herewith. With thanks.

Also among the Lance Sharp 'treasures' presented to the RRC by his daughter, Roslyn, was this 'Rejection Slip' from the Editor of the *Sydney Mail*.



# Book Review

## LOCOMOTIVE ENGINEMEN OF TASMANIA

Nick Anchen

Sierra Publishing, Melbourne, 2016: 184 pages, hard cover, 262 x 207mm, 153 colour photos and five maps. ARHS-Bookshop price \$50 (plus P&P), members' discount applies.

Following a brief introduction by Nick Anchen, this latest book from his Sierra Publishing presents the personal stories of nine Tasmanian locomotive men, covering their careers with the Tasmanian Government Railways (TGR), Emu Bay Railway (EBR) and the Mount Lyell Railway. Their stories are backed by 153 colour images, primarily high-quality photographs illustrating the stories being told, but also including TGR and English Electric built locos and passenger tickets of the various systems. The selected images are from the best-known photographers of Tasmanian railways, including Keith Atkinson, Phil A'Vard, Tony Coen, Clyde Coombe, Chris Elliott, Bernie Kelly, Weston Langford, Geoff Love, Bruce Palmer, Peter Ralph, Paul Raspin and Michael Schrader.

Five of the authors are TGR enginemen: Lance Carroll (1951–1964), Bill Baker (1949–1989), Arthur Causley (1955–1992), Geoff Love (1960–1996) and Tony Coen (1966–1978). Interestingly, their work experience was primarily in the north, though Tony Coen commenced work at the Hobart Depot and focuses on railway operations in the south prior to his transfer to Devonport in 1969, while Geoff Love worked from Hobart between 1962 and 1965. Overall, these stories provide a broad picture of TGR operations from the 1950s to the 1990s. Their combined stories give a fascinating picture of the evolution of the TGR operations over this period.

The Emu Bay Railway enginemen are Hedley Charles (1956–1992), Sid Young (1955–1998) and John Watkins

(1972–1998). They too give a broad picture of EBR operations over these decades, with Hedley describing the challenges of working the EBR Beyer Garratt locomotives (introduced in the 1930s) and Australian Standard Garratt engines and covers their replacement by diesel-hydraulic locomotives. Syd Young describes his experience as fireman on the

Dübs 4-8-0 locomotives refurbished to operate the West Coaster passenger train in the 1960s, while John Watkins focuses his account on the EBR rail motors in the late 1950s.

Mick Maxfield (1947–1963) is the sole representative of the Mount Lyell Railway. Born and bred in Queenstown, he initially drove the 2ft gauge Krauss locomotives in his local area before becoming a 'spare' driver on the 3ft 6in gauge rack line based at Strahan. This meant he was required to drive a range of railcars, mobile cranes or the ABT



tank locomotives. He describes runaways on the steeply graded line and the annual Mt Lyell Mine picnic trains from Queenstown to Regatta Point, together with closure of the line in 1963, when he drove one of the last trains.

This book is highly recommended, both for the quality of its photographs and the broad range of stories told by the enginemen. While there is significant variation in the telling of their stories, together they provide a fascinating insight into the changes that occurred within the railway systems of Tasmania between the late 1940s and the late 1990s.

*Bob McKillop*

### END NOTES ARH No. 950

In the article 'Central to St James: 90th Anniversary of Sydney's First Underground Railway' in the December 2016 issue of *Australian Railway History*, two successive end notes are numbered 3.

Accordingly, readers should take the second '3' to be the

reference listed as '4' in the End Notes on page 31 and each subsequent end note to be one digit lower to No. 26, in order match them to the number in the text. My apologies for this error.

**Editor**



## Who started the Sydney Railway Company?

When I wrote the story of the first railway from Sydney to Parramatta, which was published by the Australian Railway Historical Society NSW Division in 2005, I spent many hours studying all the available contemporary documents to ensure my story was as accurate as possible and did not include anything that was not supported by historical material.

Now, over ten years after publication, I can safely report that I have not received any criticism of the facts as presented (although I have a long list of typographical errors) of those events in the now distant past. I did make a request in the book that any factual errors be reported so that the ARHSnsw Railway Resource Centre could maintain a copy of the text that was as factually correct as possible.

In particular, I was aware that there were respected historians in Goulburn back in 2005 who held a different version of the events I documented regarding the early years of the Sydney Railway Company from 1846. I actually referred to this alternative version and stated that it was open to 'further investigation'. Despite my further investigation seeking facts from the

proponents of the alternative story without avail, a recently published book on the history of the railway at Goulburn repeats this alternative version without any supporting evidence from historical records.

The available newspaper records show that the first meeting to consider the building of a railway from Sydney to Goulburn was called in Sydney for Thursday 29 January 1846. There is no record of a similar meeting being called in Goulburn. For instance, the *Sydney Morning Herald* for the following days gives full details of the Sydney meeting, but there is no report of a Goulburn meeting. The Sydney meeting nominated a committee that began gathering information on railways to both Goulburn and Bathurst. In discussing proposed railways in New South Wales, the *Maitland Mercury* revealed that Dr Charles Nicholson had organised the Sydney meeting, providing to it all the provisional figures quoted for the line to Goulburn.

The first recorded meeting held at Goulburn in support of a railway to the town was held on 3 April 1846. It was called by the Warden of Goulburn in response to a written request by a now

unknown supporter who was either a local resident or the secretary of the Sydney Committee. The meeting was attended by many local supporters and Dr Charles Nicholson delivered a speech repeating all the information covered at the Sydney meeting. The Goulburn meeting supported the proposal for a railway and established a committee of local supporters with Mr William Bradley as chairman and Thomas Woore as a committee member. This committee played a supporting role in the successful establishment of the Sydney Railway Company and its activities in the initial years.

The purpose of my letter is to once more ask if any reader of *Australian Railway History* or my book, *Sydney Railway Company 1848-1857*, has any historical records that may support the alternative view on the early years of the company, prior to the ARHS NSW Division, including a note in its archive copy of the new Goulburn book that it may contain the above discussed error, together with confirmation that my book is the historically supported story of the early years of the Sydney Railway Company.

*Don Hagarty, St Ives NSW*



**LEFT:** Remembering our railway heritage. The NSW Government Railways locomotive No. 1 being prepared at Sydney Terminal Station for the Jubilee celebrations of the NSW Railways in 1905. NSWGR photo, ARHSnsw Railway Resource Centre, 014267



**Editor:** The following letter was submitted in July 2015, but unfortunately it was mislaid and I have only recently received an additional copy of the text from the author. I offer my apologies for its late appearance in this issue of the magazine.

What was so wrong with the original line to Richmond NSW, opened in 1864? I am prompted to ask this by what Craig McPherson wrote about it on its 150th anniversary in *Australian Railway History*, January 2015, p22.

That article and two earlier articles by Singleton and Matthews, agree that the branch was originally proposed as a horse-operated line; but during construction the scheme was changed to a light steam locomotive operated line with rails of 55lb/yd, presumably iron, with sand ballast. Three small 0-6-OST locomotives of the S.29 Class of 16.9 tons (ie, 5.6 tons axle load) were obtained to operate the line and it opened in November 1864. The locomotives could haul trains of only 40 tons. They operated the line until 1879, and were then replaced by the 127 Class of 0-6-OST of 23 tons (ie, 7.7 tons axle load). Matthews gives the actual gradients.

The Engineer-in-Chief, John Whitton, strongly disfavoured both horse lines and light steam railways, as well as railways of less than 4ft 8½in gauge. He is reported as having regarded the Richmond line as too light even for the S.29 Class locomotives, and as being dangerous. The line was rehabilitated in the 1880s with cuttings and embankments enhanced to ease the gradients, higher bridges above flood level, 70lb rails (at that date no doubt steel), stone ballast and closer sleepers. The line was then able

to carry locomotives which worked the rest of the system.

Although the S.29 Class locomotives were small and had limited brake power, the trains were light and the gradients short. Indeed, compared with the lines Whitton was to build with steeper gradients over much longer distances beyond Penrith and Picton, the Richmond line cannot have been really unsafe. None of the authors claim that traffic on the line was particularly heavy.

I draw attention to this because the 55lb/yd iron rails should have been capable of carrying somewhat heavier locomotives, and the line was operable with them until the iron rails wore out. Progressive improvements would have been closer sleeper spacing, ballasting with stone, easing the 1 in 30 grades and replacing the original bridges with higher ones to the extent traffic was blocked for long periods by floods. Having the line passable for all locomotives on the system and having it above major flood levels seem to be secondary considerations given the priority of building the trunk railways through difficult country into the interior. In reality, Richmond already had a railway sufficient for the traffic of the district. Even as built it should have been capable of taking larger locomotives than the S.29 Class and of greater haulage capacity had they been tender locomotives.

The year following the opening of the Richmond line, the first railway in Queensland was opened, and provides an interesting comparison. The rails of wrought iron were 40lb/yd, the sleepers 78 inches long, 10 inches wide and five inches deep, spaced 30 inches apart. The ballast was stone, eight inches under the sleepers, eight

feet wide at the top, eleven feet at the bottom, on a formation 13 feet wide. En route to Toowoomba, reached in 1867, two ranges were crossed, one eight miles long, the other 16½ miles. Sharp curves were used on these sections, down to five chains radius. The iron rails wore rapidly on these sharp curves, so this was the period of transition to steel rails. The curves on this line were soon re-railed in steel, eventually of 60lb/yd, which lasted much longer.

Elsewhere, iron rails lasted well, up to 30 years. The steepest gradient used was 1 in 50, but the additional resistance to movement from the sharp curvature brought the equivalent gradient down to about 1 in 40 on the straight. The line was continued on easier gradients to Dalby and Warwick. Another line of the same technology was built inland from Rockhampton for 30 miles, opened in 1867.

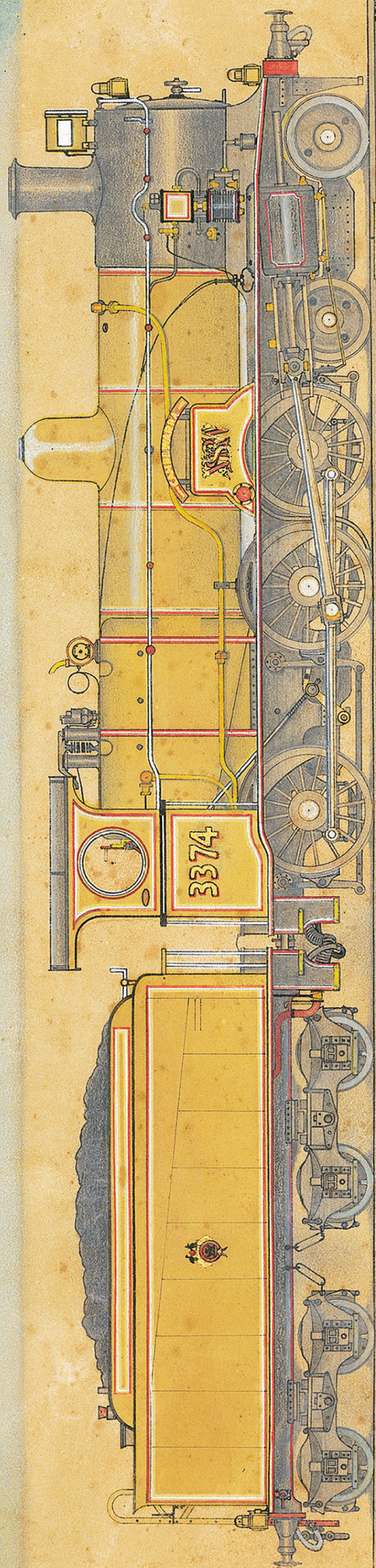
The locomotives in the early years were 2-4-0, 0-4-2 and 2-6-0 tender types with axle-loads of up to 5½ tons. Boiler power was maximised within the axle-load permissible by having a separate tender and the 2-6-0s could haul 60 tons on the climb of the Main Range to Toowoomba. Braking was achieved by separate brake vans and by pinning down vehicle brakes. The same rails eventually carried bigger 2-6-0 locomotives capable of hauling 70 tons on the longer range, or 75 by reduced speed on the climb, while eventually the first B13 Class 4-6-0s were capable of taking 85 tons.

Was the Richmond line rebuilt well before the original rails had worn out to have it conform to Whitton's ideas of what a railway had to be?

*John Knowles, New Malden UK*



**P** CLASS LOCOMOTIVE



With  
by  
C. G.  
Voorley  
A.



Lance Sharp's coloured drawing of 32 Class 4-6-0 locomotive 3374 completed on 4 February 1934. This is another recent 'treasure' in the ARHSnsw Railway Resource Centre (see page 26).