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RAILWAY

HISTORY™



IN THIS ISSUE:

RICHARD THOMAS BALL

NSW Minister for Railways

FROM STEAM TO DIESEL

Part 1: The early transition

DISPELLING MYTHS & LEGENDS

A postscript on Sydney–Newcastle train speeds

Journal of the Australian Railway Historical Society



The Queensland Railways 2-6-0 diesel-mechanical locomotive DL1 *ETHERIDGE* on its trial run at Shorncliffe Station in Brisbane in 1939. This was an Australian pioneer diesel-powered locomotive. QR photo, ARHSNSW RAILWAY RESOURCE CENTRE, 025338



Australia's first diesel-electric locomotives were four former US Army Bo-Bo 380hp (279kW) locomotives imported by the Commonwealth Department of Munitions in 1943. By 1946, 7923 was on shunting duties at Sydney Terminal Station. R B McMILLAN COLLECTION, ARHSNSW RAILWAY RESOURCE CENTRE, 214006

EDITORIAL

Neville Pollard heads this month's *ARH* with his account of the career of the prominent Riverina businessman and later Minister for Railways, Richard Thomas Ball. The article explores the role that Ball played in promoting rural branch lines and the introduction of the well-known CPH 'Tin Hare' rail motors during his parliamentary career which stretched from 1895–1898 and then from 1904–1937. It was a period of political upheaval, including the horror and impact of The Great War of 1914–1918.

Our feature article by David Matheson reviews the transition from steam locomotives to diesel and electric motive power on Australia's government railway systems. Part 1 presented here covers the early period of dieselisation on the efficiency and cost-effectiveness of the various railway systems. We have selected an impressive range of images to illustrate the transition across the nation, commencing with the first mainline diesel-electric locomotives on the Tasmanian Government Railways from 1950. The earlier introductions of diesel-electric and diesel-mechanical locomotives for shunting duties are also covered.

David's analysis of the transition includes data on the numbers of steam and non-steam locomotives on each government railway system between 1951 and 1975. By the latter years, the remaining steam locomotives were small stables of heritage engines maintained for special workings on main lines.

Alex Wardrop provides a further update on his 'Dispelling Myths and Legends' article published in the June 2013 issue of *Australian Railway History*. Alex compares the run of the Special six car SPER 'Newcastle Flyer' train headed by locomotive 3801 from Sydney to Newcastle and return on 28 June 1964, adjusted to a full 'Flyer' seven car consist, against simulated runs by XPT, OSCAR and double-deck V-Sets and concludes that today's electric inter-urban trains have the capacity to achieve faster non-stop journey times than comparable trains headed by 3801. Tim Fischer AC offers a short Explorer item on prominent individuals who changed trains at Albury over the years.

Robert McKillop

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Cover Image: NSW Government Railways' diesel-electric locomotives 4002 and 4001 haul the Royal Train from Bathurst through the Sod-walls horseshoe curve on 12 February 1954, NSWGR PHOTO, ARHSNSW RRC, 001628

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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.

COUNTRY Vs CITY:

Richard Thomas Ball, NSW Minister for Railways

Neville Pollard



R T Ball died at Marrickville in Sydney on 30 October 1937. The following year a plaque was erected in his memory at the entrance to Corowa Hospital, illustrating the high esteem that the local community held of Ball. This image was taken in 2013.

LORRAINE WELLS PHOTO

‘Mr Ball was a fine man, a vigorous and efficient Minister, and a loyal servant to his constituents.’

Premier Stevens on hearing of R T Ball’s death¹

Richard Thomas Ball (1857–1937), twice NSW Minister for Railways between late 1916 and early 1925, is not well-known because railway historians tend to neglect the political perspective. Volumes such as John Gunn’s, *Along Parallel Lines*, do not mention him by name.² R T Ball MLA guided legislation through NSW Parliament to construct over 1000 miles of railway, mostly in country areas. He was responsible for completing bridges and other public works as Secretary (Minister) for Public Works. Ball was briefly Minister for Agriculture and for a longer period he headed the Lands portfolio.

Richard Ball was born on 23 August 1857 at Surry Hills, Sydney, to George Ball (farmer) and his wife Ann Hooper, who had arrived in the colony as bounty migrants from Devonshire, England. This was just two years after the opening of the Sydney–Parramatta railway. Richard’s practical bent led him after schooling to employment at Chapman & Company, engineers, the Atlas Foundry & Engineering Works and a blacksmith in Brisbane Street, Sydney.³ Later he went on to help found the Institution of Engineers Australia. This experience would assist him in his later portfolios.

R T Ball possessed entrepreneurial and leadership skills which enabled him to purchase Byrne & Son’s foundry in 1881, on the corner of Cowper & Mundy Streets in Goulburn.⁴ Four years later he established R T Ball & Company. By 1888 he was constructing railway wagons and vans using borrowed capital. He established The Rolling

Stock Works two years later on the Church of England site beyond Baxter’s factory in Goulburn. Here 150–200 people were employed.⁵

Around 1890 he gained a contract to supply signalling equipment to the NSW Railways.⁶ With the onset of the 1890s Depression, however, Ball went bankrupt in 1894 with debts of over £6000, but received his Certificate of Discharge 12 months later. His political interests flowered between 1887 and 1894 as an alderman on Goulburn Municipal Council, occupying the position of mayor between 1890 and 1891 (see box p5).

In 1895 Ball was elected to the Legislative Assembly of the NSW Parliament as member for Albury, but was defeated in 1898 and again in 1901.⁷ Undaunted, he moved to the newly created seat of Corowa which he held from 1904 to 1920 (when the seat was disbanded). Between 1920 and 1927 he represented the seat of Murray. With reformation of the Corowa Division, Ball moved back to Corowa in 1927, holding it to his death ten years later. Whilst MP he continued as a mechanical engineer re-establishing R T Ball & Company in Goulburn around 1911, which was later managed by his son.

Ball’s policies initially reflected those of George Reid (1845–1918) whose liberal views stood for free trade, tax and land reform. Ball, representing a country constituency in the wartime anti-Labour National government, unsuccessfully tried to establish a Country Party in 1914–1915. He was also a member of the influential Farmers and Settlers’ Association (FSA). In 1932 he left the United Australia Party (made up largely of ex-Nationals) to join the United Country Party. It was support of the country that directed

Appearance in Court to Answer Charge of Bribery

When Ball was 23 years of age he was charged with offering a £50 bribe to the Colonial Secretary, Sir Henry Parkes, to secure government employment preferably as a blacksmith. Ball stated that he had been advised to do this and had noted advertisements in the SMH 'offering bonuses for government positions'. The seriousness with which this charge was viewed is evident in bail being set at £200 with two sureties of £100 after his first court appearance on 18 May 1880.

At a court sitting on 11 August 1880 Ball pleaded guilty to the charge. Satisfied that he had acted in ignorance the Attorney-General did not ask for a judgement to be determined. It is understood that offering of bribes often occurred around this time.

his parliamentary energies towards railway construction, land reform and 'small' government.

Before we study Ball's contribution, I make three comments: first, this article primarily focuses on his role as Minister for Railways and is, therefore, not a complete history of his life and work. Second, policies implemented by him were usually a co-operative effort made in the argy-bargy of cabinet and parliament and may not have represented his personal views. Finally, note that Ball's portfolio, specifically separated railways from other public works, highlighting how politically and financially sensitive railway matters were at the time.

MINISTER FOR PUBLIC WORKS AND RAILWAYS

R T Ball served as Minister for Public Works and Railways from 15 November 1916 to 12 April 1920. The first issue we need to explore is whether there was any deliberate scuttling of the city electric railway project from Central into the CBD and out to Bondi Junction during this period.

Let's go back and see what Premier Holman said in his election speech at Gundagai in early February 1917 about completing railways approved by previous governments but not yet opened. This included the £7 million City Railway. The Act to construct the city railway had been approved back in 1915.⁸ Holman said: 'Owing to the whole of the steel of Australia being required for war services, we have not been able to get the rails to complete some of the sections.'

Holman meant that the government, if re-elected, would complete unfinished lines, including the City Railway. Work on this project came to a halt after a cabinet decision in June 1917, two months after the election that won Holman a landslide majority.⁹ Construction recommenced in November 1920 after the Labor Party won had government the previous April but nothing really happened until 1922.¹⁰

Why wasn't the City Railway built during the Holman, Ball era?

First, the structure of the government must be considered: When Premier Holman was expelled from the Australian Labor Party in November 1916, over the conscription issue; he formed a loose Progressive/Liberal/National Party coalition that also included renegade Laborites. Holman continued as Premier with Ball, Secretary for Public Works and Minister for Railways.

The Progressives were supported by the influential rural Farmers & Settlers Association (FSA) who strongly represented rural interests. The Progressive Platform stood for: 'assisting the primary producers to obtain the full product of their labour ... decentralisation; improved facilities for transport, including a bold policy of road construction;

developmental railways; extension of advances to settlers [and] water conservation and irrigation'.¹¹

The Assistant Minister for Agriculture, Grimm, emphasised the country's grip on the Holman government in 1920 when he said: 'the majority of the members of the Cabinet were country representatives, and the legislation all through was in favour of the man on the land. During the past two and a half years the expenditure in the country had been £5,280,000 more than in the city'.¹²

Country Reaction to Impending Construction of the North Shore Bridge

(a light hearted statement of the tension between country and city)

Though the farmer's backs are bending,
Fighting fire and flood and drought,
Where, they settled down, depending
On the railways coming out—
Yet they soon will be in clover,
And be happy to the hilt,
And their troubles all be over,
When—the North Shore Bridge is built.

Though thy're [sic] always agitating,
And they curse the powers that be,
On the distant wheat lands waiting
For the railways yet to be—
There'll be joy and peace abiding
In the backblocks all around,
When—the city man goes gliding
In his railway underground.
Anonymous



A close-up view of the plaque honouring R T Ball on the right-hand gate in the photo on page 4. LORRAINE WELLS PHOTO

A review of newspaper opinion during this period shows considerable tension between country and city interests. *The Albury Banner and Wodonga Express* summarised the position:

The Country Traders' Association objects to the Government constructing the North Shore bridge and city railway whilst the country needs better railway accommodation.¹³

And again: 'The view taken by a number of Ministers is that primary lines in the country should take precedence over any portion of the city railway, which some Ministers have no hesitation in saying should not have been started at all. The latter contend that the city railway is only a duplication of the existing tram system, and will merely divert traffic and not earn fresh revenue.'¹⁴

The country faction in parliament clearly had the ascendancy. In response to pressure from the FSA and local railway leagues, Ball and Holman, who both represented country electorates, opened 15 new rural lines totalling 696 miles, made up of:

Dunedoo-Binnaway	44 miles
Binnaway-Coonabarabran	30 miles
Wagga-Humula	52 miles
Cobar - CSA Mines	7 miles
Denman-Merriwa	35 miles
Wyalong-Lake Cargelligo	70 miles
Wauchope-Kempsey	30 miles
Kempsey-Macksville	59 miles
Troy Junc.-Merrygoen	59 miles
Condobolin-Trida	130 miles
Matakana -Mt Hope	10 miles
Caragabal - Forbes	39 miles
Menindee-Broken Hill	74 miles
Craboon - Coolah	24 miles
Henty-Rand	33 miles
Total	696 miles

Work also continued filling gaps in duplications, namely to Cootamundra (46 miles), to Wollongong (10 miles) and to Singleton (14 miles). Collins argues that constructing country lines was a case of 'political pork barrelling' not only to ensure continuing support from the powerful pastoral lobby but to maintain the flow of private capital from wealthy rural interests.¹⁵

The Railway Commissioners were critical of Ball's policies because country lines added to the traffic burden at Sydney Terminal and they would: 'undoubtedly be blamed for lack of foresight and charged with incompetence through their being unable to meet the difficulties that will arise owing to conditions not of their creation'.¹⁶ The Commissioners repeatedly pressed the urgent need for a line that would carry 240 million passengers annually from the present terminus to the Central Business District.¹⁷ They also frequently mentioned in Public Works Department Reports into proposed country lines that they would never pay.

Secondly, there was a perceived lack of wartime funding with a danger of increasing unemployment. The English firm of Norton Griffiths (NG) had contracted to the previous Holman Labor government to provide £10 million over five years to construct an agreed list of railways and other public works.¹⁸ In return they would receive a 1½% brokerage fee, 5% interest and another 5% for acting as agent in supervisory work.

By November 1920 the following works were to be completed:

- three sections of the North Coast railway,
- Glenreagh-Dorrigo,
- Humula-Tumbarumba,
- Menindee-Broken Hill,
- Werris Creek-Binnaway and
- Forbes-Stockinbingal, the Homebush Saleyards and rail loop and City Railway.

The contract was signed in April 1915. By 1917 it was apparent that completion of works, as agreed, could not be achieved because the contractor had not raised the required £4 million by that date, and the government had not provided sufficient steel. Ball amended the agreement by divesting the company of project supervision and only paying the agreed 5% interest on money actually raised. This ultimately saved the government £3,870,000.

Ball's reviewer believed that cancelling this contract was 'one of his most laudable achievements'.¹⁹ However, Collins makes the point that there may have been more sinister reasons behind Ball's decision although nothing could be proved.

'Later events ... tend to suggest [that] final shelving of the work [was] due partly to interference from rural political interests' [who had opposed the City Railway Bill back in 1915].²⁰ There is also the proposition that funds might not have been so difficult to obtain than the official line stated, another means of perhaps stifling the City Railway. Holman stated in his Gundagai speech that:

I have had ... for the last two and a half years, the trying task of financing New South Wales under war conditions. I will content myself now by saying that at the end of each of the two years that have finished we have wound up with a surplus. In 1915 we had a surplus of £420,000; in 1916 we had a surplus of £140,000. This year we hope to have a surplus....²¹

Ball stated at a gathering at Coonabarabran that there was plenty of money available to keep the wheels of local industry going.²²

POLICIES INDIRECTLY AFFECTING THE RAILWAYS

First, Holman made reference to the attitude of unions that had caused a 10% drop in output in railway workshops. If efficiency did not improve the government would have to institute the contract system. Ball, who was not in favour of government run enterprises, preferring completion of public works by contract rather than day labour used by the previous Labor government. These contracts had contained a 10% preference clause.

Ball told a deputation from the Master Builders' Association in 1917 that his government firmly supported the tender system; where the Construction Department of the PWD would have to tender on the same terms as private enterprise. Ball's eye for savings also led to downsizing the Public Works administration in January 1917 after construction of lines passed to the Railway Commissioners.

The second, allied to the first, was a concern about the state of industrial unrest. In August 1917 a bitter strike commenced when the Commissioners introduced a card system to keep track of time that a particular job took to complete at the tramway workshops at Randwick and the carriage shops at Eveleigh. This was ostensibly to improve output from machinery and not employees.

A month long strike ensued, extending to all areas of the

railways and many other industries in NSW and interstate. By October 1917 about 97,500 were involved, around 77,350 were in NSW—14% of the state's workforce, including about a third of trade unionists.²³ It was seen by Ball and others as 'an organised revolt against constitutional government', believing the strike to be linked to The International Workers of the World (IWW) uprisings overseas.²⁴

Others saw it as a manifestation of frustrations exacerbated by the pressures of war. Unionists were also concerned that Commissioner Fraser might be embracing the views of Fredrick Taylor, an American, who supported: 'an ordered, individualised, sanitised, hierarchically differentiated, rational industrialised environment'.²⁵ This was probably more to the truth.²⁶ While Deputy Premier Fuller took firm control; Ball seems to have used his considerable mediation abilities to try to avert the strike and bring it to a swift conclusion.²⁷ What is significant is the role played by the FSA in supporting the government by providing 'loyal' workers to break the strike.²⁸ Fuller said the government would not have won through without their help.²⁹

Transcontinental Railways: the opening of the standard gauge transcontinental line across the Nullarbor in 1917 motivated Ball to have cabinet adopt a proposal to extend the Condobolin–Broken Hill line to the South Australian border on condition that the Federal government extended their line to link up with it. At that time, rails had been laid from Broken Hill to Menindee and of the 290 mile section from Menindee to Condobolin, with 186 miles of track and a bridge over the Darling, still to be completed.³⁰

Ball's Federal counterpart, Watt, was impressed with the idea. The line from Kyogle might also be extended to Brisbane (probably through Beaudesert) to complete a 'through' line to Perth. Speaking on behalf of a deputation in 1920 requesting that a line from Hay to Deniliquin be constructed, Ball reiterated that back in 1918 he intended to have the line completed as it was part of a 'strategic' line, linking Melbourne with Brisbane which had been recommended by the Federal government.³¹ The line was never constructed. Ball's support of transcontinental lines was motivated by defence needs as well as releasing three ships presently carrying coal to South Australia which could be redeployed to the rural export trade. Once again we see Ball's preoccupation with rural interests.

During July 1919 Ball attended a conference with the Australian Meat Board with a view of facilitating movement of fat stock to the metropolitan area through a line from Bourke through the North West into Queensland. This was enthusiastically received by the Board and again shows Ball's support of the farming community. Ball approached his Premier with a request that a conference on the matter might be convened between the two states.³² Hindsight tells us that little became of the proposal.

R T Ball's Work as Minister for Public Works

Ball's biographer, Hine, listed the following achievements as Minister for Public Works:

- **Hydro Electricity:** Special committee of experts formed. They recommended the Barren-Jack [sic] and Nymboida River schemes (be constructed with local council involvement).
- **River Murray Water Agreement:** including Hume Reservoir, storage at Lake Victoria, weirs, locks and irrigation schemes including the Murrumbidgee River.

- **Sydney Water Supply:** including completion of Cordeaux Dam; investigation of other catchments including Woronora, Avon and Warragamba. Improvement in water reticulation throughout the suburbs including upgrading of Potts Hill reservoir near Bankstown.
- **Newcastle Water Supply:** recommended the completion of Chichester Gravitation Scheme.
- **City and Country Sewerage Schemes:** north of the Sydney harbour, improvements completed in various Newcastle suburbs, Albury, Orange and Narrandera. Works were in progress in a number of other NSW towns.
- **Bridges:** Seventeen city and country bridges were being planned at the end of 1917 including Georges River (to accommodate trams, not proceeded with), Lane Cove, Hawkesbury River (Windsor) and the Macquarie River at Wellington, opened in February 1920. Others were planned throughout NSW including crossing of the Lachlan River near Hillston.
- **Harbour and River Improvements:** including work at Coffs Harbour, Newcastle and Port Kembla.
- **Reform of State Industrial Undertakings:** including Lime Brick Works at Botany. These undertakings had been set up by previous Labor governments and were unprofitable and poorly managed. Ball was not in favour of these undertakings.
- **Walsh Island:** Ball was instrumental in negotiating an agreement with BHP to build ships at Walsh Island, Newcastle. Ships were in extremely short supply at the time, due to the War but were necessary to export wheat and other primary products to Britain. Intervention by the Federal Government nearly scuttled the project but Ball, Chair of the Board of Control, succeeded in entering into a contract with the Commonwealth to build six ships on their behalf.

Question: Does this list represent a reasonable spread of public works between city and country?

HOW BALL SAW HIS ACHIEVEMENTS

In an interview with an *SMH* reporter, Ball stated that his principal achievements during his first ministry had been:

- Cancellation of part of the Norton Griffiths agreement
- Construction of country lines.
- Securing agreement from colleagues to close down the City Railway until country railways were complete. (This succinctly states Ball's policy on city railways).
- Ship building in Newcastle which employed 2000 people.
- Abolition of all preferences for work from government undertakings.³³

Minister for Public Works and Railways and State Undertakings

Ball's first ministry concluded with the return of the Labor Government on 12 April 1920, under John Storey and later James Dooley.³⁴ Holman blamed his defeat on political instability and a coalition split. Remember he was originally a Labor man and when it suited him to retain power he quickly changed sides so we can probably take these words with a grain of salt. The Nationals, under Sir George Fuller, were re-elected in April 1922. Ball was given the portfolio of Agriculture but two months later took over his old job on the resignation of Sir Thomas Henley due to ill health.

Premier Fuller's Election Policy

Fuller's election policy for the 1922 elections again stressed



Richard Ball was an advocate for the introduction of rail motors to replace mixed trains on country lines. CPH 42ft rail motors first entered revenue service on the Henty–Rand in Ball’s electorate, and Culcairn–Holbrook lines in December 1923. CPH motors saw a long and successful service on a large number of country branch lines as well as main and suburban lines, throughout the state right up to their withdrawal in 1985. This image shows CPH 25 standing at Holbrook on 27 February 1972 on a tour train. PETER NEVE PHOTO

rural development through:

- Decentralisation, construction of cross country railways and new ports.
- Carruthers ‘million farms scheme’ seen as achievable (see below).
- Encouraging the right kind of settlers.
- Land available for all settlers through subdivision of large estates and selling off crown land.
- Make up losses on non-paying railways but at the same time lowering fares and freights.
- A ‘straight deal’ for returned soldiers.³⁵

We need to place these policies into the wider context of the time. Crowley comments:

The 1920s saw a new surge of interest in settling the lands of the interior. Spurred on by the need to find occupations for returned soldiers [estimated to be 8000 in 1920],³⁶ and by the conviction that the self-governing Anglo-Saxon dominions could best serve the interests of the Empire, as well as their own, by absorbing large number (sic) of immigrants from Britain, the Australian state governments made special efforts to acquire and open up land suitable for wheat growing, dairy farming and fruit growing. Large amounts of loan money were spent on assisting British ex-servicemen and other immigrants, as well as surveying and clearing the bush and building roads and railways into previously unsettled regions.³⁷

The *Empire Settlement Act* (which Ball helped to frame), passed by the Australian Parliament in 1922 established immigration schemes between the British and Australian Governments to assist migration to Australia.³⁸ Immigrants were assisted with fares, living allowances, training, employment and grants of rural land. The close ties between Britain and Australia are further summed up this way:

The role of Australia was seen in the traditional light [producing primary products] and the economy was to remain colonial [although of course Australia was seeking to develop secondary industries]. The growth of rural industries which would supplement the industrial might of the United Kingdom was the real task – all that was needed was men to populate, money to develop it and markets in which to sell the resultant increase of primary products.³⁹

While Ball was Minister for Lands his major policy was to promote closer settlement by acquiring large estates and subdividing crown lands.⁴⁰ His biographer, Hine, states that 2.5 million acres of Crown Lands, resulting in the establishment of 565 holdings, were thrown open for closer settlement around the Barmedman–Rankins Springs and Griffith–Hillston branches with a similar take up occurring in other parts of NSW and in other states. These were certainly times of great change. In researching transport history of the Hillston area in the 1920s a farmer told me that one afternoon he almost drove into a fence which had been placed across the ‘road.’ This had been a short cut; with subdivision the new farmer had fenced off his land making the locals henceforth use the longer gazetted road.

Railways: During this time 532 miles of country lines were opened namely:

Coffs Harbour–Glenreagh	28 miles
Canowindra–Eugowra	26 miles
Barmedman - Rankin (sic) Springs	72 miles
Westmead–Castle Hill	7 miles
Castle Hill–Rogan’s Hill	1 mile
Urunga–Raleigh	3 miles
Griffith–Hillston	67 miles

Coonabarabran–Gwabegar	59 miles
Tarana–Oberon	15 miles
Binnaway–Werris Creek	92 miles
Macksville–Urunga	17 miles
Gilmore–Kunama	22 miles
Glenreagh–Dorrigo	43 miles
Molong–Yeoval and Yeoval–Dubbo	80 miles
Total	532 miles

This list does not include country duplications and deviations. The following lines were under construction: The Rock–Pulletop (Westby), Roslyn–Taralga, Trida–Menindee, Booyong–Ballina, Richmond–Kurrajong and Sydenham–Botany (a goods line to serve the country). Acts to construct the following lines had been assented to: Wollongong–Port Kembla (in association with the new C & G Hoskins Limited Port Kembla steelworks), Ungarie–Naradhan, Wyalong towards Condobolin, Uranquinty towards Moon’s Siding and Camurra–Boggabilla. There were only two Acts authorising construction of metropolitan railways: the *Regents Park to Bankstown Railway Act 1923* and *Tempe to East Hills Railway Act 1924*. Work continued on quadruplication and electrification of the Illawarra line as far as National Park, which to this day has still not been fully realised.

Development of Rail Motors

This was an initiative that Ball took particular interest in. I am unsure whether this was really to provide a better service to the country or decrease the cost of rural passenger services—perhaps both! While visiting Bowral in 1920 Ball indicated that he was in favour of rail motors replacing mixed trains on branch lines.⁴¹ He had authorised their first trials on the Grafton–Lismore line which, he said, had been very successful.⁴²

Following mechanical problems with the new CPH 42 footers, they finally entered service on the Henty–Rand (in Ball’s electorate) and Culcairn–Holbrook lines in December 1923, lasting until November 1924.⁴³ Apparently the Rand community asked that the mixed train be reinstated so that farm produce could be moved more frequently by the mixed train.

CPH motors saw a long and successful service on a large number of country branch lines (and indeed main and suburban lines) throughout the state right up until the 1980s. Ball also was behind developing a larger 150hp motor (RM 38) and plans for the *Silver City Comet* to operate from Parkes to Broken Hill.⁴⁴

The Carruthers Scheme and Border Railways⁴⁵

Joseph Carruthers (MLC) chaired a select committee in 1919–1920 setting up the ‘Million Farms Campaign to settle, ‘a million farms with a million families’⁴⁶ This was an outworking of Federal Government settlement policy. In a statement of April 1922 the new policy was spelled out:

In accordance with the decision of the Government, to embark upon a campaign of extensive country development, it is understood that the Cabinet will adopt a scheme proposed by Sir Joseph Carruthers ... to open up the great area of land extending along the Murray to the South Australian border for closer settlement. This will entail construction of a number of border railways, certain irrigation plants, and the building of bridges, etc., and is one of the most ambitious projects of

country development ever conceived in the State ...providing the Commonwealth Government is prepared to advance the necessary funds, it is practically certain that the [NSW] Government will undertake it.⁴⁷

The scheme entailed opening up about ten million acres from the South Australian border to the Central Division boundary in NSW, north to 70 miles from the Murray. R T Ball, then Minister for Agriculture, addressing a banquet at the Empire Hotel Wagga Wagga, guaranteed his government’s total commitment to land settlement as a way of increasing population and stemming drift to the cities.

A number of bridges across the Murray and broad gauge Victorian lines were extended into southern NSW through legislation of October 1922 including, Robinvale to Lette (which never reached the terminus nor was handed over to the Victorian Railways), Kerang to Stony Crossing (little used), Barnes to Balranald via Moulamein and Yarrawonga to Oaklands (a later addition).

Ball was a strong proponent of the project probably because it would develop the Southern Riverina, enhance his own Murray electorate and enable farmers to sell their produce to the closer Melbourne market. The Border Railway scheme, from an agricultural perspective, was a failure because not enough was known about soils and climate of the Mallee region at the time causing bankruptcy among farmers. The scheme did promote the ideals of Federation through closer cooperation between Victoria and NSW. The most economic benefit from the project was probably the construction of road bridges across the Murray River.

City Railway Development and the North Shore (Harbour) Bridge

When the Fuller government assumed the Treasury benches the City Railway had recommenced with euphoria that an electric railway would soon be a reality. It was now too late for country interests to scuttle the project as works were now far too advanced. Anyway, the government itself was now convinced that the work ‘was absolutely essential to cope with the ever growing volume of city traffic’.⁴⁸

This article went on to say that Ball’s ‘hostility’ to the project had been because of the Norton Griffith agreement and shortage of finance where public works expenditure had been limited to £4 million per year. Detailed planning continued on for the North Shore (Harbour) Bridge. The construction bill had, however, previously been knocked back three times.

The original plan for a cantilever design was approved by the PWD Committee in 1913. A suspension bridge had been dismissed believing it would not be rigid enough to carry a railway (the Bay and Oakland bridges in the USA disproved that). J J C Bradfield, Chief Engineer for the Metropolitan Railway, assured Ball that arch bridges were now safe to construct using new high grade steels. Under considerable criticism Ball called tenders for both cantilever and arch designs.⁴⁹ Hindsight shows his preferred design won the day.

Ball introduced the *Sydney Harbour Bridge Bill* in September 1922 as non-party legislation with agreement two months later. Financial provisions stated two thirds, plus approaches, be borne by the Railway Commissioners (highlighting its importance as a railway artery) with the remainder from landowners in the city and selected northern municipalities.⁵⁰ Because of Ball’s ability to steer the

bill through parliament and in so doing placating both Labor and Progressives he was given the honour of turning the first sod on 28 July 1923. He also laid the foundation stone on 20 March 1925. He did not attend the opening as he believed Jack Lang, Labor Premier, had snubbed him by leaving him out of the official party.

OTHER ISSUES

The Royal Commission of 1924

An inquiry, with the powers of a Royal Commission, was established by Ball in May 1924 to investigate the working of railway and tramway services.⁵²

The catalyst was the impending completion of Chief Commissioner, James Fraser's contract and deputies Milne, Cann and Fox. Parliament had been critical of the size of the railway enterprise and the quality of its administration and this was an opportunity to make sure that the organisation was working efficiently. This was certainly not the first time there had been disquiet in parliament and the Commissioners; it seemed to be an ongoing saga.

Ball appointed Sir Sam Fay and Sir Vincent Raven, two British railway officials, to carry out the task.⁵³ Most of the recommendations were concerned with financial arrangements and structure of administration.

In the end Ball seemed incapable of recommending wholesale changes to the railways through an amendment bill, with the makeup of commissioners being the only significant issue dealt with.⁵⁴

James Fraser was reappointed Chief Commissioner and O

W Brain and A D J Forster Deputies. The matter of giving the Commissioners control over railway revenues, one of the financial recommendations, was a contentious issue as the government would lose control over railway spending.⁵⁵ To be fair to Ball, that recommendation was even considered by the *Sydney Morning Herald* to be far too idealistic to entertain.⁵⁶ Perhaps Ball's reluctance to embrace real change was due to the impending close of the parliamentary session with elections reasonably early the following year.⁵⁷

The Ball Years in Retrospect

The post war years brought a period of unbridled optimism throughout Australia that lasted most of the 1920s. The catchcry 'Men, Money, Markets' spruiked by Prime Minister Stanley Bruce, was taken up by all political persuasions across all states as the means of developing primary and secondary industries.

Australia was seen as: 'the greatest underdeveloped country in the world', the country with 'the most room' and with 'the greatest opportunities for settlement and development'.⁵⁸

Men: The consensus was that labour was needed to fill up the empty spaces as a population of six million was thought to 'run a terrible risk'.⁵⁹ Between 1921 and 1930, net population growth was 312,800.⁶⁰ The Empire Settlement Act of 1922 formalised migration between Britain and Australia with the former contributing to the cost of assisted passages and some finance for land settlement.⁶¹

Money: Overseas borrowing during the same period amounted to £380 million.⁶² It was not always used efficiently; the Hume Weir on the Upper Murray, for example, was well advanced before a decision was made on how to use the land to be irrigated.⁶³ The *Sydney Morning Herald* reported that railway policy seemed concerned about sanctioning lines without any way of financing them.⁶⁴ The Booyong-Ballina line took something over five years to build from start to finish!

Markets: Britain was the dominant market for primary products, especially wheat and dairy produce. Australia wanted preference into the British market but the request was side stepped. In return Australia was expected to purchase manufactured products from the mother country.

But it all went pear shaped:

The heritage of these policies of development was an enormously increased public debt; a vastly enlarged and unprofitable government [an over capitalised] railway system; a tradition of public aid, protection and sustenance to primary producers [a form of socialism]; a substantial increase in primary production; and an even greater reliance on overseas markets.⁶⁵

Colin Forster, author of '*Australian Economic Development in the 20th Century*' comments:

In NSW, the main railway building state, each decade after 1900 saw a further erosion of economic criteria" [to evaluate new lines]. Only the Depression in 1930 stopped the over-allocation of funds to the illusory, rural dream. Ball and Holman could be seen as co-conspirators of a quasi-socialist programme to increase economic growth in rural areas above a sustainable level.⁶⁶

There were personal failures too; in 1929, the Commonwealth Report on Soldier Settlement listed: lack of capital, uneconomic sized blocks, unsuitability of many settlers to farming and a fall in the value of primary produce



R T Ball completes laying the foundation stone for the Sydney Harbour Bridge on 25 March 1925. HOOD 02155U, STATE LIBRARY NSW

as reasons why a high proportion of settlers were leaving their land.⁶⁷

In 1928 the Railway Commissioners were concerned that they had to redress government policy shortfalls through assistance to struggling farmers and infant industry:

It has been the practice in this state ... to allow substantial concessions by way of rebate from the ordinary rates, not only in connection with the transport of stock, fodder, grain, and other primary industries but also on local manufactures, including iron and steel, cement &., and, in association with such industries, to grant concession rates for the coal, coke, crude ores &., required by such industries. It may be that the railways have, to some extent, assumed what is properly a government function in endeavouring to assist and foster industries which are vital to the welfare of the people as a whole, and it is suggested that the government should gravely consider the propriety of allowing a transport service to continue to bear a burden which to that's service, taken by itself, represents dead loss, though an undoubted gain in wealth to the community.

During the year just closed, a sum of no less than £321,271 was paid back to graziers, farmers, millers and other manufacturers, by rebate.⁶⁸

Then there was the huge annual operating losses incurred on country branch lines. We take as examples selected pioneer branch lines opened, or extended, during Ball's second Ministry:

These amounts would have helped pay for the City Railway project! The government did compensate the railways £800,000 annually from 1929 to cover losses on development lines but there were strings attached.⁶⁹

THREE COMMENTS

First, I stress again the dominant theme of this essay; the power of the rural lobby (not forgetting the parochial Railway Leagues) as a force in railway capitalisation. But I cannot look back in hindsight and be over critical; if I had lived in this time I would no doubt supported the same policies and held my head high that the good times had arrived.

I would have been told that farmers needed to be 15 miles from a railway siding to make wheat growing economic. More lines were needed as wheat growing moved further and fur-

Table 1: Branch line construction costs and losses

Development Lines	Cost of Construction	Loss: Year Ending 1927
Cowra - Canowindra - Eugowra	£367,968	£15,054
Barmedman - Rankin (sic) Springs	£393,877	£19,683
Westmead – Rogan's Hill	£156,142	£25,150
Temora - Hillston	£750,199	£25,286
Tarana – Oberon	£167,565	£10,487
Binnaway – Werris Creek	£736,294	£1,693
Gilmore – Kunama	£279,866	£16,596
Glenreagh – Dorrigo	£1,382,380	£80,682
The Rock – Pulletop (Westby)	£182,910	£9,861
Roslyn – Taralga	£173,447	£12,361
Richmond – Kurrajong	£148,192	£8,682
Total Cost/Loss	£4,738,840	£229,646

ther west. I would have been told that silos and bulk handling were vital to marketing good quality export wheat to help the mother country. If blame is to be apportioned it needs to be levelled at governments who, with rose coloured glasses, chose not to institute measures to curb ever excessive capitalisation and waste that led to inflation and bust in the following decade!

When Ball left the Public Works portfolio in 1925 he was feted as a Minister who left behind record spending that had never been equalled—£50 million for public works!⁷⁰ Ball must, therefore, take considerable responsibility for this state of affairs and perhaps the severity of the future depression in country New South Wales.

Second, there is little doubt that the City Railway project suffered as a result of the rural extravaganza where country railways had priority. Sadly

Bradfield's grandiose scheme for northern, eastern and western lines was not achieved until 1956 when the Circular Quay loop was finally opened.

Third, Ball failed to recognise the impending importance of road transport that became noticeable during his ministership:

'Mr. Ball, Minister for Works, said he was convinced that the time had arrived when the Government should make provision for the extension of motor services in the country districts'.⁷¹

This was written in 1922, but he still steered the Ungarie to Naradhan, Wyalong towards Condobolin, Uranquinty towards Moon's Siding, Camurra to Boggabilla, Canowindra to Gregra, Jerilderie towards Deniliquin and Rand to Bull Plains lines through parliament after that time (the last three, fortunately, were never built per-



Carnsdale, on the Corowa line, was opened on 3 October 1892. It was renamed Balldale on 20 May 1905 to acknowledge R T Ball had been elected to the division of Corowa. He was the local member until 1920 and then again from 1927 to 1937. This image was taken after the station closed on 4 May 1975 before the place was demolished. It's naming shows the respect Ball held in the local community. BEV WILSON PHOTO



Following the collapse of the Norton Griffiths scheme Ball secured loans from the Federal Government in 1919 to construct a number of 'repatriation lines' to assist settlement of returned servicemen and provide work for them in railway construction. The Barmedman to Rankins Springs line was one of these 'repatriation lines'. The siding at Erigolia between Weethalle and Rankins Springs would have been very busy in earlier times with returned soldiers delivering their wheat or catching a mixed train to commence their journey to the city. By 1980 the place was clearly winding down with closure of the line altogether around 2000. NEVILLE POLLARD PHOTO

haps because it had finally dawned that the motor car age had indeed arrived).

A FINAL COMMENT

In researching this article I discovered a rare volume, '*A Parliamentary Veteran: The Honourable Richard Thomas Ball: Thirty Five Years of Public Service and Record Achievement*.' Eug W Hine published by The Corowa Free Press 1937.

It paints a glowing, god-like, picture of Ball's life and work that is not justified. What is factual is that he was well-respected by his Corowa constituents as well as both sides of parliament, a country man through and through, hardworking; possessing considerable mediation skills exemplified in steering the Border Railways, changes to Norton Griffith and North Shore Bridge legislation through parliament.⁷²

He was an active member of the Baptist denomination and had a part in commencing Goulburn Baptist Church.⁷³ In personal relationships, he certainly appears to have lived out his Christian convictions. His 36 years in parliament stands testimony to his resilience and public service although it never led to a knighthood.⁷⁴ Except for one article in *The Land* newspaper where he was criticised for allegedly promoting Progressive MPs into city seats (previously discussed) he appears to have generally enjoyed a favourable press.

In defence of Ball's preoccupation with rural matters; his biographer seems to have been conscious that money needed to be spent equitably between country and city. Hine states:

There was complaint that too much money was being spent in the City, and too little outside it. As a country man himself, and the representative of an exigent country electorate, Mr Ball was all too painfully aware that a fight always had to be put up before money could be wrung from Governments for country works. This knowledge but deepened the sympathy he naturally felt towards country requirements. So that when the charge of unfair discrimination was formulated he was able to show that during his administration at all events, and under the regime of the national Government, country and city expenditure had been in the ratio of six to one.

I leave it up to readers to decide whether that ratio was 'fair and equitable'!

Acknowledgements

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End Notes

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This water fountain was originally donated by Corowa Mayor A A Pigg in 1907 to commemorate the opening of Corowa's town water supply of which Ball obviously played a key role in its provision. The fountain was placed on the corner of Sanger and Mary Streets before being moved to where the War Memorial is now situated. It was then moved to the front of the old Council Chambers before being relocated to Ball Park in 1922.

LORRAINE WELLS PHOTO

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In this month's **Railway Digest**

P Class withdrawal

Beginning in October 1981, the VR's *New Deal for Country Passengers* revolutionised the provision of country passenger services in Victoria. One component of the project was the rebuilding of thirteen early-model 'flat-top' T Class locomotives into the 'new' P Class, incorporating head end power for the rebuilt former EMU Harris Cars that they would haul in push-pull mode – giving rise to the nickname 'Poor Man's XPT'. Now, these veterans are facing retirement, and in his own inimitable style, *RD* Signalling Editor (and V/Line driver) David Campbell pays tribute to these engaging machines.

SCT's Bromelton and Barnawartha terminals bring growth for rail

The opening in the last 12 months of new SCT Logistics intermodal terminals at Bromelton (49 kilometres south of Brisbane's Acacia Ridge rail terminal) and Barnawartha (near Wodonga in north east Victoria) has brought new business to rail on Australia's interstate network and demonstrated that rail can compete with road if the mix of reliability, distance and appropriate terminal facilities is right, as John Hoyle reports.

Plus all our regular features





New and old: Commonwealth Railways motive power in the builder's yard of Clyde Engineering at Granville in New South Wales in 1951. GM1, the first Commonwealth Railways mainline diesel to enter service is being checked out on the left, alongside is 2-8-2 L83, one of the final steam locomotives to work on the CR. R J GUTHRIE PHOTO, ARHSNSW RAILWAY RESOURCE CENTRE, 022468

FROM STEAM TO DIESEL AND ELECTRIC

Changing motive power on Australian Government Railways

Part 1

David Matheson

Locomotive-hauled trains are an effective means of transporting passengers and goods over long distances. Diesel, electric and steam locomotives can all provide the motive power required to operate these trains. Throughout Australia all trains were locomotive-hauled using steam motive power from the beginning of heavy railway services in the 1850s. Steam engines continued to work the majority of train services well into the 20th century, but from 1950 to the early 1970s the government railway systems of Australia went through a period of substantial change. During this time steam motive power was withdrawn and all regular locomotive-hauled trains became powered by diesel or electric locomotives.

MOTIVE POWER EVOLUTION

The development of steam machinery and its application to locomotion were vital developments that enabled the expansion of railways around the world. Faster and more powerful steam locomotives were progressively developed, allowing railways to transport greater numbers of passengers and larger volumes of goods. Later technological advances saw diesel- and electric-powered locomotives become viable for railways.

Dieselisation of locomotive fleets in the United States of

America progressed rapidly during the 1940s, particularly following the end of the Second World War.¹ In 1940 there were 28,899 steam locomotives and 104 diesel locomotives in service in the United States, but by 1950 the total number of steam engines had declined to 19,868 and diesel locomotives had climbed to 3934.² Despite an overall reduction of 18 per cent in total locomotive numbers over the decade, there was a 30 per cent increase in traffic.

Administrators of government railways around Australia examined changes in the United States with interest. During the late-1940s motive power on Australian railways was run-down and showed signs of wear as a result of being extended beyond usual capacity with very little maintenance during the war years.³ Numerous engines were far beyond the 30 years of age generally considered to be the economic life of a steam locomotive. Many of these engines required major expenditure for their ongoing maintenance, and frequent breakdowns led to service disruptions. Railways in Australia looked to new motive power as replacements for worn out steam locomotives.

Even before the first mainline diesels arrived in Australia, arguments for and against diesel motive power were put forward. The efficiency of diesels and their ability to operate faster passenger and freight services were seen as some of

the key advantages of these locomotives.⁴ The high cost of oil and the fact that Australia did not then produce its own oil were major objections to diesels, but they were attractive to railway systems because of their overall greater efficiency than steam locomotives. The ability of a smaller number of diesels to move a much larger proportion of railway traffic than steam engines provided the potential for great financial savings. Railway operations with diesels required less expenditure due to a reduction in the locomotive fleet, while at the same time more income could be generated because of increased traffic. When the new locomotives began to turn their wheels on tracks in Australia their value in local conditions was able to be assessed.

The performance of early mainline diesels in Australia was very impressive and government railway systems quickly placed orders for new diesel locomotives.⁵ Over time the overall greater efficiency of diesel and electric locomotives compared to steam engines in Australia became a reality. By the end of the steam era, locomotive fleets throughout Australia were much smaller than in 1950 when the first mainline diesels were introduced, yet greater traffic volume was being handled.

Diesel and electric locomotives provided a range of advantages over steam engines. The use of diesel power enabled increases in the overall speed of traffic over long distances.⁶ This was achieved through more consistent running rather than increasing maximum speeds. The progress of steam-hauled services was slowed by the need for frequent stops to take on water and fuel, and to rake out ashes. Diesel and electric locomotives required far fewer stops for servicing, so they were able to cover the same distance in a shorter time with a higher average speed. Train schedules were accelerated, producing improved operating efficiency.

Diesel-electric locomotives provided greater availability to railway systems because they required less time for maintenance and attention from workshop crews. A 1951 estimate was that diesel-electric locomotives were available for use 95 per cent of the time, in contrast to only a half to two-thirds of the time for steam locomotives and this enabled diesel-electric locomotives to record a much higher average mileage than steam engines.⁷ Diesel and electric locomotives could be started up and shut down quickly when required, and had the ability to be left running for extended periods without attention. In contrast, steam locomotives needed a number of hours to be lit up and raise steam, and it was necessary for staff to attend to them while they remained in steam. Overall, steam locomotives were much more labour intensive. In addition to the driver and fireman required for each locomotive, large numbers of ancillary staff were necessary to assist with coaling, watering, oiling, removal of ashes, boiler washouts, and other operational tasks. Diesel and electric locomotives, in contrast, needed less attention to keep them running, with the result that fewer locomotive staff were required.

Steep gradients in some areas of Australia necessitated double-heading of locomotives where heavy loads were hauled.⁸ With steam motive power, a separate crew was required for each engine, whereas diesel and electric locomotives were able to operate as multiple units with a single crew. This provided a considerable cost saving in labour required for train working.

Steam power in Australia mainly depended upon the use of coal as a fuel source, and this needed more handling and storage than oil, which had a smaller bulk.⁹ Transportation

of coal to provide fuel for steam locomotives was a considerable financial and operational task. The use of steam locomotives also necessitated infrastructure to provide regular watering facilities for their boilers, whereas diesels needed comparatively little water for cooling purposes. Availability of water in the dry Australian climate was an important factor in favour of diesel power.

The working conditions of locomotive crews changed significantly with the introduction of diesel and electric locomotives. Comfortable enclosed cabs became possible and the physical labour of firing steam locomotives was no longer necessary.¹⁰ Diesel and electric locomotives were much cleaner and quieter than steam engines in their operation, as well as providing greater protection against adverse weather conditions.

In contrast to steam locomotives, diesels maintained a consistent performance in their operation.¹¹ Steam locomotive performance was more variable because it relied upon the skill and work of the crew, the quality of the coal and other factors. A diesel locomotive in 'top notch' is unable to achieve any more power, but a steam locomotive driver may be able to gain extra power for a short time by using particular driving techniques, and the fireman can work harder.

Thermal efficiency compares the output of an engine with the quantity of fuel used and is considerably greater in diesel engines than steam. While calculations vary, figures from 1951 reported 35 per cent thermal efficiency for diesel engines in comparison to 10 per cent for steam locomotives.¹² As a result, much more coal was required in steam locomotives than the amount of fuel used for diesel locomotives to provide the same power output. Therefore, overall fuel costs were cheaper for diesel than steam, with one estimate putting the running costs of coal-burning steam engines as around six times more expensive than diesel locomotives.

Despite the numerous advantages of diesel locomotives, support for the replacement of steam motive power was not unanimous. Australia has an abundance of coal but at that time there were no economic natural reserves of oil. Although local railway administrators were looking favourably at the experience of the United States of America with diesels, it was suggested that Australian conditions were different, and that economic efficiencies from the use of diesels in the United States may not be realised in Australia. The high purchase cost of new diesel locomotives when compared to steam engines was also an argument against their widespread introduction, with a new diesel-electric locomotive being almost twice the cost of a steam locomotive. Counter to this was the claim that over time the efficiency of diesels would produce much greater cost savings; but the high cost of new diesels resulted in steam motive power continuing in use for many years on Australian railways.

Further advantages of steam locomotives were that they were simple to operate and maintain, they could be worked hard and had a long working life.¹³ Some railwaymen also suggested that if oil could not be imported, such as may occur during a time of war, then a dieselised rail system would not be able to operate.¹⁴ Nevertheless, with growing dieselisation, the advantages of the new motive power became apparent and objections began to dwindle. The case for diesels prevailed.

Within a few years of their introduction, diesel locomotives were being seen as the way of the future in Australia. During

the 1956–1957 financial year, diesel locomotives were responsible for 21.5 per cent of the total locomotive miles run, despite comprising only 8.5 per cent of the locomotives in service.¹⁵ It was clear that the process of change was set to continue. The era of steam motive power was coming to its end and locomotive-hauled trains would in the future be powered by diesels, with some services operated by electric locomotives.

FIRST DIESEL LOCOMOTIVES

Internal combustion engines were first used by Australian government railways in railcars. The first petrol railcars entered service in Victoria in 1912 and Queensland in 1913, and various types of railcars were in service prior to the introduction of diesel locomotives.¹⁶ In 1937 the *Silver City Comet* entered service in New South Wales with a dedicated diesel power van hauling a number of passenger carriages. These ‘power vans’ were similar to locomotives but classified as rail motors.

Diesel locomotives began service with government railways in Australia in 1939 when the Queensland Railways introduced the first DL Class diesel-mechanical unit, which was built at the Ipswich Railway Workshops.¹⁷ Originally constructed as an 0-6-0 locomotive, it was rebuilt as a 2-6-0 unit to provide greater stability (see photo page 2). Class leader DL1 was followed in 1954 and in 1961 by three further DL Class locomotives. Rated at 153 horsepower [114kW], the DL units spent most



F310, the Victorian Railways class leader of the 0-6-0 diesel-electric shunting locomotives based on a successful Briting design and built by English-Electric entered service in 1951. VR PHOTO, ARHSNSW RAILWAY RESOURCE CENTRE, 243950

of their working lives on light lines in Far North Queensland. DL1 eventually returned home to where it was built and is an exhibit at the Workshops Rail Museum in Ipswich.

All government railway systems in Australia introduced diesel shunting locomotives prior to introducing diesels units for main line service. The first diesel locomotives to enter service in New South Wales were four 380 horsepower [279kW] diesel-electric units imported by the Commonwealth Department of Munitions in 1943 for service at the munitions factory at St Marys (see page 2 photo).¹⁸ These four locomotives had been built for the United States Army and allocated the numbers 7920 to 7923. In 1944 and 1945 they were transferred to the Department of Railways, New South Wales.¹⁹ Classified as the 79 Class, they were used regularly for shunting work in Sydney Yard and other locations.

The Commonwealth Government resumed control of 7921 and 7922 in 1948 and deployed them on the Long Range Weapons Project at Woomera in South Australia.²⁰ In 1949 they were used by the Commonwealth Railways as a result of coal shortages, where they became the first diesels in use on that system. They were officially transferred to the Commonwealth Railways in 1950 and renumbered DE90 and DE91, being used for shunting duties at Port Augusta and Port Pirie. They were transferred to Australian National Railways ownership in 1975. The other 79 Class diesels, 7920 and 7923, continued shunting work in Sydney Yard until 1974.

The Tasmanian Government Railways’ first diesel locomotives to enter service were four 204 horsepower [152kW] V Class diesel-mechanical units in late 1948.²¹ Further V Class locomotives commenced operations in later years, with the last continuing in regular service until 1987.

The South Australian Railways introduced two 350 Class locomotives in June 1949.²² Most of the work of these 350 horsepower [261kW] units involved shunting in the Adelaide suburban area.

Victoria’s first diesel-electric locomotives were ten F Class 0-6-0 units of 350 horsepower [261kW] built by the English Electric Company in the United Kingdom. Entering service in 1951, they were used for shunting in the metropolitan area of Melbourne as well as some country locations.²³

In October 1953 Western Australian Government Railways commenced using diesel locomotives with the first of three 129 horsepower [96kW] Z Class diesel-mechanical units.²⁴ These units were used for shunting work at regional



Tasmanian Government Railways 0-6-0 diesel-mechanical locomotive V10 heads the daily goods train at Herrick in August 1964. JIM STOKES PHOTO



Large crowds greet the newly delivered diesel locomotive B60 at Spencer Street Station on 14 July 1952. B60 was the first mainline diesel locomotive in service with Victorian Railways. N J THORPE COLLECTION, ARHSNSW RAILWAY RESOURCE CENTRE, 024396A

yards and on jetties at Bunbury, Albany and Esperance. Two weeks after the first Z Class began operating, larger diesel-electric shunters were added to the locomotive fleet when the 410 horsepower [306kW] Y Class Bo-Bo units began to enter service.

MAINLINE DIESEL-ELECTRIC LOCOMOTIVES

In 1950 Tasmanian Government Railways was the first Australian government railway system to introduce mainline diesel-electric locomotives. Other systems followed quickly and by January 1952 there were 235 diesel locomotives on order by Australian railways.²⁵

Table 1 presents the dates that mainline diesel-electric locomotives were introduced by each government railway system.

Within the space of three and a half years from September 1950 to March 1954, all Australian government railways had begun to use mainline diesel-electric locomotives. The

Table 1: Introduction of first mainline diesel-electric locomotives by Australian government railway systems

Railway System	Date entered service	Class	Loco numbers
Tasmania	13 Sep 1950 ²⁶	X	X1, X2
South Australia	10 Sep 1951 ²⁷	900	900
Commonwealth	6 Oct 1951 ²⁸	GM	GM1
New South Wales	30 Nov 1951 ²⁹	40	4001, 4002
Victoria	15 Jul 1952 ³⁰	B	B60
Queensland	8 Nov 1952 ³¹	1210	1213
Western Australia	8 Mar 1954 ³²	X	X1001

introduction of mainline diesel operations was considered successful, and contracts for further diesel-electric locomotives were signed. Nevertheless, the dominance of steam power would remain for many years.

ELECTRIC LOCOMOTIVES

Although most of the new locomotives introduced from 1950 onwards were diesels, a number of electric locomotives also entered service. Electric locomotives shared many of the efficiencies of diesels, but were restricted in their range of operations to lines with electric catenary. The electrification of lines was expensive and usually only considered viable in areas with high traffic density.

Victorian Railways had introduced electric locomotives well before its first diesel-electric locomotive began operating. Two 1100 Class electric locomotives were constructed at Newport and Jolimont Workshops, with the first entering service on 20 July 1923.³³ They were followed in 1928 and 1929 by a further ten units, which had a box cab and two pantographs, whereas the original electric locomotives had



Victorian Railways publicity photograph of 1100 Class Bo-Bo electric locomotive No. 1100 that entered service on 20 July 1923. VICTORIAN RAILWAYS, ARHSNSW RAILWAY RESOURCE CENTRE, 021924A



L Class electric locomotive L1150 undergoing trials in March 1953 prior to entering service the following month. N J THORPE COLLECTION, ARHNSW RAILWAY RESOURCE CENTRE, 024422

a steeple cab and a single pantograph. The 1100 Class saw a range of duties in the Melbourne metropolitan area, including goods and shunting work. 1100 and 1101 were both withdrawn from service in the early 1950s. The remainder of the class were renamed the E Class and continued operating until early 1982.

A further 25 electric locomotives were introduced in Victoria from 1953 when the L Class built by English Electric in Great Britain began service. Rated at 2400 horsepower [1790kW], these units were around four times more powerful than the 1100 Class locomotives of 30 years earlier. Class leader L1150 underwent trials in March before officially entering service on 21 April.³⁴

The main duty of the L Class was working coal trains on the Gippsland line, which was being electrified between Dandenong and Traralgon, but they were also capable of speeds of up to 75 miles per hour [121 km/h] in passenger service. They continued in service for many years, but declining traffic and the need for major reconditioning led to a decision to replace them with diesel power.³⁵ The last L Class units were withdrawn from service on 25 June 1987.

The introduction of the first electric locomotive in New South Wales occurred less than seven months after the first mainline diesels entered service. 4501, which was developed as a prototype and was the only unit in its class, had its first trial run from Chullora to Liverpool on 19 June 1952.³⁶ In regular service it was used

mostly on short trips in the Sydney metropolitan area. 4501 was re-numbered as 7100 in 1961, and following a series of failures it was finally withdrawn in 1974.³⁷ It has been retained by NSW Rail Museum, Thirlmere.

The Department of Railways, New South Wales, introduced further electric locomotives in the form of the 46 Class, with class leader 4601 being officially handed over during a ceremony at Sydney station on 25 June 1956.³⁸ A total of 40 members of the class were manufactured in England by Metropolitan-Vickers Electrical Company Limited and transported to Australia by ship. When introduced, the 3780 horsepower [2819kW] 46 Class was Australia's most powerful class of locomotives.³⁹ Initial service was on the Blue Mountains line, but

their range was later extended to working passenger and freight trains throughout the electrified area.

Although electric locomotives were only a small part of the total locomotive fleet in New South Wales and Victoria, their introduction was an important factor in the withdrawal of steam motive power. They were particularly suited to the steeply graded lines of Gippsland and the Blue Mountains. When introduced to service, the L Class in Victoria and the 46 Class in New South Wales provided greater power available for traction than diesel locomotives then in service.

LAST STEAM LOCOMOTIVES

All government railways in Australia continued to receive new steam engines after their first mainline diesel locomotives entered service. When the efficiency of diesel and electric locomotives compared to steam became clear, no further contracts for new steam engines were signed.

Two years after being the first system to introduce mainline diesel locomotives, Tasmania was also the first government railway in Australia to witness its last steam engine enter service. The M Class comprised ten 4-6-2 passenger engines that were shipped from England to Hobart on the *Christen Smith*, which also carried two of the new X Class diesels.⁴⁰ M7 was later renumbered as M1 and is preserved by the Derwent Valley Railway.

Commonwealth Railways was the first mainland system to see its final steam engine enter service when



Department of Railways, New South Wales publicity photograph of prototype electric locomotive 4501 in June 1952. ARHNSW RAILWAY RESOURCE CENTRE, 011722

the last two of the ten 2-8-2 L Class engines began operating in June 1953.⁴¹ The L Class were being built by the Clyde Engineering Company in Sydney at the same time that the Commonwealth Railways' new GM Class diesels were also being built (see photo page 14). Dieselisation resulted in the L Class seeing very little operational service.

Ten 400 Class 4-8-2+2-8-4 Garratt locomotives were introduced by the South Australian Railways narrow gauge system in 1953–1954, primarily for working ore trains between Cockburn, on the New South Wales border, and Port Pirie.⁴² They were in regular service until 1963, with several re-entering service briefly in 1968.

Victorian Railways introduced the J Class 2-8-0 locomotives in 1954, with all 60 members of the class being in service by the end of the year.⁴³ They were built at the Vulcan Foundry in Newton-le-Willows, England, and shipped in fully assembled condition to Melbourne.

The V Class 2-8-2 locomotives of the Western Australian Government Railways became the last type of new steam engine to be introduced to service on a government railway system in Australia. Nevertheless, steam engine classes on other systems that had been introduced before the V Class were still being delivered after the last V Class engine entered service. While the V Class was the last class to start entering service, it did not contain the last steam locomotive to enter service in Australia. The V Class were 2-8-2 locomotives designed for heavy freight work and all remained in service until 1971–1972.

New South Wales and Queensland continued to introduce new steam locomotives more than five years after their first mainline diesel units entered service.

Fifty of the 60 Class 4-8-4+4-8-4 Garratt locomotives were ordered by the Department of Railways from the famous Beyer, Peacock & Company of Manchester, with the first entering service in 1952. After 37 engines had been delivered an arrangement was made with the builders to only manufacture a further five completed engines as well as five sets of spare parts.⁴⁴ Number 6040 was the last of the 42 members of the class to enter service. It has been cosmetically restored and is displayed at the NSW Rail Museum, Thirlmere.



400 Class 4-8-2+2-8-4 Garratt locomotives 400, 401 and 404 being prepared for duty at Peterborough Locomotive Depot in 1969.

G W LILICO PHOTO, ARHSNSW RAILWAY RESOURCE CENTRE, 057936

The last new steam locomotive to enter service on an Australian government railway was the Queensland Railways 4-6-2 BB18½ Class engine 1089. Built by Walkers Ltd at Maryborough, 1089 was the last of 55 members of its class. It was delivered on 11 March 1958, and entered service soon after this date.⁴⁵ It is now preserved in operating condition at the Workshops Rail Museum in Ipswich.

Table 2 shows the dates that the last steam locomotives entered service on each of the government railway systems in Australia.

TOTAL NUMBER OF LOCOMOTIVES

As new diesel locomotives were introduced they began to replace steam engines on train services. The number of diesels in service increased and the number of steam engines decreased. Steam engines were withdrawn from service and the majority were eventu-

ally scrapped.

The figures indicate the decline in numbers of steam locomotives and the growing number of non-steam locomotives on all Australian Government railways over the period. Total numbers of locomotives for each system were provided for 1951, whereas in later years the figures also indicated the breakdown of steam and non-steam locomotives. The statistics indicate the number of locomotives on the books, rather than those in service.

Steam engines that had been withdrawn from service were often stored before being scrapped, and could continue to be counted on the books although most would never return to service. At any time a number of locomotives were also out of service for overhaul or repairs. Thus, the figures do not reveal the number of locomotives available for daily use, but provide a valuable insight into the total locomotive fleet of each system.

The total number of locomotives

Table 2: Last steam locomotives to enter service

Railway System	Date entered service	Class	Loco Numbers
Tasmanian	6 October 1952 ⁴⁶	M	M7
Commonwealth	June 1953 ⁴⁷	L	L88, L89
South Australian	13 Feb 1954 ⁴⁸	400	406
Victorian	17 Dec 1954 ⁴⁹	J	J559
Western Australian	16 Nov 1956 ⁵⁰	V	V1224
New South Wales	2 January 1957 ⁵¹	AD60	6040
Queensland	March 1958 ⁵²	BB18½	1089



Built by Walkers of Maryborough, BB18 $\frac{1}{4}$ Class Pacific No. 1089 was the last steam locomotive to enter service in Australia in March 1958. In June 1970 it was photographed on static display at the Redbank Locomotive Museum. No. 1089 has been restored to service as a member of the QR Heritage steam locomotive stable. BOB MCKILLOP PHOTO

shown for 1951 was made up almost totally of steam engines since only a small number of diesel and electric locomotives were in service by that time. There was a marked reduction in the total number of steam engines by 1957, despite new steam locomotives still entering service.

The total number of locomotives in government railway service in Australia declined considerably from the end of 1951 to the end of 1975. Diesel and electric locomotives, with their greater power and efficiency, could cope with larger traffic volumes. As a result all seven government railway systems had smaller fleets in 1975 than in 1951, with New South Wales, South Australia and Western Australia having more than halved their total number of locomotives (see Table 3, page 21).

The total number of diesel and electric locomotives in service grew steadily throughout the 1950s, and then increased more rapidly during the 1960s. Conversely, the number of steam locomotives on the books declined sharply in the 1960s, with nearly all of the remaining engines being rapidly eliminated in the early 1970s. Between 1966 and 1969 most railway systems reached a point of having more non-steam locomotives than steam locomotives on their books. Western Australia, however, did not reach this point until between 1969 and 1972, whereas the Tasmanian Government Railways and Commonwealth Railways had more diesel than steam locomotives by 1963.

New South Wales operated the largest number of steam locomotives in Australia in 1951 when it introduced its first main line diesels. It continued to maintain more steam engines than all other Australian government railway systems until the middle of the 1960s when its total numbers became lower than that of Queensland. The number of steam locomotives in New South Wales was declining rapidly, but those in Queensland were decreasing much more slowly. During the second half of the 1960s there were widespread withdrawals of steam engines, and by 1969 Western Australia had the largest steam fleet, followed by New South Wales and then Queensland.

In 1972 New South Wales again had the largest number of steam engines on its books as it continued to operate some of the last remnants of steam-hauled trains in Australia. By 1975 steam power had ceased to operate regular government train services in Australia. Nevertheless, four railway systems still retained steam locomotives on their registers. Some of these engines were dedicated to working tour trains, some were used for shunting and works purposes, while others were stored and would not work again in revenue service.

To be continued

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Table 3: Total stock of locomotives by type at 30 June each three years, 1951-1975⁵³

Year	Locomotives	NSW	VR	QR	SAR	WAGR	TGR	CR	Total
1951	Total	1159	628	824	344	439	101	143	3638
1954	Steam	1192	533	842	366	413	101	151	3598
	Non-steam	36	74	21	12	23	38	15	219
	Total	1228	607	863	378	436	139	166	3817
1957	Steam	1139	447	795	292	354	90	132	3249
	Non-Steam	78	102	50	26	76	40	36	408
	Total	1217	549	845	318	430	130	168	3657
1960	Steam	1009	354	743	225	323	57	64	2775
	Non-Steam	151	155	70	52	77	49	44	598
	Total	1160	509	813	277	400	106	108	3373
1963	Steam	763	258	667	188	270	46	23	2215
	Non-Steam	244	204	97	75	90	54	52	816
	Total	1007	462	764	263	360	100	75	3031
1966	Steam	431	181	576	144	238	20	1	1591
	Non-Steam	333	288	181	109	118	57	65	1151
	Total	764	469	757	253	356	77	66	2742
1969	Steam	199	72	178	79	204	20	1	753
	Non-Steam	432	347	351	127	167	58	86	1568
	Total	631	419	529	206	371	78	87	2321
1972	Steam	60	37	0	4	48	18	1	168
	Non-Steam	507	402	438	151	202	61	108	1832
	Total	567	401	438	155	250	79	109	2000
1975	Steam	0	19	0	4	2	12	0	37
	Non-Steam	546	382	489	151	209	69	98	1944
	Total	546	401	489	155	211	81	98	1981

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Built at the SAR Islington Workshops using components supplied by English Electric, 900 Class No. 900 was the first mainline diesel-electric locomotive to enter service in Australia on 10 September 1951. On 18 November 1978, No. 900 was still giving sterling service as it headed an interstate freight train between Tailem Bend and Serviceton. DOUG COLQUHOUN PHOTO, ARHSNSW RAILWAY RESOURCE CENTRE, 035454

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WAGR X Class 2-Do-2 locomotive X1001, YALAGONGA, heads a mixed train at Moawa Station on the Mullewa Line on 3 November 1970. X1001 was the first mainline diesel-electric locomotive to enter service in Western Australia on 8 March 1954. J BECKHAUS PHOTO, ARHSNSW RAILWAY RESOURCE CENTRE, 032031

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C38 Class locomotive 3801 heads No. 105 Down *Newcastle Express* into Newcastle Station with the 25th Anniversary run on 31 May 1969.
E G SKILLER PHOTO, ARHSNSW RAILWAY RESOURCE CENTRE, 052521

DISPELLING MYTHS AND LEGENDS POSTSCRIPT

Alex Wardrop

In my article published in the June 2013 edition of *ARH*, I took as my text a highly informative short history of the ‘Newcastle Flyer’ trains, written by Harry Calf in *ARHS Bulletin* 385, November 1969. Harry felt that the ultimate expression of the steam-hauled ‘Newcastle Flyer’ ran in the late 1950s, a few years prior to 46 Class electric locomotives taking over the Sydney–Gosford leg.

My article took the discussion further by considering the possibilities afforded by full electrification, newer locomotives and the replacement of locomotive-hauled rolling stock by electric multiple unit rolling stock. The XPT was thrown in, as was a hypothetical tilt train. Nevertheless, my article did not address the long-held view that the ‘Newcastle Flyer’ was capable of a two-hour timing between Sydney and Newcastle and vice versa.¹

Such a train was actually run between the Sydney and Newcastle termini, and return, on Sunday 28 June 1964. It was a special run on SPER’s account and alluded to in a brief article on locomotive performance, written by R L Abbott in *ARHS Bulletin* 347, September 1966.² I had been unable to locate information about these runs until an old colleague, Max Michell, recently emailed me a performance log for Trains N21 and N26, Sydney–Newcastle and return, run that day in 1964. It was hauled by 3801 and had a load of six cars grossing 244 tonnes (ie 240 tons).³

INVESTIGATIONS

I accordingly set about undertaking some forensic train performance simulation to obtain a better understanding of these runs which have subsequently fuelled stories of two-hour ‘Newcastle Flyers’ and an implied failure of more modern trains to reproduce their performance.

The starting point is that N21 and N26 were given 2h 09m (ie, 129 minutes) timings in the covering Special Train Notice (STN). The tour train actually bettered both the northbound and southbound timings, taking 2h 01m 52s (ie, 121.9 minutes) northbound and 2h 02m 30s (ie, 122.5 minutes) southbound. The questions for me were: how did the tour train achieve these timings; could these timings be matched or bettered by current trains; and are these realistic timings for actual trains to deliver on a regular basis?

First things first. The tour train was a shorter and was a lighter consist than those then being run on the ‘Newcastle Flyer’. A C38 Class locomotive would weigh 204 tons in working order while a seven-car HUB set would weigh 311 tons, so its gross train weight would therefore be 515 tons. On the other hand, the six-car tour train weighed 244 tons so that the train’s gross weight would have been 448 tons. It would therefore have been at least 13 per cent lighter than a regular ‘Flyer’ train.

Harry Calf had documented the progressive upgrading of key bridges along the Short North so that the major bridge

Table 1: Short North Train Performance Comparisons

Northbound Sectional Timings (minutes – read Down journey)						
Train	N21	N21	N21	N21	DDIU	Oscar
Consist	C38+6c	C38+6c	C38+6c	C38+6	8-car	8-car
Weight (t)	448	448	448	448	474	475
Vmax (km/h)	-	113+	115	115+	120	160
Speed limits	STN	As run	Normal	XPT	XPT	XPT
SDY-STR (11.7 km)	11	10.8	10.2	10.2	10.2	10
STR-WRD (7.4 km)	5½	6.4	5.6	5.6	5.6	5.2
WRD-HBY (14.7km)	12	13.2	11.7	11.7	11.5	10.9
HBY-CWN (14.9 km)	10½	9.6	10.9	10.5	10.5	10.2
CWN-HRV (8.6 km)	9	7.7	8.8	8.2	7.9	7.9
HRV-GOS (23.5 km)	17 83 km/h	16.2 87 km/h	17.6	16.7	16.6	16.1 88 km/h
GOS-WYG (20.2 km)	13 93 km/h	11.6 104 km/h	12.7	12.2	12.1	11.6 104 km/h
WYG-MST (22.2 km)	13 102 km/h	11.4 117 km/h	12.7	12.4	12.4	11.7 114 km/h
MST-FRN (19.4 km)	14½ 80 km/h	12 97 km/h	14	13.2	13.1	12.7 92 km/h
FRN-BMD (20.9 km)	18 70 km/h	14.7 85 km/h	15.2	14.4	14.3	14 90 km/h
BMD-NEW (5.2 km)	5½	8.2	5.9	5.9	5.9	5.8
Total (168.0 km)	129	121.8	125.3	121	120.1	116.1

Southbound Sectional Timings (minutes – read Up journey)						
Train	N26	N26	N26	N26	DDIU	Oscar
Consist	C38+6c	C38+6c	C38+6c	C38+6c	8-car	8-car
Weight (t)	448	448	448	448	474	475
Vmax (km/h)	-	113+	115	115+	120	160
Speed limits	STN	As run	Normal	XPT	XPT	XPT
SDY-STR (11.7 km)	11	10.5	11.1	11.1	10.9	10.7
STR-WRD (7.4 km)	6	5.2	6.3	6.3	6.3	6.1
WRD-HBY (14.7km)	11½	9.2	11.3	11.2	10.9	10.8
HBY-CWN (14.9 km)	10½	10.1	10.5	10.1	10.1	9.9
CWN-HRV (8.6 km)	11½	12.6	8.2	8.2	8	7.9
HRV-GOS (23.5 km)	17 83 km/h	16.4 86 km/h	17.3	16.4	16.8	16.1 88 km/h
GOS-WYG (20.2 km)	12 101 km/h	12.5 97 km/h	12.5	12.1	12	11.4 106 km/h
WYG-MST (22.2 km)	12 111 km/h	12.5 107 km/h	12.8	12.5	12.5	11.9 112 km/h
MST-FRN (19.4 km)	14½ 80 km/h	13.1 89 km/h	13.9	13.1	13.1	12.8 91 km/h
FRN-BMD (20.9 km)	17½ 72 km/h	15.4 81 km/h	14.9	13.9	14	13.7 92 km/h
BMD-NEW (5.2 km)	5½	5	6	6	6.1	5.8
Total (168.0 km)	129	122.5	125.4	120.9	120.7	117.1

renewals north of the Parramatta River had been all been completed by early 1964. Therefore, the line had, at last, been freed of bridge speed slacks north of the Parramatta River and was posted to a maximum of 113 km/h (ie 70 mph), curves permitting.⁴

Mr R L Abbott alluded to the tour train maintaining an average speed of 117 km/h (ie 72.9 mph) for over 22 kilometres between Wyong and Morisset against a tabled 102 km/h. This gives us a pointer to how trains could be driven by top-link drivers, if given the nod and freed from per-way slacks.

ANALYSIS

Max Michell's performance log compared trains N21 and N26 against the STN. As far as I can determine, there were only two recorded temporary speed restrictions (TSRs): 30 mph over the Parramatta River bridge; and 5–10 mph at Adamstown. Otherwise, the specials had a clear run. When using the MTRAIN train performance calculator, my simulated trains must obey all speed limits. Thus, I had to use alternative sets of speed limits as proxies for the speeds constraining simulated trains. I therefore chose to use normal and XPT speed limits to alternatively constrain my simulated N21 and N26.⁵

Since I also wanted to see what current trains might be able to achieve, I additionally simulated double deck interurban (DDIU) and OSCAR trains running under XPT speed limits, as recently permitted.⁶ All simulated trains were run non-stop between Sydney and Newcastle and return, as was the case for N21 and N26.

Max Michell's performance log, plus my simulation results, are summarised in Table 1. Northbound N21 and

southbound N26 are reported:

- as per STN;
- as run on the day;
- simulated running under Normal speed limits; and
- simulated running under XPT speed limits.

The DDIU and OSCAR are both simulated running under XPT speed limits.

Consists for trains N21 and N26 are C38 3801 plus six cars, while both the DDIU and OSCAR are run as eight-car trains. The cited train weights are for trains at normal weight with fully seated loads. This would be unfair to N21 and N26 because their gross weights would progressively diminish by as much as 27 tonnes throughout their runs as coal and water were consumed. The maximum speed (ie V_{max}) is that available to each type of train but also dependent upon the speed range of the drawbar pull or tractive effort data. The C38 drawbar pull curve only goes up to 70 mph (ie 113 km/h). The route sections, chosen for timing comparisons, were selected to isolate sections of interest, such as:

- the terminus exits/entries;
- the 1:40 climbs away from the Parramatta River (northbound) and the Hawkesbury River (southbound); and
- the roughly 20 kilometres sections north of the Hawkesbury River, in particular the Wyong-Morisset section that so interested RL Abbott.

For reasons of space, the timing sections have been described by their Station Brand Code abbreviations.⁷ Pink shaded timing sections indicate where trains were at least one minute slower than the STN. Green shaded timing sections indicate where trains were at least one minute faster than the STN.



Locomotive 3801 hauls No. 20 *Newcastle Express* out of Newcastle Station on its return run to Sydney on 31 May 1969. This was a tabled service with the 38 specially rostered to run the entire journey as opposed to relay working with a 46 Class at Gosford.

JOHN WARD PHOTO, ARHSNSW RAILWAY RESOURCE CENTRE, 542744

INTERPRETATION

The overall STN timings of 129 minutes northbound and southbound reflect the minimum achievable timings that a full Flyer consist might have achieved on a non-stop run (see Table 4, *ARH*, June 2013, p 23). When comparing the STN and N21 and N26 as run:

- there were no surprises departing or approaching Sydney Terminal;
- N21 clearly observed the 30 mph TSR over the Parramatta River, but N26 may not have done so;
- N21 struggled up the 1:40 climbs between West Ryde and Hornsby, whereas N26 swooped down the hill, picking up more than 2 minutes;
- N26 struggled up the 1:27-50 climb between Hawkesbury River and Cowan, whereas N21 took a wild ride down to The River, picking up more than a minute;
- N21 kicked up the traces from Gosford to Broadmeadow, picking up almost 9 minutes notwithstanding the 10 mph TSR near Adamstown, whereas N26 knocked off less than 3 minutes from Broadmeadow to Gosford, probably observing the 5 mph TSR near Adamstown; and
- N21 lost almost 3 minutes approaching Newcastle Terminal because of a preceding train, whereas N26 made a smart departure.

The simulated N21 and N26 running under normal speed limits would not be able to keep up with the real trains. On the other hand, the simulated N21 and N26 running under XPT speed limits would be able to keep up. However, there were clearly sections, particularly along the Gosford-Morriset racetrack, where the real trains clearly outran the simulated trains. This certainly suggests that top link drivers were able to “interpret” speed limits to their advantage.

What of the performance of current trains? Running under the same flat-out conditions applied to the simulated N21 and N26, but running under XPT speed limits, both DDIUs and Oscars would be able match, or better, the overall timings of N21 and N26. The higher power of the Oscars clearly tell because they gained to four minutes on the DDIU and five minutes on the real N21 and N26 *without busting the permanent speed limits*. I understand that an Oscar trial was run in 2014 to provide travel time guidance for future Central Coast timetables and that sub-two-hour timings were obtained.

The remaining question is whether non-stop trains between the Sydney and Newcastle termini are relevant any more. The Central Coast, through which the Short North runs, is now a dormitory area primarily for Sydney, although there is a back haul to Newcastle, and there is a significant level of passenger traffic contained wholly within the Central Coast¹. Therefore, intercity services need to collect and distribute passengers throughout the Central Coast with the more important stations being served by one service tier and all stations being served by another service tier. Thus, it is likely that the fastest services probably need, say, eight intermediate stops: a far cry from the old non-stop Flyer. For much the same reasons, long distance XPT and Xplorer services need to stop in the Central Coast at similar stations.

CONCLUSIONS

We started with the fabled two-hour ‘Newcastle Flyer’ and an implied failure of more modern trains to reproduce its performance. This postscript certainly demonstrates that in the right circumstances, and a suitable tailwind, a C38 could haul a lightish passenger train non-stop between the Sydney and Newcastle termini at very close to the two-hour timing. It is also apparent that this feat could only be achieved with a creative interpretation of speed limits that would no longer be permitted.

Forensic train performance simulation suggests that current electric multiple unit trains, most likely an Oscar, could achieve a sub two-hour timing within current XPT/High speed limits. However, this would be without any recovery margin. On the other hand, a non-stop two-hour timing between Sydney and Hamilton would be possible with a five percent recovery margin. Unfortunately, such a service would not serve the rail travel needs of the Central Coast.

Well might we say *C’est magnifique, mais ce n’est pas le transportation!*

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End Notes

1. We are talking about the ‘full monty’ between Sydney and Newcastle Termini, not the current truncated journey.
2. South Pacific Electric Railway (SPER) Co-Operative Society Ltd, the operators of the Sydney Tramway Museum.
3. While all calculations will be undertaken in metric units in this analysis, key imperial measurements will be reported.
4. Whitton’s Parramatta River lattice girder bridge between Rhodes and Meadowbank was not renewed until 1980.
5. The Short North used to be supplied with two sets of speed limits: those for XPTs (ie “XPT”); and those for all other trains (ie “Normal”). It is now supplied with three sets of speed limits: those for freight trains (ie “General”); those for multiple unit trains (ie “Medium”); and those for XPTs (ie “High”).
6. These trains are known as V-sets and H-sets, respectively.
7. BMD = Broadmeadow, CWN = Cowan, FRN = Fassifern, GOS = Gosford, HBY = Hornsby, HRV = Hawkesbury River, MST = Morisset, NEW = Newcastle, SDY = Sydney Terminal, STR = Strathfield, WRD = West Ryde and WYG = Wyong.

KEY CHANGES AT ALBURY, NSW:

The Break of Gauge era

Tim Fischer AC

Albury Railway Station opened in 1881 with the arrival of the main line from Sydney. In 1883 the Victorian Irish broad gauge was built across the Murray River and at last the rail connection made. From 1883 until 1962, all through rail passengers between Sydney and Melbourne had to change at Albury, across the long platform. NSW trains operated on the east side and Victorian trains including the *Spirit of Progress* on the west side. Nothing can match the list of VIPs and others that changed trains at Albury, not even at the key stations between France and Spain and between Poland and Russia, Europe being largely standard gauge but with a break of gauge with Spain and Russia.

Top Twenty Four Great Train Changers at Albury: (* Indicated travel at various times 1883 to 1962)

- Edmund Barton *
- William Bridges, 1915 (the only Australian killed in World War I to be returned to Australia for burial)
- Ben Chifley *
- Agatha Christie, 1920
- Duke of Cornwall (later King George V), 1901
- Arthur Conan Doyle, 1920
- Russell Drysdale *
- Prince Henry, Duke of Gloucester, 22 October 1934
- Walter Burley Griffin *
- W M Hughes *
- D H Lawrence, 1922
- Dame Enid Lyons *
- Rudyard Kipling, 1891
- Douglas MacArthur, 1942
- John McEwen *
- Mary MacKillop *
- Dame Nellie Melba, 1931 (deceased)
- R G Menzies *
- Thomas Mitchell *
- John Monash, 1891
- R L Stevenson, 1890



Albury Railway Station photographed soon after completion, but prior to the Great Southern Line opening to that centre in February 1882. ARHSNSW RAILWAY RESOURCE CENTRE, 005499



The last transfer of passengers from the New South Wales train (left) across the platform to the Victorian train at Albury, April 1962. ARHSNSW RAILWAY RESOURCE CENTRE, 046232

- Mark Twain, 1895
- H G Wells, 1939
- Duke of York (later King George VI), 1927

After being awakened 5am at Albury, Mark Twain famously wrote: 'Which paralysis of Parliamentary intellect dreamt up the Break of Gauges in Australia.?!'

Editor: A brief article on this subject received coverage in the *Border Mail* newspaper at Albury in February 2017. The list has been finalised with input from a number of individuals.

LOADING BANANAS AT MURWILLUMBAH

From Tony McIlwain

Tony McIlwain provided an article from the *Tweed Valley Times* newspaper on 22 June 1994, which covers the opening of the new Banana Growers Federation Co-Operative Limited premises at Murwillumbah in the South Murwillumbah goods yard in 1934.

This facility enabled bananas to be unloaded from motor lorries under cover, usually at night with the aid of powerful electric lights, thereby avoiding exposing the fruit to the full heat of the sun. The new building cost £900 (\$85,500 in 2016 terms) and was constructed in conjunction with the Department of Railways. It enabled up to six bogie MLV-type louver vans to be placed at the platform under cover for loading.

In 1934, a case of bananas had 1.5 bushells of fruit weighing around 100 pounds, which posed a challenge for the men unloading the lorries and loading them into the railway wagons from the rollers, eventually having to lift the cases onto the top stack two feet above the stacker's head.

One man who handled the banana cases for 32 years was Les Darby, who lived across the road from the loading platform. When interviewed by the *Tweed Valley Times*, Les was 83 years old. He still lived in the same house as he watched the decline of the use of rail to send bananas to market.

During the prime of rail transport,

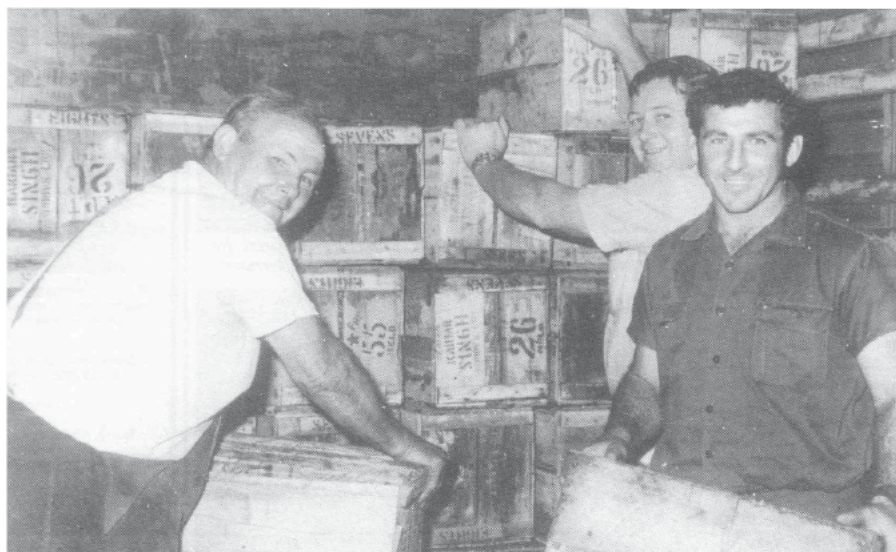
banana trains departed from Murwillumbah on Tuesdays and Fridays. The stackers commenced work at 5pm in the evening and finished at 2am the following morning. For this work, Les received £5 for working up to 20 hours.

Following World War II, there were four banana trains departing each week. In this period there were long queues of motor lorries waiting to unload. It was decided to stop loading at a number of smaller stations on the journey south, so two loaders assisted loading at Murwillumbah and then travelled on the train to load cases stacked on the platforms at the

larger stations, namely Burringbar, Billinudgel, Mullumbimby, Byron Bay and Bangalow

When a permanent loader was off sick, casuals would be engaged, but they usually only lasted a day and sometimes not that long. Les did not blame them for leaving as they did not have the experience to stack the heavy cases and often their hands would be a mess within a few hours.

Les spent his last five years as a loader on the train between Murwillumbah and Bangalow. It arrived at Bangalow around 2am and he caught the *Sydney Mail* train back to Murwillumbah.



George Knight, Fred Stone and Lyaal Stewart packing banana cases in a MLV van for Melbourne in March 1975. *TWEED VALLEY TIMES*, 27 JANUARY 1994

SHADY ACRES:

Politicians, Developers and Sydney's Public Transport Scandals, 1872–1895 by Lesley Muir with an introduction by Elizabeth Farrelly. Halstead Press, Ultimo, 2016

Hard cover, 304 pages, 195 x 260mm, 68 b&w photos, 38 maps and sub-division advertisements, 17 etchings/drawings and 8 colour plates. RRP \$50.00 (plus p&p if required), from ARHSnsw Bookshop, 67 Renwick Street, Redfern NSW 2016.

Dr Robert Freestone, Professor of City Planning at the University of New South Wales formally launched Dr Leslie Muir's magnificent book, *Shady Acres: Politicians, Developers and Sydney's Public Transport Scandals 1872–1895* at the Royal Australian Historical Society's *History House* on 21 April 2017.

Dr Leslie Muir, Vice President of the Royal Australian Historical Society, was fascinated by the origins of Sydney's tram and railway networks, particularly how the decisions were made about where the lines went, who were the decision-makers and for whose benefit were they constructed. In particular, she explored who made profits in response to these decisions.

In her introduction to the book, published after Dr Muir's death on 19 May 2012, Elizabeth Farrelly links the author's exploration of corruption in Sydney in the late 19th Century with the more recent corruption scandals explored by the Independent Commission Against Corruption (ICAC). She is deeply concerned at this continuing saga, but buoyed by the fact that historians such as Muir have: 'illuminated these dark byways and back alleys of our political coming of age.'

Muir presents her case in nine chapters that explore the individuals (all male) who sought to influence Sydney's railway and tramway systems to the benefit of their personal real estate interests. It was an era dominated by three men, Sir Hercules Robinson (Governor of NSW from 1872–1879), Sir John Robertson, (Premier 1881–1882, February 1875–1877 and Acting Premier December 1881–August 1882) and Sir Henry Parkes who served five terms as Premier during the period under review.

A broad range of well-to-do landlords, real estate agents and local government mayors feature in the narrative, primarily in terms of their efforts to have railway platforms established to serve their particular estates and also for their behind the scenes manoeuvring to have the routes for new railway and tramway lines directed through their estates. John Young, the wealthy builder of large construc-

tion projects in Sydney, George Wagram Allen who held extensive land in Glebe and near Parramatta, Thomas Holt with extensive land holdings on the proposed route of the Illawarra Railway and Andrew Hardie McCulloch junior (1884–1908) a younger land dealer, were among the early

wheelers and dealers covered by in the narrative.

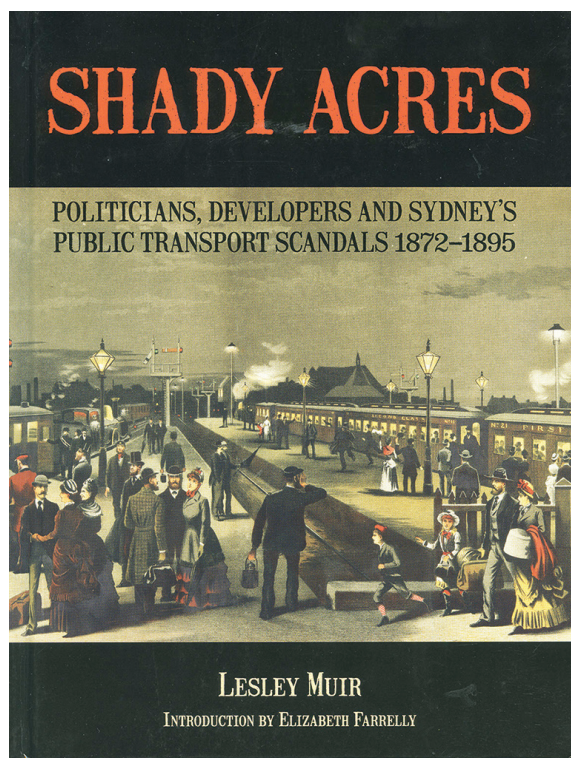
Chapter 4 is devoted to the rise and fall of James Squire Farnell (1825–1888) who became Premier in 1877. This little-known politician is regarded favourably by the author, but his administration was undermined by Henry Parkes who in mid-December 1878, again formed an administration with Sir John Robertson who, now in the Legislative Council, became its Vice President. The hopes for progressive reform under the first native-born Premier (Farnell) were dashed with a return of the 'old guard'.

Nevertheless, the new administration quickly tackled completion of the infrastructure for Sydney's International Exhibition, which opened in September 1879. The tasks included the rapid construction of the grand exhibition building in the Inner Domain

and the construction of a tram line to carry passengers from Redfern Station to the Exhibition site. The latter would be operated by Sydney's first Baldwin-built steam tram motors, each hauling two double-deck trailer cars. Demands for new tram lines to numerous locations resulted in the Minister for Public Works John Lackey introducing the *Tramways Extension Bill* on 28 February 1880, which had provision for the construction of 11 tram lines. The first steam tram line from the City to Randwick opened in time for the Spring Race Meetings in September 1880.

There was also pressure for new railway lines, notably one from Homebush to Waratah in Newcastle, but its proposed route was at variance with that proposed by the Engineer-in-Chief John Whitton.

Henry Parkes, claiming the be 'worn out' from his political exertions, sailed from Sydney with his daughter on an extended holiday to the United States, Canada and Great



Britain in December 1881, leaving Sir John Robertson, now back in the Legislative Assembly as the Member for Mudjee, as Premier and Minister for Lands. Parkes returned in August 1882, but faced growing opposition in Parliament, with David Buchanan describing his holiday as: "a series of racketing and banqueting".

In terms of railway construction, the Garden Palace fire on 22 December 1882 resulted in the loss of survey plans and books of reference for new lines, so the routes had to be re-surveyed before work could commence. The plans for the Illawarra Line had, however, been handed to the contractors, Millar and Company, so work could commence. Nevertheless, this line also generated heavy land speculation along its route.

Parkes lost his Sydney seat at the 1882 election, but was invited by the people of Tenterfield to represent them unopposed. Alexander Stuart was elected as Premier on the first sitting day in 1883.

Stuart and his partner Richard Harnett held some 1600 acres of land on the North Shore and in April 1883, Francis Wright the Minister for Public Works, announced that a line would be built from the Northern Line at Pearce's Corner to St Leonards. A deputation of the owners of 'Big Island Estate' succeeded in having the junction changed to Hornsby. and,

with positive prospects for the line proceeding, there were numerous land sales along the proposed route.

Similar land speculation occurred along the route of the Illawarra Line, when Alexander Stuart requested a resurvey of its route to serve his coal leases on the northern Illawarra escarpment. A Parliamentary inquiry ensued, which revealed that Sir John Robertson was a silent partner in these leases. Construction work was halted at the Georges River pending resolution of the scandal.

Meanwhile, the Northern Line opened between Hamilton and Gosford on 15 August 1887, but crossing the Hawkesbury River relied on steam ferries until the Hawkesbury Railway Bridge was officially opened on 1 May 1889. Muir covers the opening of the North Shore line to St Leonards on 1 January 1890 and its extension to the ferry terminal at Milsons Point on 1 May 1893, but by this time the Colony was embroiled in a deep Depression.

This book presents a significant account of the politics that shaped Sydney's railway and tram lines in the late 19th century in an authoritative and well-written manner, coupled with excellent photographs and illustrations. It offers excellent value and is highly recommended.

Bob McKillop

Glitches:

John Oakes has pointed out that a change was made to his text during final reviews of the issue that altered the meaning of his text in his article in the

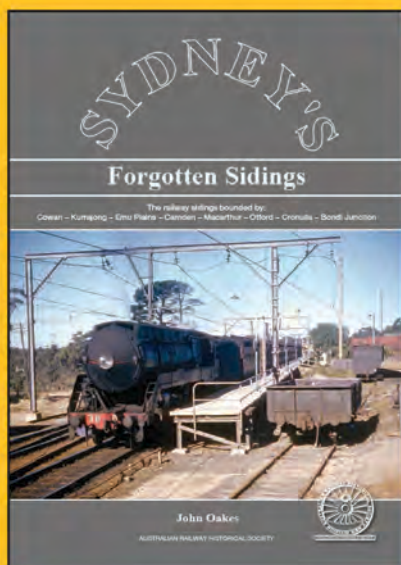
July issue of *Australian Railway History*.

On page 23, second column, line 11, the text should read: 'steel locomotive-hauled carriages and similarly on page 24 in the seventh line after 'Some

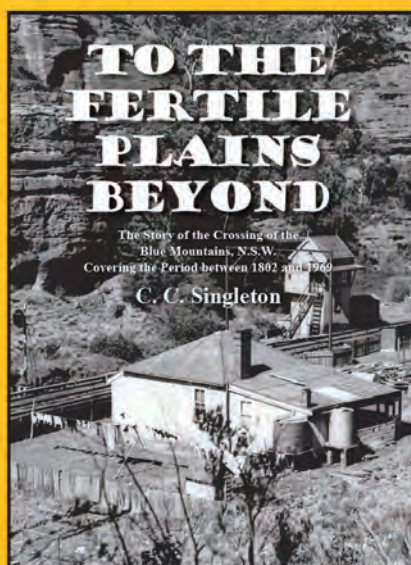
Conclusions'. Apologies to John for this error.

Editor

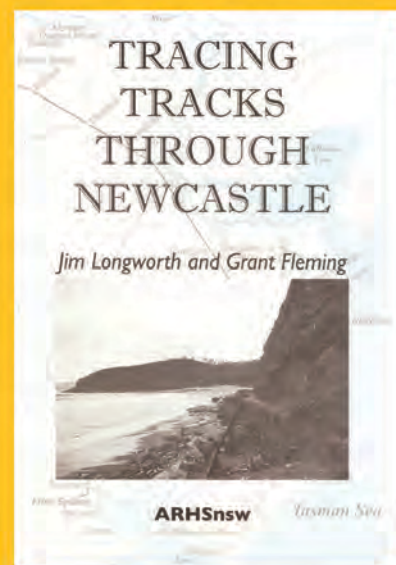
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Railway Pubs in Orange

ARH 956, June 2017

In the article 'Railway Pubs in Orange', at pages 6 and 7, there is a sepia photo stretched across the two pages. It is a beautiful photo. I had no idea what the Orange Railway Station and yard would look like around that time, although I did not think it would be like it appears in the photo. The contents of the article are terrific and I really enjoyed it.

I have an attachment to Orange as my grandfather, Harry Harris, was in charge of the East Fork marshalling yards at Orange at one time. I lived in Orange with my mother and grandparents during World War II.

Richard Champion, ARHSnsw Member 1606

It was a delight to receive copies of the June issue of *Australian Railway History* in the mail this morning. There was never any question that the article would look good when it appeared. What I was not expecting was how good! You have done Ross Maroney and myself proud and the double-page spread of the panorama is superb and your printers have achieved something special. The registration across the page join is spot on, something rarely achieved. Even the *National Geographic* has to use a fold-out.

Euan Greer, Orange NSW 2800

The photo on pages 6–7 of the June ARH is indeed a fine collage showing a large portion of Orange about 1907. The original would be an invaluable historical document.

However, the 'enhancement' has

ruined any historical value it may have had. One may presume that the buildings are all in the positions depicted, but the entire 'railway scene' has been doctored so that there is no discernible resemblance to any rolling stock which ran on the NSWGR at that or any other time. Every vehicle has been heavily doctored and retouched such that the construction style is totally different from NSWGR norms. The vans look more Queensland in their lineaments, while the vehicle at the end of the station looks like a milk van belonging to the 'Fresh Food and Ice Co.' depicted in the Sydney Mail in the 1880s, with the addition of an excessive number of oil lamp posts. The tank engine at the bottom seems to have a Belpaire firebox, but is otherwise unidentifiable, while the loco to the right is totally indistinguishable as any NSWGR type (the curve of the cab roof might suggest a 'Big J' class 2-8-0).

Ian A Dunn, by email

Editor: In preparing the caption for the photo on page 6 of the 'Railway Pubs in Orange' article, I overlooked including the advice from the authors that this collage was an 'enhancement'. Euan Greer has provided the following background on the image.

Euan Greer comments: The image on pp.6-7 is a small section (not a collage as such) of a panorama taken in 1907 from high up in Dalton Bros.' new flour mill in Peisley Street.

The Orange and District Historical Society is very aware (after using

another section of the panorama in earlier research) that there are inaccuracies in the enhanced panorama. Ian has identified more of these in the photo on pp.6-7. The purpose of including the image was to illustrate the proximity of three of the 'railway' hotels to the station and that it does without compromise. It was not intended as a record of 1907 railway infrastructure and equipment.

Because of the immense value of the panorama, the Historical Society is currently arranging with Mrs Neich's family for the original print to be digitally photographed by a professional who will then improve the clarity of the image without affecting its integrity. The new panorama will then be able to be used with confidence for historical research.

Despite the enhancements to the image as published I agree with the Editor's assessment, that the locomotives and rollingstock are unquestionably of NSWGR origin, although Ian is correct about the difficulty of identifying specific items of rolling stock. A recent member of the Society, with a much greater knowledge of NSWGR stock than I, was confounded on first seeing the photo. When shown the blurred original of the print, he agreed it was of no help in identifying the stock either. We hope that the project to re-photograph Mrs. Neich's print will enable experts to identify the stock and to answer other questions we have about the station.

Firsts and Lasts in WA

ARH 954, April 2017

I thoroughly enjoyed the article 'Firsts and Lasts in WA' in the April issue of *Australian Railway History*.

It is a pity that ARH does not receive more articles of rail history in WA. Sadly, there is no interest in tourist steam railways except for the operations on the Hotham Valley Tourist Railways. It had tours to regional centres such as Gerladton and Albany

in the past as well as inner wheat belt towns.

Most main lines in WA are now mostly privatised. Unfortunately the only steam tour trains are those between Pinjarra and Dwellingup. G Class 4-6-0 locomotive No. 123, which served most of its life on the WA south-west timber industry, operated tour trains out of Bunbury before eventually

before becoming part of the Hotham Valley Tourist Railway's fleet. When a major repair and restoration became essential, the cost of this task could not be raised, so G123 stands in the yard at Pinjarra turning to rust. A sad end to the life of a beautiful locomotive.

Frank Cherry, South Lake WA 6164



Queensland Railways steam locomotives in action as PB15 Class 4-6-0 No. 732 and AC16 Class 2-8-2 No. 232_A shunt wagons at Dalby Station on a lazy afternoon circa 1965. E G SKILLER PHOTO, ARHSNSW RAILWAY RESOURCE CENTRE, 090778

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