



SteamRanger's Heritage - an insight into our past

BACKGROUND

A comprehensive paper delivered to the Australian Transport Conference, Chartered Institute of Transport Adelaide, 7 April 1986.

A useful list of relevant references is appended

A companion paper by Dr. Reece Jennings described the later development of railways from the time of Commissioner W. A. Webb. Readers are referred to the July, August and September 1987 edition of NETWORK for an adaptation of the address by Dr. Jennings.

The printed article includes a large number of photographs and maps not included in this downloadable document.

EARLY RAILWAY AND TRAMWAY DEVELOPMENT IN SOUTH AUSTRALIA

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The development of South Australia's rail transport, both rural and urban, has been a reflection of the vagaries of the colony's and state's economy. For the first one hundred years after its establishment in 1836. South Australia was primarily dependent on agriculture, and the needs of agriculture dictated the parameters for railway development. Urban transport development, especially in its earlier phases, sprang from the prosperity consequent upon the State's agricultural growth.

The topic may be considered as having four principal components,

- The establishment of light and heavy railways and their use to enhance intrastate trade and help develop new agricultural lands (1854-1890).
- The development of an organised system of urban transport based on horsetrams, primarily in Adelaide (1878-1883) but also in Gawler and Moonta.
- The use of inexpensively constructed railways to open up more distant agricultural lands after the turn of the century, especially in mallee lands (1900-1925).
- the introduction of electric tramways to replace horse trams as the primary form of urban transit in Adelaide (1909-1929).

Establishing the Railway

By 1840, over 2,000 miles (3218.6 km) of railways had been laid in Britain and early colonists to South Australia would have been aware of the "railway boom" which had been taking place. The South Australian colonial legislature passed the Railway Clauses Consolidation Act 1847 setting out the conditions, responsibilities, limitations and privileges of any companies empowered by Special Acts to construct railways, but did not specify any construction.

In 1850, Governor Henry Fox Young proposed that Goolwa and Encounter Bay be linked by canal or railway so that produce from River Murray Steamers might be directly shipped overseas. Subsequently he authorised the construction of a 5'3" (1600 mm) gauge animal railway between Goolwa and Port Elliot, together with suitable jetties at each end for £20 000. Conflicting petitions circulated for and against the idea, and the legislature expressed its dissatisfaction. The Governor replied that the legislature had no responsibility for appropriations. The line opened in May 1854, and was extended to Victor Harbor in 1864, though its role in commerce did not extend significantly beyond supporting coastal trade.

Meanwhile, two private companies in Adelaide, the City and Port Railway Company and the South Australian Railway Company had proposed rail lines from Adelaide to Port Adelaide. A private Act in 1850 authorised the by then amalgamated Adelaide, City and Port Railway Company to build a railway from the stone quarry at the rear of the Legislative Council building along Port Road to Port Adelaide with a branch to the North Arm. A gauge of 4'8 1/2" (1435 mm) was to be used, 5 miles (8 km) were to be laid within 18 months and the line completed in three years. The maximum freight charge was set at 6d per ton-mile. Goods delivered in Adelaide were to be deposited at a level equivalent to the door sill of the Legislative Council Chamber. No construction took place.

In 1851, the government determined that it would build a line to Port Adelaide on 5'3" gauge, having just been advised that NSW had adopted that gauge. Isambard Kingdom Brunel, Chief Engineer of the Great Western Railway, was appointed as English agent and consulting engineer to the South Australian Railways (SAR), as a result of which the line was laid using bridge pattern rails and longitudinal sleepers (ref 1)

The line was constructed "at frightful and wasteful cost" (ref 2), initially because most of the able-bodied had gone to the gold diggings, forcing up labour rates. Later, when a period of high unemployment occurred, the construction was used as an employment relief scheme. After an expenditure of £186,000, which included the importation of three locomotives named "Adelaide", "Victoria" and "Albert" from Fairburns, Manchester, the line commenced on 19 April 1856, with "Adelaide" derailing near the Adelaide gaol on the ceremonial opening trip.

In 1854, a further Act was passed authorising a line to Gawler, and this together with the Stockade (Northfield) line opened in October 1857, was further extended to copper mining town of Kapunda in 1860 and to Burra by 1870 (Figure 1).

Following the passage of the "Strangways" Act (Ref 3), in 1869 to encourage greater agricultural development in lands previously held for pastoral purposes, additional lines were built linking rural areas to outports. These were constructed as part of the state's policy of encouraging immigration and agricultural development. Most were of 3'6" (1066 mm) gauge with little or no ballast, and were built as part of a policy of providing wheat growers with access to a port or railway within 15 miles (24 km) of their properties



Adelaide's first railway station on North Terrace.
This building was extended on a number of occasions and a second story added before it was replaced by the present Webb era building in the 1920s

Some lines had services provided by contractors using horse traction while others were steam operated by the SAR. Lines included a horse-drawn service from Pon Broughton to Mundoorra operated with three passenger cars and 52 trucks. Another line was from Port Wakefield to Hoyleton and Blyth, with provision of trucks on which the horses could ride when travelling downhill. (ref 4) This line subsequently became steam operated.

Narrow gauge steam railways included Kingston-Naracoorte; Beachport-Millicent-Mount Gambier; and Port Pirie-Crystal Brook-Gladstone (later to Jamestown and Petersburg Peterborough). Broad gauge private horsedrawn railways had also developed between Kadina, \Vallaroo and Moontu but were taken over by the South Australian Railways in 1878 (Ref 5) Five hundred miles (805 km) of railways were constructed in the 1870s, it being noteworthy that 1872, 1873 and 1874 were excellent seasons with bumper crops which taxed the existing grain handling infrastructure of the state.(Ref 6)

The Great Northern railway from Port Augusta through Pichi Richi Pass and Quorn, opened as far as Government Gums (Farina) on 22 May 1882, and was later taken on to Hergott's Springs (Marree) and Oodnadatta. Its construction was spurred on by abnormally good seasons in 1879-81 and a general belief in the theory that "rain follows the plough" (Ref 7) A line was also constructed from Palmerston (Port Darwin) to Pine Creek, opening on 1 October 1889. The expectations for these railways were not fulfilled. The lines totalling 623 miles (1003 km), passed to the Commonwealth in terms of the Northern Territory Surrender Act 1911. Like others of their time, they had been projected with no prospect whatever of profitable returns, being justified to open up the country.

The narrow gauge line was extended from Petersburg to Cockburn in 1887. with the Silverton Tramway Company's line opening in 1888 to complete the journey to Broken Hill.

The most significant railway of this period was the broad gauge Southern line, which opened to Aldgate in 1883. using two large viaducts which have since been replaced by an alternative route. The opening trip was hauled by a Baldwin locomotive which tailed at Blackwood. Subsequently the line was extended to cross the Murray at Edwards Crossing using a bridge which had been ordered from England in 1865, but which had lain in a paddock for some years at Dry Creek before being erected in 1879. (ref 8) Through running to Melbourne commenced on 19 January 1887. A connection from Mount Barker 10 Strathalbyn also allowed steam traction operation to commence to Victor Harbor. (ref 9)

As the various lines expanded, these different gauges met, the change of gauge stations developing at Terowie. Hamley Bridge and Wolseley.

Prior to 1890, when local engine manufacture was commenced at Gawler by James Martin, all locomotives had been imported, the majority from Britain. A number arrived second hand from the Canterbury (NZ) Railway Company when it changed its broad gauge line to narrow gauge, including nine which were on the "Hyderabad" when it ran aground off the N.Z. coast but were later recovered (ref 10)

Broad gauge passenger stock was generally of English compartment pattern designed for high level platforms, while narrow gauge passenger stock was of more elementary American style with open interiors and end platforms with canopies, loading from ground level.

Privately constructed steam railways played a \er\ limited role in South Australia. The only notable examples were the Railway and Investment Company opened a line from Woodville to the Coast in 1882, while at the end of that year, the Largs Bay Land and Investment Company opened a railway to a new overseas shipping jetty in the gulf. The SAR took over the Largs line in 1891, the Grange line in 1893, the Cilnelg lines in 1899 and subsequently constructed a line a few years later to Outer Harbor whose line opened in 1908. (ref 12)

When it was established, the SAR was managed by a Board of Railway Commissioners, but from 1857, control of the railways was vested in the Commissioner of Public Works who issued directions to a manager. The South Australian Railways Commissioners Act 1887 vested management in three Railways Commissioners, but was amended in 1895 to provide for a sole Commissioner.

By 1905, the SAR had 330 locomotives, 434 carriages and 6464 trucks with a total capital value of £2.4m. By pursuing a policy of building low cost developmental railways, the State had completed 45 ½ miles (68.4 km) of line per 10,000 people, compared with a figure of 26 miles (41.8 km) per 10,000 people for the U.S.A (ref 9)

The Horse Tramways

South Australia's population has always been dominated by Adelaide. In 1861, 30% of the State's population lived within 10 miles (16 km) of the Adelaide GPO, and by 1890, this proportion had increased to over 40%. The period 1876-1880 was a period of exceptional population growth, during which time the number of people in Adelaide increased from 70,000 to 100,000.

Urban transport had initially been provided by spring carts, and later by coaches, omnibuses and jaunting cars, and in summary, these provided "the very extreme of inconvenience and discomfort (ref 13)

Mr W.C. Buik, sometime Rundle Street merchant, Adelaide City Councillor and later Mayor of Kensington and Norwood, had observed the operation of horse cars in England in 1871 and North America in 1874. In 1875, he issued a prospectus in conjunction with Mr E.T. Smith (later Sir Edwin Smith) for the Adelaide and Suburban Tramway Company and subsequently secured with some difficulty the passage of enabling legislation to construct standard gauge lines.

The company opened its first line to Kensington on 10 June 1878, and within six months was carrying 20 000 passengers per week. By December, it had commenced running its North Adelaide line. It had imported four double deck and eight single deck cars from John Stephenson of New York. The firm of Duncan and Fraser, who had been agents for Stephenson, progressively assumed greater responsibility for construction of additional cars.

Adelaide and Suburban extended its services to Walkerville and Maylands in 1882, to Marryatville, Magill, Hill Street and Burnside in 1883, and by 1890 was building cars in its own tramsheds at Marryatville.



Passengers crowd onto a lunchtime express horse car prior to its departure from Wakefield St.

The initial success of this company encouraged the formation of additional companies which secured franchises for various lines under their own enabling legislation. These included the Adelaide, Unley and Mitcham Tramway Company which commenced operating on 12 February 1879. This company tried a Baldwin steam motor the following year. It proved unsatisfactory and was sold in 1885 to Sydney Ferries Ltd. which used it for sixty years.

Next in the field was the Adelaide, Hindmarsh and Henley Beach Tramway Company, which began services to Hindmarsh on 7 October 1882, and to Henley Beach and Grange in 1883. The Hindmarsh company was in some respects an innovative company, testing a Julien battery car in 1889. This car was also tested in Melbourne and Ballarat before its promoters were killed in a level crossing accident at Dry Creek in 1890.

The Adelaide and Parkside Tramway Company opened services to Parkside in 1882 and Glen Osmond in 1884; the Adelaide and Goodwood Tramway Company began running from November 1882, while the Adelaide Prospect, Nailsworth and Enfield Tramway Company began in September 1883, connecting with Adelaide and Suburban cars at North Adelaide. The Adelaide and Suburban company bought out the Nailsworth company in 1895.

The Hyde Park Tramway Company had a short 2 1/2 mile (4 km) line commencing in 1883, while the Adelaide Payneham and Paradise Tramway Company began running to Payneham in 1883 and Paradise in 1884. As with some of the other companies, it was soon in difficulties and its management resigned in August 1884. For a week, the staff continued to run the cars with nobody in charge at all.

The Glenelg, Brighton and Marino Company built a line from Glenelg to Brighton, running from 1883 to 1914, but was eventually liquidated. A broad gauge line was constructed between Albert Park and Port Adelaide by the Port Adelaide, Queenstown, Alberton and Portland Estate Tramway Company, opening on 22 May 1879. Initially a Merryweather steam motor was used, but it soon reverted to horse traction, continuing to operate as a horse tramway until 1917.

During the period of "tramway mania" in 1880-1883, at least three other companies were formed. The Glenelg, New Glenelg and Somerton Tramway Company operated for a short time in September 1883, but neither the Keswick, Ashtord, Richmond and South Road Tramway Company nor the Adelaide, North Adelaide and Ovingham Tramway Company succeeded in building lines, their principal objective appearing to be to encourage land speculation. (ref 13)

By 1885, economic conditions in Adelaide had begun to deteriorate and later, people started leaving for the WA goldfields. The introduction of bicycles in 1893 seriously reduced the profitability of the smaller companies, though the Adelaide and Suburban company generally managed an 8% dividend.

There was little further investment in the horse tramway system in the 1890s, and it had by then reached its furthest extent (Figure 3). The tram fleet was almost entirely of American Stephenson design apart from four Belgian cars imported by the Parkside company. Two were open cars (called "skeletons") and two were small saloon cars. Most cars were pulled by two horses, though a third might be added on hills, and horses usually ran in four hour shifts. As well as being influenced by changes in the state's economic fortunes, the companies were also affected by epidemics of equine influenza and other diseases and by droughts which forced up feed prices and increased operating costs. On odd occasions, feedstuffs were imported from India.

By the turn of the century, the horse-tramway was becoming run down, and a number of efforts were made to secure private capital to develop an electric tramway system — a matter of some political embarrassment by 1905 as the other capitals had by then established electric tramways

Finally in 1906, the South Australian Government purchased the horsecar companies for £280,000, thereby acquiring 162 horse cars, 6 cassettes, 5 wagonettes, 11 omnibuses, 1056 horses and 16 depots, and transferred these assets to the newly-created Municipal Tramway Trust (refs 14, 15, 16)

Two South Australian country towns were also served by broad gauge horse tramways, Gawler and Moonta. The Gawler service ran between 1879 and 1931 over a 1 1/4 mile (2 km) line between Gawler Station and the Gawler Town Centre, the service being instituted and run by the SAR. At Moonta, a horsedrawn service was instituted by the SAR between Moonta Bay, Moonta, Hamley Flat and Moonta mines using tracks remaining following the conversion of the remainder of the Kadina-Wallaroo-Moonta railway to a 3'6" steam operation in 1891. The total length of the Moonta horsetramways was five miles (8 km). This service also terminated in 1931.

The tourist horse tramway at Victor Harbor continued until 1954. (ref 17) New cars are currently being constructed and it is anticipated that it will be reinstated in 1986, operated by the Victor Harbor Corporation.

The Mallee Railways and other developmental lines

A period of economic stagnation occurred in South Australia from 1893, culminating in the drought of 1902. However, there had been a number of technical developments in agriculture in the late nineteenth century including the development of the stump-jump plough by R.B. and C.H. Smith at Arthurton in 1876 and the recognition of the usefulness of superphosphate in grain production by Professor Custance at Roseworthy College in the 1880s. These encouraged the settlement of mallee country in the Murraylands and Eyre Peninsula. The years following 1904 were of steady agricultural development and economic success.

Initial development involved the construction of a railway to Pinnaroo through what was later recognised to be among the best of the mallee country, the line opening in 1906.



A W class loco with a small goods train on the narrow gauge bridge at Woolshed Flat, late 19th C

It was originally intended that the finances for operating the line would be underwritten by local settlers for whom the line was built. The land revenue on the railway more than paid for its construction because the line was credited with the interest from the sales of land settled following its construction. The underwriting requirement for the Pinnaroo line was soon lifted and was not instituted for other lines.

Additional developmental lines were therefore opened in the period 1910-1920 predicated on the success of the Pinnaroo line, but generally through far less productive country.

After construction of lines from Port Lincoln to Yeelana and Gawler to Angaston, a series of very cheaply constructed railways were built, in some cases using 40lb/yard (18.1 kg/m) rails laid without a foundation roadbed in country liable to sand-drift. The lines authorised included (ref 14)

Year of Authorisation	Line
1908	Gawler — Angaston Booloroo Centre — Wilmington
1910	Eudunda — Robertstown
1912	Cummins — Kimba* Yeelana — Mount Hope* Yeelana — Thevenard* Tailem Bend — Paringa Alawoona — Loxton Karoonda — Waikerie Karoonda — Peebinga
1914	Salisbury — Long Plains Riverton — Spalding
1915	Palmer — Sedan Balhannah — Mt Pleasant Nuriootpa — Truro Paringa — Renmark*
1917	Wandana — Penong*
1919	Wanbi — Yinkanie

* Narrow gauge lines

The construction of these lines brought the total mileage of lines operated by the South Australian Railways (excluding those transferred to the Commonwealth) to 2400 miles (3862.3 km) (Figure 4).

The development of railways throughout this period was a highly politicised and sensitive process, and railway administrators of the day were well able to appreciate the inefficiencies and high operating costs which these cheaply constructed railways were to have. Nevertheless, the state budget appeared sound, even though the drought of 1914 and the impact of World War One were soon to make themselves felt.

A further constraint on the continued operation of the railway system following the construction of the new developmental lines was the load capacity of the original routes to which they were connected and the motive power available. The capacity of the main South line through the Adelaide Hills had been stretched by the creation of the Mallee lines. The main workhorses were the "Rx" type locomotives, the first of which had been built in 1886.

Though their tractive effort had been increased from 16,800 Ibs (7.6 t) to 21,420 Ibs (9.7 t) when rebuilt with Belpair firebox boilers, and they had proved to be a simple, successful and reliable design, they still had to be attached to trains two or three at a time to negotiate the Adelaide Hills. These locomotives continued to be constructed until 1916, by which time there was a urgent need for more modern technology. At the same time, much of Islington workshops had become obsolescent due to changed economic circumstances and the intervention of war. Power in the workshops was transmitted by driveshafts and belting from two centrally located engines. Electricity was conspicuously absent.

It was clear that the time had come for technological change.

The Electric Tramways

The Adelaide electric tramway system can be said to be that of Sir William George Toop Goodman. Soon after the Municipal Tramways Trust (MTT) was established, it appointed the young English engineer, then in New Zealand, as its Chief Engineer. From August 1908, he was also appointed to the position of General Manager, a position he held until his retirement in 1950.

The conversion of the horse tramways to electric operation was carried out in two parts. The so-called "inner circle" routes to Kensington, North Adelaide, Maylands, Hyde Park, Walkerville, Parkside and Unley were opened between 9 March 1909 and 1 November 1909. From December 1909, electric cars operated on the outer end of the Henley Beach service beyond Thebarton, passengers being obliged to complete their journey to the city by horse car. The full service, along with an additional line to Hindmarsh operated from 9 March, 1910.

The remaining routes, known as the "outer circle routes" were completed between 1911 and 1912, involving the Walkerville, Hyde Park and Henley Beach extensions and additional services to Hill St, Prospect, Nailsworth, The Avenues (St Peters), Paradise, Magill, Kensington Gardens, Burnside, Glen Osmond and West City. Additional services to Goodwood, Fullarton and Hilton followed over the next three years



Double deck Railways Garford busses, MTT single deck Mack busses and unlicensed private busses in King William St in the mid 1920s

To operate its services, which were all run on completely relaid standard gauge tracks at 600V D.C., the MTT built its own power generating station at Port Adelaide, together with the necessary Converter Stations (including one to supply power to Islington Workshops from 1924).

Seventy four-wheeled "California" type combination cars were built in 1909 along with thirty open toastrack cars to begin the services. During 1910-11, a further 70 maximum traction bogie cars were built, twenty being of an open combination type, the remainder being closed combination cars. Plans running to 94 pages for the construction of a Parlour car for the General Manager were not proceeded with.

After considerable difficulty with the Port Adelaide Corporation over the costs of road reconstruction, and with the SAR over the crossing of the railway at Exeter, the isolated Port Adelaide tramway system serving Albert Park, Rosewater, Semaphore and Largs opened in 1917.

By 1918, the MTT was carrying very heavy loadings of passengers. Twenty additional four-wheel combination cars similar to those produced in 1909 were built as a stop-gap measure. In December 1921, the first of an order of eighty four "drop-centre" cars was delivered.

During this period, route extensions were made to Kingswood, Henley North, Clarence Park, Croydon, Findon, Walkerville North, Linden Park and Col. Light Gardens. Many outer tracks which had originally retained some single track were duplicated.

The major transport problem of the 1920s was the impact of unlicensed private buses on MTT operations. Over 80 buses were operating, so the MTT countered by purchasing 40 Mack buses, and the SAR entered the fray with 28 Garfords. Subsequently all of these buses became the property of the MTT when the government bought out the private busmen in 1928.

The last major technical development of the electric tramway system was the conversion of the South Terrace — Glenelg railway to electric traction in 1929, the North Terrace line being closed at the same time. Thirty large multiple unit cars were built, most of them still being in use today. Cars were for a time run in triple sets but since 1936 have been limited to coupled sets.

Funds were restricted in the immediate post-depression years, the only tramway extension being to Kilkenny. In 1935 the Port Adelaide tramway system was closed and a trolleybus system was instituted through to the city and the eastern suburb of Tusmore during 1937-8. Some of the old Port Adelaide rails were recycled to produce extensions to Springfield and Richmond, and also to Erindale and Cheltenham in the early years of the Second World War, completing the maximum extent of the electric tramway system (Figure 5).

By 1945, the MTT was carrying a record loading of 95m passengers annually. However, much maintenance had to be deferred in this period, and securing new vehicles in the immediate post war period became difficult. Within five years of the end of the war, passenger loadings had fallen by 20 per cent as private cars and petrol again become freely available. Wage increases resulted in major deficits appearing after 1950, with the State Government taking over the MTT from the control of municipal councils.

Forty new trams had been ordered, but only one was delivered, the remainder of the order being cancelled.

Three tram routes were converted to trolleybus operation in 1952, the remainder of the tram routes apart from that to Glenelg being progressively converted to underfloor engined diesel motorbus operation between 1953 and 1958. The last street tramway, to Cheltenham, closed on 22 November 1958 just short of fifty years after the electric tramway system opened (ref 12)

The Glenelg tramway continues to operate, and considerable upgrading of its track and infrastructure has been carried out over the past few years, to culminate in a move to a new depot at Glengowrie in late 1986. Meanwhile the Australian Electric Transport Museum commenced operating its 2 km St Kilda tramway in 1974 to demonstrate its representative collection of Adelaide electric trams.

References

1. Fenner C, et al. (1936) — The Centenary of South Australia (R.G.S.A, Adelaide)
2. Harcus, W (1876). — South Australia — its history, resources and productions Sampson Low, Marston, Searle and Revington : London)
3. Waste Lands Amendment Act 1869(No. 14 of 1868-9)
4. Jennings, R.I. (1973) — W.A. Webb, South Australian Railways Commissioner 1922-30 (Nesfield : Adelaide)
5. McCarthy, K. (1980) — The Horse Tramways of the Moonta district Trolley Wire 21(5) : 3-17
6. Meinig, D.W. (1962). — On the Margins of the Good Earth — The South Australian Wheat Frontier, 1869-1884 (Rand McNally : Chicago)
7. Buxton, G.L. (1966). — South Australian Land Acts 1869-1885 (Libraries Board of S.A. : Adelaide)
8. Heritage Unit, Dept. for the Environment (1980) Murray Bridge mimeo 4pp (Govt Printer : Adelaide)
9. Burgess, H.T. (1907). — Cyclopedia of South Australia (Cyclopedia Co : Adelaide)
10. Marshall, B. and Wilson, J. (1972) Locomotives of the S.A.R. (ARHS : Adelaide)
11. Wheaton, R.T. (1971) Rails to the Bay (AETA. : Sydney)
12. Radcliffe, J.C. and Steele C.J.M. (1974) Adelaide Road Passenger Transport 1836-1958 (Libraries Board of S.A. : Adelaide)
13. The Register, April 22 1875.
14. Kannis, P.N. (1965). — Tramways of Adelaide 1876-1907 Arts Thesis — University of Adelaide
15. Kingsborough, L.S. (1967) The horse tramways of Adelaide and its suburbs 1875-1907 (Libraries Board of S.A. : Adelaide)
16. Radcliffe, J.C. (1978). — The Horse tramways of Adelaide Trolley Wire 19(3): 3-10
17. McCarthy, K. (1982). — When 'horse power' meant 'the horse' (Part 2) Trolley Wire 23(6) : 3-24
18. Andrews, C.A., Fenner, L.M., Hoffmann, J.W. and White, R. (1982). — The Tramway Museum, St. Kilda S.A. (AETM : Adelaide)

Photographs included in original article

1. Adelaide's first railway station on North Terrace
2. K class locomotive 58 standing with a small goods train at Mt Lofty Station in 1883
3. Broad gauge passenger stock at Adelaide Station 1913
4. Platforms of Adelaide Station at the turn of the century
5. Narrow gauge passenger car interior - Car 490
6. W class loco with small goods train on narrow gauge bridge at Woolshed Flat late 19th C
7. Grain being loaded onto a sailing ship at flour mill Port Adelaide, 29 April 1919
8. Vast stacks of bagged grain at Jamestown 8 March 1910
9. K class loco 65 with wheat wagons at Port Adelaide in 1920s
10. Horsetrams at Henley Beach at turn of century
11. Passengers crowding onto horsetram in Wakefield St Adelaide
12. MTT horsetram passing Commercial Rd station Pt Adelaide 1917
13. Local farmers keeping sand off the lightly constructed Mallee railways
14. Derailment of W class loco 42 on the narrow gauge Mallee lines
15. Islington Workshops in the 1920s
16. Hores drawn traverser at Islington 1920s
17. Considerable disruption in King William St whilst new electric tracks are laid
18. MTT power station at Port Adelaide
19. Open "toastrack" electric tramns in King William St near North Terrace in 1909
20. Tramway poles and car in Victoria Square
21. Railways and MTT buses, private buses and trams compete in King William Street in 1920s
22. H type cars in 1929
23. MTT trams in King William Street in 1936

Maps included in original article

1. Railways built or authorised to 1875
2. Northern agricultural areas showing access to ports and railways
3. Adelaide's horsetram network
4. Adelaide's Electric Tram Network as in 1952