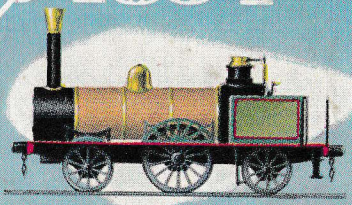
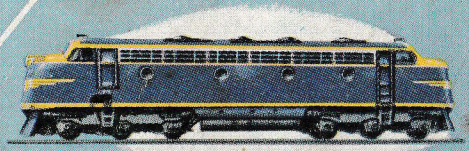
VICTORIAN RAILWAYS

# CENTENARY

1854



1954



## 100 YEARS OF SERVICE

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# 100 YEARS OF SERVICE

*Condensed from a history of the Victorian Railways, compiled by L. J. Harrigan.*

*When this edition was being printed, arrangements were being made to publish the history in full, early in 1959.*

CONTENTS



# EARLY PRIVATE RAILWAYS (1846–1878)

### The First 2½ Miles

VICTORIA'S first railway was a private one. The Melbourne and Hobson's Bay Railway Company was formed in August 1852, with a capital of £100,000 (subsequently increased to £500,000) to build and operate a line, 2½ miles long, from Flinders-st. to The Beach at Sandridge (now Port Melbourne). An Act of Incorporation, authorizing the railway, was passed by the Legislative Council and assented to on January 20, 1853.

Construction began immediately, and engines, rolling stock, iron rails and machinery were ordered from England. Local contracts were let for the permanent way embankment, a wooden bridge over the Yarra, and a pier at Sandridge. But, when the railway was ready, the engines had not arrived and were not expected for several months. To avoid postponement of service, a locally built passenger engine was ordered. It was completed in 10 weeks at a cost of £2,500.

This was the first mechanically-powered railway in Australia, antedating South Australia's Goolwa-Port Elliott railway although the latter had been in service as a horse-drawn tramway.

### Gala Opening

The official opening of the line on September 12, 1854, was a gala occasion for Melbourne. Thousands assembled at Flinders-st. station and along the track to watch the first train. Public traffic commenced the following day.

The first year's operations returned a dividend of 8 per cent. to the shareholders, who decided to build a branch line to St. Kilda. This was opened on May 13, 1857.

### More Lines

Subsequently the St. Kilda and Brighton Railway Company opened an extension of the St. Kilda branch to Brighton, and the Melbourne and Suburban Railway Company built lines to Hawthorn and Windsor from Princes Bridge station. These were all amalgamated into the Melbourne and Hobson's Bay United Railway Company, in 1865. The total mileage was then 16½.

### Consolidating

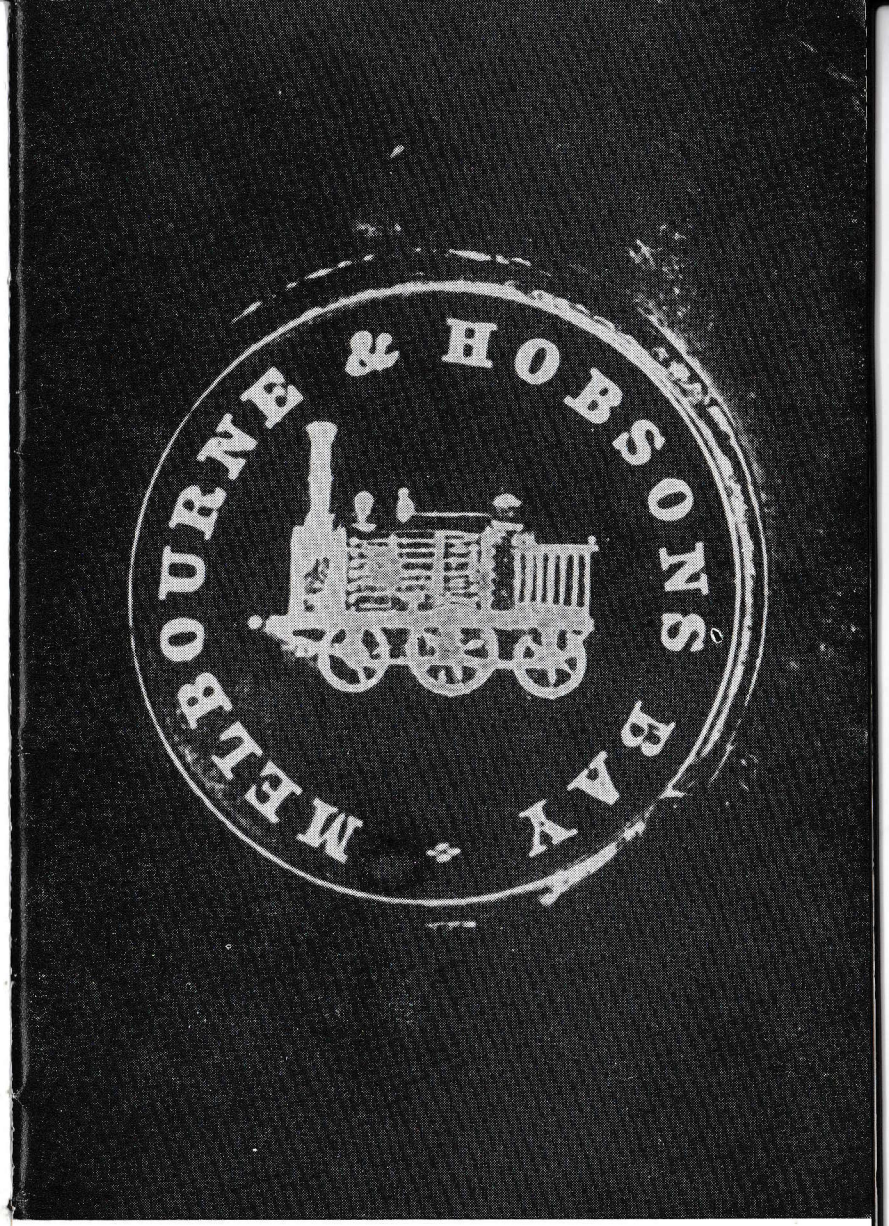
The linking of the lines at Melbourne was one of the first tasks of the new company. This was finished on December 16, 1865. The junction was effected (but, after three days, discontinued) through two culverts excavated across Swanston-st. from Flinders-st. station to Princes Bridge station. Extensive alterations were made to enable permanent working of trains through the junction, nearly a year later. An estimated annual reduction of £4,500 on working expenses resulted from the amalgamation of the railways.

To encourage passengers, the United Company, in October 1865, issued free "building tickets" to people who erected new dwellings in the Elsternwick and Brighton districts. These free first class tickets were issued, based on valuation of the house, for periods of 18 months for a house costing £300, to a maximum of seven years on £1,000 or more.

### Crossing Trouble Begins

Running a railway was not without incident in the early days. Because of continual delays to road traffic at Union-st. crossing, near Windsor station, caused by ballast trains, the Prahran Municipal Council took direct action to remove the cause of the trouble. In the very early hours, one morning in March 1869, the councillors, town clerk and borough solicitor, accompanied by the police, assembled at the crossing, and a gang of workman began to tear up the rails by order of the civic authorities. Officials of the railway appeared, and a






*The seal of the Melbourne and Hobson's Bay Railway Company*

general melee was just prevented by the police. The matter was tried at law, and resulted in a judgement permitting the company to retain the crossing.

### Equipment Improves

Steel tyres for carriage wheels and steel rails for the permanent way were adopted in 1868. A bogie engine, the first of this type brought to the colony, went into service in July 1871. Five more bogie locomotives were imported in the following years, and some of the older ones were removed from service. Twenty new cars, of local and imported manufacture, were placed on the lines during 1873, together with a large number of goods wagons.

By 1870, the United Company's trains made 240 trips daily which necessitated improved safeworking devices. In 1873, patent signal interlocking gear for the prevention of accidents was first installed at Richmond station. Interlocking gates were fitted at Swan-st. level crossing to protect pedestrians. Electric bell circuits between signal boxes came into use early in 1878.

### Railways Become State-owned

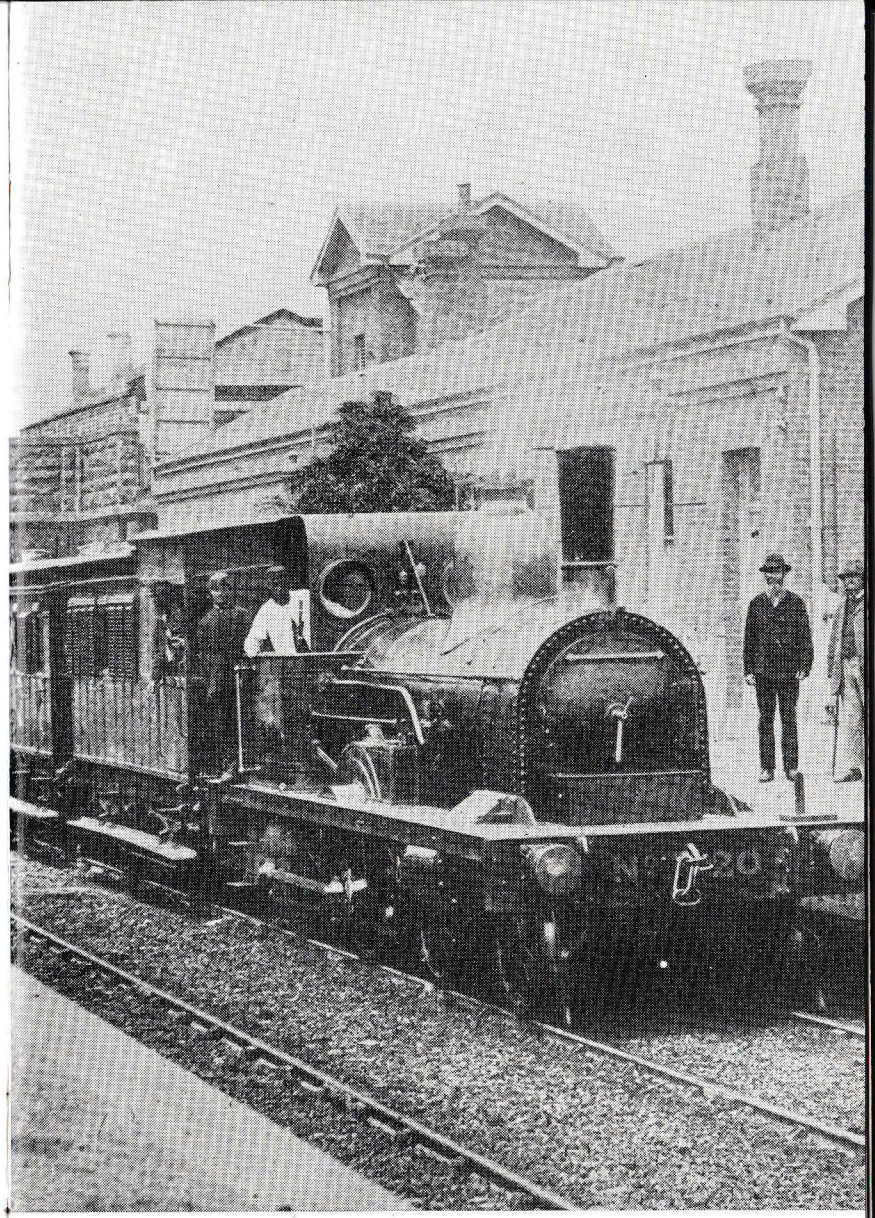
Announcements of the Government's intention to build a railway from Melbourne to Sale prompted the United Company, in 1872, to consider selling its system to the State, but six years of protracted bartering elapsed before the deal was completed. Eventually, the State agreed to purchase the Company's shares for £1,320,820. The sale was effective as from July 1, 1878, and the system and its personnel came under the control of the Victorian Railways Department, although it was managed separately until 1881.

### Parallel Projects

Meanwhile, other railway schemes had reached varying stages of fruition. To certain people of Geelong must go the credit of the first project of all. In 1846, they planned to build a wooden railway worked by horses, from Geelong to the Western District, but the proposal lapsed. Four years later, a company was formed to build a steam railway from Geelong to Melbourne, but, owing to lack of financial support, the company collapsed within two months.

Following the discovery of gold, a syndicate called The Geelong and Melbourne, Mount Alexander and Murray River Railway Company announced, in June 1852, its intention to build lines to these places, but modified its plans to deal with





*South Yarra station in* 1874

Geelong and Melbourne. A separate organization known as The Melbourne, Mount Alexander and Murray River Company was formed to build the other proposed lines. The Geelong Company was incorporated by the Legislative Council in February 1853.

On September 23, 1853, the Lieutenant-Governor (C. J. La Trobe) cut the first turf of the railway and laid the foundation stone at Geelong station. By October 1856, two years after the Hobson's Bay line to Sandridge was opened for traffic, the permanent way of the Geelong line extended 10 miles from Geelong to beyond Duck Ponds (now Lara) and a trial passenger train trip was made, followed by a twice daily mixed train service. In 1857, the service was extended to Little River, and the line was completed in June to Greenwich, now part of Newport.

### Linking Up

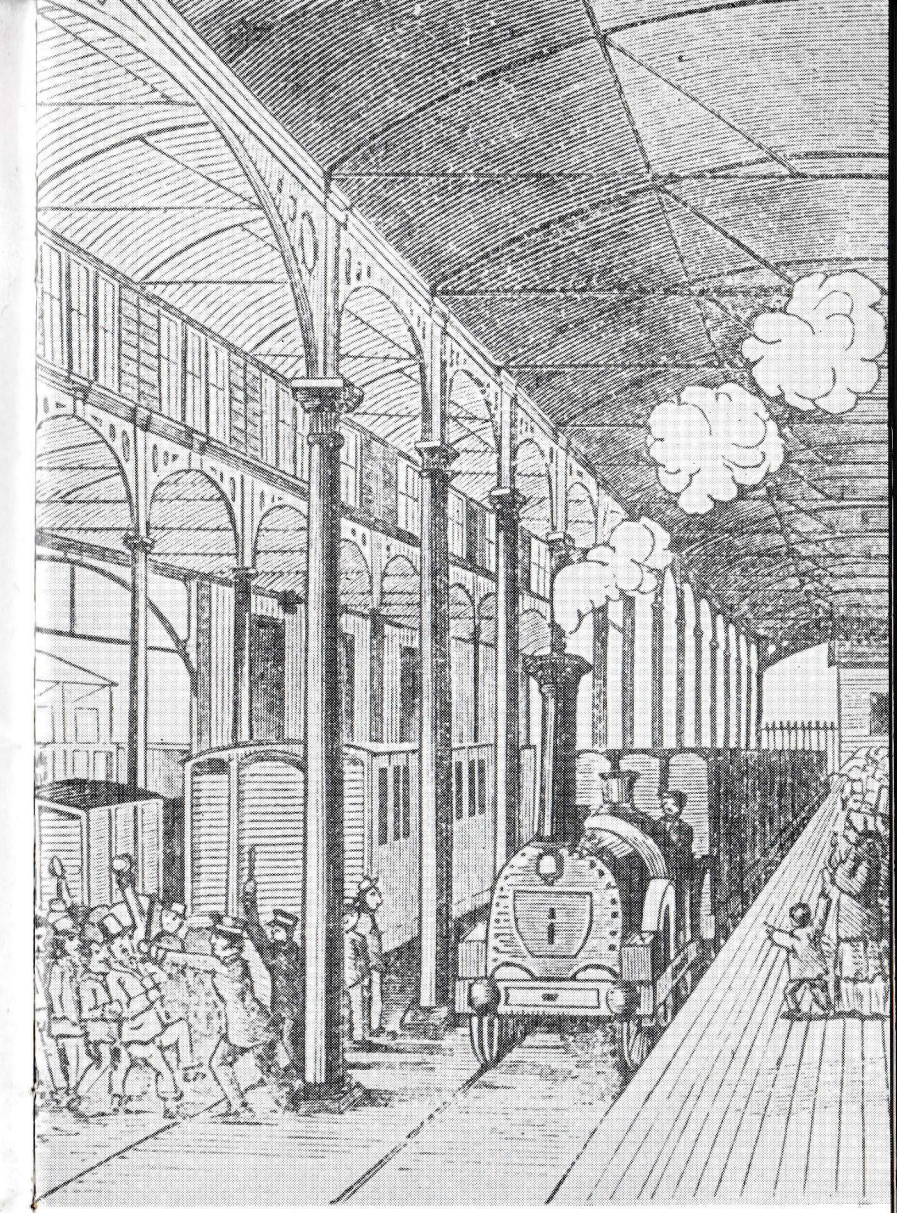
The Geelong and the Mount Alexander companies had, in 1854, agreed that their two lines should connect near Greenwich on the latter's Williamstown branch. The Geelong Company was to pay running fees over the line from there to Melbourne. As the Williamstown railway was not yet completed, the Geelong Company built an extension, half-a-mile long, to a temporary terminus near its jetty on the Yarra. The line was opened in 1857.

### Another Festive Opening

Unfavourable weather did not diminish enthusiasm for celebrating the inauguration of this, Australia's first country railway. At Geelong, a great procession, headed by the Governor (Sir Henry Barkly), paraded the streets. It included railway construction workers carrying picks, shovels and crowbars. Behind them came several aborigines, each wearing a brightly striped blanket and cap, a gift in honour of the occasion, and each carrying his dinner, also a gift.

On June 25, 1857, a special train carrying the Governor and several hundred guests left Geelong at 10 a.m. and reached Greenwich at 12.10 p.m. Here, 500 additional guests, who had been conveyed from Melbourne by steamer, waited to join the train for the return journey, but there was no room for them, and an extra train had to be provided. An official luncheon was held at Geelong and a ball the same night concluded the ceremonies.





*Opening of the Geelong and Melbourne railway, June* 25, 1857

Three months later, the Geelong railway was connected to the first completed portion of the Victorian Government Railways; from Williamstown to Greenwich. Passengers were taken on to Melbourne by steamer, at first direct and later via Sandridge and the Hobson's Bay train.

### The First Sunday Trains

After the Government line between Melbourne and Williamstown had been completed, the Geelong Company built another connecting link to permit its trains to run direct to Melbourne as from January 1859. Sunday trains were introduced in February in response to a request from the Government, but, after six months, they were discontinued.

After that, the Geelong Company fell gradually into financial difficulties, and, in 1860, the Government took over the line for £800,000, vesting it in the Board of Land and Works. Most of the company's staff were absorbed by the Victorian Railways Department, plus nine locomotives, 20 passenger carriages and about 50 wagons which added to the Department's stock, but, because of their dilapidated state, they were of very little use.

### Melbourne–Essendon Railway

The Melbourne and Essendon Railway Company, formed in 1858 with a capital of £75,000, was another venture. It began at a point known as Essendon Junction (now North Melbourne Junction) on the government line to Sandhurst (now Bendigo). Its directors had grandiose plans for continuing it to the Murray to connect with Sydney.

In October 1860, the single track line to Essendon was inaugurated with 11 trains daily each way and a Sunday service of seven return trips. The original names and sequence of the stations on this line have remained to this day.

### Line Without Rolling Stock

As the Essendon Company had no engines or rolling stock, they hired what was necessary from the Victorian Railways Department, and secured running rights over the government railway from Spencer-st. to Essendon Junction. Later they built a branch line from Newmarket to Flemington Racecourse. But the Essendon line also failed to pay and, on July 1, 1864, it was closed for traffic. It remained idle for three years. After some haggling over the price, the Government, in 1867, bought it for £22,500.




*A hotel advertisement of* 1857 *featuring the Geelong and Melbourne railway*

# THE VICTORIAN GOVERNMENT RAILWAYS (1856—1864)

### Beginnings

The history of the Victorian Government Railways, as such, really began in March 1856, when the Legislative Council authorized the purchase of the Melbourne, Mount Alexander and Murray River Company. The Government was also given power to purchase railways at any time thereafter. The Commissioner of Public Works and the Surveyor-General were appointed trustees of the Railways. In 1857, an Act was passed to establish a Board of Land and Works to construct, inspect and exercise supervision over the railways. Railway Commissioners, as such, were not appointed until January 1, 1884. They were to control the construction, maintenance and management of State railways. Later, in 1892, the Board of Land and Works was restored as the railway constructing authority.

### The First Job

Immediately after the formation of the Railways Department in 1856, the trustees took in hand the completion of the Melbourne to Williamstown line and the ordering of rolling stock, bridges, rails and other materials from England. By November 1856, commitments for the line totalled more than £300,000.

Progress of work, both at home and abroad, was slow. Trouble and delay arose from the failure of contractors to complete their obligations, and there were other difficulties. By June 1858, most of the plant ordered had been landed. Construction was accelerated and, on September 16, 1858, the Department's first passenger engine, No. 1, made a trial trip from Williamstown to Saltwater River.

The line was officially opened on January 13, 1859, and public traffic on the first Victorian Government railway commenced four days later.



*Spencer-st. station in 1872*

### Main Trunk Lines

In March 1855, a Commission submitted to the Legislative Council a series of principles for a system by which the Government might build railways to the country areas. The Council at once elected a railway committee and, on its report, the Surveyor-General was authorized to make surveys for 200 route miles of railway. Sixteen parties examined the central part of the Colony and, by the end of 1855, had surveyed 600 route miles, covering possible lines from Melbourne to Sandhurst and Echuca, Geelong to Ballarat, Melbourne to Ballarat, Ballarat to Maryborough and Castlemaine. A line from Melbourne to beyond Seymour was also marked out.

Another railway committee was elected to examine the surveys. In March 1856, the committee finally recommended that the Government raise funds for the simultaneous construction of lines from Melbourne to Echuca and Geelong to Ballarat.

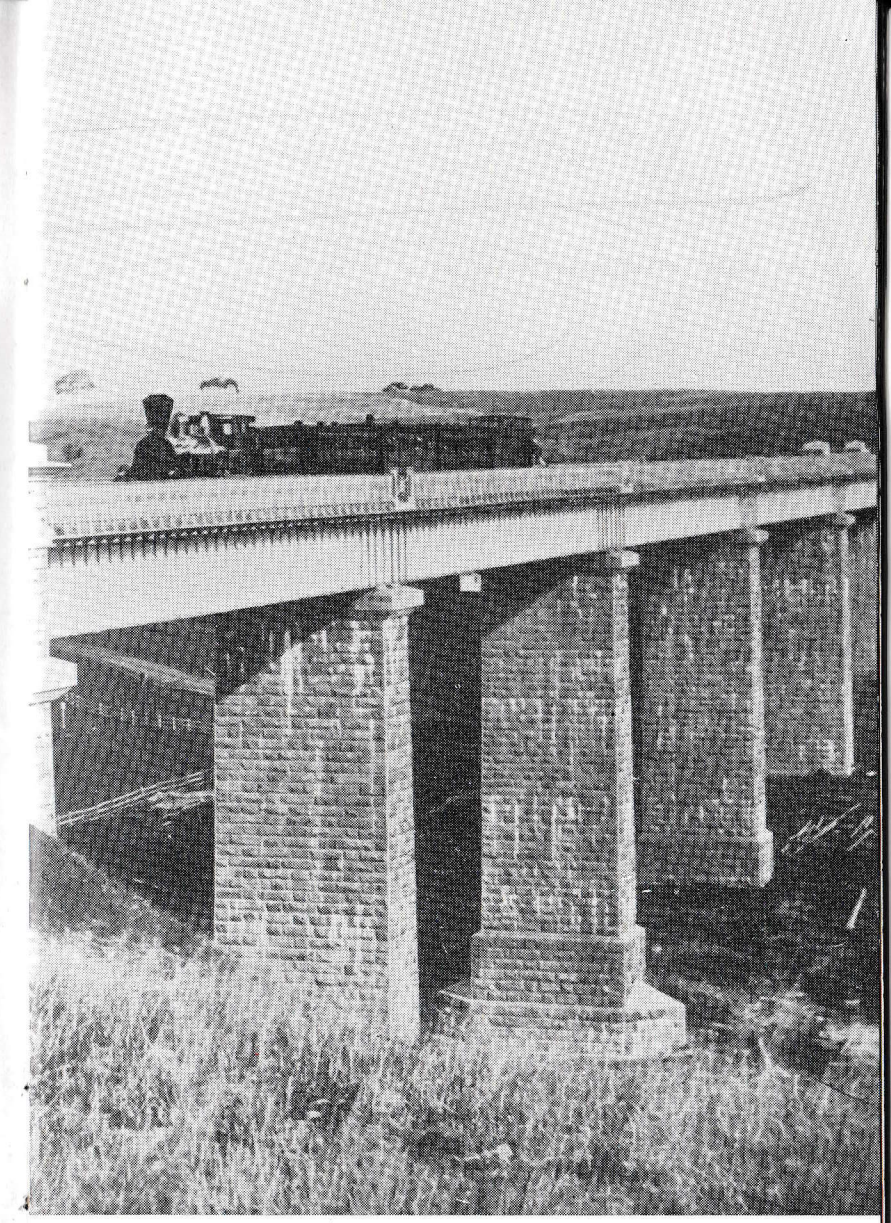
A fourth railway committee confirmed all these recommendations and suggested that the proposed lines be of substantial construction, with double tracks, and capable of working a large traffic volume at an average speed of not less than 20 miles an hour.

### Government Gets Down To It

The final report was submitted to Parliament in September 1857. Without delay, the whole scheme, including a loan of £8 million, was approved and a series of Railway Acts was passed. On December 8, 1857, the Board of Land and Works invited tenders for building lines from Melbourne to Echuca and Geelong to Ballarat, either as a whole or in sections, and soon after contracts were let for Geelong to Ballarat and Melbourne to Sandhurst (now Bendigo).

Work began near Footscray in June 1858. Contrary to what had become custom and despite the fact that it was the greatest public work in Australia up to that time, the contractors began with complete absence of ceremony.





*The Taradale Viaduct, on the Bendigo line, in 1864*

### Ceremony Returns

But the Ballarat line was begun, two months later, with a most elaborate celebration at Geelong. This included the ritual of the Governor (Sir Henry Barkly) cutting the first turf, a monster procession featuring a parade of aborigines, and the usual feasting.

Concentrating on the section from Footscray to Sunbury (about 21 miles) the contractors finished a single track in six months. With the Williamstown railway then ready for use, the Government decided to open both that line and the Sunbury section simultaneously early in 1859. By arrangement, road coaches running to and from Sandhurst connected with trains at Diggers Rest, thereby saving passengers an hour and a half on the through journey.

### Towards Bendigo

Meanwhile, materials from Britain were arriving at Williamstown in large quantities : rails and chairs, fabricated iron and steel for bridges and viaducts, and all the other items necessary for 150 miles of double track to Bendigo.

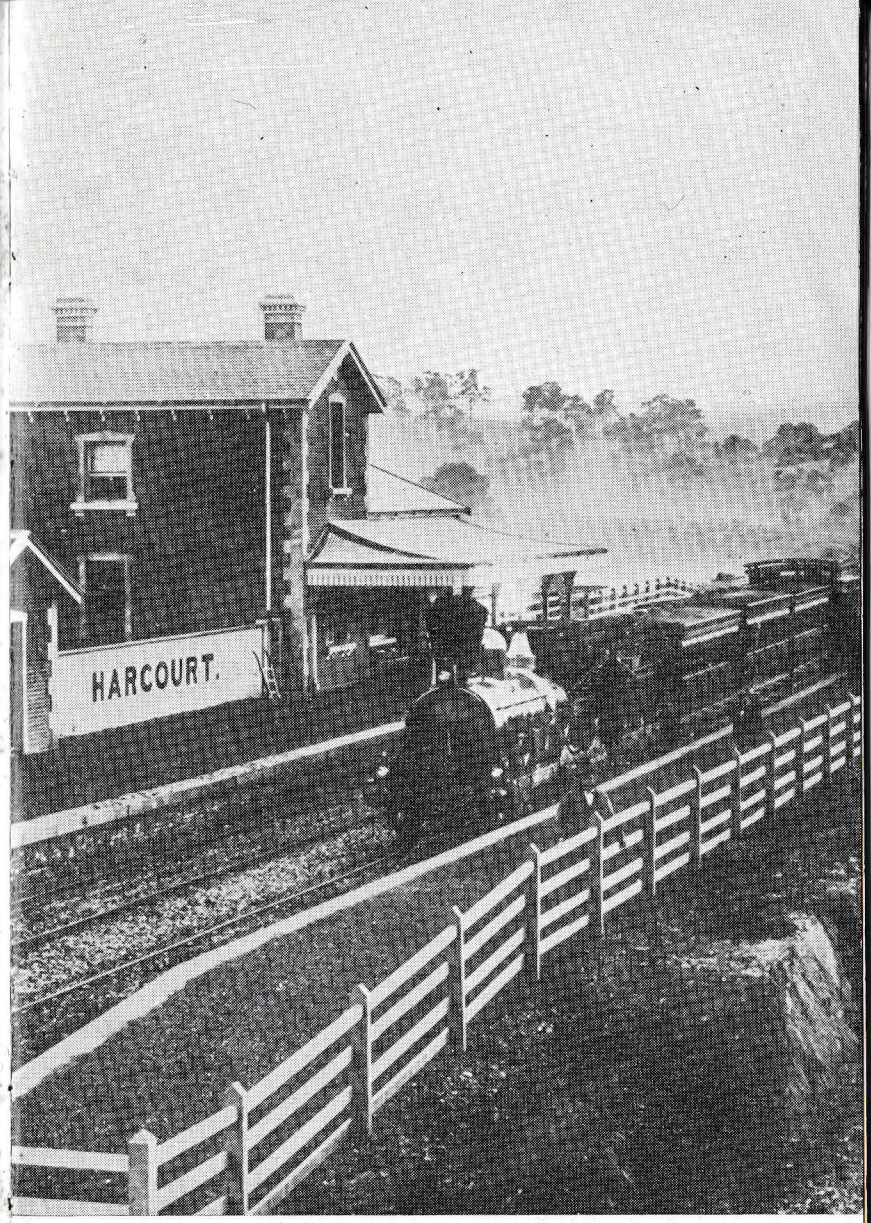
The contractors had up to 2,000 men (and 600 horses) employed along the route to Bendigo. Foundations for the big viaducts at Jackson's Creek (near Sunbury), over the Coliban River at Malmsbury, and at Taradale, were prepared simultaneously. At the same time excavations for the tunnels at Elphinstone and Big Hill (Ravenswood) and for cuttings and embankments, were carried out. The contractors erected a large workshop and depot at Castlemaine. It was said to be one of the largest and best equipped in the Colony at that time.

### Two More Ceremonial Openings

The section from Sunbury to Woodend (25 miles) was opened on July 8, 1861. The protracted period of 2½ years for completing this comparatively short length was due to delay in building the Jackson's Creek viaduct.

Finally, the last section from Kyneton to Bendigo was ready. To satisfy local rivalries, two ceremonial opening functions were arranged. On October 15, 1862, the line to Castlemaine






*Harcourt station in* 1865

was opened by the Governor. Local residents, determined to outdo their rivals at Bendigo, staged an elaborate display, with decorations, procession, feasting and dancing. Five days later, the Governor went through a similar ordeal at Bendigo to declare the Melbourne to Bendigo railway open for business. Public traffic commenced next day.

### Geelong–Ballarat Line Opened

By the end of 1861, the possibility of the early opening of the Geelong to Ballarat line was forecast. Eventually, at midnight on March 29, 1862, after various delays and difficulties, the contractor's men, working by torchlight, laid the last rail on the Moorabool viaduct. This was the final link, and, the next day, the first engine steamed over the viaduct. A fortnight later, the line was formally opened at Ballarat by the Governor. After the ceremony, the guests were entertained at a banquet in the Mechanics' Institute. The next day, public traffic began with four trains each way between Melbourne, Geelong and Ballarat. Goods traffic began in August 1862.

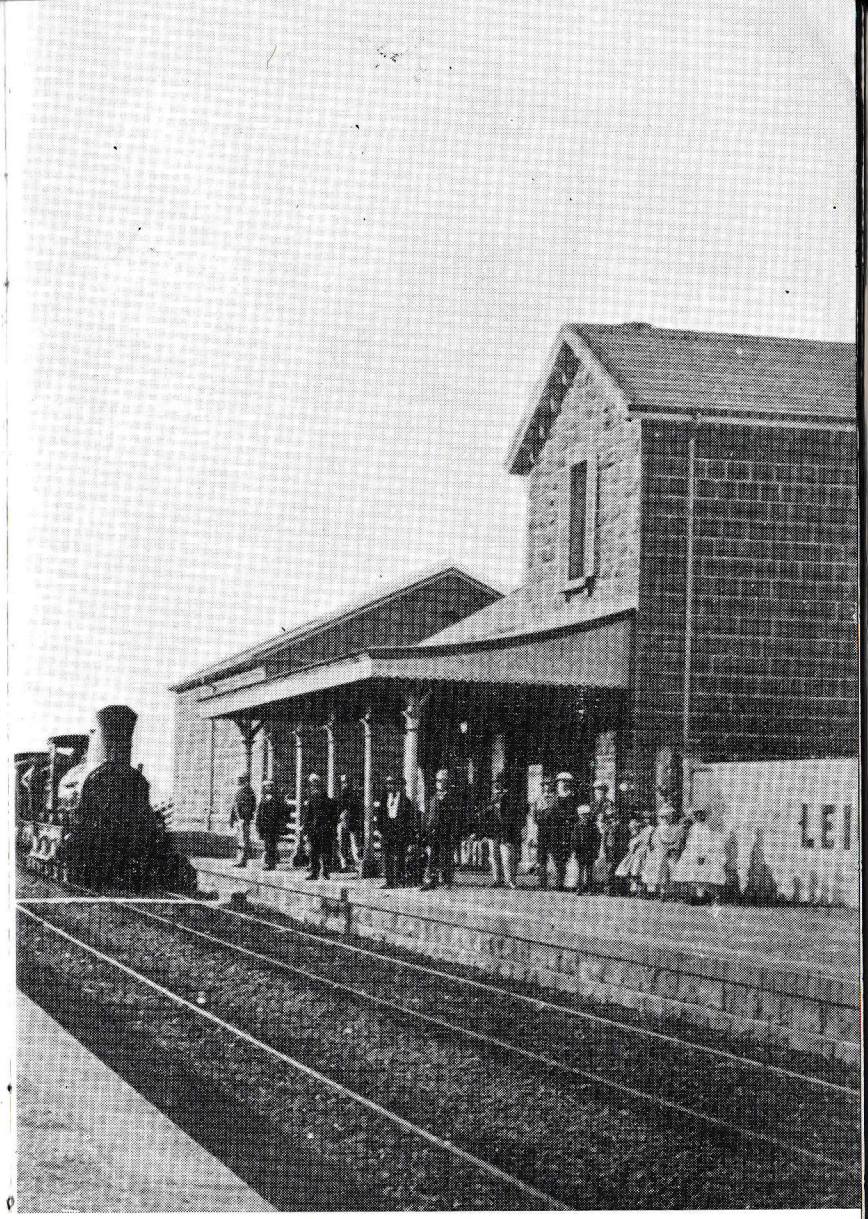
### First Stage Ends

So was fulfilled the promise of Victoria's main trunk railways, originally proposed eight years earlier. Much work yet remained to be done, but trains were running over 200 route miles of track.

Immediately after the opening of the Bendigo line, contracts were let for building the extension to Echuca. This line was opened for goods traffic in September 1864, and for passenger business in October.

This ended what may be considered as the first stage of Government railway construction in Victoria. Seven years were to pass before any more was done.






*Leigh Road station (now Bannockburn) on the Geelong to Ballarat line*

# TOWARDS THE FOUR CORNERS (1865—1911)

### Pushing Out Farther

After the main trunk railways from Melbourne to Bendigo and Echuca and from Geelong to Ballarat were built, surveys were made for extensions to the north-east, north-west, south-east and south-west.

By 1865, effective route mileage totalled 254, of which 164 miles were double track. Nearly £9 million had been spent on construction. The net return from revenue over working expenses since the opening of Government railways in 1859, was £1,050,000, but interest took £2½ million.

Criticism of the Railway Department for failure to produce profits was voiced by both parliamentarians and the public. Proposed extensions to the lines were viewed with trepidation, and an agitation arose for " cheap " railways. After lengthy inquiries and protracted debates, all affected by the political turmoil of the times, construction of the north-eastern railway and extension to the north-west were approved by Parliament.

### Melbourne and Sydney Linked

The first section of the north-eastern line, Essendon to Schoolhouse lane, near Seymour, was opened for traffic in April 1872. The line was completed and opened to Wodonga in November 1873, but nearly 10 years elapsed before connexion was made with Albury. The Victorian and New South Wales systems met there on June 14, 1883. This was the first inter-colonial railway connexion in Australia. It linked Melbourne with Sydney. The occasion was celebrated with pomp and display.



*" Spirit of Progress ", hauled by one of the streamlined S class locomotives (since scrapped)*

## Break of Gauge

In 1846 the Secretary of State for the Colonies advised the Government of New South Wales that as a gauge of 4 ft. 8½ in. had been adopted for the English Railways a similar gauge should be used for railways when constructed in the Australian Colonies.

In 1850 a commencement was made by the Sydney Railway Company with the construction of a line from Sydney to Parramatta. The company's engineer favoured the 5 ft. 3 in. gauge and he converted the Directors to his view. Approval for the wider gauge was subsequently given by the British Government and it was adopted by legislative Act in July 1852 as the standard for railways in New South Wales, the Government of Victoria and South Australia being notified of the change.

When the Act authorizing the construction of several private railways in Victoria was passed in 1853 it stipulated that the 5 ft. 3 in. gauge should be adopted, and orders for rolling stock and other works were placed accordingly.

In the meantime, another engineer—an ardent supporter of the 4 ft. 8½ in. gauge—had been engaged for the Sydney company and he induced his directors to revert to that gauge.

The Governor-General informed the Lieutenant-Governor of Victoria that he had approved the change, and despite strong objections by Victoria, where a select Committee of the Legislative Council had recommended the 5 ft. 3 in. gauge as the most suitable for that State, and protracted negotiations with the British Government, Royal assent was given, in 1854, to an Act which decreed 4 ft. 8½ in. gauge as the standard for New South Wales.

Both New South Wales and Victoria continued constructing railways to their respective gauges and thus perpetuated the disadvantages associated from non-uniformity of gauge.

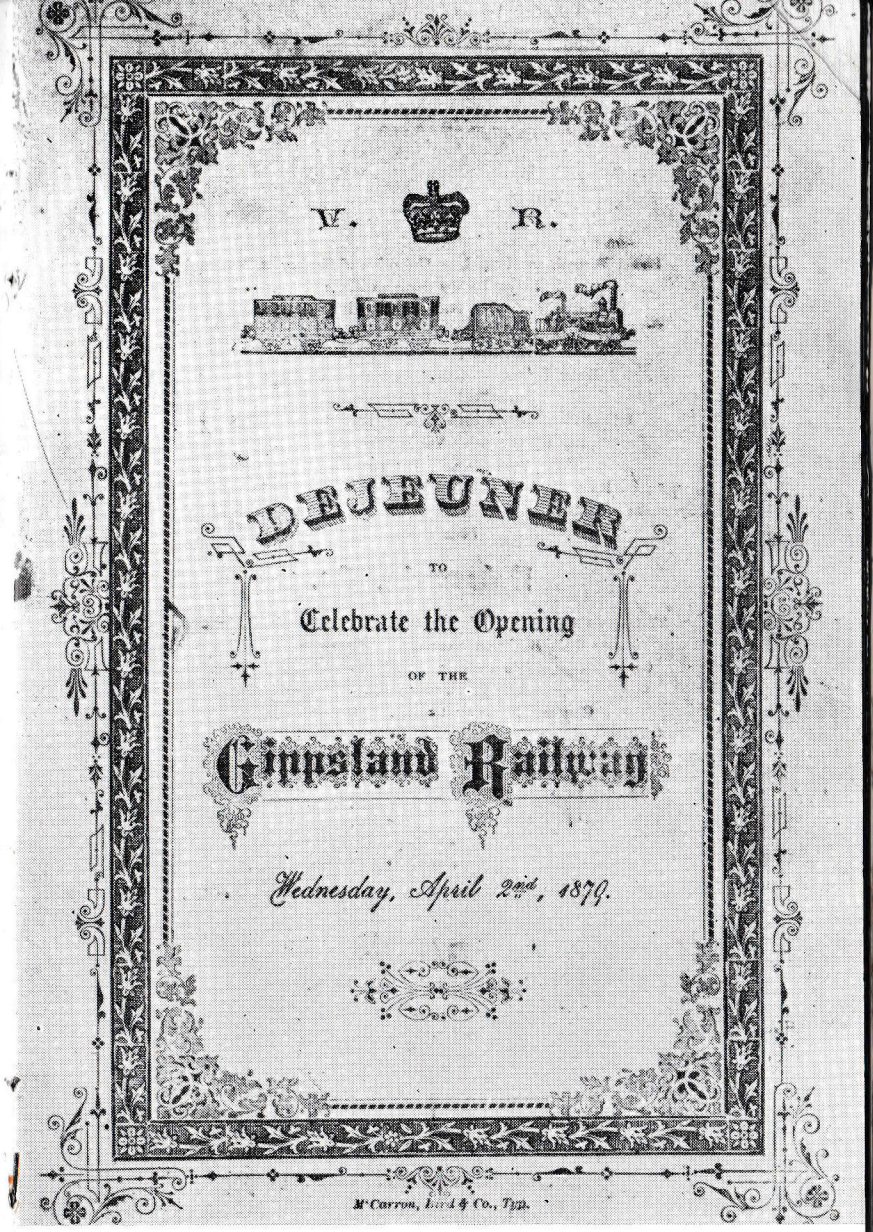
## Gaps Bridged by Horse Coach

Extensions to the north-west were commenced in 1872, introducing the "light lines".

Construction of the Gipps' Land Railway (Oakleigh to Sale) began in 1874. The building of this line was unusual in that it was opened for traffic in unconnected sections, namely: Morwell to Sale (June 1877), Oakleigh to Bunyip (October 1877), Moe to Morwell (December 1877), and Bunyip to Moe (March 1878).

Passengers bridged the gaps in horse coaches, until all rail sections between Oakleigh and Sale were linked. But Gippsland passengers still had to go by horse coach between Oakleigh and Melbourne until April 1879. The purchase






*Cover of menu for the celebrations of the opening of the Gippsland railway*

by the Government of the Melbourne and Hobson's Bay United Railway Company's system, in 1878, permitted a link to be built from South Yarra to Oakleigh.

The South Western Railway, from Geelong, was also begun in 1874, and continued in sections to Port Fairy, which was reached in 1890.

### The Link with Adelaide

Meanwhile, extension towards South Australia was proceeding, and the second inter-colonial link was made at Serviceton on January 19, 1887. Rail connexion between Adelaide, Melbourne and Sydney was now accomplished The line from Melbourne to Serviceton went via Geelong and Ballarat: the direct line through Bacchus Marsh was opened in December 1889.

### Effects of Land Boom

General extension of the Victorian Railways by 23 new lines was approved by Parliament in 1880. Four years later, what was known as the " octopus " Act sanctioned 66 lines, at an estimated cost of £45 million. Railways were to go to every part of Victoria, and the Melbourne suburban system was to be greatly enlarged.

All this vast planning arose as a consequence of the land boom, and extravagances of the era developed into a frenzy which lasted for several years. The end was foreseen by 1890, and a curtailment of the railways programme was ordered. After the financial collapse of 1893, line extensions proceeded slowly until the turn of the century. At June 30, 1901, the total route mileage was 3238. Proposals for cheaper railways were considered, and many parts of the hilly areas were surveyed for 2 ft. gauge lines, subsequently altered to 2 ft. 6 in. The first of these was the Wangaratta to Whitfield line, which was opened in March 1899. Fern Tree Gully to Gembrook followed in 1900, with Colac to Beech Forest in 1902 (extended to Crowes in 1911) and Moe to Walhalla in 1910.

But progress could not be stopped. It is now the proud boast that, except in mountainous country, practically no part of the State is further than eight miles from a railway. The total route mileage of the Victorian Railways today is 4,408 miles.



*A narrow-gauge train on the Gembrook line (now closed)*

# THE MODERN PERIOD
# (1883—1954)

### Rail Motors Appear

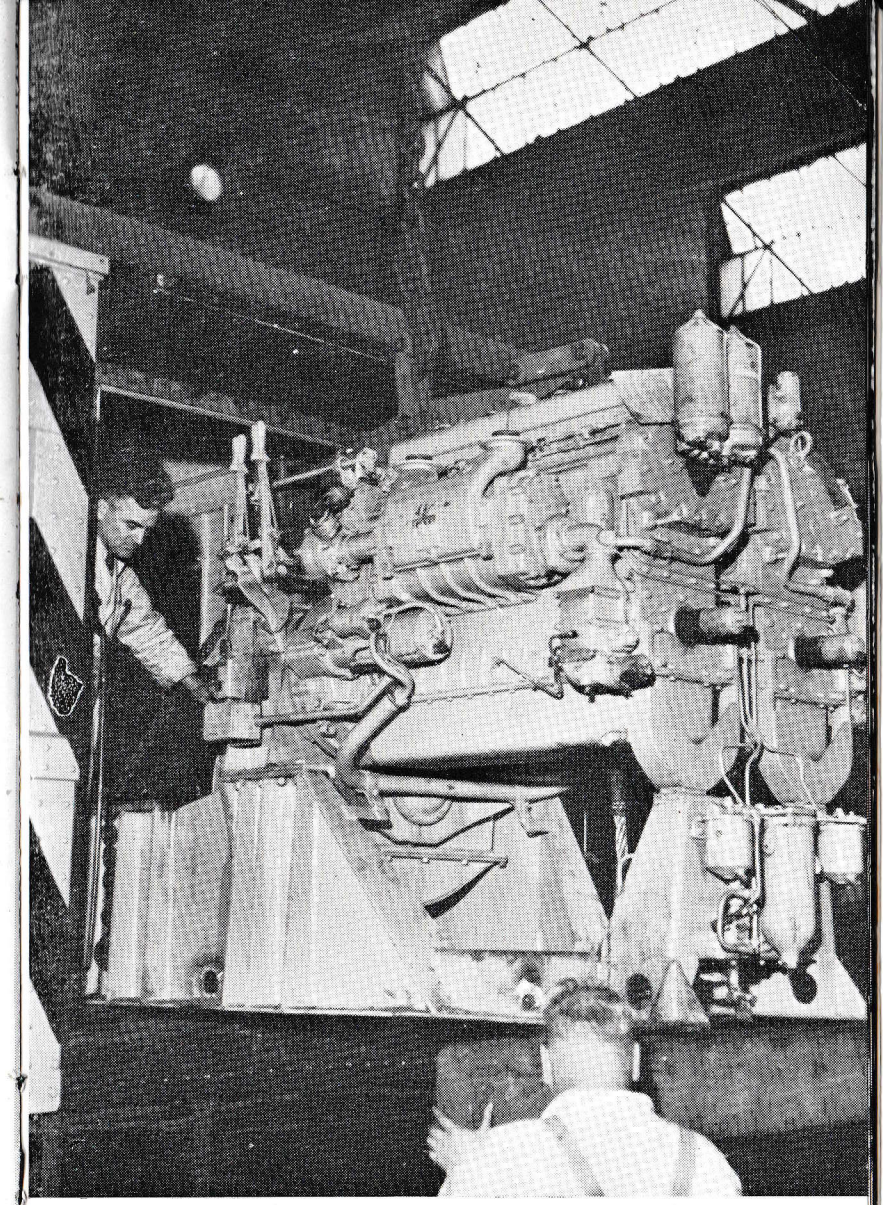
The advent of the rail motor car on the Victorian Railways dates from May 1883, with Rowan's steam car. The vehicle was a combination of engine cabin and compartment for 40 passengers. The power plant consisted of a vertical boiler and motor engine. The vehicle was mounted on six wheels, of which four were coupled drivers.

From scanty records it appears that, after a brief period, it remained idle for several years. Soon after the opening of the outer circle railway from Fairfield to Oakleigh in 1890, however, the car, specially fitted with a booking office, returned to work on that line. About the same time, the Department built a second steam car, using the spare engine of the first. The engine was fitted into a small passenger carriage which was coupled to a four-wheeled vehicle. When the outer circle line was closed in 1893, the two Rowan cars worked for a short time between Essendon and Broadmeadows. Both were withdrawn from service in the middle 1890's.

### First Petrol Cars

In subsequent years, the Commissioners periodically reviewed the possibility of improving branch line services. One of the disabilities affecting passengers on lines which carried comparatively light traffic was the time occupied by mixed trains, and, to improve matters, two American petrol rail motor cars were bought in 1911. Each carried 73 passengers, and was of unusual design suggesting an early attempt at streamlining. They went into regular service in May 1912





*Fitting a diesel engine into one of the converted petrol-electric rail motors*

one working on the Ballarat-Maryborough line, and the other between Hamilton and Warrnambool.

After about three years, these cars were withdrawn. In 1919, the engines were removed and the cars were converted for ordinary passenger train use on the Newport-Altona line. Hauled by an old type engine, their unique appearance always aroused interest.

In further experiment towards improving branch line services, a vertical boilered engine unit was imported from England and installed in an eight-wheeled car, built at Newport Workshops, seating 54 passengers. The engine, which had four coupled wheels, was the first Walschaert valve gear locomotive unit to work on the Victorian Railways. It went into service in January 1913, but, after about 50,000 miles of running, it proved unsuitable and was taken out of service.

### Success

Soon after the end of World War One, the Commissioners decided to test further the possibilities of petrol rail motors. In 1921, an English motor chassis was adapted for rail tracks and fitted with a body. Driven by a 45 h.p. engine, and seating 43 passengers, the rail motor hauled a trailer coach for 12 passengers and two tons of freight. It went into service in June 1922 between Merbein, Mildura and Redcliffs. From the aspects of public convenience and economical working, the service proved very satisfactory. The rail motor fleet was increased until, by 1926, it served more than 20 branch lines.

### Bigger and Better

A larger and more powerful type of rail motor was introduced in 1925. Mounted on two bogies, it had driving controls at both ends, and carried 60 passengers.

In 1928, the fleet was further extended by petrol-electric vehicles. Motive power on these was a 220 h.p. petrol engine directly coupled to a 150 kilowatt generator supplying two traction motors. One or two trailers could be attached to each. The petrol engines in these cars, which are still running, have been replaced by diesel engines which will give the cars longer life.



280 *h.p. diesel rail-car on the Mansfield line*

The latest units of the rail motor fleet are, of course, the diesel rail-cars. These are of 102 h.p., 153 h.p. and 280 h.p.

The rail motor as a convenient, fast, and economical means of transport for light traffic has proved a big factor in attracting traffic.

### Suburban Electrification

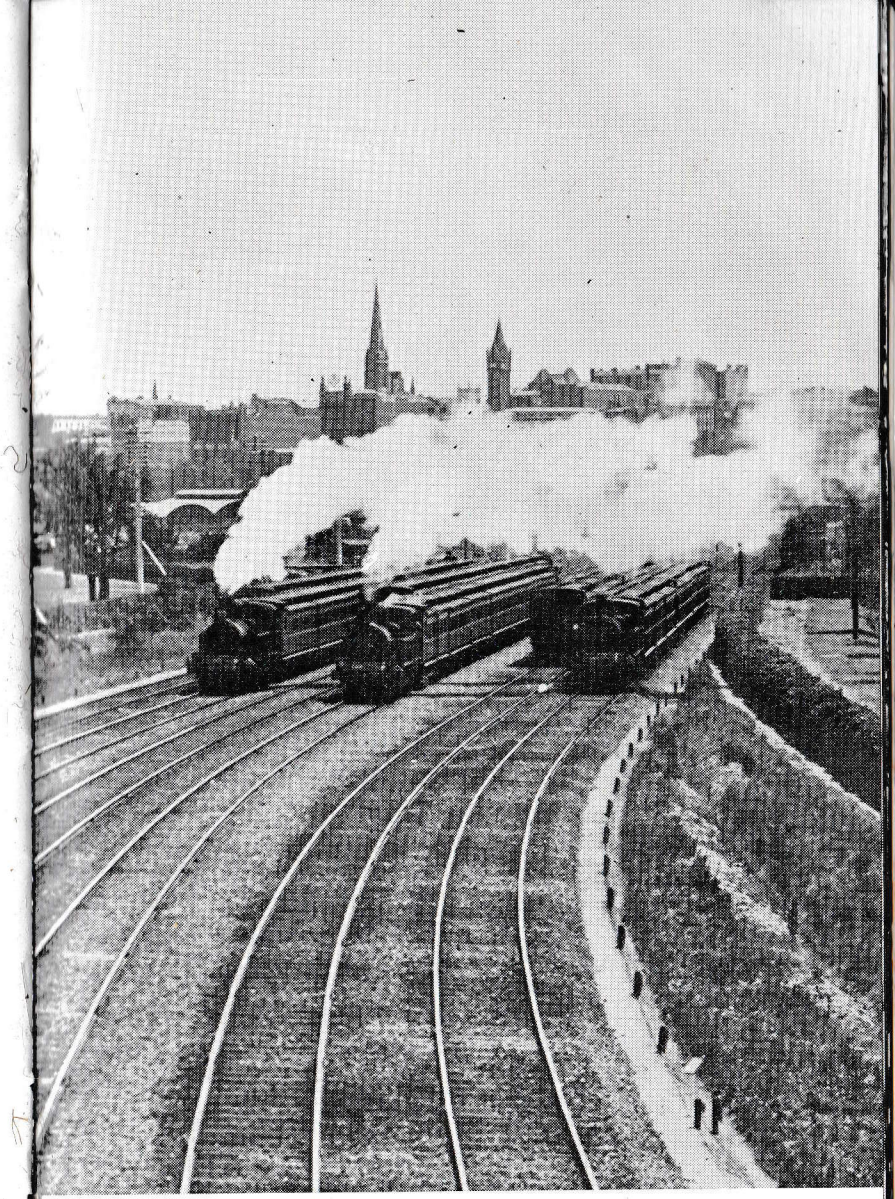
Following the adoption of electric railways in other countries, a proposal for the Victorian Railways to follow suit on part of Melbourne's suburban system was made in 1896 by A. W. Jones, of the General Electric Company, U.S.A. It was opposed because of financial stringency, but the plan aroused parliamentary interest. In 1898, a select committee examined the possibilities of electric traction and recommended that no new suburban lines be constructed until electrification had been more fully explored.

In 1901, another parliamentary committee investigated the subject. It recommended that an electric traction expert be engaged to examine the suburban service and advise the best system to adopt ; but the matter lapsed until 1907, when C. H. Merz, M.I.C.E., of London, was engaged to make a comprehensive investigation. The following year he submitted a plan for the conversion of 124 route miles. The scheme, proposed to be completed by 1912, was estimated to cost £2,227,000. Estimating a loss of £76,000 on the first year's operations, the Commissioners asked the Government to defer action pending further developments in electric traction.

### The Second Plan

But the need for a general improvement in Melbourne's transport impelled the Government, in 1910, to establish a Metropolitan Traffic Commission to report on it. The Commission recommended that the suburban railways be electrified, and this was supported by the Parliamentary Standing Committee on Railways. In 1911, the Government requested Merz to review and modernize his 1908 plan, which he did. The Commissioners favoured it. By November 1912,





*Suburban steam trains, between Flinders-st. and Richmond, about 1908*

another parliamentary select committee had examined the scheme and found it satisfactory. In December, the Government authorized electrification, at an estimated cost of £3,991,000.

### Work Starts

The construction of Newport Power Station started in December 1913, and other local works began about the same time. The building of electric rolling stock and alterations to existing carriages began in the following year. It was planned to electrify the first line—from Broadmeadows to Sandringham—by the end of 1915. The entire scheme was scheduled for completion in 1917. But World War One retarded the plan, and it was not until June 1918 that the first turbo-generator at Newport began to supply energy.

On May 28, 1919, electric traction was officially inaugurated. A special train ran from Flinders-st. to Essendon where a short ceremony was held. The train then proceeded to Sandringham. The next day, public traffic began between Sandringham and Essendon.

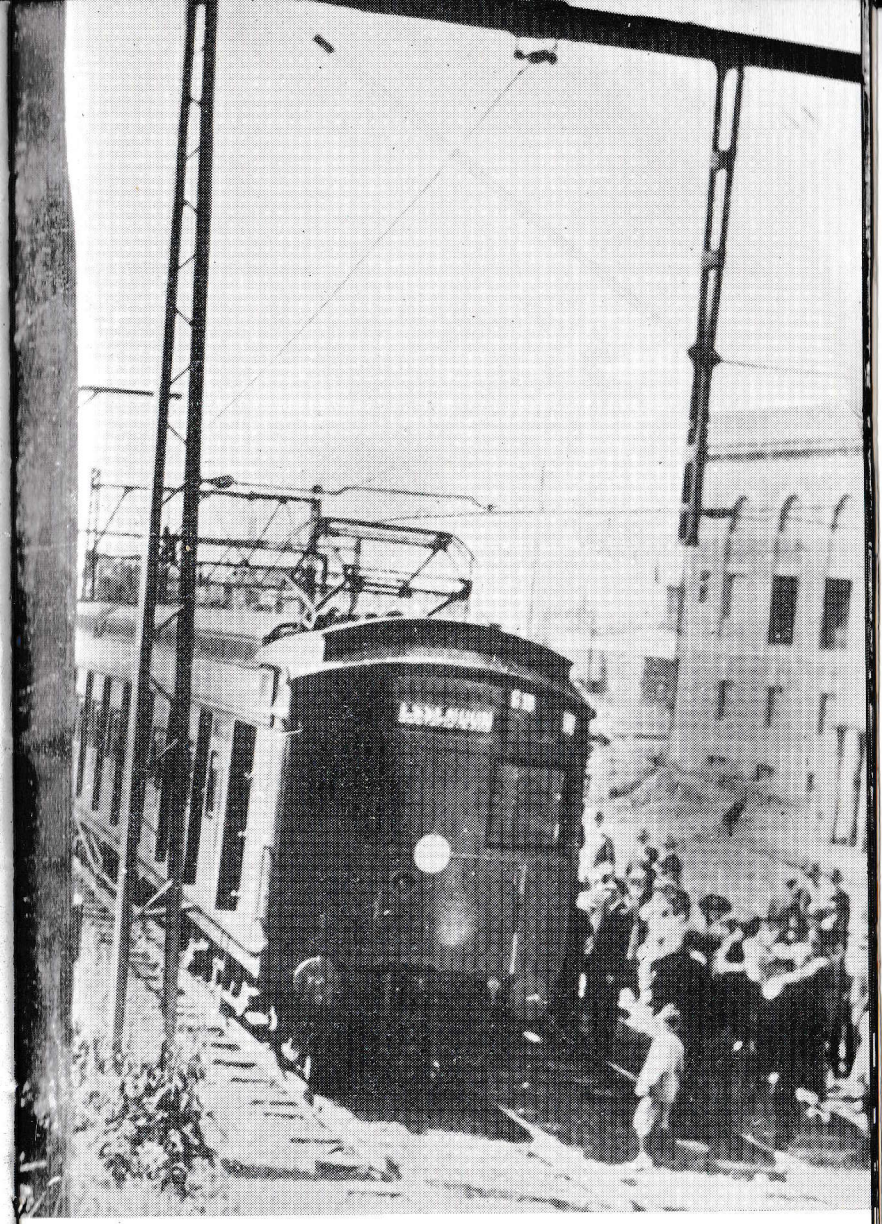
On April 15, 1923, the last section of the scheme was finished, with the conversion of the Heidelberg to Eltham line. The system then covered 150 route miles and 350 track miles. Capital expenditure totalled £6,270,000, and the electrified system, at the time, was one of the largest in the world.

Later, electric traction was extended to several sections of the outer suburban area, increasing the route mileage to 173.

### Varied Locomotive Power

In the early days of the Victorian Railways Department, two types of locomotives were mainly employed. They were the 0 – 6 – 0 goods, later 0 class, and the 2 – 4 – 0 passenger, later B class. All the early V.R. engines were built in England.





*The first electric train in Australia on a test run, October 6, 1918*

However, in 1873, the Phoenix Foundry, of Ballarat, built the first of many types of locomotives for the Department, mostly for light line working. By 1884, when the newly appointed Railways Commissioners took over management of the Department from the Board of Land and Works, there were 271 locomotives in stock, comprising 26 distinct classes or types.

With the continual expansion of lines, the heavier loads to be hauled, and the ageing of the earlier stock, the need for more powerful locomotives became apparent.

## Early Standardization

In the late 1880's, Richard Speight (Chairman of Commissioners) introduced a scheme for standardizing locomotives. This resulted in the introduction of the A, D, E, R and Y classes of locomotives. They were so designed that a considerable proportion of the working parts was interchangeable among the classes. Also, their tractive power was much greater than that of the earlier types.

Important changes in design were planned at the end of the nineteenth century, when the DD and A2 classes appeared on the drawing boards. These were of the 4 – 6 – 0 type, with outside cylinders. They were for mixed and express passenger work, and began running in 1902 and 1907, respectively.

## Superheating Applied

In 1914, the first superheated locomotive was built by the Department. Superheating (i.e. heating the steam after it leaves the boiler) results in savings of 25% in coal and 30% in water. It has been said to be the most forward step in locomotive design this century.

Walschaert valve gear was introduced, in Victoria, on a steam powered rail motor built in 1913, and, on the A2 locomotives, in 1915. This was another important step. This valve gear, being on the outside, has many advantages, including ease of inspection and maintenance.



## Newer Types Developed

The next important change was the introduction, in 1918, of the Consolidation 2 – 8 – 0 type locomotives. The C class was designed for heavy goods traffic and the K (first built in 1922) for light lines.

These were not suitable for conversion to standard gauge (4 ft. $8\frac{1}{2}$ in.) in the event of unification. As a result, the Mikado 2 – 8 – 2 type locomotives were developed in the form of the X class for heavy goods work and the N class for light lines. Both could be converted.

These were followed, in 1928, by the S class, Pacific 4 – 6 – 2 type, and, in 1941, by H 220, Pocono 4 – 8 – 4 type. The S class were streamlined in 1936–38 to haul the newly built *Spirit of Progress*.

In 1951, the R class passenger engines of the Hudson 4 – 6 – 4 type were introduced, followed by the J class for light lines. The J class is a return to the consolidation type with the addition of the latest improvements in locomotive design, including suitability for conversion to standard gauge.

To overcome difficulties created by shortages of good quality coal, many locomotives were converted to burn oil. A total of 70 are so equipped. Half of the J class are also being built as oil-burners.

## Diesel-electric and Electric Locomotives

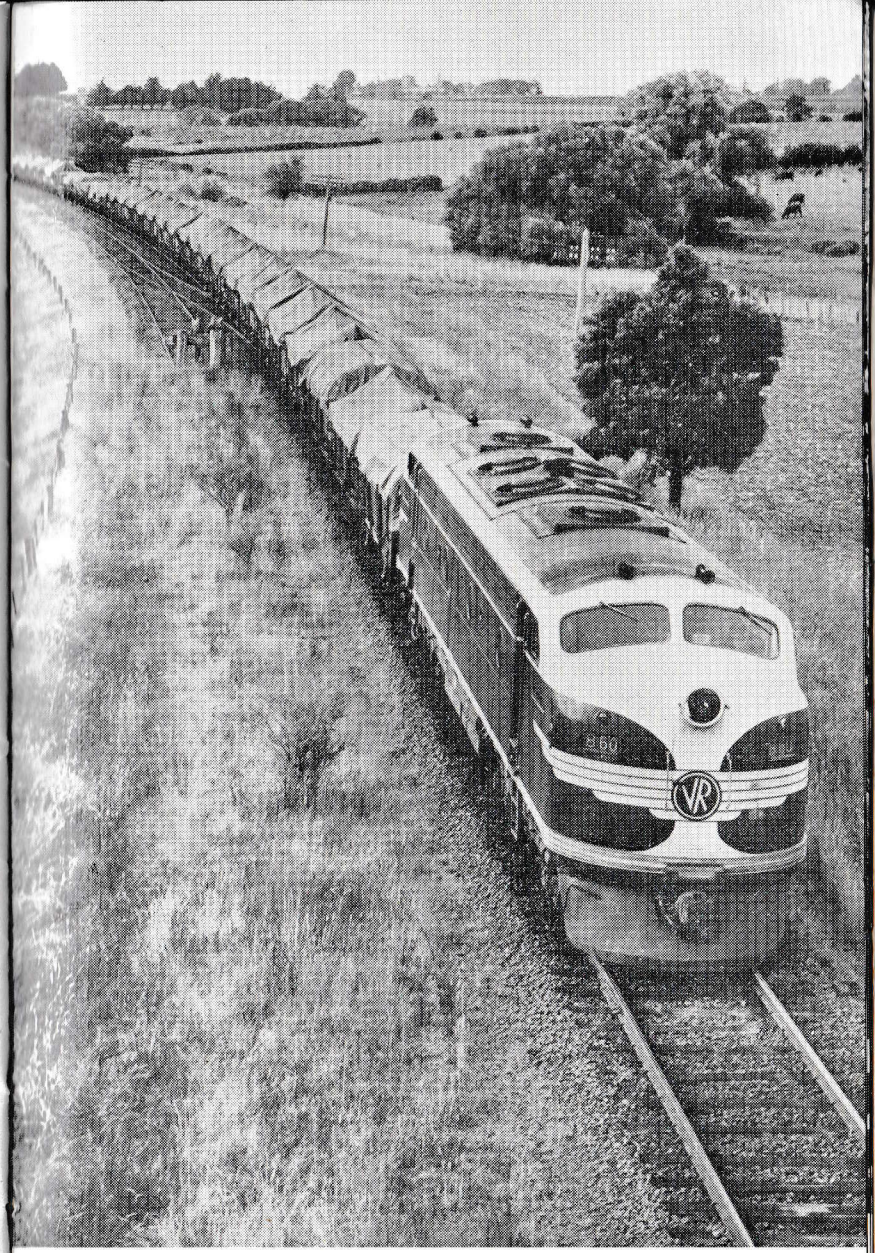
Introduced in 1952, the diesel-electric main-line locomotives ushered in a new era in railway transportation in Victoria. They burn less fuel than steam locomotives, run longer distances without stopping for refuelling, and require considerably less time for maintenance. Since their introduction, they have set up new haulage records. They now haul *Spirit of Progress* and *The Overland* as well as ordinary passenger and goods trains.

Diesel-electric shunting locomotives have also been placed in service.

The main-line electric locomotives have been imported specially for the electrified Gippsland line. They, too, have many advantages over the steam locomotive. But their economic use depends upon a high traffic density such as is provided by the expanding traffic on the Gippsland line.

*Moving wheat in* 1901 —






*— and moving it today*

### The Railways and War

When war strikes a nation, the railway service is at once included in any scheme of defence or offence. Railway workshops manufacture munitions and equipment; railway staff contributes its share of the armed forces. The South African War brought the Victorian Railways into war for the first time. Members of the staff enlisted in the various contingents which fought there. At Newport Workshops, many jobs were carried out for the Defence Department. The staff contributed several thousands of pounds to the Victorian Railways Patriotic Fund. And the Railways Musical Society and the Railways Military Band gave regular recitals to augment patriotic funds.

There was no secrecy about the departure of troops to South Africa, and the railways ran special trains to carry people to Port Melbourne to see troopships sail.

### First World Conflict

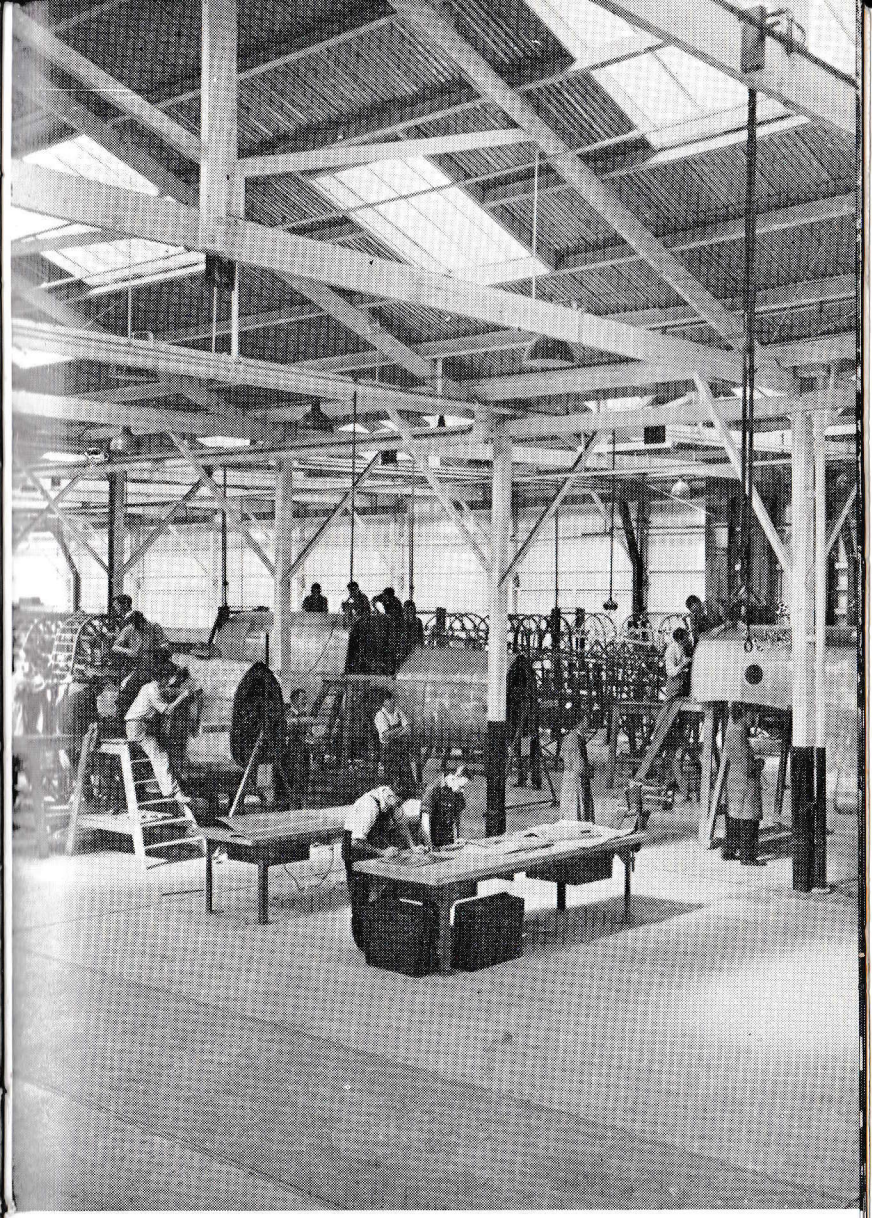
Again railwaymen enlisted for service in the armed forces 4,509 Victorian railwaymen served with the Australian Imperial Force, the Royal Australian Navy and the Australian Flying Corps. And again, contributions were made by the staff to patriotic funds. Articles for the Red Cross Society were made in large quantities by employees of Newport Workshops working in their own time.

A mobile hospital car (actually a mobile surgical operating theatre) was designed and built at Newport Workshops. Also designed and manufactured at Newport were seven mobile motor workshops and an improved type of Army travelling kitchen.

A part of Newport Workshops was equipped to manufacture high explosive and shrapnel shells, but difficulties of obtaining suitable steel and machinery from overseas militated against a satisfactory output.

Hundreds of special trains were provided for the movement of troops to and from camps for embarkation overseas.





*Assembling aircraft fuselages at Newport Workshops during World War Two*

## Second World War

On the declaration of war, Departmental plans for the protection of vulnerable areas, key points and communications were put into operation. When invasion seemed imminent, in 1942, air raid alarms and shelters and protections for buildings were erected. Blackout regulations in trains, on stations and in yards were imposed.

In December 1941, the Commonwealth Government assumed control over all railway systems in Australia although they continued to operate under the established controls.

Because of restrictions on other forms of transport, the State's passenger and goods traffic, carried normally by the railways, was increased to an enormous extent.

The Victorian Railways system was strained to its limits to meet military and civilian traffic needs, and railway workshops produced an amazing array of war material.

## Newport Makes Munitions

An aircraft annexe at Newport built rear fuselages, tail planes and rudders for Beaufort bombers, and fuselages for Beaufighters as well as tools and jigs for them. Bren gun carriers were also constructed, and, in 1941, the Department took over the management of the entire project in Australia. Newport produced 1,844 carriers, and 5,141 were made under the Department's supervision.

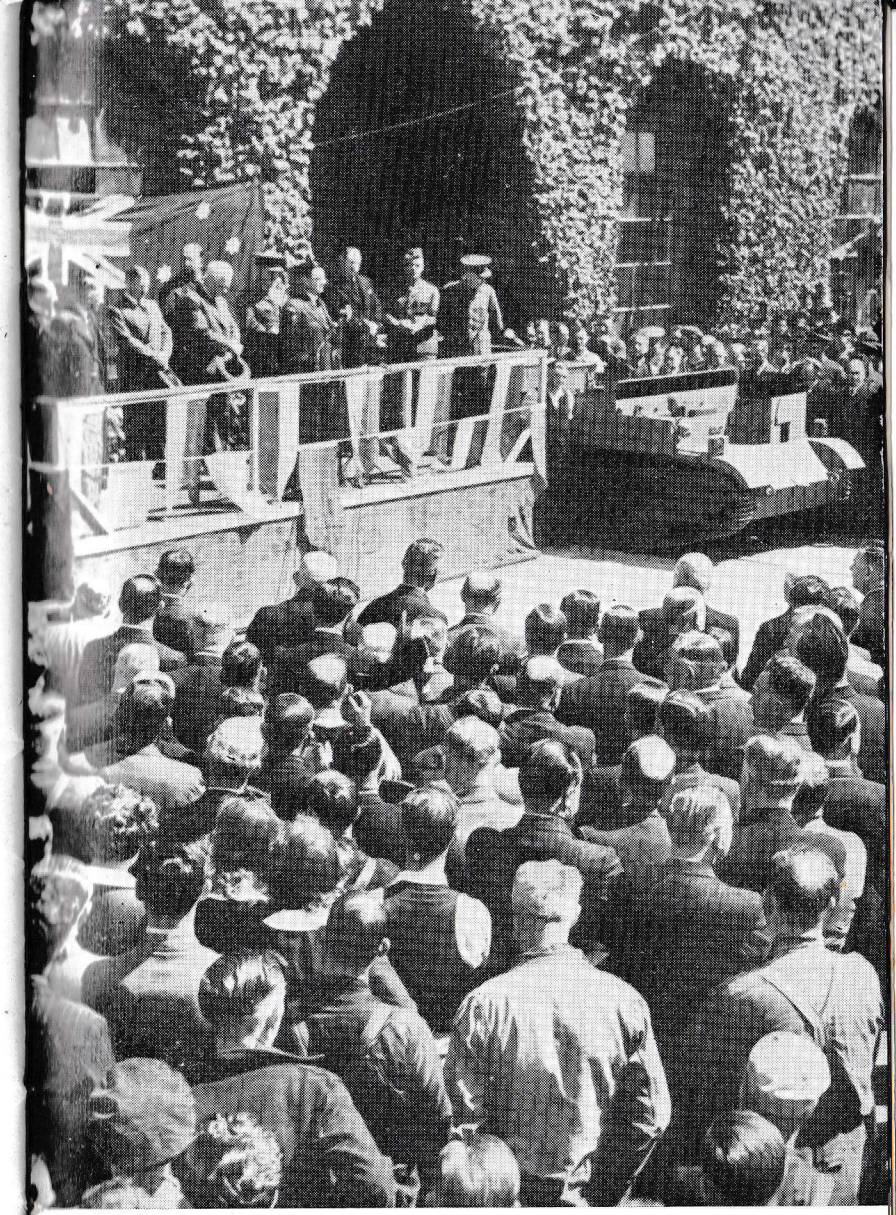
In the special shell annexe at Newport, nearly one million shells were manufactured.

Numerous parts were manufactured by the Department for assembly at other localities. These included gun components, mine parts, torpedo engines and surgical instruments.

Ocean-going tugs, moving targets for gunnery practice, portable generators and chargers, electrical instruments and canvas goods were among the items made at railway workshops. In addition, ship repairs were carried out, and locomotives partially manufactured and completely assembled.

As in previous wars, railway men and, this time, women served in the armed forces. Others were released for service





*Ceremony to mark completion of the 1000th Bren gun carrier at Newport Workshops*

with various Government organizations in connexion with the general war effort. Again, too, money was raised by the staff for patriotic funds and the Red Cross.

The Victorian Railways' story in this war is a record of outstanding achievements in handling abnormal volumes of traffic under extremely difficult conditions ; of huge quantities of war equipment manufactured during sustained shortages of labour and material ; and of service given by thousands of railway men and women serving in the armed forces and elsewhere.

### Royalty on The Railways

Royalty, on visits to Australia, has always been served by the Victorian Railways. The first royal train was provided for the Duke of Edinburgh, the younger son of Queen Victoria, who predeceased his illustrious mother. He visited Victoria in 1867.

Other royal visitors for whom royal trains were provided were the Duke and Duchess of Cornwall and York (later King George V and Queen Mary) in 1901, the Prince of Wales (now Duke of Windsor) in 1920, the Duke and Duchess of York (later King George VI and Queen Elizabeth) in 1927, and the Duke of Gloucester in 1934.

The visit, in 1954, of Queen Elizabeth and the Duke of Edinburgh, however, was especially memorable in that it marked the first Victorian train journey by a reigning monarch of the British Commonwealth. At the conclusion of the tour, Her Majesty expressed her thanks for all that had been done to make their journey on the Victorian Railways so comfortable and so pleasant.



*Queen Elizabeth and the Duke of Edinburgh about to board the royal train at Spencer-st. station, during their historic visit in* 1954

# "OPERATION PHOENIX"

### Deterioration

After the unparalleled depression of the nineteen-thirties (when there was no money for replacements) and the strenuous years of war, there was evident a sad deterioration of rolling stock and equipment. Any prosperous railway of comparable size would then have been building at least 25 locomotives, 30 or 40 carriages and 500 wagons, each year, besides relaying 60 miles of track to keep itself in proper condition.

But the Victorian Railways, reflecting the leanness of the years, were anything but prosperous. The average yearly production of new rolling stock was less than four engines and only four carriages and 200 wagons. And these were neutralized in advance by overdue scrappings.

### Rehabilitation

Nineteen hundred and fifty, however, was a momentous year. Post-war recovery plans, which became known as *Operation Phoenix*, began to take shape. The expenditure of £80 million within 10 years towards rehabilitating the railways was envisaged. It included more than £37 million for the replacement of worn out and obsolete rolling stock, and £42½ million for major works.

In the following years contracts were placed for 180 steam locomotives, 26 mainline diesel-electric locomotives of 1,500 h.p., 25 diesel-electric locomotives of 900 h.p., 25 mainline electric locomotives, 10 diesel shunting engines, 30




*Loading freight containers used in the Melbourne–Sydney traffic*

suburban electric trains, 39 diesel rail-cars and 15 trailers, and 3,000 open goods wagons. Departmental workshops were to construct country passenger carriages, cattle wagons, sheep wagons, powder vans and other rolling stock. Most of this new rolling stock was in service by 1954.

## Major Works

On the works side, the most important undertaking was the regrading, duplication and electrification of the Gippsland line to Traralgon. Electric trains began running as far as Warragul on July 21, 1954. Relaying and reconditioning of country lines, replacing timber bridges with permanent structures, and modernizing workshops and depots also came into the scheme. The electrification of the Geelong line was planned for the later stages of *Operation Phoenix*. On the suburban system, the Camberwell-Ashburton line duplication and the provision of additional tracks between South Yarra and Richmond went ahead; Richmond was redesigned as a new station to accommodate 10 tracks.

Other projected works were the duplication of the Heyington-Eastmalvern line, additional tracks between Richmond and Burnley, an extra track between Burnley and Camberwell and between Caulfield and Moorabbin, additional power signalling and improved crossing facilities, expansion of the Melbourne goods terminal and, at a later stage, a city underground railway.

## To-day and Tomorrow

*Operation Phoenix* progressively is restoring the State's greatest asset and making it comparable in modernity, comfort and capacity with the world's best railway systems. It has already done much to make Victoria's railway services more efficient and comfortable, and to re-establish them in public confidence. The future promises much more.




*Electric locomotives hauling a test train on the Gippsland line*

# APPENDIX

The growth of the railway undertaking and its present magnitude are shown in the following figures.

| | 1883 | 1904 | 1954 |
|---|---|---|---|
| Capital Cost ... | £21,488,065 | £41,709,056 | £91,627,000 |
| Revenue ... | £1,898,310 | £3,438,141 | £37,776,840 |
| Working Expenses | £1,273,921 | £1,921,867 | £36,172,060 |
| Goods tonnage hauled | 1,881,760 | 3,433,627 | 9,200,583 |
| Number of passengers carried | 26,485,305 | 54,282,003 | 166,105,399 |
| Train Miles ... | 5,701,513 | 9,172,644 | 18,302,906 |
| Value of Stores ... | £415,868 | £501,641 | £4,868,660 |

The total staff in 1863 comprised 1,520. It had increased to 11,816 by 1903, to 27,057 by 1947, and now exceeds 30,000.