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# Public Utilities

#### Railway Progress in Victoria

By B. Kelly, Chairman Betterment and Publicity Board

THE Victorian Railways will be eighty years old in September, 1934. The first railway in the State, a line from Melbourne to Sandridge (now Port Melbourne) was opened for traffic by the Hobson's Bay Company on September 12, 1854. This line was also the first railway to be operated in Australia.

The locomotive used to haul the first train was an improvised tractor consisting of a stationary engine mounted on a railway truck, with belt drive to an axle. This was a temporary expedient necessitated by the late arrival of two engines ordered from England. It has been stated that the engine was of 30 horse-power and capable of drawing a load of 130 tons at a speed of 25 miles an hour.

First, second and third class carriages were provided. They were imported from England and were described in the press at the time as "handsomely appointed and furnished and very commodious," although later they were contemptuously referred to as "dog boxes." Passenger traffic was conducted by means of the locomotive, but the goods traffic was operated by horse power.

A branch line to St. Kilda was opened by the same Company in 1857. A second company, incorporated in 1853, was the Melbourne, Mt. Alexander and Murray River Railway Company, which was authorized to build lines from Melbourne to Williamstown and to the Murray River through the Mt. Alexander district between Castlemaine and Bendigo. Although this company was liberally assisted by the Government, it made very little progress and, falling into financial difficulties, sold out to the Government in 1856.

The construction, operation and maintenance of this railway was vested in the Commissioner of Public Works and the Surveyor-General, marking the entrance of the Victorian Government into the business of railroading.

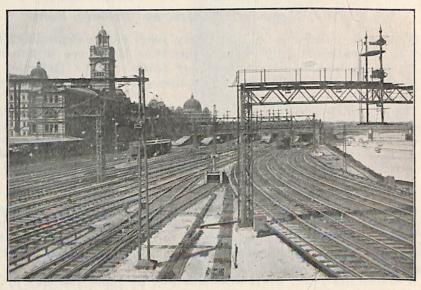
Concurrently with these other companies, the Geelong and Melbourne, Railway Company was formed to build a line from Geelong to Melbourne, the Government guaranteeing interest at the rate of 5 per cent. on the paid-up capital. An early start was made with the construction work and a line from Geelong to Greenwich, near Newport station, was opened on June 25, 1857.

At first the journey from the Port to Melbourne was made by a small steamer plying up the Yarra River to Queen's Wharf. With the completion of the line from Newport to Williamstown, trains were run to that station, whence a ferry connected with the Hobson's Bay Company's line at Port whence a ferry connected with the Hobson's Bay Company also being Melbourne. Financial difficulties, however, led to this company also being taken over by the Government in 1860.

#### THE VICTORIAN AND MELBOURNE CENTENARY

Lines from Melbourne to Windsor and from Richmond to Hawthorn were built by the Melbourne and Suburban Railway Company, the last section being opened early in 1861. In 1862 difficulties in securing delivery of materials and in regard to financial arrangements culminated in a public auction of the property, which was purchased by a syndicate calling itself the Melbourne Railway Co. Three years later, this company amalgamated with the Melbourne and Hobson's Bay Railway Company to form the Melbourne and Hobson's Bay United Railway Company.

St. Kilda and Windsor were connected in 1859 by the St. Kilda and Brighton Railway Company's line, which continued from Windsor to Brighton. In 1861, the line was extended to Brighton Beach, which, in those days, gave promise of developing into an important port. With the



Flinders Street Station from the West End

opening in 1860 of the Melbourne-Windsor railway via Richmond, the section from St. Kilda to Windsor was abandoned. Financial difficulties were experienced by this company also, and it was absorbed by the Melbourne and Hobson's Bay United Railway Company in 1865.

The Melbourne and Essendon Railway Company opened a line between Essendon and a point about 1½ miles from Spencer Street on October 21, 1860. A branch line from Newmarket to the racecourse was opened seven years later. This company had a rather chequered career, as it closed down for three years from July 1, 1864, and was sold to the Government in 1867. Apart from race traffic, the line was not regularly operated until the beginning of 1871.

In the meantime, the Melbourne and Hobson's Bay United Railway Company had been running services over its 16 miles of line but, on July 1, 1878, the whole of its undertakings were acquired by the Government.

The Government was influenced in its decision to acquire the railways from the private companies both by the desirability of maintaining the services which the companies were unable to continue and also by the tendency of private companies to build competitive lines representing wasteful expenditure of capital, and, consequently higher charges to the public.

The failure of the Melbourne, Mt. Alexander and Murray River Company to continue with the task for which is was incorporated really forced the hand of the Government. Consequently the Board of Land and Works was established in 1857 and was authorized to arrange for the building of a railway from Melbourne to the Murray River, and another from Geelong to Ballarat. The former line was completed to Bendigo in 1862 and to Echuca two years later, and the latter was formally opened in 1862.

Construction of a railway to Wodonga was next undertaken, the line being completed in 1873. Connection from Sydney to Albury was established in 1881, and the Wodonga-Albury section was bridged two years

Serviceton was reached by the South Australian railways in 1886, and connection with Melbourne was completed early the following year.

In the meantime, railway construction work was being pushed steadily forward in other districts, particularly in the Ballarat-Bendigo gold mining area, in the Western District, and in Gippsland. Incidentally, the East Gippsland line was built from both ends, through service being instituted between Melbourne and Sale in 1879.

When the Government acquired the Hobson's Bay Company's lines

in 1878, the railway mileage in Victoria totalled 969 12.

Right from the first, the Government adopted a progressive policy of railway construction. By 1891, 2,800 miles of railway were carrying traffic, but, because of the unsettling effects of the collapse of the land boom, only about 300 miles were added in the next seven years. In 1908, there were 3,447 miles of railway available for traffic.

At the present time, the Victorian Railways comprise more than 4,700 miles and the lines are so located that very little of the State, with the exception of the mountainous regions, is more than eight miles from a railway.

The Tramway System

By the Publicity Officer, Melbourne and Metropolitan Tramways Board

Melbourne's tramway system comprises 107 miles of double and 8 miles of single electric track, and 24½ miles of double cable track, the latter constituting all that remains of the cable system established in 1885 by the Melbourne Tramway and Omnibus Company. Previous to that date, from 1869, horse buses were run by the Company. In 1883, the Tramways Act authorized the formation of the Melbourne Tramways Trust by the thirteen inner municipalities, and it was the Trust that constructed the cable tram tracks and power houses. Given a lease of the tracks for thirty-two years, from July 1, 1884, the Tramways Company provided the necessary rolling stock, undertook the obligation of paying annually the interest in the loans raised by the Trust, established a redemption fund out of which the Trust's debentures would be redeemed on maturity, and agreed on the expiry of the lease in 1916 to hand over the tramways in good working order to the Trust. The various lines were opened to traffic in

e following order	November, 1885	Prahran	October, 1888
1010111110	October, 1886	North	
Fitzroy	Marson hor 1886	Melbourne	March, 1890
	November, 1886	West Melbourne	
Clifton Hill	August, 1887	South	
Nicholson Street	August, 1887	Melbourne	June, 1890
Tot Crano	October, 1887 December, 1887	Port Melbourne	
Carron	December, 1888		October, 189
Brighton Road	October, 1888	11 1110000	000001, 100.



For seventy-nine years SIMPSON & DAVENPORT and for fifty-six years BOWEN & CO., Chemists, have been carrying on business in Melbourne.

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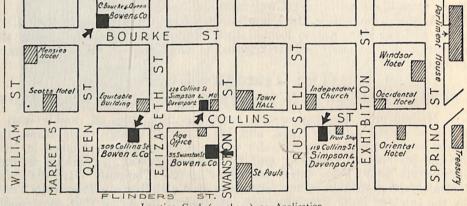
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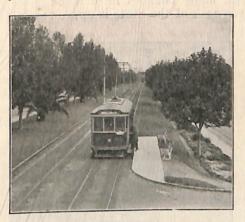
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Corner Bourke Street and Queen Street. This Pharmacy is an old land-mark, well known, and, like the rest of THE SYMPORT PHARMACIES, is well stocked and up-to-date.

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All these Pharmacies have qualified assistants who are trained, and are competent and courteous By the end of 1891 there were thus 41 miles of double track in operation. the length of the wire rope in motion under the various roads being about 95 miles. The ropes varied in length from 16,000 to 32,000 feet.

While the first electric tramway in Melbourne was laid down in 1889. and ran between Box Hill and Doncaster, the venture was not a success, and after a spasmodic career ceased running in 1896. The Victorian Railways electric tramway between St. Kilda Station and Brighton commenced running in May, 1906, and the North Melbourne-Essendon line in October. 1906. Constituted in 1908, the Prahran and Malvern Tramways Trustthe first of the municipal ventures in transport—with Mr. Alex. Cameron as Chairman, began operations in May, 1910. Six years later, the Melbourne, Brunswick and Coburg Tramways Trust came into the field, and the Hawthorn Tramways Trust followed in June, 1916.



Beautiful Dandenong Road

Pending the creation of a Tramways Board for the whole of the metropolis, a Cable Tramways Board, with Mr. Colin Templeton as Chairman, was appointed in 1916, and duly took over the cable system from the Melbourne Tramways Company. In 1919, the present Melbourne and Metropolitan Tramways Board came into existence, with Mr. Alex. Cameron as Chairman, a position which he still occupies. On November 1, the cable lines became vested in the Board, the electric tramways being taken over on February 2, 1920. Subsequently, the Board purchased the Essendon undertaking, and completed the electric lines of the Fitzroy, Northcote and Preston and Footscray Tramway Trusts. The Fitzroy, Northcote and Preston lines were opened for traffic in April, 1920, and Footscray in September, 1920. The line to West Brunswick, through Royal Park, was opened in July, 1925, and the line to St. Kilda via South Melbourne in October of the same year.

Soon after taking office, the present Board prepared a scheme providing for the development of electric tramways in the metropolis. Approved by the Standing Committee on Railways in 1923, considerable progress has been made. Two new lines, as noted above, have been constructed, and many extensions and duplications have been completed. The Board was empowered also to convert the cable lines to electric traction. The first conversion carried through was the St. Kilda Road and allied lines in 1925, followed by the Windsor, Prahran, Toorak, Flinders Street, Collins Street, Victoria Parade and Brunswick Street. Interrupted in 1930 by the financial depression, conversion operations will be resumed in the near future with the Elizabeth Street-Brunswick route.

# Tourists/

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#### The Melbourne Harbour Trust

By J. H. McCutchan, Secretary

The Melbourne Harbour Trust was constituted in 1876 and the first Board of fifteen Commissioners met on April 11, 1877. This number was increased some twelve years later to seventeen and in 1912 the number was reduced to five.

The Port of Melbourne covers an area of 20 square miles and includes all waters, structures, and margin of foreshore and river banks within a line approximately from Williamstown to St. Kilda westerly as far as Spencer Street Bridge, Melbourne, and the Hopetoun Bridge, Footscray, and also the leading channels to Port Melbourne and Williamstown for a distance of three and a half miles below the aforesaid line. All other Victorian tidal waters, excepting the areas comprising the Ports of Geelong and Warrnambool, are under the jurisdiction of the Ports and Harbours Department

Melbourne is essentially a man-made Port, and as such the removal of spoil has been a work of great magnitude. To realise this, one has but to remember that, when on June 8, 1835, Batman rowed up the stream, and the schooner *Enterprise*, a vessel of 55 tons, sailed as far as the falls on August 29, 1835, the River Yarra was a tortuous stream, half choked with trunks and branches of trees. It is known that in 1858 there was a bar across the mouth of the river, giving only 8 feet of water at high tide. In 1860 vessels drawing 11 feet could navigate the river, and it was a common practice for officers to clean their respective vessels of marine growths by scraping the bed of the stream.

The river has been widened from approximately 140 feet to 400 feet, and defined by miles of sheet piling and rubble walls. It has been deepened to and maintained at 28 feet at low water. This has entailed the removal of 106,448,104 cubic yards of material, which includes some 22,994,213 cubic yards placed on shore to reclaim certain low-lying lands. There was also considerable rock-breaking necessary.

The first wharf to be built was Coles' in 1841, but the piers at Port Melbourne and Williamstown were not commenced until 1852. In this connection it is interesting to note that the Railway Pier, Port Melbourne, projected from the shore 1800 feet and was 60 feet wide. The foundation was of ships filled with ballast, well sunk, and piles driven into the ballast. Compare this structure with the Station Pier, 2,185 feet long by 195 feet wide, and Prince's Pier, 1902 feet long and 186 feet wide, both equipped with railway facilities, modern sheds, offices, conveniences, movable gantries, and the former with 3-ton electric cranes.

The length of wharfage in 1860 was—River 4,049 lin. feet, Port Melbourne 4,760 lin. feet, and Williamstown 3,344 lin. feet, a total of 12,153. In 1877 the wharf extended on the north side of the river from Queen's Bridge to a short distance along the North Wharf below and including Spencer Dock; on the south side it commenced at Queen's Bridge and finished at the foot of Clarendon Street, but was not continuous. The present length of the river and dock wharves is 32,428 feet, notwith-standing the fact that 3,552 feet was lost by the construction of a fixed bridge at Spencer Street; the length of piers is—Port Melbourne 4,934 feet, Williamstown 6,314 feet, a total of 43,676 feet.

Whereas the early structures did not include shed accommodation, most of the berths are now so provided, both open and closed, ranging from 35 feet in width to 80 feet. The total length of these sheds is 18,414 feet, or 3.49 miles, and their area is 1,217,754 square feet, or 28 acres.



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/ITHIN a period of 23 years the Myer Emporium has grown to be one of the largest businesses in the British Empire, and even to-day, like our own fair city, it is only in the middle stages of its development.

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but manifestations of the character of the organization behind it.

Enduring satisfaction comes not merely from the ability to survive competition, but in achieving the highest measure of common approval, and in becoming worthy of association with the loftiest traditions of the world of business. This has been the ambition which has stirred ... and still stirs, during this Centenary year . . . the Management of

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The Commissioners in 1877 were fully seized with the necessity of providing ample and efficient accommodation for shipping over a long period and were moved to engage Sir John Coode, an eminent English engineer, to make an examination of the locality and submit a scheme of Port Improvement. Using the said scheme as a basis, the main works carried out within the Port are briefly:-

The construction of Coode Canal, which shortened the distance from the river entrance to the Melbourne wharves by 11 miles. It is 6,006 feet

long by 430 feet wide.

Victoria Dock, which originally provided a water area of 96 acres, has now but 90 acres, the reduction being brought about by the construction of a Central Pier and wharf widening. Its depth is 30 feet.



The Latest Undertaking of the Trust

The river at the eastern end of Coode Canal was widened by 100 feet by the demolition of the old wharf structure and the erection of modern wharves-concrete and timber-on the new alignment.

There are five swinging basins in the river area, making it possible

for all vessels to swing with ease.

The wharves at Victoria Dock and North Wharf are enclosed in a compound wall, and ingress and egress can only be made by means of one

of three Customs Watching Gates.

A reinforced concrete overhead bridge is in course of construction at the foot of Station Pier, Port Melbourne. This will connect Beach Road with the roadway between Station and Prince's Piers, and will also link up with Station Pier by means of a ramp. It is 1,000 feet long and 85 feet wide, with the pier approach 400 feet by 66 feet.

All wharves are accessible by modern road approaches, and are linked

up with the metropolitan telephone system.

The Port is illuminated with electricity throughout, while the A.G.A. system is installed to provide for the navigation lights. Conveniences and shelters for waterside workers are placed at suitable positions about the waterfront.

The Williamstown Dockyard comprises an area of 21 acres, and includes the Alfred Graving Dock and a complete and efficient ship-

building and repairing plant.

The Trust's plant is made up of—9 Dredgers, 1 Tug, 4 Launches, 13 Steam Hopper Barges 6 Dumb Hopper Barges, 4 Motor Boats, 1 Rockbreaker, 19 Lighters, Pile Barges, Punts, etc.



# the Resources of a Great State

This comprehensive booklet has been specially compiled for the information of visiting manufacturers and business men who may be considering extensions of their activities to Victoria.

It gives interesting facts and statistics concerning the life and industry of the State, its natural resources, and the advantages that may be enjoyed by factory and business owners.

The book will gladly be posted or presented on request. The State Electricity Commission will also be pleased to furnish any further information that may be required.

- With the Compliments of the -

# STATE ELECTRICITY COMMISSION OF VICTORIA

ELECTRICITY SUPPLY DEPARTMENT

238 FLINDERS STREET, MELBOURNE, C.I.

# Victoria's Power and Fuel A Vast and Unique System of Supply

By W. R. Armstrong, Publicity Officer

A bulwark to Victorian industry, a direct contributor to the amenities and economics of home life, and of increasing importance in primary production, is the State system of electricity and fuel supply. Furthermore, Victoria affords one of the world's most interesting examples of widespread electrification. Two thousand miles of high tension transmission lines convey energy from a system of inter-linked power stations to the whole metropolitan area of Melbourne, as well as to nearly 170 rural centres.



Western end of enormous Yallourn open-cut. The bucket dredge on surface is reaching down 90 feet, on which level there is another similar dredge going down another 90 feet to the bottom of 180-foot seam

The State service, as it exists to-day, is the accomplishment of hardly more than ten years, because it was not until June, 1924, that transmitted energy produced from the State's own fuel was despatched to Melbourne over the original 132,000 volt tower line from Yallourn. It now only needs the completion of the North Western major extension of supply to consummate the undertaking as a complete power system for the State. This extension, which has reached Castlemaine, will ultimately take in Bendigo, Ballarat and Geelong, and a number of intervening centres, besides providing a convenient starting point for centres far beyond.

The firm basis of Victoria's vast and efficient transmission system is brown coal, the utilization of which for electricity supply, as well as for the manufacture of a high-grade industrial and household fuel in the form of briquettes, makes the undertaking unique in the British Empire.

No doubt the engineer and economist will find many interesting features of Victoria's vast system, besides brown coal development. But the focal point of interest for all—engineers, economists and laymen—will



## THE AUSTRALIAN POST OFFICE

- THROUGHOUT THE AGES, progress and communication have been notable for their interdependence upon each other.
- From the primitive methods of barter and human intercourse of early times, to the highly organized and complex structure of business and social activity to-day, successive developments in communication practice have contributed materially to the progress and happiness of mankind.
- AS A TRUSTED CUSTODIAN of the Australian postal, telephone, telegraph and radio-technical services, which have done so much to overcome the hindrances of time and distance, the Post Office takes pride in the part it has been destined to perform in the building of the Nation.
- conscious of its obligations to the community, and attuning its activities to the swiftness and exacting conditions of the age, it looks forward with greater pride to further achievements in the communication sphere, for the benefit of all whom it is privileged to serve.

be the tremendous works of coal winning, power generation and briquetting at Vallourn.

And rightly so, because Yallourn is now regarded as one of the world's wonders. It is simply a gargantuan feast of interest, with the magnitude of the mechanical operations continually stirring the senses.

The immense open cut, although nearly a mile long, half a mile wide, 200 acres in area, and 200 feet deep, is still but a small hole in the vast

deposit of brown coal that is being constantly uncovered.

Yallourn's share of the Latrobe Valley deposit of 27,000,000,000 tons of brown coal is 6,000,000,000 tons, all capable of being won by the cheap open cut method, whereby the earth, or overburden, is removed by a land dredge, digging 450 tons an hour, and exposing the vast unbroken depth of coal to the operations of two larger dredges, one on the surface of the coal and the other 90 feet down, each having a downward reach of 100 feet and a normal output of 500 tons an hour. Briefly, the excavation, transportation and disposal of both overburden and coal are on the same stupendous scale as the deposit of coal itself, and illustrate the mechanical perfection which has been achieved in open cut operation.

The power house, with its 133,000 h.p. of installed plant (now being progressively increased to 200,000 h.p.), has its main interest in the steamraising plant—wonderful furnaces and boilers that extract the maximum of energy from the moisture-laden brown coal as it comes from the open cut. The combustion results achieved at Yallourn constitute a world's record

in fact, and give an added value to the brown coal.

The briquetting operations, which consist of crushing, screening, drying, then cooling, and afterwards solidifying the coal into briquettes at a pressure of ten tons to the square inch (no other binding agent being necessary), put the final seal on brown coal as one of Victoria's greatest assets. The factory is producing about 1,200 tons of briquettes a day.

In the calm of the State Electricity Commission's beautiful model town of Yallourn, the visitor who has been going from one wonder to another at the works may collect his bewildered senses, and pay a tribute to the memory to one to whose genius, vision and prestige the whole gigantic undertaking owes much—the late General Sir John Monash, who was Chairman of the Electricity Commission from 1921 to 1931. His monument stands in the town square, and no more fitting place could be chosen to commemorate his invaluable post-war labours on behalf of the public of Victoria.

#### The Australian Post Office

By H. P. Brown, Esq., C.M.G., M.B.E., Director-General of Posts and Telegraphs

In 1834 there were no postal, telegraph, telephone or wireless facilities to supplement the amenities of life, and such simple means of communication as were available were primitive. The necessities of life had to be carried on horseback, or by sailing vessels, and in cases of emergency, such as fire, floods, illness or accident, it was extremely difficult, if not impracticable, to obtain ready assistance. Few of us visualise the trying conditions and very often the incredible hardships with which settlers in the early years of colonisation had to contend.

Even those pioneers with more than ordinary vision and imagination must have had but the faintest idea of what this country was to become, nor could they foresee the complex social, economic and political problems inseparable from the welding of the colonies into a united Commonwealth with national characteristics and ideals. It is almost certain that none