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MELBOURNE'S
TRAMWAYS

The
Development of a
Great System

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MELBOURNE TRAMWAYS

THE DEVELOPMENT of a GREAT SYSTEM

Organised transport in Melbourne has a history of less than 60 years. It was in 1869 that the Melbourne Omnibus Company was formed. The progress made since then can be judged by citing the fact that, while the revenue of that company for the half-year which ended in September, 1870, amounted to 11,233, the traffic receipts of the Melbourne and Metropolitan Tramways Board for the year which ended on June 30, 1927, came to £2,487,573.

In 1872 the Melbourne Omnibus Company was wound up voluntarily, and its place was taken by the Melbourne Tramway and Omnibus Company, the intention being to construct tramways within the city and in the suburbs. Not until 13 years

later, however, did the first cable tramway, that to Richmond, commence running. An interesting fact in this connection is that the cable car which inaugurated the service, No. 1, has run more than one million miles. The Richmond cable route has been converted, but No. 1 is still running. It has been transferred to the Bourke-street line, and there is no doubt that its period of service will end only with that of the cable system.

ADVENT OF THE CABLE SYSTEM.

Between 1872 and 1874 there had been much discussion as to the form transport should take. Eventually, it was resolved that the underground cable system should be adopted in preference to that of the conduit system. The Act authorising the construction of tramways gave the company power to lay down tramways in the city and suburbs with the consent of the various municipalities interested. As all the municipalities decided to avail themselves of the option in the Act to construct tramways themselves, a Tramways Trust was formed, the members of that body numbering 18, and being drawn from 12 municipalities. Seven were nominated from the Melbourne City Council.

The Trust had to raise sufficient funds to pay for the construction of the tramway tracks and the engine-houses, and was

under an obligation to complete such work by the end of 1893. It had, in addition, to give the company a lease of the tracks for 32 years as from the 1st July, 1884, when the liability for the interest on the loans raised for the construction of the tramways commenced. In return, the company was required to find sufficient capital for the necessary rolling stock, and for the equipment of the lines and engine-houses. The company paid to the Trust annually the interest upon the loans, together with a sum sufficient for a sinking or redemption fund, and undertook, at the expiration of the lease, in July, 1916, to hand back the tramways, in good working order, to the Trust. The various lines were opened to traffic in the following order:—

Richmond—November 11, 1885.

Fitzroy—October 2, 1886.

Clifton Hill—August 10, 1887.

Victoria Street—November 22, 1886.

Nicholson Street—August 22, 1887.

Brunswick—1st October, 1887.

Carlton—December 21, 1887.

Brighton Road—October 11, 1888.

Prahran—October 24, 1888.

North Melbourne—March 3, 1890.

South Melbourne—June 17, 1890.

Port Melbourne—June 17, 1890.

Windsor—October 27, 1891.

West Melbourne
April 13, 1890

There were thus, at the end of 1891, 41 miles of cable lines in operation. The length of the wire rope in motion under the various roads was equal to about 95 miles, the ropes varying in length from 16,000 to 32,000 feet.

PROSPEROUS CABLE SERVICE.

At first looked upon as a wonderful novelty, and then as a vital necessity, the cable tramways prospered from the start. It was not long, however, before people in the outer portions of rapidly-growing Melbourne recognised that local growth depended to a large extent upon the provision of a modern transport system. They saw how settlement was encouraged and increased by the presence of a tramway, and they read, also, that in other parts of the world, the cable system was looked upon as out of date, and that the overhead electric system was better in all respects.

But, although there was a general realisation of these facts, it was not until October, 1906, that the North Melbourne-Essendon Electric Tramway Company, under a delegation order from the Essendon, Flemington and Kensington Councils, commenced operations. After that date, progress was rapid, and, in quick succession, the Prahran and Malvern Tramways

Trust, the Hawthorn Tramways Trust, the Melbourne, Brunswick and Coburg Tramways Trust, the Fitzroy, Northcote and Preston Tramways Trust, and the Footscray Tramways Trust came into being. The development of the suburbs in which these new tramways operated was most marked, particularly in the southern and eastern portions of the metropolis, in the area served by the Prahran and Malvern Tramways Trust. The municipalities of Prahran, Malvern, St. Kilda and Caulfield were at first associated in the venture, but were subsequently joined by Hawthorn and Kew. Through the construction of the various lines in that district, the growth made by Caulfield, and, in a lesser degree, by Malvern, was phenomenal, and shows the enormous influence of transport in the development of a district. To-day, the revenue of the municipality of Caulfield is exceeded only by the Cities of Melbourne and Prahran. The open paddocks of twenty years ago have given place to miles of streets of neat villas. In 1910 the population was 11,000; to-day it is 68,000. Malvern had, in 1910, a population of 13,000; to-day the population numbers 46,000.

THE TRAMWAYS BOARD.

It soon became obvious that a condition of affairs which involved tramway operation by seven different traffic authorities in

the one city could not be permitted to continue. After much negotiation, Parliament moved in the matter, and the Tramways Board Act of 1915, placing the cable system, with the exception of the Northcote tramways, under the control of a temporary Tramways Board, pending the establishment of a tramway authority, to take over the whole of the tramways, was passed. Three years later the Melbourne and Metropolitan Tramways Act was passed. Under that Act, the cable tramways were taken over by the present board on November 1, 1919, and the electric tramways on February 2, 1920. Subsequently, the board purchased the Essendon undertaking.

Mr. Alex. Cameron, who was chairman of the Prahran and Malvern Tramways Trust, was appointed chairman of the Board, his colleagues being Mr. T. O'L. Reynolds (deputy chairman, and former chairman of the Melbourne, Brunswick and Coburg Tramways Trust), Alderman Cabena, Mr. Colin Templeton, who was chairman of the Cable Tramways Board, the Hon. J. G. Membrey, Mr. E. H. Willis, and Cr. H. H. Bell.

The dates upon which the first electric lines in the various districts were opened to traffic are as follow:—

North Melbourne-Essendon—October 11, 1906.

Prahran and Malvern—May 30, 1910.

Melbourne, Brunswick and Coburg—
April 27, 1916.

Hawthorn—June 6, 1916.

Fitzroy, Northcote and Preston—April 1, 1920.

Footscray—September 6, 1921.

One of the first acts of the Board on its appointment was the planning of a comprehensive general tramway scheme for the metropolis.

The Board prepared a scheme providing for the gradual conversion of the cable system to electric traction, and for a well-balanced plan of development. That scheme was approved by the Parliamentary Standing Committee on Railways in 1923, since when, steady progress has been made. The progress made by the undertaking during the Board's period of management can be gauged from the following details:—

	1920.	1921.
Capital cost	£3,774,564	£7,014,073
Traffic receipts ..	1,471,939	2,487,573
No. of employees .	3,886	5,955
Car miles run ..	18,802,347	24,235,133
Passengers carried	194,094,688	224,211,867

THE WORKSHOPS.

With many different types of electric cars in use, it was at once recognised by the Board that future cars should be built to standard designs, and that the provision of

a modern workshop for the building and repairing of electric tramcars was essential, but until such a workshop was available, little progress could be made towards the standardisation of equipment. A site of 17 acres was secured at Preston for £7850. Up to the present, the Board has erected various shops, at a cost of £223,910, and installed in them up-to-date tools and machinery, at an expenditure of £51,260, the total expenditure thus amounting, so far, to approximately £300,000.

At present, there are 490 persons employed in the shops, and the weekly wages bill amounts to £1800. Last year, 53 new cars were constructed in these workshops. By the end of the year 150 cars will have been constructed there, apart altogether from the cars which have been overhauled, repaired and renovated generally. Thanks to the efficiency of the workshops, less than five per cent. of the stock of cars owned by the Board is out of service on any one day—a remarkably low average, and one which is attained but seldom in any similar undertaking.

The present installation of plant is designed for the maintenance of 600 running cars, and the building of 30 new cars per annum. Last year, the full effect of careful maintenance was felt, with the result that, as stated above, 53 new cars were constructed. The general lay-out of the

works has been so designed that extensions can readily be made without interruption to the normal daily flow of work in any way. The shops are arranged in four main groups:—

1. Engineering and electrical.
2. Blacksmithing, platework and foundry.
3. Woodworking and lifting; and
4. Painting.

In addition, there are stores, mess and recreation rooms, and administrative offices. The works have met with the highest commendation from all workshop engineers. Recently, the Board arranged for a series of inspections by the members of the various municipalities constituting the metropolitan tramway area. These visitors inspected all the stages of operation connected with the manufacture of the car-body steel framework, the car bodies and trucks, to the final varnishing of the new car, and the installation of the electrical equipment. All expressed surprise and satisfaction at the completeness of the workshops, and of the high efficiency in which the work at Preston is carried on.

From what has been written, it will be realised that the Board is proceeding on a well-planned scheme, which can be readily moulded to suit the changing requirements of a growing city.

A WELL-PLANNED SCHEME.

It might, perhaps, be well to state here that, in the opinion of Mr. Daniel L. Turner, one of the foremost consulting engineers in the United States, the general scheme of the Board for the future development of the tramway services of the metropolis is deserving of the highest commendation. In a report made to the Board in August, 1923, he says:—"The scheme presents the problem and its solution admirably. . . . This is planning comprehensively as well as for immediate needs, and is essential if the best results in the interests of the community are to be attained. It means that transit facilities can be made to precede the population, not follow the population. The city, under such a principle of transit development, is enabled to grow and expand in an orderly and predetermined manner. This principle is fundamental. Failure to consider it is chiefly responsible for the transit conditions now prevailing in the largest cities. . . . Permit me to congratulate you upon the broadness of your visions."

Compared with the cities of the European and American continents, a street tram-
port system for a city like Melbourne represents a much greater capital expenditure, due to the extraordinarily low density of population per acre (six, to be precise). Yet Melbourne has 17 miles of track for every 100,000 people. Manhattan (New

York), with a density of 175 persons to the acre, Paris with 151, London with 60, and Glasgow with 43 to the acre, all have considerably less mileage per 100,000 of population than the capital of Victoria. No city in the world, indeed, has such a large track mileage per 100,000 of population. This low density of population arises from the fact that whereas in New York the average apartment house is anything from 13 to 15 stories high, and in London and Glasgow from four to six stories, Melbourne is practically a bungalow city.

The great majority of people in Melbourne live in single-story villas and bungalows, and occupy a larger area of ground space compared with the cities in older countries where large, many-storied apartment houses are features of the residential district. That, of course, means that there has to be a much higher capital expenditure per capita in Melbourne for such matters as gas, water, sewerage, electricity, tramways, telephones, and so on. Yet, notwithstanding that higher capital expenditure, the average tramway fare is lower per capita than in the vast majority of the large cities of the United States, while the wages are practically as high, although the Board, in order to maintain its ordinary daily services, has to incur a large extra expenditure as the result of the restrictive conditions imposed by Arbitration Court awards.

CONVERSION WORK.

When the Board was inaugurated in 1919, it took over 45.9 miles of double track, 45 miles of double electric track, 19.3 miles of single electric track, and .625 miles of double horse track. The horse has gone; the cable is going. To-day there are 108 route miles of electric track, consisting of 98 miles of double electric track and 10 miles of single track, and 30 miles of double cable track.

It will be observed that the work of conversion has proceeded steadily, 32 miles of cable having been converted. For the moment, further conversions have been temporarily postponed on account of the industrial depression. Conversion has effected two material improvements. First, it has made through-routing between the northern and southern suburbs practicable, thereby doing away with the previous necessity of changing cars, either at Princes Bridge or Victoria-street; and, second, it has given greater elasticity to the undertaking, and increased the smoothness in operation.

When conversion work was commenced, the Board instituted motor-bus services for the conveyance of passengers on the routes concerned, and, in addition, opened what is termed developmental bus routes at Balwyn and Williamstown. By the use of buses to provide temporary services on

routes undergoing conversion, the Board has gained valuable knowledge on the comparative merits of electric cars and motor-buses for dealing with mass transportation at peak periods. For such transportation the Board is definitely of the opinion, based on actual results in the running of both trams and buses, that for mass transport the efficiency of the electric car system far exceeds that of the motor-buses.

The Committee of Public Accounts investigated this question, and its interesting report was presented to Parliament last year. The committee estimated that it would require 1500 buses, running 45,000,000 bus miles, to carry 224,000,000 passengers, which would mean an annual cost, exclusive of interest or capital depreciation, of £3,375,000. On the other hand, the cost of carrying these 224,000,000 passengers by electric car would be only £1,799,000. The extra cost, therefore, if motor-bus transport was in operation, would be £1,576,000 per annum. Against that loss would be placed a saving of £190,000 per annum in capital charges, but that, in turn, would be nullified by the necessity to pay the interest charge of £192,500 on a debt of £3,500,000.

But that is not all. The obligation to pay off the debenture liabilities outstanding of the tramway undertaking would still remain. It would also be imperative to reconstruct many roads in order to render them capable of carrying motor-bus traffic.

These roads, the committee estimated, could not be made for less than £4,000,000, which would mean an annual expenditure of £320,000 in interest and sinking fund charges. Probably one-half of that amount would be charged against the bus undertaking by the municipalities. Summing up, the committee expressed the view that the total additional annual cost to the community of substituting motor-buses for electric trams, would be £1,878,500, and that "the suggestion of a bus service in place of the existing tramway service cannot be entertained."

COMMUNITY SERVICES.

This article would be incomplete if it did not make reference to the community services rendered by the Melbourne and Metropolitan Tramways Board. Before alluding to these, however, it should be noted that the Tramways Act provides that the Board must pay to the State Consolidated Revenue each year a sum equal to the payments made to the Metropolitan Fire Brigades Board, the Queen's Memorial Infectious Diseases Hospital, and the Publicans' Licences Equivalent Fund. In seven years, that annual payment has increased from about £75,000 to £109,000. If that were a tax on profits it would be bad enough—as tramway passengers should not alone among the road-users be compelled to pay for these objects—but the procedure

becomes iniquitous when it is kept in mind that the tax is levied on gross earnings, and are the first charge upon the revenue of the undertaking. The Committee of Public Accounts has recommended Parliament that the Board should be relieved of such payments, but so far no action has been taken by the Government.

Now, as to the community services rendered by the Board. The first of these direct contributions concerns roads. The assertion that the best roads throughout the metropolitan area are those through which tramways run cannot be questioned. The Board lays and maintains that portion of the street between the tramway rails and 18 inches outside the rails. In effect, that means that the municipalities concerned are saved the expense of making and maintaining, on the average, 17 feet in width of roadway. Yet, notwithstanding all this, the municipalities impose rates on the tracks. The sum paid in this connection amounts to approximately £15,000 a year.

When it is remembered that it would cost £1,500,000 to construct that portion of the roadway now occupied by tramway tracks, the annual expenditure for maintenance, renewal, interest and sinking fund amounting to £250,000, the injustice of paying rates on the tracks is evident. In conformity with the practice instituted by the late Municipal Tramway Trusts, the

Board continues to provide lighting for 80 miles of streets traversed by the electric tramways, a service which costs £9000 annually. The cost of the erection of bridges, the abolition of railway crossings, the widening of streets, have all been contributed to by the Board, the sum up to date, exclusive of the Spencer-street bridge, coming to approximately £150,000.

Finally, the Board grants free travelling to disabled soldiers, the police and blind persons, whilst workmen are carried on the cable lines, and school children on all lines, at rates much below the actual cost of the transport involved.