

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 the traffic receipts of the Melbourne and Metropolitan Tramways Board for the year which ended on the 30th June, 1927, came to £2,487,573. In 1872 the Melbourne Omnibus Company was wound up voluntarily, and its place was taken by the Melbourne Trarway and Omnibus Company, the intention being to construct trarways within the city and in the suburbs. Not until 13 years later, however, did the first cable trarway, 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. Between 1872 and 1884 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 trarways gave the Company power to lay down trarways 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 trarways themselves, a Trarways 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 trarway 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 trarways 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 trarways in good working

order to the Trust. The various lines were opened to traffic in the following order:-

Richmond,	11th November,	1885
Fitzroy,	2nd October,	1886
Victoria Street,	22nd November,	1886
Clifton Hill,	10th August,	1887
Nicholson Street,	22nd August,	1887
Brunswick,	1st October,	1887
Carlton,	21st December,	1887
Brighton Road.	11th October,	1888
Frahran,	24th October,	1888
North Melbourne,	3rd March,	1890
Port Melbourne,	17th June,	1890
South Melbourne,	17th June,	1890
Windsor,	27th October,	1891.

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.

At first looked upon as a wonderful novelty, and then as a vital necessity, the cable traways 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 traway, 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 Traway Company commenced operations. After that date progress was rapid, and in quick succession the Frahran and Malvern Traways Trust, the Hawthorn Traways Trust, the Melbourne, Brunswick and Coburg Traways Trust, the Fitzroy, Northcote and Preston Traways Trust, and the Footscray Traways Trust came into being. The development of the suburbs which then set in was most marked in the Southern and Eastern portion of the Metropolis, in the area served by the Frahran and Malvern Traways Trust. The municipalities of Frahran, Malvern, St. Kilda and Caulfield were at first associated in the venture, but were subsequently joined by Hawthorn and Kew. Through the construc-

tion 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. Today Caulfield is one of the richest municipalities in the State, the open paddocks of twenty years ago having given place to streets of neat villas. In 1910 the population was 11,000; today it is 68,000. Malvern had in 1910 a population of 13,000; today the population numbers 46,000.

It soon became obvious that a condition of affairs which involved tramway operation by seven different concerns in the one city could not be permitted to continue. After much negotiation Parliament moved in the matter and the Tramway Board Act of 1915, placing the cable systems with the exception of the Northcote tramways under the control of a Cable Tramways Board, was passed. That was bound to be but a half-way step towards complete control of all the tramways by one Board. 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 the 1st November, 1919, and the electric tramways on the 2nd February, 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. F. O'L. Reynolds (Deputy Chairman), Alderman Cabana, Mr. Colin Templeton, who was Chairman of the Cable Tramways Board, Hon. J. G. Meabrey, 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 follows:-

North Melbourne-Essendon,	11th October, 1906.
Prahran and Malvern,	30th May, 1910.
Hawthorn,	6th June, 1916.
Melbourne, Brunswick & Coburg,	27th April, 1916.
Fitzroy, Northcote & Preston,	1st April, 1920.
Footscray,	6th September, 1921.

One of the first acts of the Board on its appointment was the planning of a comprehensive general tramway scheme for the Metropolis. After extensive enquiries had been made by Mr. Cameron in countries where electric tramways have been long established on a large scale, the Board prepared a scheme which provides for the gradual conversion of the cable system to electric traction and for a well-balanced plan

of development. That scheme was generally approved in November, 1922, since when steady progress has been made, the rate of conversion, and also that of extension, depending upon the available funds. The progress made by the undertaking during the Board's period of management can be gauged from the following details:-

	1920	1927
Capital Cost,	£3,774,564.	£7,014,673
Traffic Receipts,	£1,471,939	£2,487,573
Number of Employees,	3,886	5,955
Car Miles Run,	18,802,347	24,235,133
Passengers Carried,	194,094,688	224,211,867
Average maximum number of Cars in operation daily,	583	614

With five different types of electric cars in use, it was at once recognised by the Board that the provision of a modern workshop for the building and repairing of cars was essential for the success of the undertaking, and that 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 £7,850. 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 more than £280,000. At present there are 490 persons employed, the weekly wage bill coming to £1,800. Last year 53 new cars were constructed at Preston. By the end of the year 150 cars will have been put out by the workshops, 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 be made without altering the flow of work in any way. The shops are arranged in four main groups :-

1. Engineering and electrical.
2. Blacksmithing, Platemaking, 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, after inspecting all the stages of operation, from the rivetting of the truck to the final varnishing of the new car, 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 appreciated that the Board is proceeding on a well-planned scheme, which is serving as a framework which can be readily moulded to suit the changing requirements of a growing city. The Board never "boasts" itself, so it is perhaps just as well to state here that the opinion expressed in the preceding sentence is the deliberate, considered view of one of the foremost Consulting Engineers in the United States, Mr. Daniel L. Turner. "The plan," he wrote in August, 1923, "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."

Compared with the cities of the European and American continents, a street transport system for a city like Melbourne represents a much greater capital expenditure, due to the extraordinarily low density of population per acre, 6 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. 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 storeys high, and in London and Glasgow from 4 to 6 storeys, Melbourne is a bungalow city. The great majority of people live in single-

storey villas and bungalows, and so occupy a larger area of ground space compared with the cities in older countries where large many-storeyed 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, trams, 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 the ordinary daily services, has to incur a large expenditure, the result of the restrictive conditions imposed by Arbitration Court Awards.

When the Board was inaugurated in 1919, it took over 45.9 miles of double cable 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. Today there are 197 miles of double electric track, 10 miles of single, and 30 miles of double cable track. It will be observed that the work of conversion has proceeded steadily, 32 miles having been taken out. For the moment further conversions have been postponed on account of the industrial depression. Conversion has effected two material improvements. The first of these is that 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 the second is that it has tended towards economy and smoothness in car operation.

When conversion work was commenced, the Board instituted motor-bus services for the convenience of passengers on the routes concerned, and in addition opened what is termed developmental bus routes at Balwyn and Williamstown. Both are run at a heavy loss. The Board has therefore had the experience which is necessary before any authoritative opinion can be expressed on the merits of electric cars and motor buses for dealing with mass transportation at peak periods. For such transportation the Board has come to the conclusion, based on actual results in running, that the efficiency of the electric car system far exceeds that of the motor buses. In speed, carrying

capacity, and life, the electric tramcar is far and away the superior vehicle. 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. Even then land would not be in sight, for the necessity to pay off that debt would still remain, and it would be imperative to construct roads throughout the entire area capable of carrying such a volume of 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."

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 Licenses 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 — tramway passengers should not alone among the road users be compelled to pay for these objects — but the procedure becomes iniquitous and indefensible when it is kept in mind that the tax is levied on

