

Double Bogie Combination Tram Car.

St. Kilda-Brighton Electric Line.

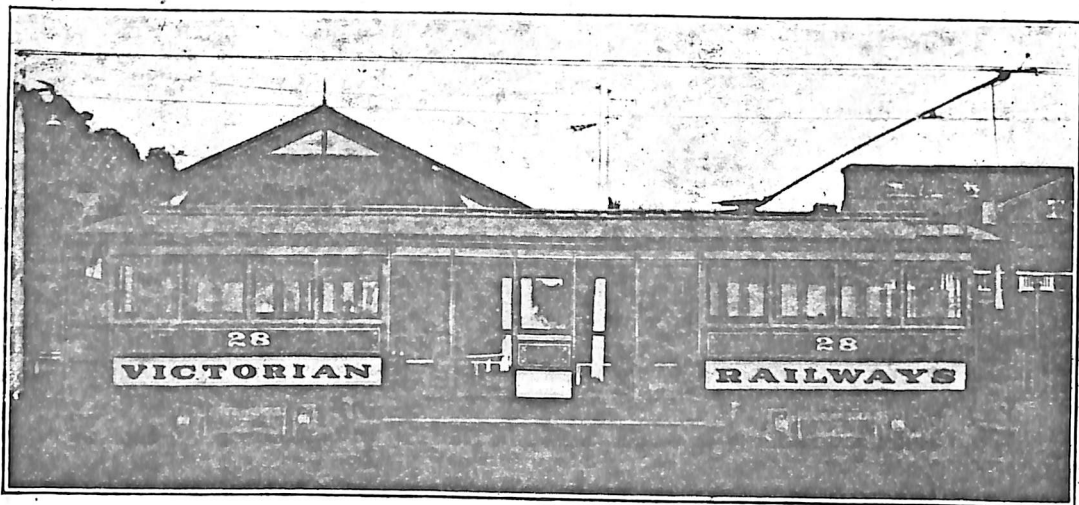
To meet the growth of traffic on the St. Kilda-Brighton electric street railway, and in anticipation of the line being operated from the Newport electric power station, the Victorian railway commissioners arranged for the provision of ten new and commodious tram cars to take the place of the small cars which have proved insufficient to accommodate in comfort the passengers who daily travel to and from the St. Kilda station.

Owing to the war, however, the Newport power station could not be brought into operation as soon as was expected, and the power generated at Elwood not being sufficient to operate the heavier cars, it was impossible to place them in service. Consequently they had to be stored at Elwood and at Newport for the time being. Power was re-

facilitate the entrance and exit of passengers and the collection of fares by the staff.

The other passenger compartments have longitudinal seats, and are of the closed type, entrance being effected through sliding doors from the open portion of the car. Large windows admit of the fullest possible outlook and provide good lighting, while louvres are fitted to all windows, and the cars are well ventilated.

Lighting of the cars has been well provided for, Sudan shades, similar to those which will be used on the new electric suburban railway rolling stock, having been installed in the interior of the cars; illuminated destination indicators and headlights have also been placed in their respective positions.



Double Bogie Combination Car.

cent. made available from the Newport power station, and a number of the cars have been put into running.

The underframes and bodies were made at the Newport workshops. Australian timbers have been largely utilised in the construction of the cars, the internal fittings and seats being of Queensland maple.

The new cars provide seating accommodation for 52 passengers, as compared with 30 passengers in the existing cars. They are of the double bogie combination type, and somewhat similar to those in use on the lines of the Prahran and Malvern tramway trust, Vic. Each car has five compartments, three for passengers, and one at each end for the motorman. Smoking accommodation is arranged for in the open compartment in the centre of the car, which is provided with cross seats, and there is also a central passageway to

The bogies, wheels and axles were manufactured by Messrs. J. G. Brill and Co., of Philadelphia, U.S.A., and the bogies are of a type which has been developed for street railway service, being fitted with wheels only 24 inches in diameter, which enables the car floor to be as low as possible and obviates the use of the high step into the car. The use of these small diameter wheels necessitated the provision of special motors, in order that the requisite clearance between the motors and the track might be obtained. These motors are of a new design, which at the time the order was placed had been introduced in the Pittsburg low-floor cars. They are known as the GE247 type, four, each of 33 horse power, being installed on each car. The cars are provided with Ackley hand brakes, and also with air brake equipments of the "straight" air type, i.e., the brake cylinder is connected direct to the motorman's valve through the

brake pipe without any intervening valves. This type of brake is very suitable for single car operation because of the simplicity of the piping, valves, etc. The air is supplied through an automatically controlled motor-driven air compressor located under the car.

In addition to the hand and air brakes, an electrical-emergency brake can be applied by the reversal of the controller handle. So far as Victoria is concerned, these were the first cars to be equipped with air brakes, the orders for the air brakes being placed prior to those of other tramway authorities who are at present operating with air brakes.

It is considered that all the latest improvements in design and electrical apparatus are embodied in the cars. The use of the new cars on the St. Kilda-Brighton line will enable six of the old motor cars and six trailers to be released for the Black Rock line, but as the latter has a gauge of 4 ft. 8½ in., as compared with the 5 ft. 3 in. gauge on the Brighton line, some alterations will be necessary before the cars can be used, and this work is now in hand at the Newport workshops.

SUPERHEATED LOCOMOTIVES.

When giving evidence last month before the South Australian railways standing committee concerning the ways and means of improving locomotive hauling power on the Murray river and other railway lines, Mr. B. F. Rushton, chief mechanical engineer, referred to the question of superheating of locomotives. He said he was not against the use of superheaters, but the department was unable to get reliable information on certain aspects of superheating, which would not increase the hauling power of the local engines unless the size of the cylinder was increased. As the result of controversy in South Australia over superheating it was proposed to fit up several R X engines on the south line for superheating experiments. Bad water affected the superheating apparatus. If South Australia, Mr. Rushton added, had water as good as that of Victoria there would be no hesitation in installing superheaters. It would cost from £750 to £900 to fit a South Australian engine with superheaters. Before the war it would have cost about £700.

Mr. Reidy—But Victoria did it for £250!—The difference is in the class of engine they were working upon.

The witness said the best possible use was obtained from the State's saturated engines.

The City Electric Light Co. Ltd., Brisbane, is taking steps to increase its capital to £1,000,000 by the creation of 500,000 new shares of £1 each. These will be offered to existing shareholders at par or at premiums, at the discretion of the board.

A SUBURBAN ELECTRIC TRAM SERVICE.

Melbourne, Brunswick, and Coburg, Vic.

This service joins up with the Melbourne cable system at Queensberry street, in the north of the city of Melbourne. Endeavors have been made to secure an extension of the tramway to Lonsdale street, via Swanston street, but the government has withheld its sanction. The total cost of the undertaking to date is £168,079, which does not include those portions of contracts which are not complete. The stock of cars is being increased by six of the latest design.

A summary of the results of operations for the past two years is as follows:—

	Year end'g 30th Sept., 1917.	Year end'g 30th Sept., 1918.
Total borrowing powers	£200,000	£200,000
Borrowing powers exercised	£160,000	£165,000
Unexhausted borrowing powers	£40,000	£35,000
Gross capital expenditure	£158,283	£168,079
Mileage of system, single (miles)	1.77	1.77
Mileage of system, double (miles)	5.26	5.26
Total, single track (miles)	12.29	12.29
Traffic revenue	£28,507	£35,831
Total revenue	£28,674	£36,075
Working expenses	£18,754	£24,785
Interest on capital	£6,444	£7,270
Net balance for allocation	£2,714	£3,219
Car miles	538,457	659,296
Passengers carried	4,364,593	5,404,247
Number of units used per car mile	1.679	1.739
Av. number of cars in use daily	10.791	13.296
Percentage of working expenses to receipts	65.407	68.706
Av. traffic revenue per car mile	12.706d.	13.043d.
Av. traffic revenue per mile of single track	£2,319	£2,915
Av. traffic revenue per passenger	1.567d.	1.591d.
Av. total revenue per car mile	12.730d.	13.132d.
Av. total car miles per day per car	136.708	128.905
Av. speed per hour (miles)	11	11
Av. car hours per day	134.111	164.205
Av. working expenses per car mile, including total power cost	8.359d.	9.022d.
Scale of fares	1d. to 4d.	1d. to 4d.
Av. distance in miles per penny	1.338	1.62i
Av. number of passengers per car mile	8.105	8.197
Number of cars in stock	18	18

Power Statement.

	1917.	1918.
Purchase of power	£4,608	£5,991
Wages	£101	£104
Oil, waste, supplies, etc.	£3	£19
Maintenance substation plant	£3	£7
Miscellaneous	£13	£17
Total power expenses	£4,728	£6,140
Units purchased	1,072,222	1,388,506
Units outgoing from substation	933,019	1,179,846
Substation efficiency	87.014	84.9
Units used for traction	904,070	1,146,599
" " lighting track	19,040	21,451
" " lighting depot	9,584	10,819
" " workshop power	314	970
D.c. units per car mile	1.679	1.739