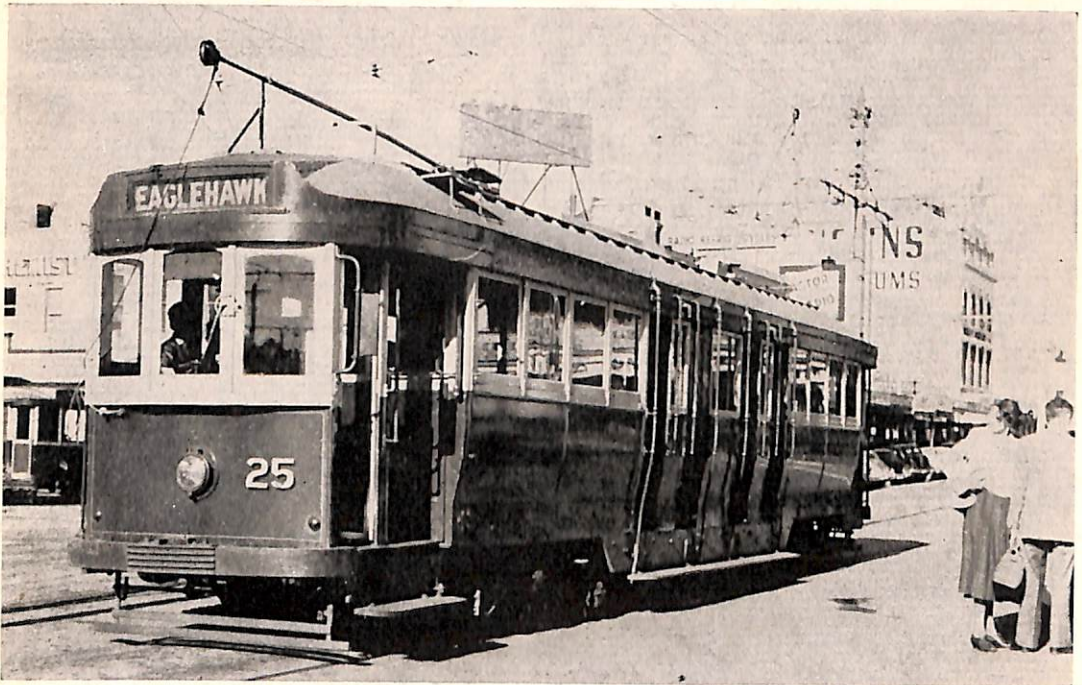


Price: 6/-

# Destination

# EAGLEHAWK



**A Pictorial Review of the Tramcars of  
Ballarat, Bendigo and Geelong**

### ABOUT THIS BOOK

This book was first prepared nearly eight years ago but, fortunately, had not reached the printer when Mr. K. S. Kings discovered that certain information, long accepted by tramway historians, was in fact incorrect. While checking details Mr. Kings unearthed so much additional material that it was decided to defer publication until a thorough study could be made of the tramway rolling stock of Ballarat, Bendigo and Geelong. Despite pressing demands on his time, Mr. Kings has now brought this task to a stage at which the results of his researches can be placed before you.

The railway or tramway book which is entirely free from error, or which does not overlook a single relevant fact, probably has yet to be published, but we hope that in DESTINATION 'EAGLEHAWK' errors and omissions have been kept to a minimum. It must be emphasised that the "Destination" books are not histories but are intended purely to record rolling stock details and illustrate the cars concerned.

The appearance of DESTINATION 'EAGLEHAWK' at this time is particularly apt as April of this year saw the 75th anniversary of tramway operation in Bendigo, and August will bring the diamond jubilee of electric tramways in Ballarat.

#### THE EDITOR

NOTE: This book was originally numbered "2" and has been re-numbered to bring it into line with our standard numbering system. Other "Destination" books will be re-numbered as new editions appear.

#### WHY "EAGLEHAWK"?

Each book in the "Destination" series bears a title intended to be distinctive of the system or systems concerned. There is no single destination name common to the three Victorian provincial cities, and none which could be said to typify them all, but "Eaglehawk" is certainly unusual and has an attraction of its own.

Eaglehawk itself, now a suburb of Bendigo, was formerly a separate town and the hub of an intensive gold-mining industry. It is still a borough in its own right, with its own commercial centre, and is the terminus of what is, for a provincial city, an unusually long tram route.

#### ABBREVIATIONS

E.S.Co.	Electric Supply Company of Victoria Ltd.
H.T.T.	Hawthorn Tramways Trust (Melbourne).
M. & M.T.B.	Melbourne & Metropolitan Tramways Board.
M.E.S.	Melbourne Electric Supply Company.
M.T.T.	Municipal Tramways Trust (Adelaide).
P. & M.T.T.	Prahran & Malvern Tramways Trust (Melbourne).
S.E.C.	State Electricity Commission of Victoria.

The term "Brill" is used to describe trucks made to that firm's design; in many cases the trucks were made by other manufacturers.

### DESTINATION

# EAGLEHAWK

Compiled by  
K. S. KINGS

Edited by  
J. RICHARDSON

Dedicated to  
the late  
Walter Henry Jack  
whose lifelong interest in tramways  
enabled much early data to be recorded.

Published by  
TRACTION PUBLICATIONS  
P.O. Box 438  
CANBERRA CITY, A.C.T.  
1965

Registered in Australia for transmission by post as a book

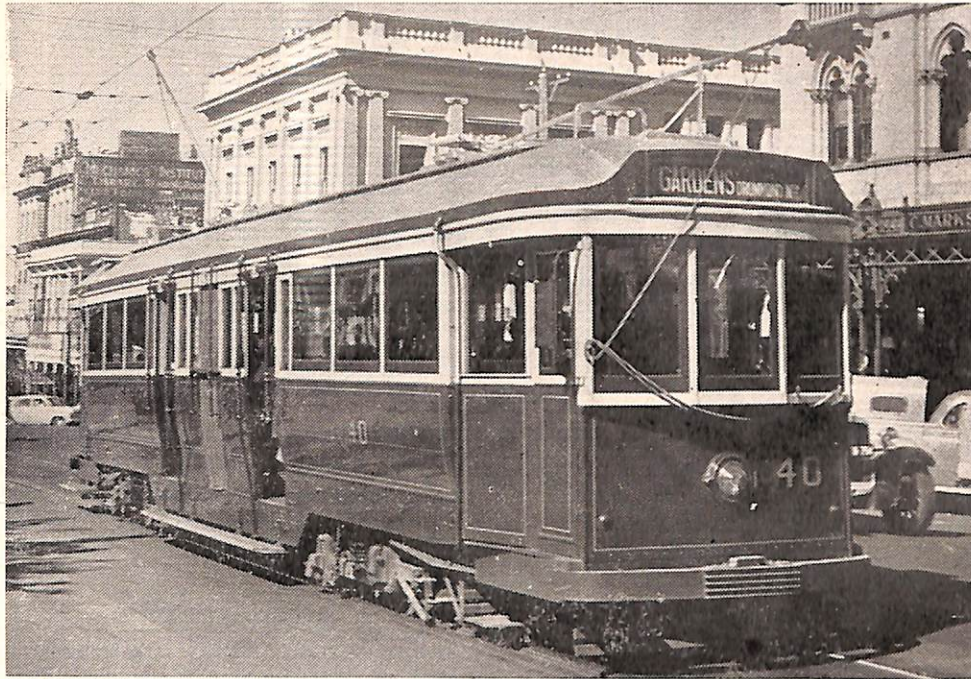
Distributor in U.S.A.

Owen Davies, Bookseller, 1214 No. La Salle St., Chicago 10, Illinois

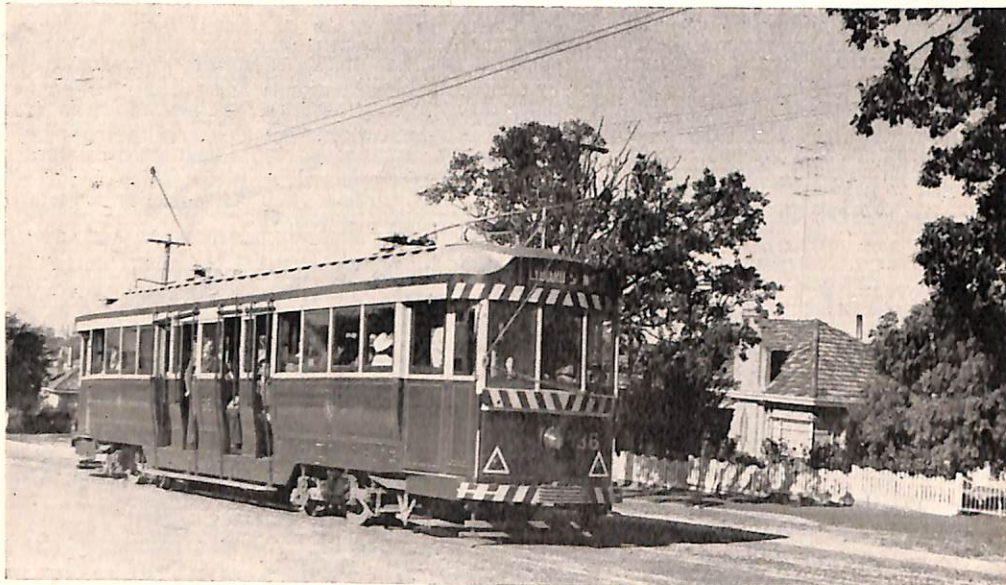
Distributors in the United Kingdom  
Oakwood Press, Tandridge Lane, Lingfield, Surrey

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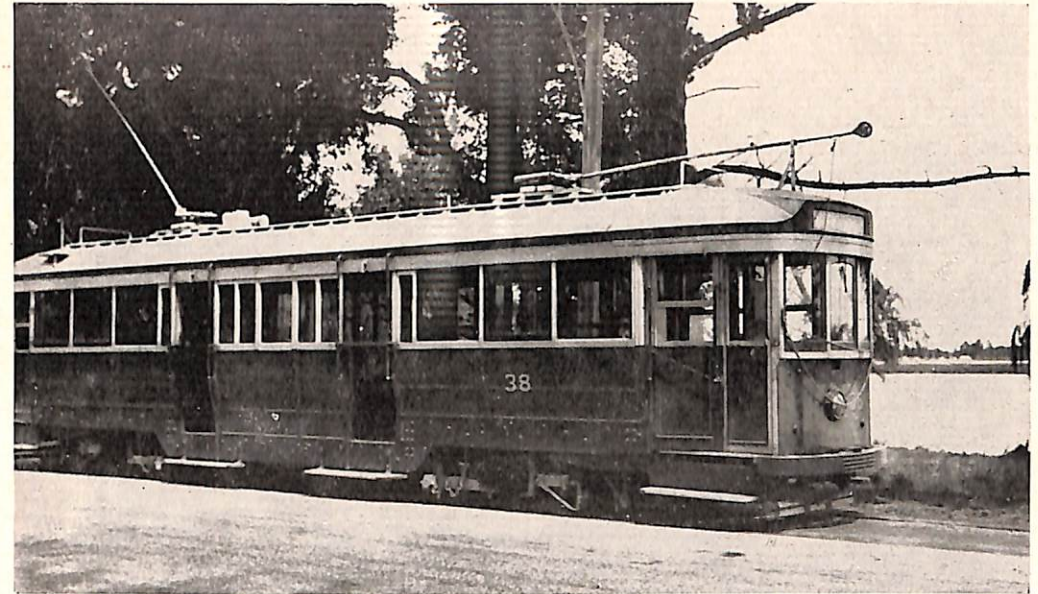
COVER PICTURE  
Bendigo No. 25 at Charing Cross  
W. John Webster



W. John Webster



K. S. Kings



K. S. Kings

(Above): No. 38, as converted for 1-man operation.

(Opposite page, above): No. 40 westbound in Sturt Street. The centre of this very wide thoroughfare is laid out as a park, with the tram tracks immediately on either side, so that passengers enter from the "wrong" side.

(Opposite page, below): No. 36 at Lydiard Street North terminus. The zebra stripes and reflectorised triangles were added in an effort to reduce accidents.

### BOGIE CARS

Nos. 34-43, (2nd) 37 (11 cars)

Type: Bogie drop-end-and-centre combination.

Built: 1913 (No. 40), 1914 (Nos. 38, 39, 41-43), 1916 (Nos. 35, 37, 2nd 37).

1917 (No. 36), 1918 (No. 34); all Duncan & Fraser.

Capacity: 44 seats; full load 140.

Trucks: Brill 22E maximum traction.

Motors: 2 x 65 h.p. (GE201).

Weight: 16 tons.

Length: 44ft. 3½in. (Nos. 38-43); 44ft. 4½in. (Nos. 35, 37, 2nd 37); 45ft. 4½in. (others).

NOTES: Former M. & M.T.B. "C" (No. 40), "E" (Nos. 38-39, 41-43), "N" (Nos. 35, 37, 2nd 37), and "P" (Nos. 34, 36) classes, Nos. 137, 124, 132, 117, 119, 41, 42, 35, 39, 38, and 40. First five originally H.T.T., remainder P. & M.T.T. (the original ownership can be seen at a glance from the door and window spacing). Purchased in 1945 (Nos. 36-37), 1947 (Nos. 34-35), 1948 (2nd 37) and 1951 (others); 2nd 37 previously Geelong No. 35, then Bendigo No. 1, and came to Ballarat in 1960. Nos. 36-37 previously numbered (2nd) 15 and (4th) 22; renumbered in 1953 and 1951, respectively. No. 37 scrapped in 1955 after serious accident. No. 41-43 previously Geelong Nos. 39, 37, 40; transferred to Ballarat in 1956. Nos. 38, 41 converted (latter at Geelong) for 1-man operation (1953) and are only Ballarat bogie cars with end doors on both sides. All except 1-man cars have four seats removed from drop-centre section to provide more space for



P. W. Duckett

No. 23 in Skipton Road, Sebastopol, near Rubicon Street.

NOTES: Formerly M.T.T. (Adelaide) Nos. 10, 92, 69, purchased 1937. No. 21 was received without truck and one was made at Ballarat Depot from spare parts and odds and ends from scrapped cars including the original Nos. 21 and 22. Originally had GE67 motors, later WH225 (45 h.p.); present motors fitted 1945. This car was converted in 1938 to an approximation of the standard Ballarat saloon type seating 32. No. 22 scrapped 1945. No. 23 decorated for centenary of discovery of gold (1951), scrapped 1952.

Nos. 24-28, 30-33 (2nd) 11-14, 16-20 (18 cars)

Type: Single-truck drop-end open combination.

Built: 1913, Duncan & Fraser (No. 18) / 1915, Meadowbank (Nos. 11-14, 16-17); / 1916, Meadowbank (No. 19) / Duncan & Fraser (Nos. 24-28); / 1918, J. Moore (No. 20) / 1920, Duncan & Fraser (Nos. 30-33).

Capacity: 36 seats (Nos. 11-14, 16-20), 38 seats (others), plus standees.

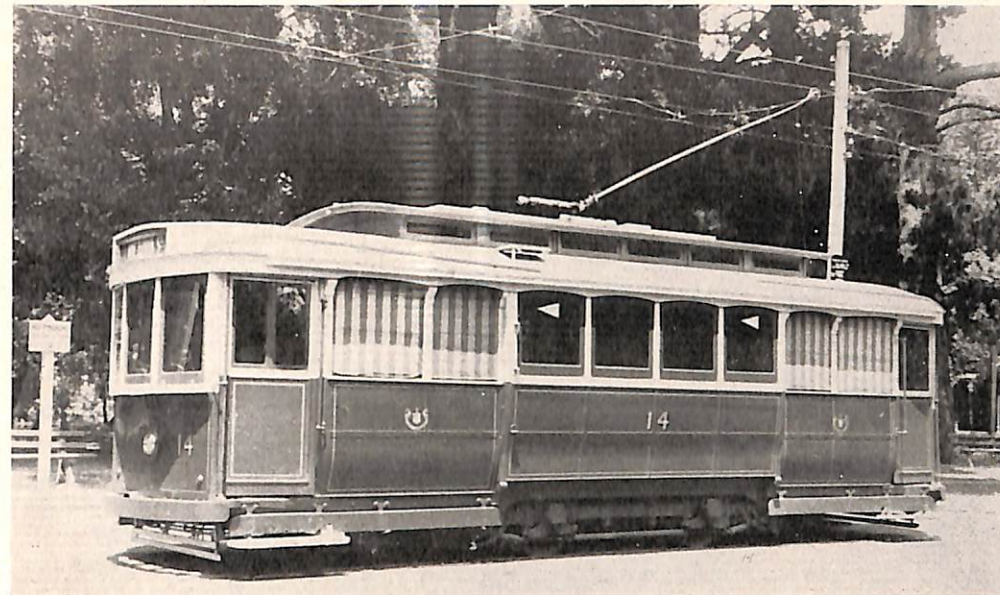
Trucks: Brill 21E.

Motors: 2 x 45 h.p. (WH225) (Nos. 11-14, 16-20, 24-28), 2 x 50 h.p. (GE202) (others).

Weight: 12 tons (Nos. 24-28, 30-33), 11 tons (others).

Length: 30ft. 11½in. (Nos. 11-14, 16-20), 31ft. 10in. (others).

NOTES: Former M. & M.T.B. "B" (No. 20), "H" (Nos 18), "J" (Nos. 11-14, 16-17, 19), and "M" classes. Purchased 1928 (Nos. 11-14), 1930 (Nos. 24-28), 1931 (Nos. 16-20), and 1935. Melbourne numbers were 65, 71, 68, 75, 82, 73, 63, 76, 89, 108, 110, 111, 116, 113, 183, 184, 186, 189. Nos. 11-14 previously Geelong Nos. 28, 27, 30, 29, transferred to Ballarat 1935-36. No. 17 formerly No. 29, renumbered in 1935. Nos. 16 and 24 scrapped (1956, 1957). Nos. 19 and 25 transferred to Bendigo (1960). No. 24 was the only car of this class to



G. Sodbonov

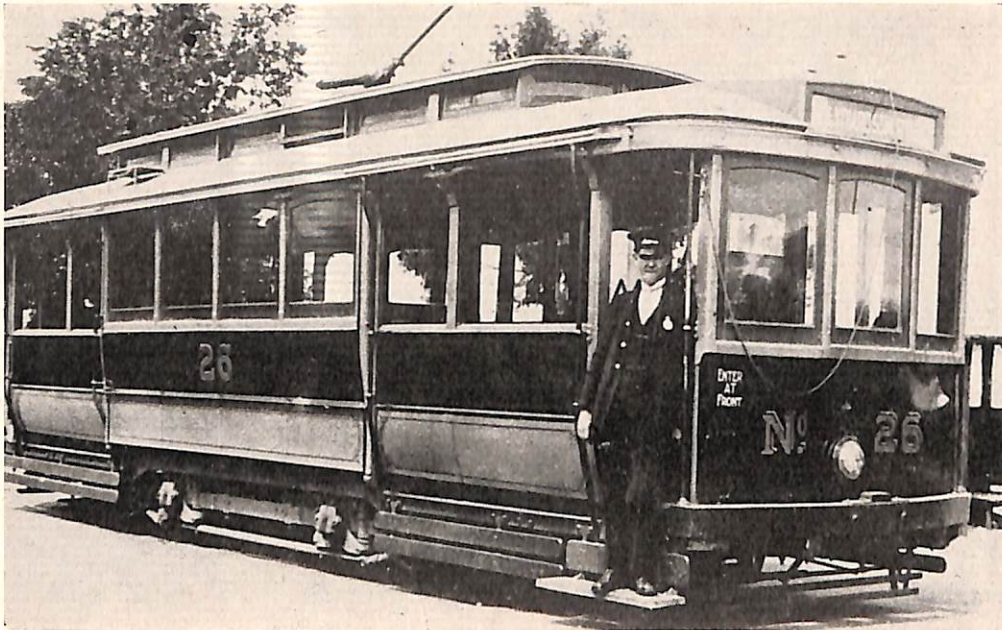
No. 14 at the Gardens terminus. The two routes to this point run for a considerable distance beside the parklands fringing the shores of Lake Wendouree, and "wrong-side" loading is used for cars proceeding round the lake in a clockwise direction. This practice, also used in busy Sturt Street, and for a considerable part of the Sebastopol route, has led to the development of unique car designs in Ballarat.

run in Ballarat in unconverted condition; subsequently this and all other cars went through one or more stages of conversion, as follows:

Stage I: Barrier rails screwed down, except on off-side of each end compartment where pane of glass was removed from the motorman's bulkhead to enable him to collect fares; passage cut through cross seats to provide access to saloon; unused footboards bolted up. Cars seated 36 in this condition. Nos. 24-28 converted in 1930.

Stage II: End compartments panelled to waist rail level. One third of driver's bulkhead and adjoining seat removed; other cross seats removed and replaced by longitudinal seating. Access through former off-side driver's door. Cars seated 32 in this condition. Nos. 16-20 converted in 1931.

Stage III: End compartments panelled to waist rail level. Bulkhead seats removed and access provided through both sides of driver's compartments at each end, with "stable" doors to permit complete or partial (for fare collection) closure as required. Former bulkhead side pillars moved back slightly to provide wider doorway. Cars seated 28 (ex-"M" class 30 in this condition. Nos. 30-33 converted in 1935; Nos. 11-14 converted (from "Geelong" type) in 1936; Nos. 16-20 converted (from Stage II) in 1935-37; remainder converted (from Stage I) in 1936-38.



Courtesy D. Irvine

(Above): No. 26, after Stage II conversion for 1-man operation, at the old Lydiard Street North terminus in 1932. Ballarat's 1-man cars were originally laid out for "wrong-side" loading, but increased motor traffic soon necessitated the provision of end doors on both sides of the car, as in No. 14 (previous page).

(Opposite page, above): No. 17, one of the original electric cars.

(Opposite page, below): No. 2.

Nos. 1, 4, 6, 10-18 (12 cars)

Type: Single-truck straight-sill open combination.

Built: 1905-06, Duncan & Fraser (as electric cars).

Capacity: 32 seats plus standees.

Trucks: Brill 21E.

Motors: 2 x 30 h.p. (?WH205).

Weight: 10 tons (approx.).

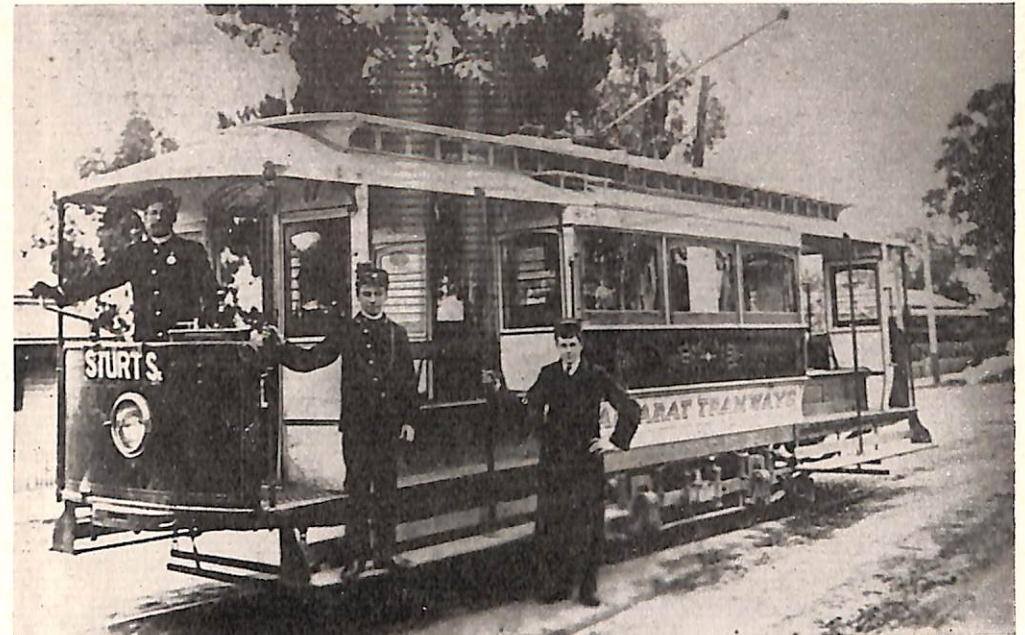
Length: 30ft. 9in. (approx.)

NOTES: Origin of these cars is in considerable doubt. Until recently it was generally believed that they were converted from double-deck Ballarat horse cars, but it is possible that they actually converted from Sydney cable trailers, 12 of which were sold "to Victoria" in 1905. Like the ex-Sydney electric cars (see below), they were so heavily rebuilt as to be virtually new cars; bodies placed on steel underframes and platforms lengthened. Platform seats originally reversible, fixed facing inwards for 1-man operation in 1913. All scrapped 1930-35.

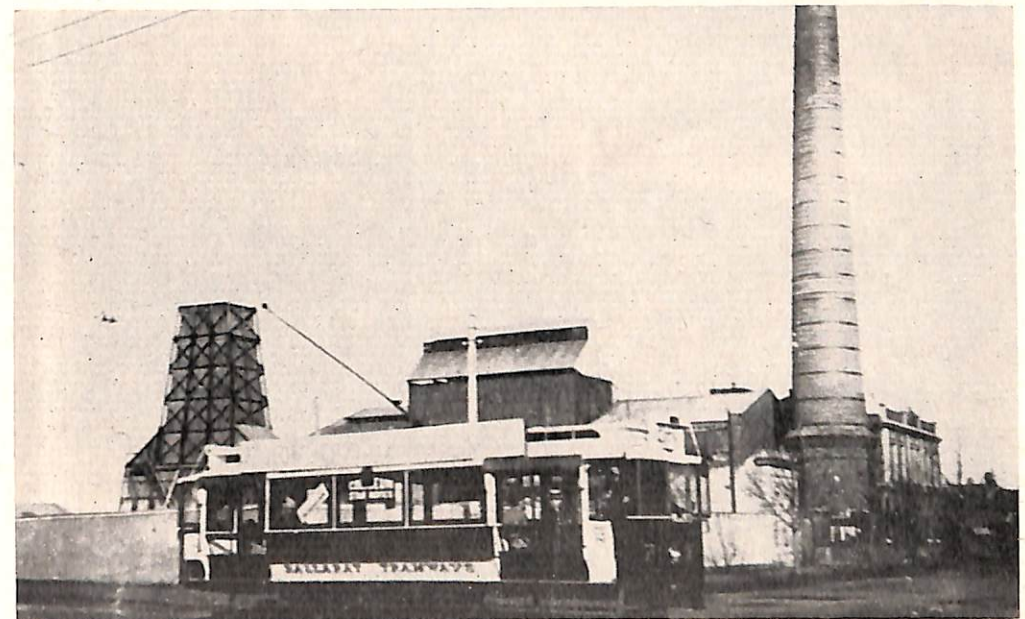
Nos. 2, 7, 9 (3 cars)

Type: Single-truck straight-sill open combination.

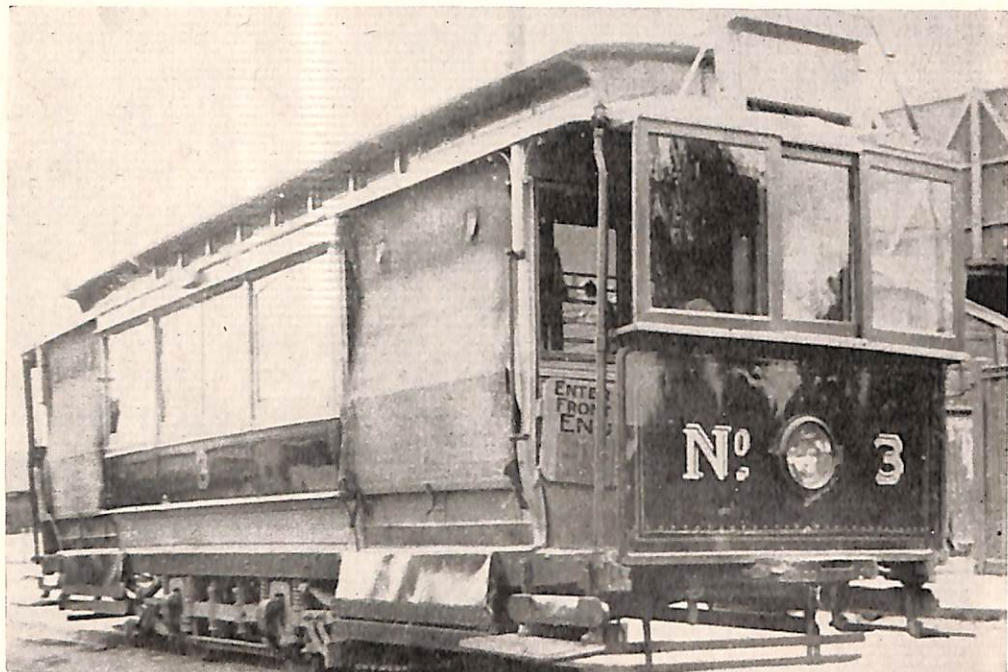
Built: 1890, Stephenson (U.S.A.); rebuilt 1905, Duncan & Fraser.



Late W. Jack collection



Tramway Museum Society of Victoria Ltd.



Late W. Jack collection

(Above): No. 3 "converted" for 1-man operation.

(Opposite page, above): No. 21.

(Opposite page below): One of the cross-bench cars (No. 19 or 20) at the Gardens in March, 1928.

Capacity: 36 seats plus standees.

Trucks: Brill 21E

Motors: 2 x 30 h.p. (?WH205).

Weight: 12 tons (approx.).

Length: (not known).

NOTES: Formerly Sydney experimental electric cars Nos. 1-3, purchased 1905.

Body details as No. 1 etc. Scrapped 1932-34.

Nos. 3, 5, 8 (3 cars)

Type: Single-truck straight-sill open combination.

Built: 1899, Hudson; rebuilt 1905, Duncan & Fraser.

Capacity: 36 seats plus standees.

Trucks: Brill 21E

Motors: 2 x 30 h.p. (?WH205).

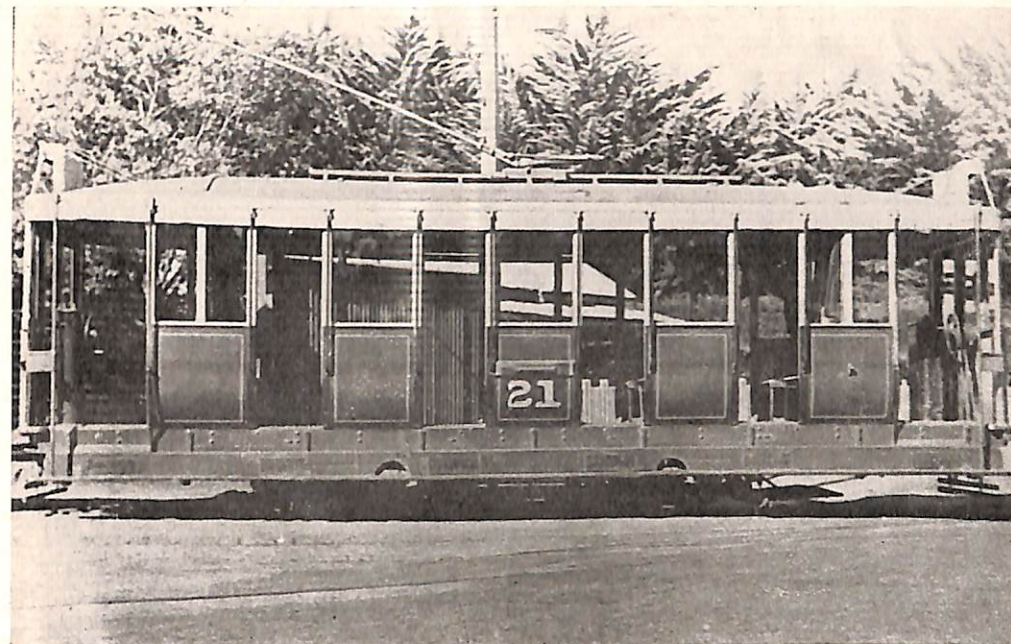
Weight: 12 tons (approx.)

Length: (not known).

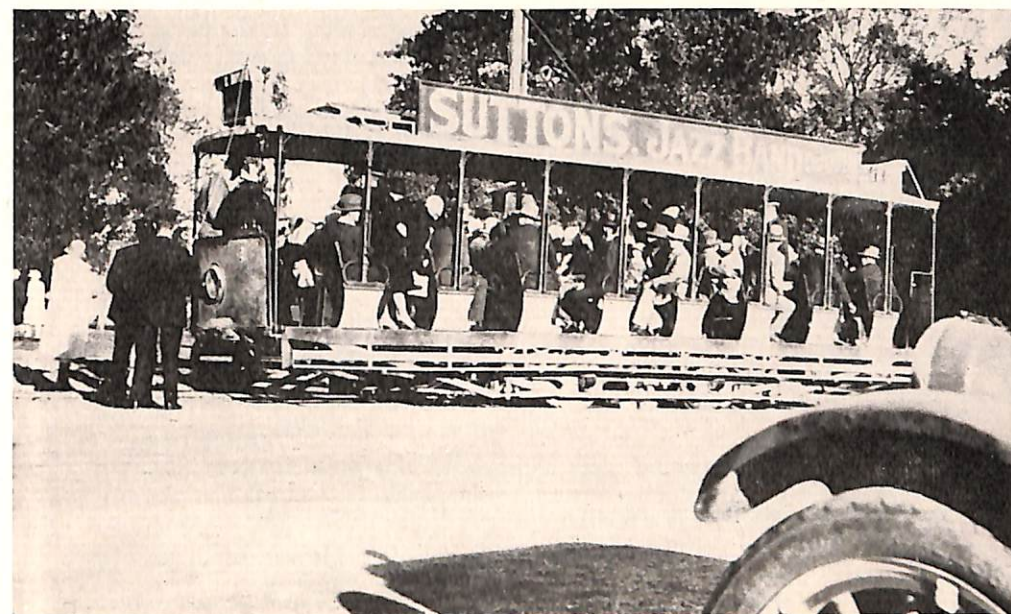
NOTES: Formerly Sydney "C" class oNs. 14-16, purchased 1905. Body details as

No. 1, etc. No. 3 ran for some time with Peckham truck. All scrapped 1931-35.

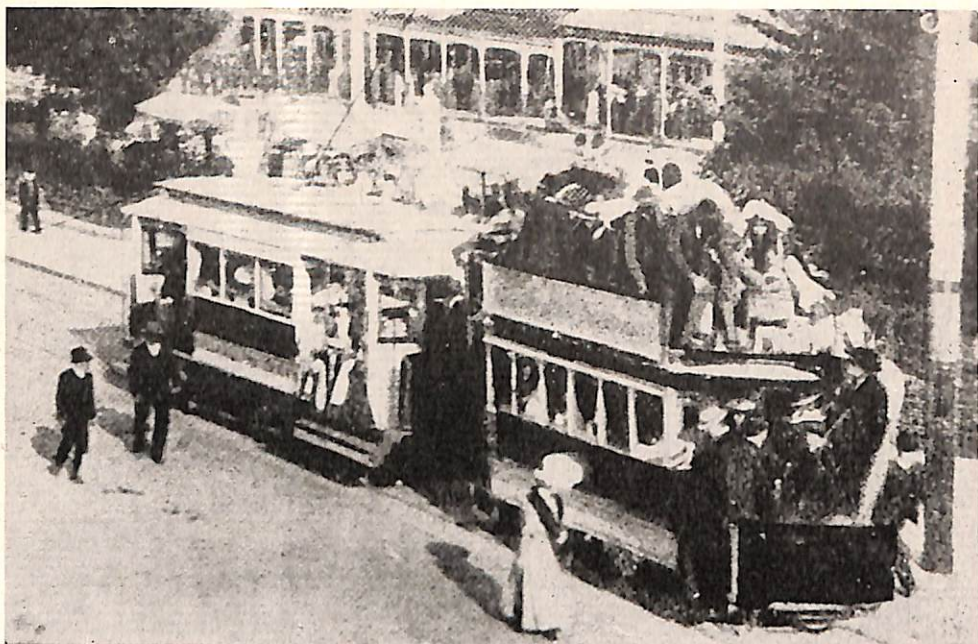
(Note:—Rebuilding of above three classes was carried out at Ballarat by the Adelaide tramcar building firm of Duncan & Fraser).



Tramway Museum Society of Victoria Ltd.



F. Marshall, courtesy R. Lilburn



Late W. Jack collection

One of the original electric trams towing an ex-horse car trailer in Sturt Street. Although the photograph is of poor quality, it is apparent that business was brisk.

### SINGLE-TRUCK CROSSBENCH CARS

#### Nos. 21-23 (3 cars)

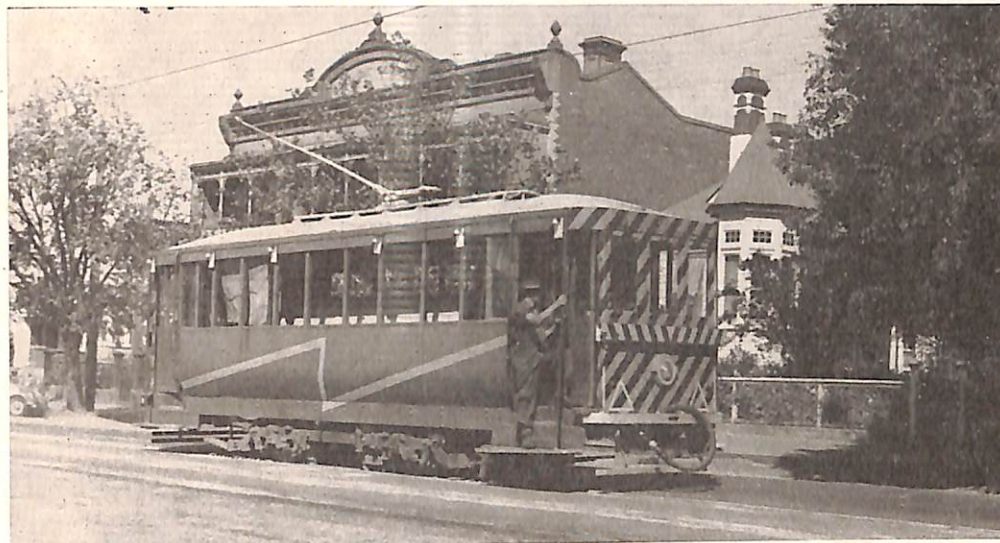
Type: Single-truck straight-sill closed cross-bench.  
 Built: 1913, Duncan & Fraser.  
 Capacity: 50 seats (summer) (only 40 in winter), plus standees.  
 Trucks: Brush.  
 Motors: 2 x 38 h.p. (GE67).  
 Weight: 10½ tons.  
 Length: 31ft. 0in.

NOTES: Known as "Sebastopol" type. Enclosed for winter service, centre sections of seats being removed to provide aisle. No. 23 converted to Scrubber 1934. Others scrapped 1935.

#### Nos. 19-20 (2 cars)

Type: Single-truck straight-sill open cross bench.  
 Built: 1905, Duncan & Fraser.  
 Capacity: 40 seats, plus standees.  
 Trucks: Peckham.  
 Motors: 2 x 35 h.p. (Westinghouse).  
 Weight: 10 tons.  
 Length: (not known).

NOTES: Brill 21E trucks fitted in 1929-30 proved unsuccessful. Scrapped 1930.



K. S. Kings

The Scrubber car servicing points in Lydiard Street North on 28th February, 1962.

### TRAILERS

Eight double-deck horse cars were retained for use as trailers after electrification, seven being 6-window saloon type and the other having a 7-window saloon. These cars were approximately 22ft. in length, weighed about 3½ tons, and seated 44. Seven were scrapped between 1925 and 1930, the eighth being retained as a Bicycle Trailer (Early morning crews signed on at the Depot and signed off in the city; late crews signed on at the city office and signed off at the Depot; the trailer was used to carry the men's bicycles between these two points so that they could go home conveniently. It was attached to any convenient passenger car). It was scrapped in 1935.

### SERVICE STOCK

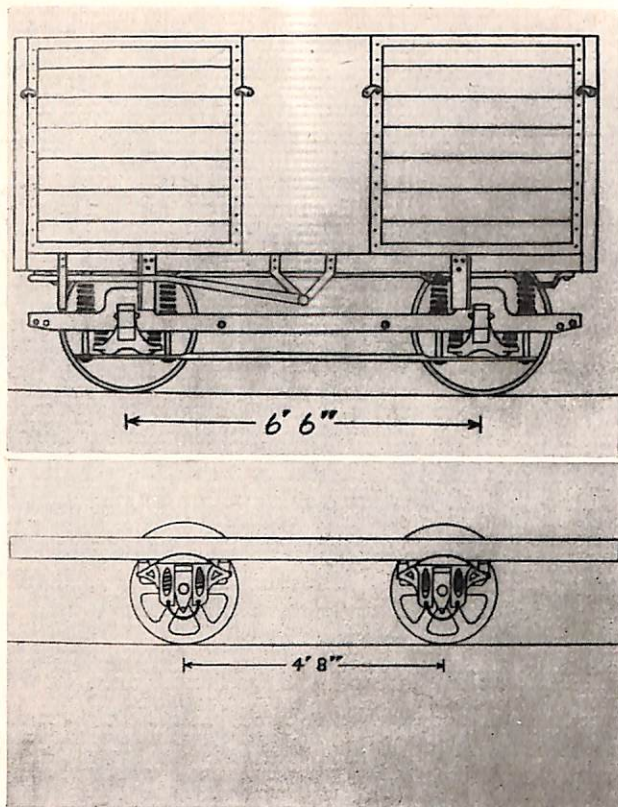
#### Scrubber ((Un-numbered)

Type: Single-truck track cleaner/scrubber.  
 Built: 1934 (rebuilt), S.E.C.  
 Capacity: 2,000 gallons (approx.)  
 Truck: Brush.  
 Motors: 2 x 45 h.p. (WH225)  
 Weight: 15 tons (approx.)  
 Length: 31ft. 0in.

NOTES: Converted at Ballarat Depot from (1st) 23. Original 38 h.p. (GE67) motors replaced in 1964. Fitted with carborundum blocks for track scrubbing, tines for track groove cleaning, and hoses for flushing track drains.

#### Sprinkler (un-numbered)

Type: Single-truck sprinkler (square tank).  
 Built: 1905/06, British Electric Car Co.  
 Capacity: 2,000 gallons (approx.).



Truck: B.E.C.  
Motors: 2 x 25 h.p. (WH46)  
Weight: 8 tons (approx.)  
Length: 23ft. 2in.

NOTES: Unused after 1918. Scrapped 1925. Similar to contemporary Bendigo water tram (q.v).

#### BATTERY CAR

On 12th October, 1888, a battery tramcar underwent trials on the Drummond Street South line. It operated successfully and was taken into the city three days later to be tried on the steep grades at the east end of Sturt Street which it negotiated quite well. However, nothing eventuated (apart from plans!). The same car had been demonstrated in Melbourne a fortnight previously. It was a standard double-deck horse car with a 12ft. saloon and seated 40 passengers. It was designed on the Julien system and was exhibited by Mr. R. T. Moore who had purchased the rights to use this system in Ballarat. Power was supplied by 96 cells half of which were removed for the trials in Ballarat.

#### HORSE CARS

According to a contemporary newspaper report, there were 18 horse cars in Ballarat in August, 1902. Other accounts put the total at 26, or even 30, but these figures are based on the assumption that twelve early electric cars were converted

#### SERVICE STOCK (Continued)

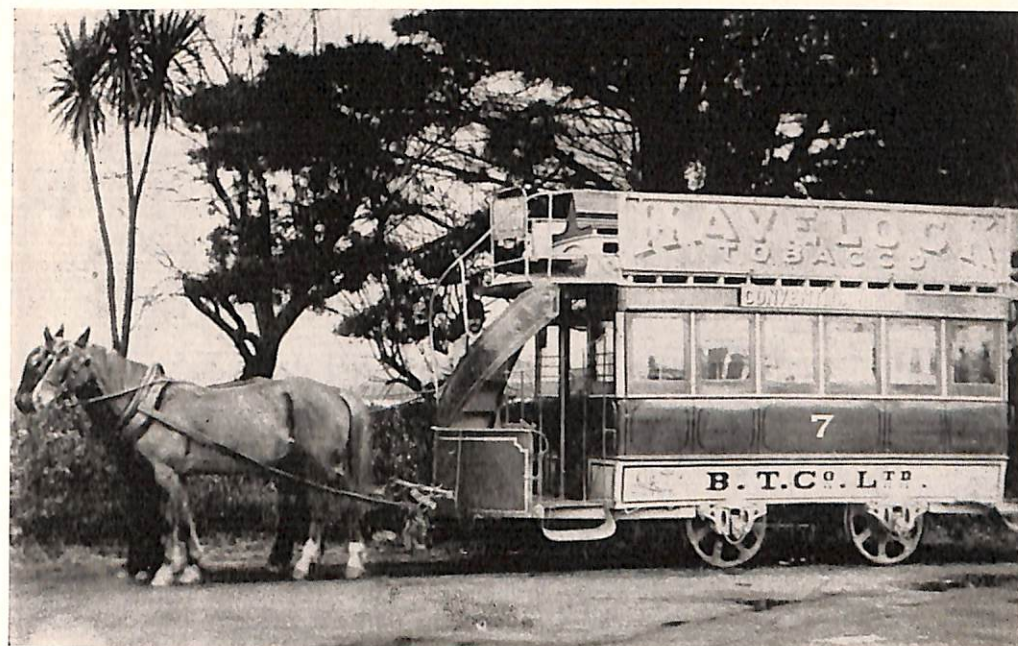
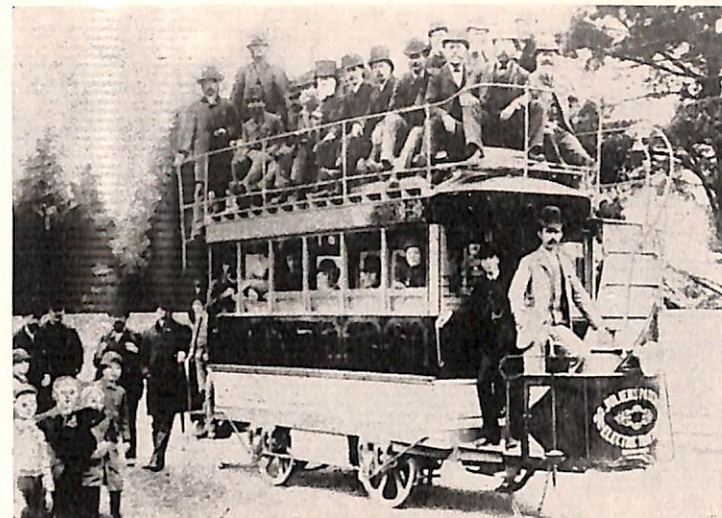
Two un-numbered items of service stock were an open wagon and a flat car, illustrated at left. The flat car was constructed from a horse car truck and was used for permanent way and other purposes. The open wagon was built during World War II as an emergency vehicle to replace S.E.C. motor trucks should petrol shortages become worse. The editor was shown this vehicle in January, 1945, by the late C. Hodgson who remarked that "we went round to the railway workshops to see if we could get a few ideas" (the railway-type hand brake seems to have been one), but the result was like nothing that ever was elsewhere! The feared emergency did not eventuate and the vehicle was eventually broken up.

The illustrations are from drawings by Mr. P. W. Duckett.

(Right): The battery car undergoing trials in Toorak Road, Melbourne, in September, 1888.

(Below): Horse car No. 7, one of the 6-window saloons, at the depot.

Both photos  
late W. Jack collection



from horse trams, which now seems doubtful. The highest individual car number noted is 18 and, in any case, the depots were not large enough to hold 30 cars.

Whatever the total number, all but three cars were of a standard 4-wheel, open-top, double-deck designs, 22ft. in length, weighing  $3\frac{1}{2}$  tons and seating 40. They were first built in 1887 and had a 6-window saloon.



## II. Bendigo

As early as 1887, proposals were made to the Sandhurst (now Bendigo) City Council and the Eaglehawk Borough Council for the operation of tramways in their areas, whether by horse, steam, cable or electric power. The Sandhurst & Eaglehawk Electric Tramway Co. Ltd., which obtained the franchise, favoured the use of overhead electric wires, but the councils were opposed and insisted on battery cars. Local contractors built the depot and plant room, and laid tracks very promptly indeed, but considerable delay was experienced in obtaining cars and equipment, so that services did not commence until 14th June, 1890. Trouble was experienced from the outset, and it was reported that only two of the eight cars were tested before leaving the U.K., and then only on level track. The batteries were supposed to run the cars for 30 miles on each charge, but usually lasted only for one return trip—about 8½ miles! Failures in service were frequent, and operations ceased after only 14 weeks, amid recriminations and lamentations by directors, shareholders, engineers, and councillors. Cars, buildings, and equipment were later sold to a new concern, the Bendigo Tramway Co. Ltd., at a bargain price, and the original company went into liquidation.

The steam trams operated with limited financial success, and moves were made in 1896 to sell the company. Further moves, early in

1899, resulted in its purchase by The Electric Supply Company of Victoria Ltd., which proceeded to convert the Eaglehawk route for electric trams (opened 14/4/03) and to build a new route to Quarry Hill, Golden Square, and Lake Weeroona. The Company also purchased the infant Bendigo Electric Company, and expanded its operations until taken over by the S.E.C. on 1/7/31; the Company continued to operate the tramways, under S.E.C. supervision until 30/6/34 when the franchise expired. The S.E.C. continued the policy of rehabilitating the system which it has operated and maintained in good condition to the present day. The Lake Weeroona line was extended to North Bendigo as recently as 23/11/42, and mileage now stands at 8.64 of which 2.43 miles is double track. Service is maintained by 21 trams, including 10 bogie cars, and there is one service car.

### COLOUR SCHEMES

The livery of the battery cars is not known but may have been the same as that of the steam trailers; this was red and cream with gold and blue lettering. Motors were painted dark red with gold lines; boilers were green with brass bands.

Electric cars in Company days had the same livery as the Ballarat trams, and this policy was continued by the S.E.C.

### BOGIE CARS

Nos. 23-26, (2nd) 1, 5, 17-18, (3rd) 2-4 (11 cars)

Type: Bogie drop-end-and-centre combination.

Built: 1913 (No. 5), 1914 (Nos. 17-18), 1916 (Nos. 1-4, 23), 1917 (Nos. 25-26), 1918 (No. 24); all Duncan & Fraser.

Capacity: 48 seats; full load 140.

Trucks: Brill 22E maximum traction.

Motors: 2 x 65 h.p. (GE201).

Weight: 16 tons.

Length: 44ft. 3½in. (Nos. 5, 17-18); 44ft. 4½in. (Nos. 1-4, 23); 45ft. 4½in. (Nos. 24-26).

NOTES: Former M. & M.T.B. "C" (No. 5), "E" (Nos. 17-18), "N" (Nos. 1-4, 23),

(continued from previous page)

Two other cars were similar, but 2ft. longer and had a 7-window saloon; they seated 44.

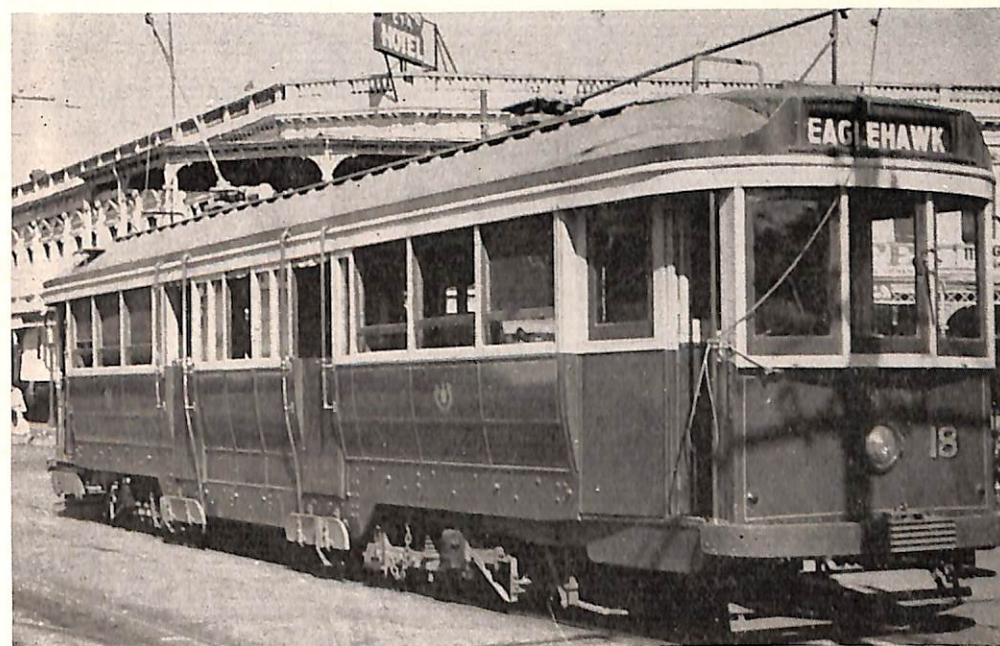
The remaining car was a single-deck saloon used on the Drummond Street South shuttle service until 1906 or 1907. It was in use again from 1909 on a shuttle service from Rubicon Street to Sebastopol, pending completion of electrification.

All cars were built by Duncan and Fraser.

Eight horse cars were retained in Ballarat for use as electric trailers, five were sent to Bendigo for the same purpose, and five were destroyed in a fire at Sebastopol (horse car) Depot in 1909.



K. S. Kings

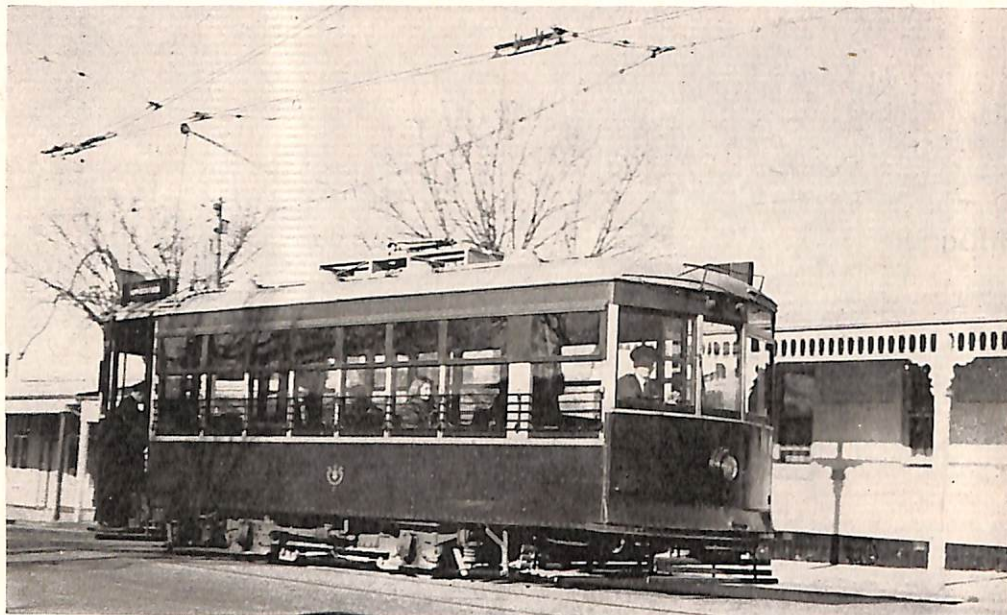


W. John Webster

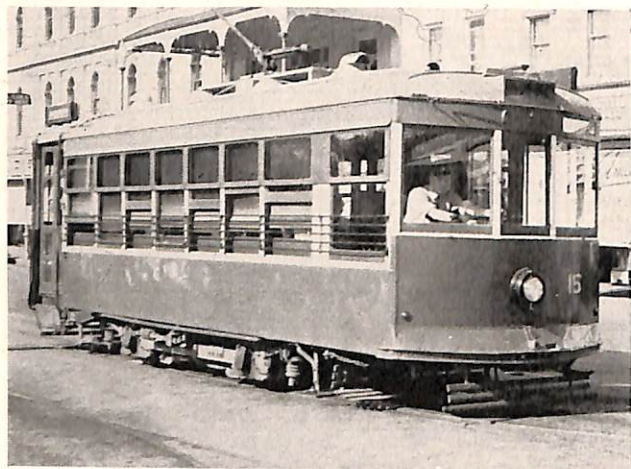
(Above): No. 17, a former Prahran & Malvern Tramways Trust car, on a hot summer afternoon at Quarry Hill.

(Below): No. 18 as a 1-man car, at Charing Cross.

(An illustration of a former Hawthorn Tramways Trust car is on the cover).



Both photos W. John Webster



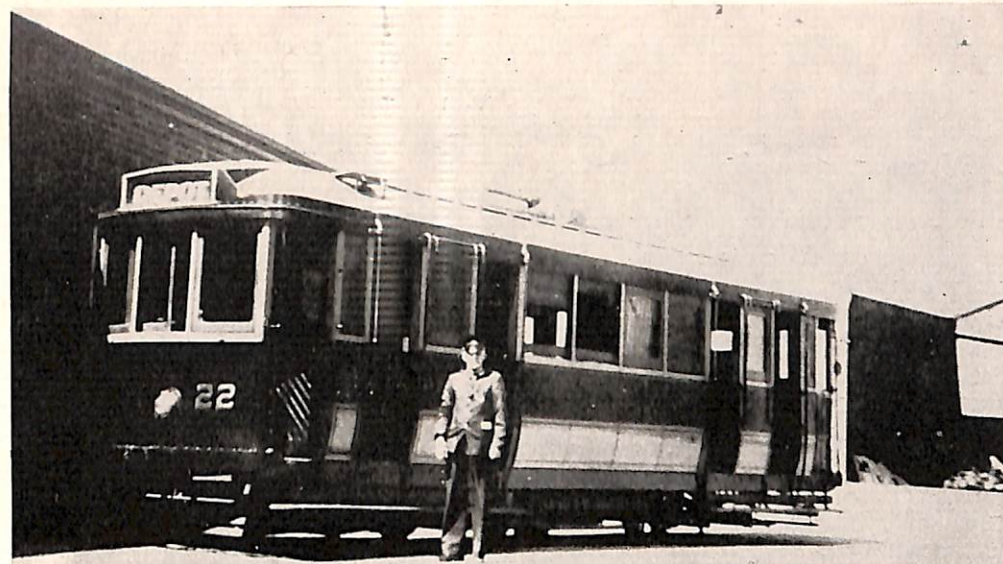
(Above): No. 27 passing the Depot junction.

(Left): No. 15 in Pall Mall.

(Opposite page): No. 22 at the Depot.

### SINGLE-TRUCK SALOON CARS

and "P" (Nos. 24-26) classes. Nos. 5, 17-18 originally P. & M.T.T., remainder H.T.T. Purchased in 1945 (Nos. 23-24), 1947 (Nos. 2-4, 25-26), 1948 (Nos. 1 and 5), and 1951 (Nos. 17-18). No. 18 converted to 1-man car and seating reduced to 44 (1952). Nos. 1-5 previously Geelong Nos. 35, 34, 32, 33, 36 transferred (1956). No. 1 transferred to Ballarat (1960).



Tramway Museum of Victoria Ltd., courtesy R. W. O. Pearson

### SINGLE-TRUCK SALOON CARS

Nos. 27-30, (2nd) 11, 15 (6 cars)

Type: Single-truck Birney safety car.

Built: 1924 (Nos. 11, 15), 1925 (Nos. 27-30); J. G. Brill & Co. (U.S.A.)

Capacity: 30 seats (Nos. 11, 15), 32 seats (others); full load (all) 50.

Trucks: Brill 79E.

Motors: 2 x 25 h.p. (GE264).

Weight: 7 tons.

Length: 28ft. 0in.

NOTES: Formerly Geelong Nos. 14, 15, 27-30; Nos. 27-30 transferred in 1947, others in 1948 and 1949, respectively. No. 27 in bad accident 1956, scrapped 1958; No. 15 in bad accident 1959, will probably be scrapped.

### SINGLE-TRUCK COMBINATION CARS

No. 22 (1 car)

Type: Single-truck straight-sill closed combination.

Built: 1920, M. & M.T.B.

Capacity: 36 seats; full load 96.

Truck: Brill 21E.

Motors: 2 x 50 h.p. (GE202).

Weight 12½ tons.

Length: 33ft. 0in.

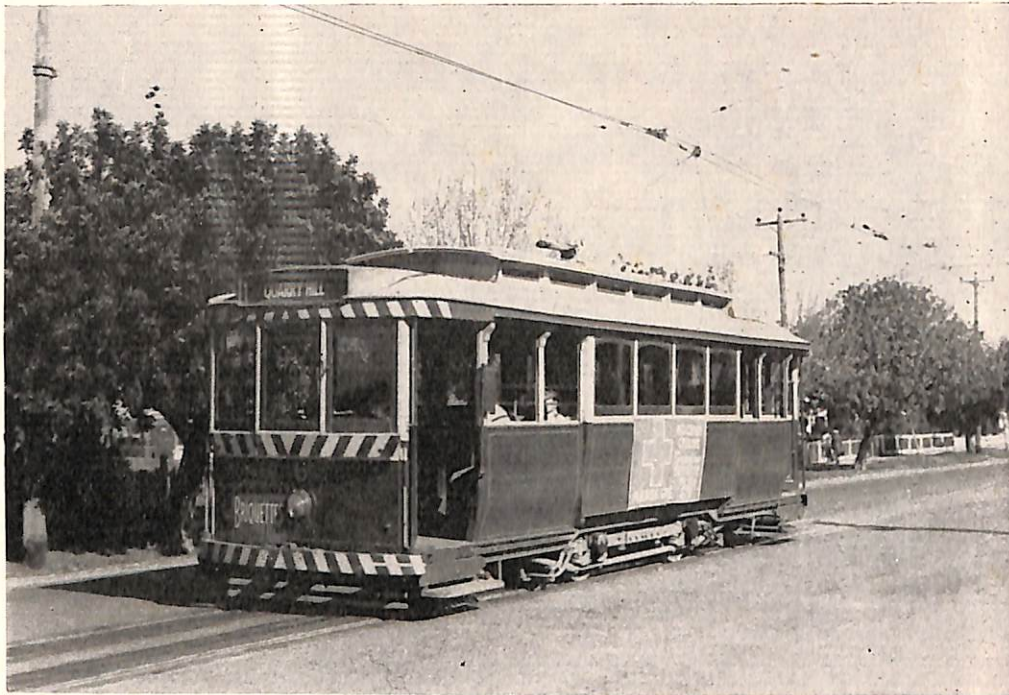
NOTES: Former M. & M.T.B. "R" class car No. 153 purchased in 1936. Decorated and illuminated for Royal Visit (3/54). Scrapped 1956.

Nos. 20-21, (2nd) 2-4, 6-7, 10, 12-14, 16, 19, (3rd) 6-7 (15 cars)

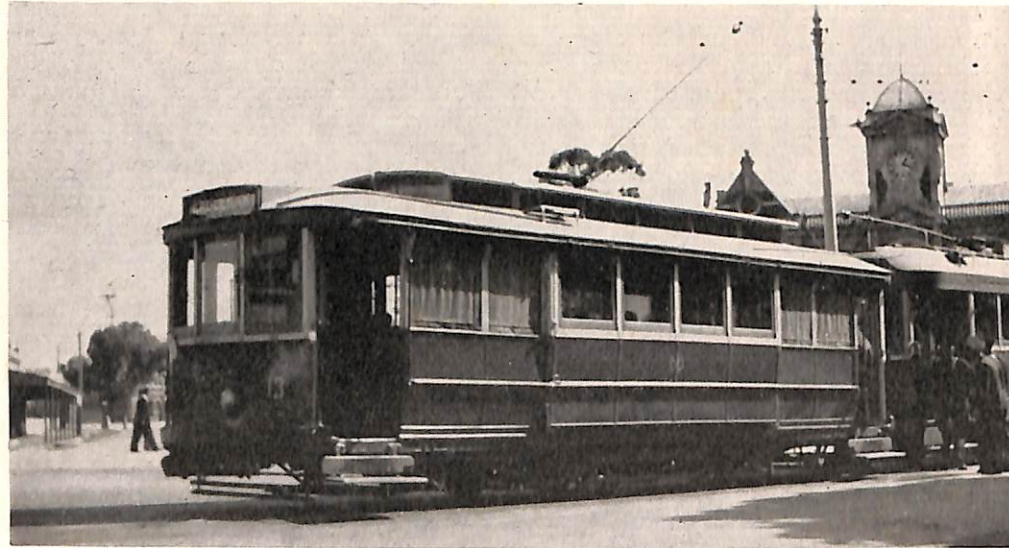
Type: Single-truck drop-end open combination.

Built: 1916 Duncan & Fraser (Nos. 2-3, 10, 12-13, 3rd 6), Meadowbank (Nos. 4, 6 3rd); 1917, J. Moore (No. 16); 1918, J. Moore (Nos. 7, 14); 1920, Duncan & Fraser (Nos. 19-21).

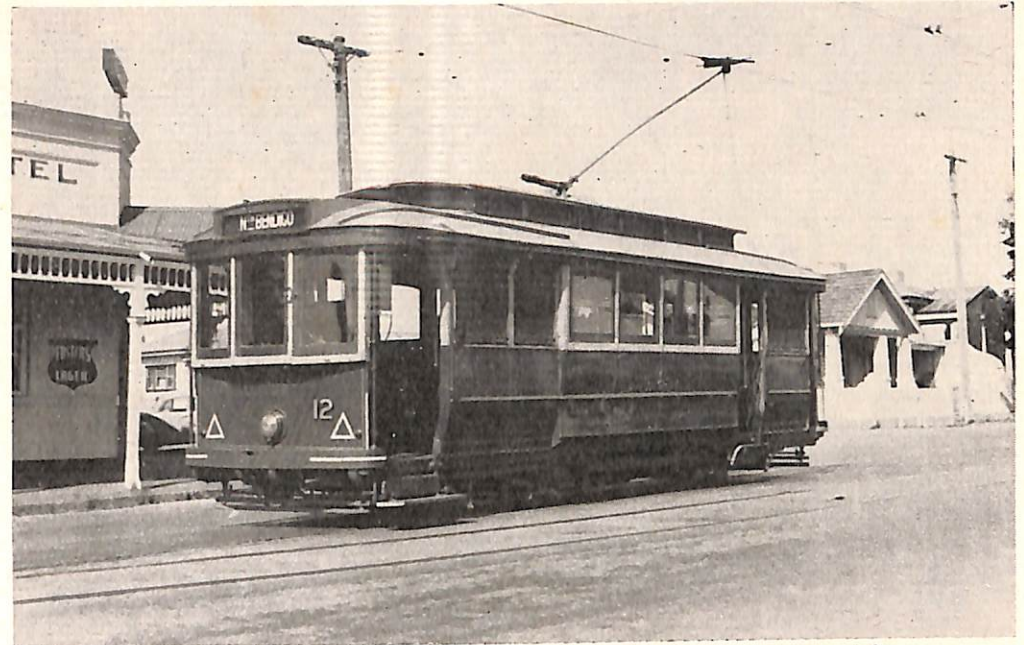
Capacity: 36 seats (Nos. 4, 6, 7, 14, 16, 3rd 7), 38 seats (others), plus 60 standees.



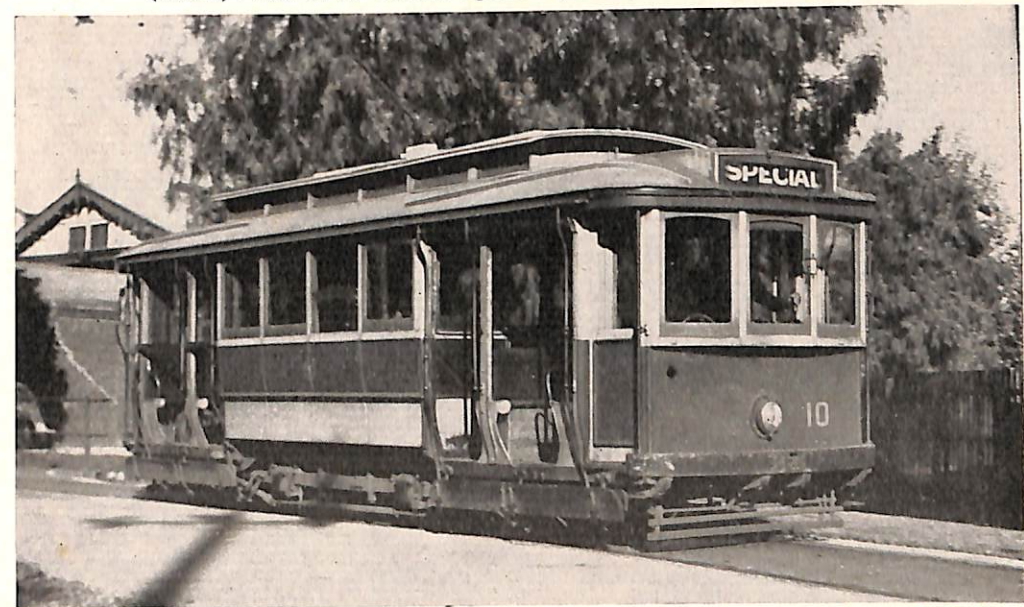
No. 6 at Quarry Hill.

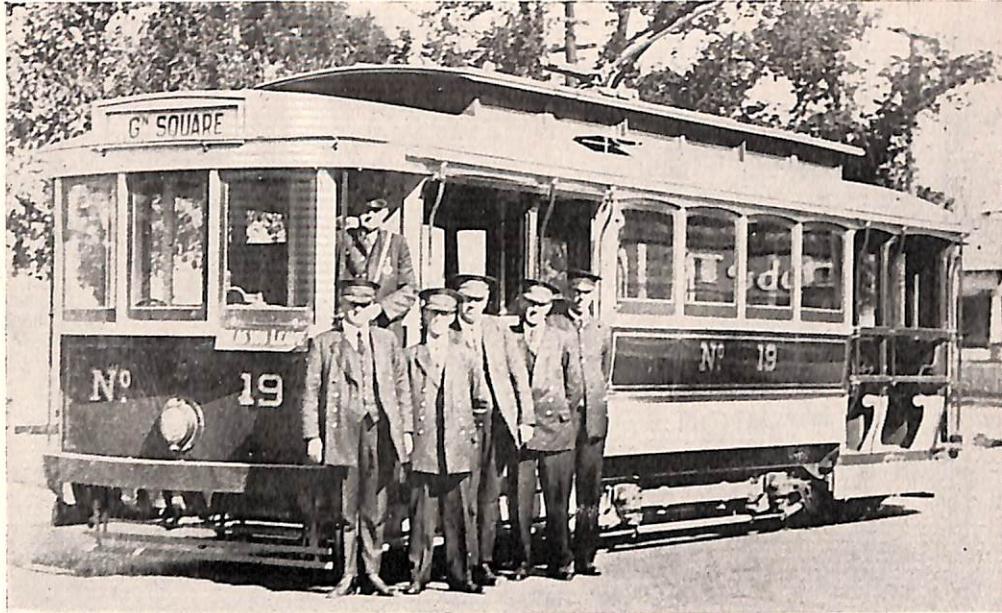


No. 13 at Eaglehawk.



(Above): No. 12 at Golden Square. (Below): No. 10 (unconverted).





Tramway Museum Society of Victoria Ltd., courtesy B. W. B. Miller

No. 19 (now No. 12) "semi-converted" for 1-man operation (guard rails fixed).

Trucks: Brill 21E.

Motors: 2 x 50 h.p. (GE202) (Nos. 19-21), 2 x 45 h.p. (WH225) (others).

Weight: 12 tons.

Length: 30ft. 11½in. (Nos. 4, 6-7, 14, 16, 3rd 7), 31ft. 10in. (others).

NOTES: Former M. & M.T.B. "B" (Nos. 7, 14, 16), "J" (Nos. 4, 6, 3rd 7), and "M" classes. Purchased 1930 (Nos. 2-3, 10, 12-13, 3rd 6), 1931 (Nos. 4, 6-7, 14, 16, 3rd 7), and 1935. Melbourne numbers were 187, 188, 115, 114, 83, 79, 90, 112, 107, 109, 86, 84, 185, 110, and 76 (in same order as at head of this paragraph). No. (3rd) 6-7 transferred from Ballarat (1960). Nos. 20-21, (2nd) 12-13, 16, 19, (3rd) 6-7 converted for 1-man operation (seating reduced to 32 or 34). No. 13 converted to Ballarat pattern (1947); Nos. (3rd) 6-7 converted prior to transfer. Others converted to Geelong pattern during -1930's. No. 12 previously numbered 19, renumbered in 1935. Original conversion did not include panels in drop-ends (see photograph), these being added later. No. 21 decorated for Coronation (1937). Nos. 4, 7 scrapped (1951), followed by Nos. 2 (1952), 6, 10 (1956), 14 (1958), and 13 (1960). No. 3 presented to A.E.T.A. (1956) and now in care of The Tramway Museum Society of Victoria Ltd.

No. 14 (1 car)

Type: Single-truck straight-sill open combination.

Built: 1904, Duncan & Fraser (but see notes).

Capacity: 32 seats, plus standees.

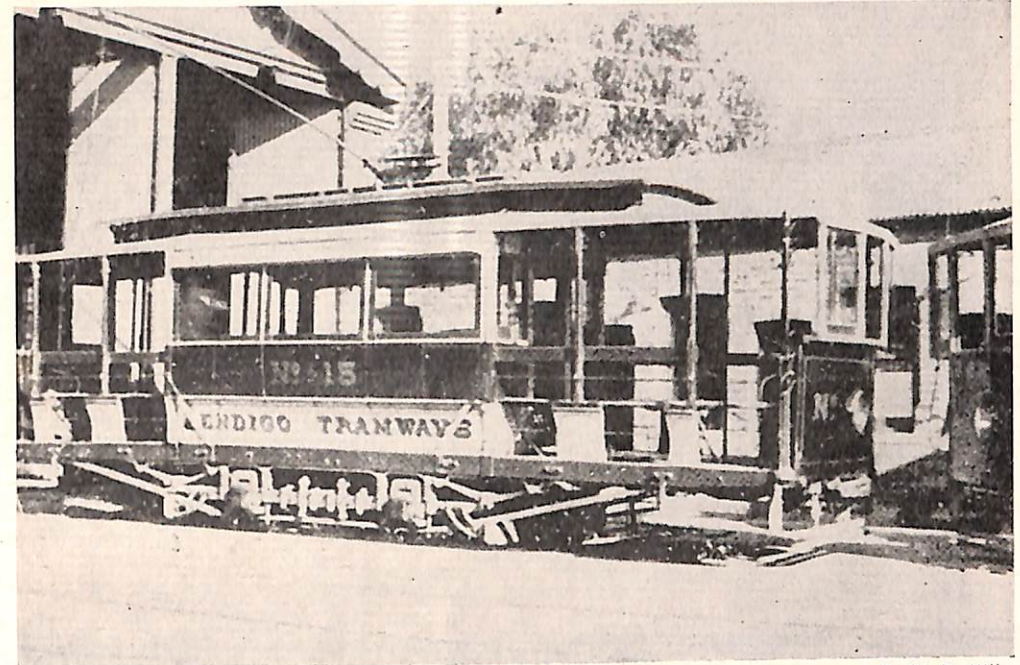
Truck: Brill 21E.

Motors: 2 x 30 h.p. (Westinghouse).

Weight: 8 tons.

Length: 30ft. (approx.)

NOTES: Believed to have had a 2-window saloon. Uncertain whether built new or



B. W. B. Miller

No. 15 converted for 1-man operation by the simple expedient of turning the cross-bench seating to face inwards. Body bracing and driver's screens added.

converted from one of steam trailers Nos. 14-16. Windshields fitted about 1920. Scrapped 1930-31.

Nos. 13, 15-16 (3 cars)

Type: Single-truck straight-sill open combination.

Built: 1904, Duncan & Fraser (converted).

Capacity: 34 seats plus standees.

Trucks: Brill 21E.

Motors: 2 x 30 h.p. (Westinghouse)

Weight: 8 tons.

Length: 31ft. 10in.

NOTES: Believed built from steam trailers Nos. 9-11 by fitting steel underframes and extending platforms; had three-window saloons. Windshields fitted about 1920. No. 13, 16 scrapped 1930-31. No. 15 converted for 1-man operation in 1942 to provide additional car for North Bendigo extension; scrapped 1947.

Nos. 1-12 (12 cars)

Type: Single-truck straight-sill open combination.

Built: 1903, Duncan & Fraser.

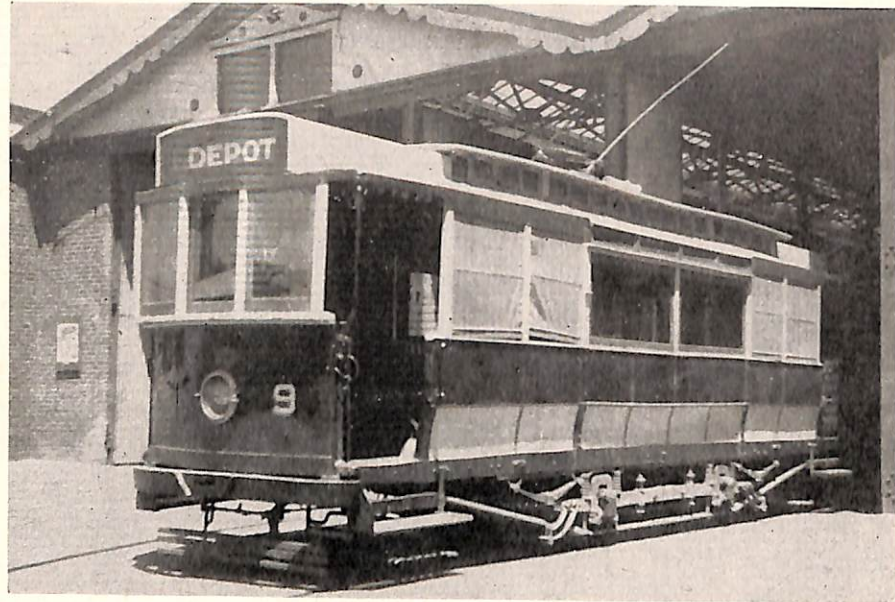
Capacity: 32 seats, plus standees.

Trucks: Brill 21E

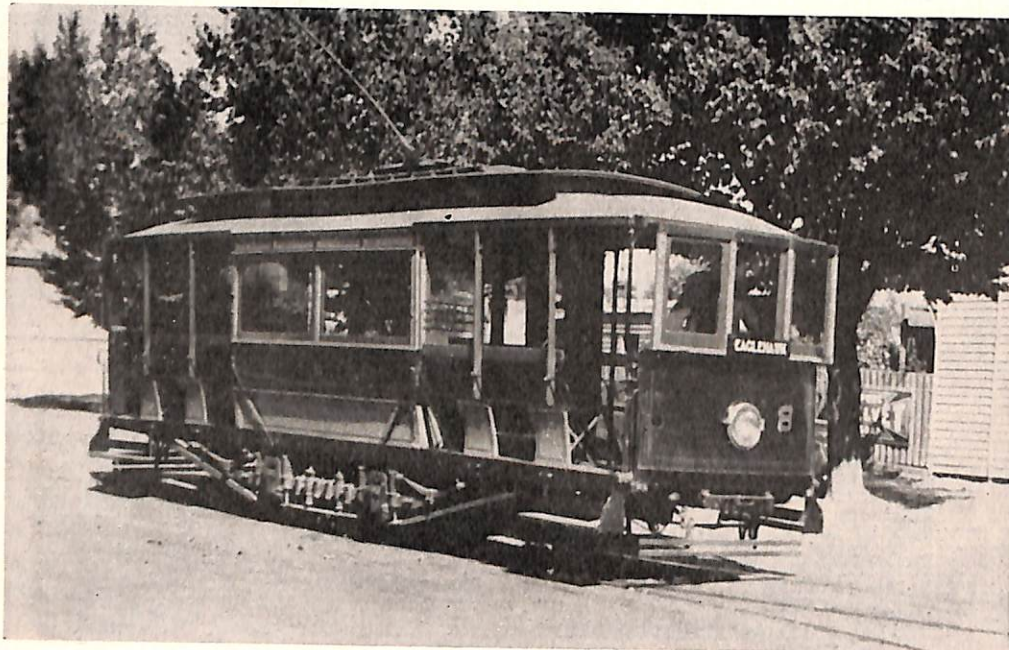
Motors: 2 x 25 h.p. (Westinghouse).

Weight: 8 tons.

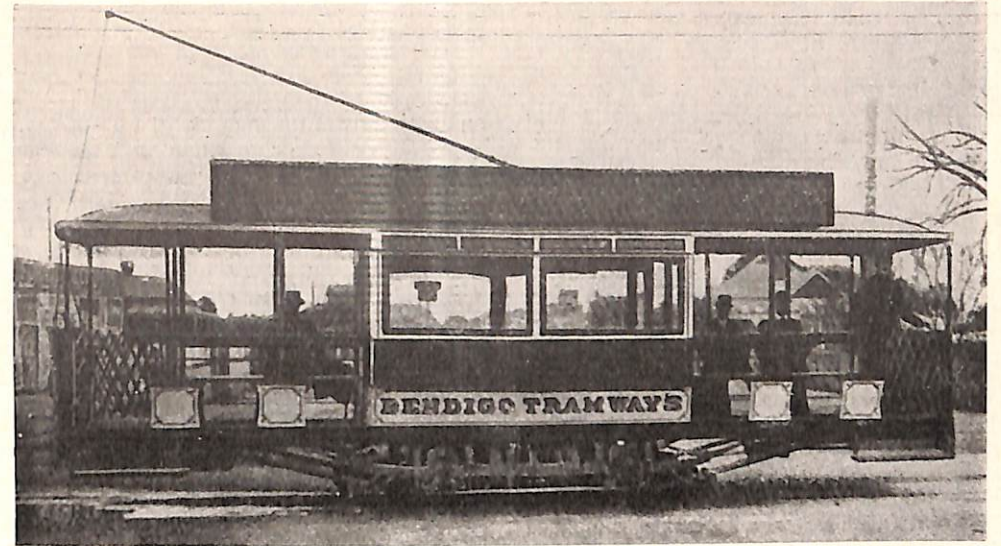
Length: 30ft. 3in.



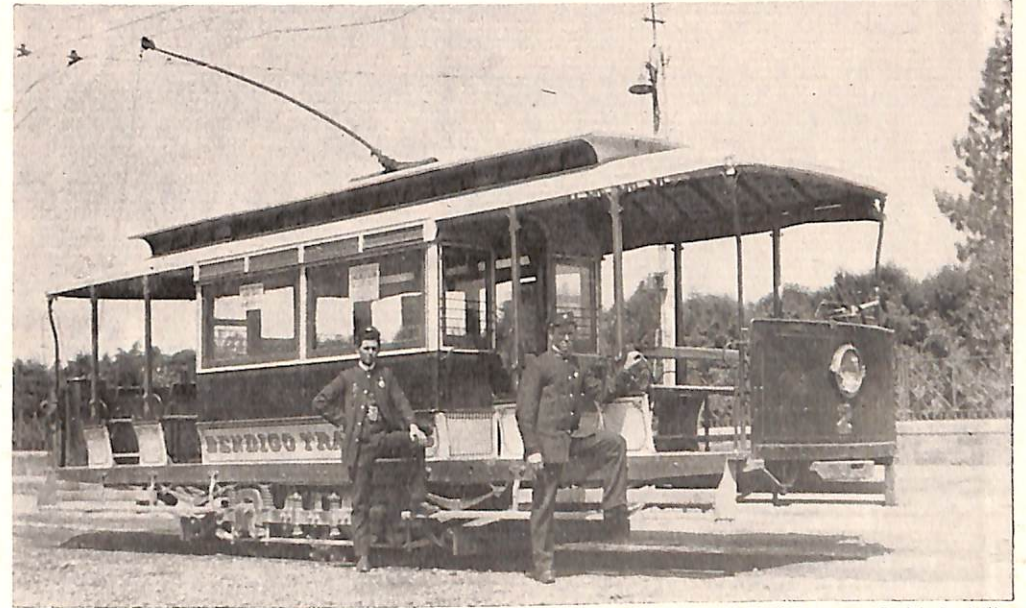
P. W. Duckett



Tramway Museum of Victoria Ltd., courtesy R. W. O. Pearson

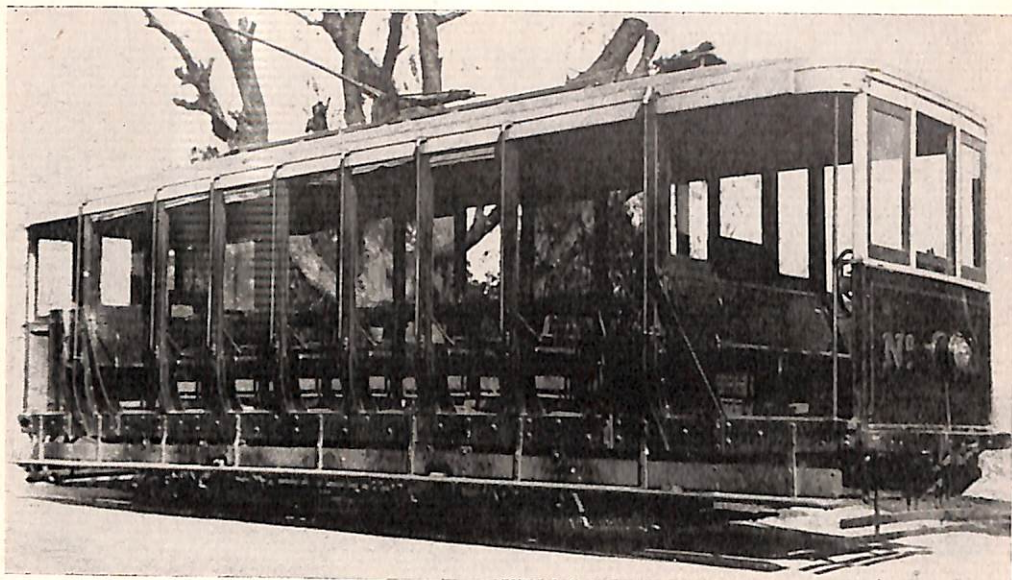


K. S. Kings collection



Tramway Museum Society of Victoria Ltd., courtesy B. W. B. Miller

(Opposite page, above): No. 9 as "modernised".  
 (Opposite page, below): No. 8 with driver's screens and body bracing.  
 (This page, above): Car of same class after conversion for 1-man operation.  
 (This page, below): No. 2 in original condition.



Tramway Museum Society of Victoria Ltd., courtesy B. W. B. Miller

## Cross-bench car No. 18.

NOTES: Built to open the electric system. Had two-window saloons, 10ft. in length. No. 1, 5, 8-9, 11-12 converted for 1-man operation of Golden Square-Lake Weeroona route (1913) and known as "Fare Box" cars. Windshields fitted about 1920. Nos. 2-4, 6-7, 10, 12 scrapped 1930-31. No. 9 fitted with air brakes about 1939. Nos. 8-9 "modernised" 1945 and other remaining cars were to have followed, but project was scrapped after protests by Union; these five cars scrapped in 1947 and replaced by Birney cars.

## SINGLE-TRUCK CROSSBENCH CARS

Nos. 17-18 (2 cars)

Type: Single-truck open cross-bench.

Built: 1913, Duncan & Fraser.

Capacity: 50 seats, plus standees.

Trucks: Brush.

Motors: 2 x 35 h.p. (GE67).

Weight: 8 tons.

Length: 31ft. 2in.

NOTES: No. 18 scrapped (1948); No. 17 converted to Track Cleaner (1953).

## TRAILERS

## Ex-Steam Trailers

All former steam trailers were retained as electric trailers or converted to electric cars. Probably because of their greater weight per passenger, the bogie cars were little used after 1905 when ex-horse cars were transferred from Ballarat. All scrapped 1910-1913. Believed to have retained steam numbers.

## Ex-Horse Cars

Four 22ft. (6-window) and one 24ft. (7-window) ex-horse cars from Ballarat, received in 1905 (one report states that six cars were transferred). Original num-



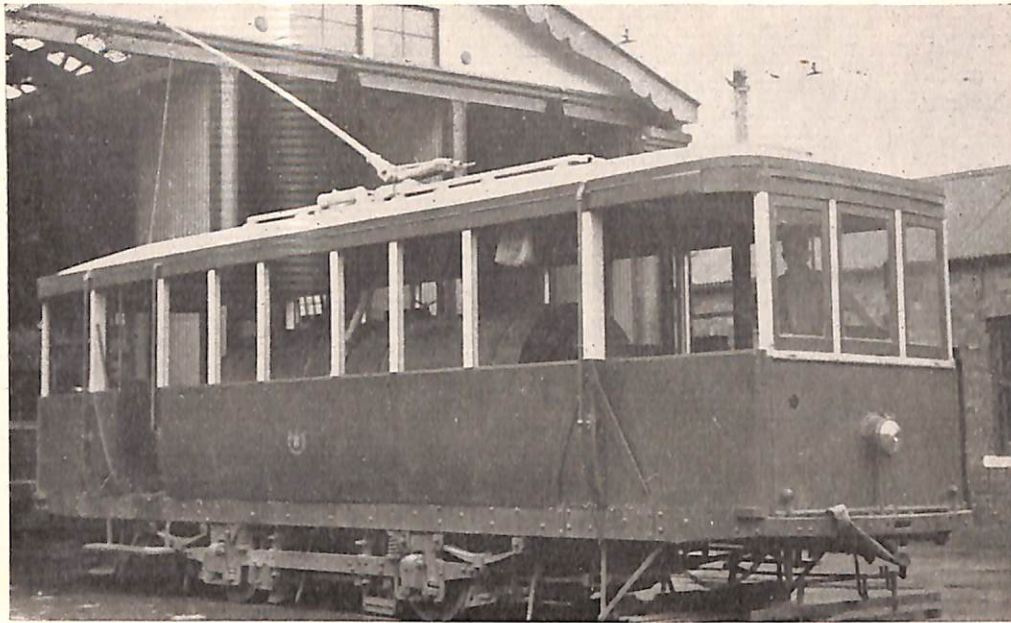
Tramway Museum Society of Victoria Ltd., courtesy B. W. B. Miller

Electric trailer cars at Bendigo railway station. From left, Nos. 9 (6-window ex-horse car), 14 (ex-steam trailer), a former 7-window horse car, and the diminutive No. 13.

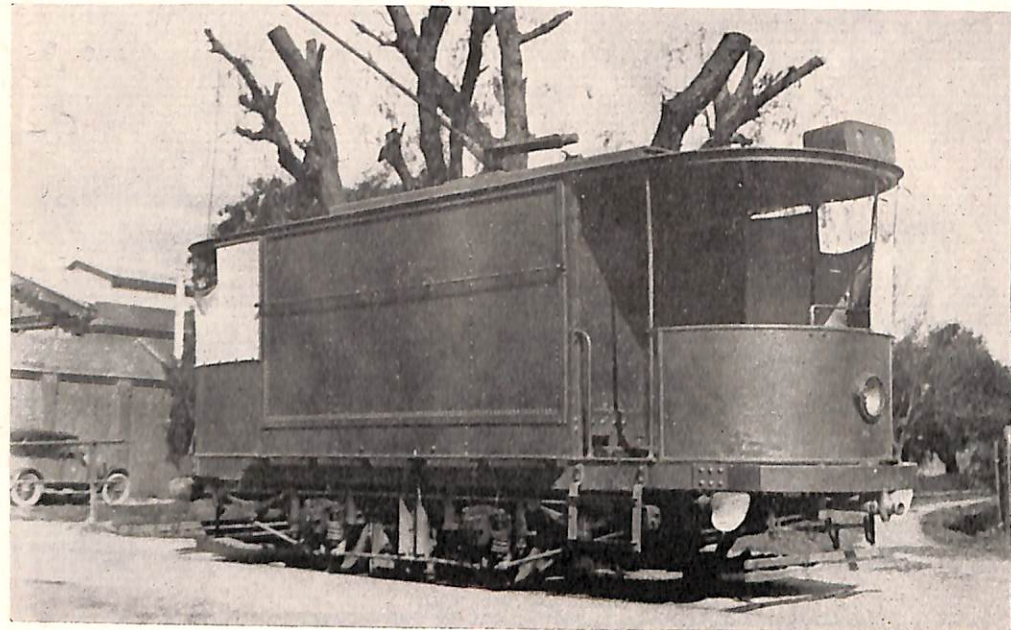


K. S. Kings collection

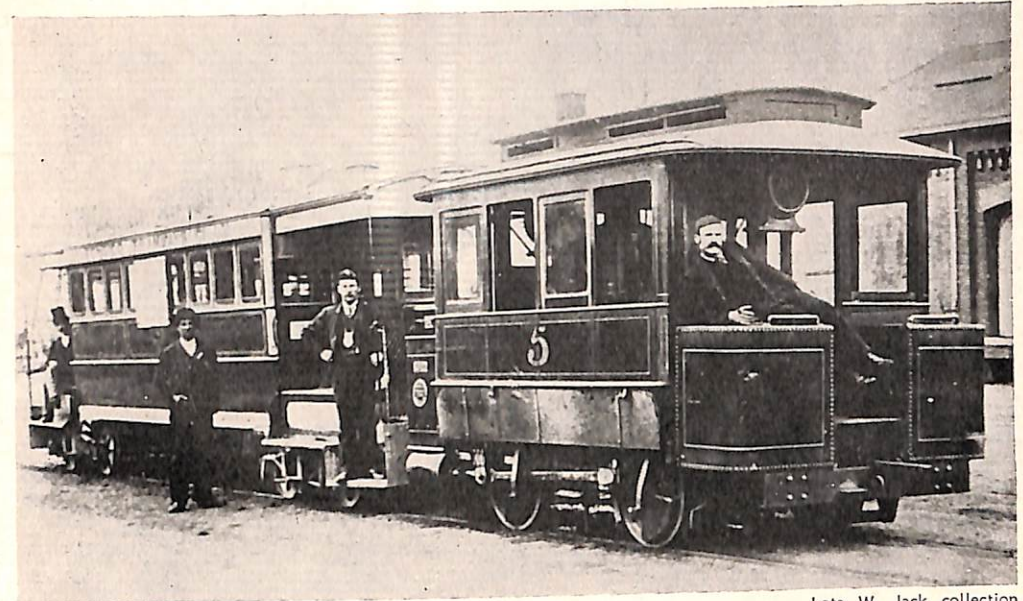
6-window ex-horse car towed by one of the 1-12 series at Charing Cross (1905).



W. John Webster



Tramway Museum Society of Victoria Ltd., courtesy B. W. B. Miller



Late W. Jack collection

Baldwin Motor No. 5 and trailer No. 4 at Bendigo railway station.  
 (Opposite page, above): Track cleaner car.  
 (Opposite page, below): Sprinkler car on Depot approach track.

bers were retained, and Nos. 5 and 9 are known to have run on 11/11/25, after which date all were withdrawn and scrapped. Seated 40 and 44 passengers respectively.

### SERVICE STOCK

#### Track Cleaners

Type: Single-truck rail cleaner and drain flusher.  
 Built: 1953, S.E.C. (converted).  
 Capacity: 2,000 gallons.  
 Truck: Brush (modified).  
 Motors: 2 x 45 h.p. (WH225).  
 Weight: 10 tons.  
 Length: 31ft. 2in.

NOTES: Converted from cross-bench car No. 17. Motors and controllers from No. (2nd) 2. Fitted with tines for cleaning rail grooves and hoses for flushing track drains.

#### Sprinkler

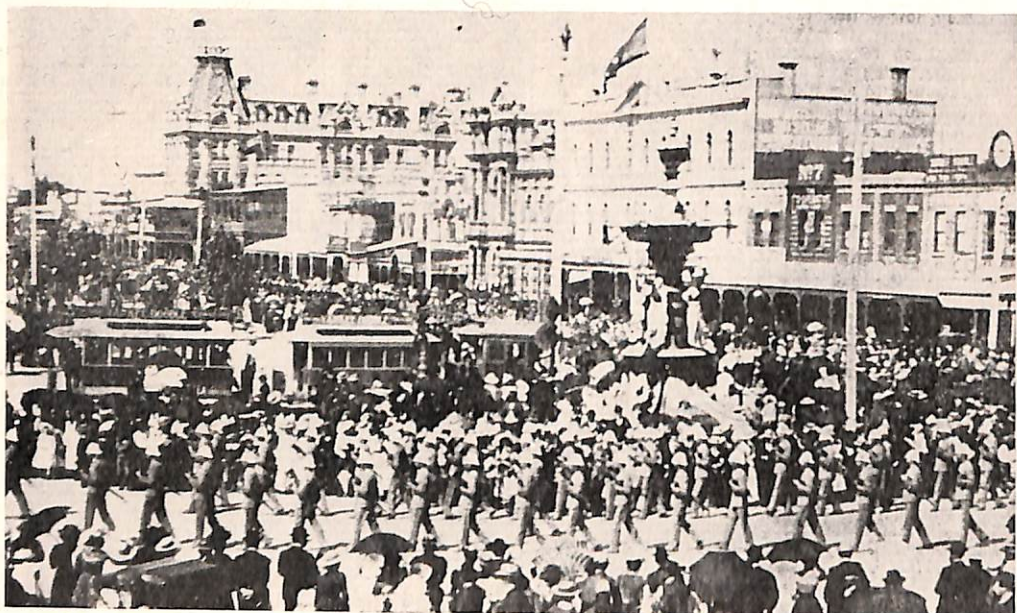
Type: Single-truck tank car.  
 Built: 1903, British Electric Car Co.  
 Capacity: 2,000 gallons.  
 Truck: B.E.C. SB60.  
 Motors: 2 x 25 h.p. (WH46).  
 Weight: 8 tons.  
 Length: 23ft. 2in.

NOTES: Stored 1918. Re-conditioned 1935-36. Scrapped 1954.



Baldwin Motor No. 2 and trailer No. 6.

Late W. Jack collection



K. S. Kings collection

### STEAM TRAMS

Bendigo Tramway Co. Ltd. (to late 1902), then Electric Supply Co. of Victoria Ltd.

### MOTORS

#### Nos. 1-5

0-4-0ST built by Baldwin Locomotive Works, U.S.A. in 1891 (builder's nos. 12241-12245, not necessarily in same order as running numbers); cylinder diameter 9in., wheel diameter 30in. Rated at 50 h.p. and could pull one bogie trailer. Sold in 1903.

#### Nos. 6-8

0-4-0ST built by Phoenix Foundry, Ballarat, in 1892 (builder's nos. 315-317); cylinder diameter 10in., wheel diameter 36in. Rated at 75 h.p. and could pull one bogie and one 4-wheel trailer. The first of these motors ran trials in Armstrong Street, Ballarat, hauling two horse trams. Sold in 1903.

### TRAILERS

#### Nos. 1-5

Rebuilt by the Bendigo Rolling Stock Co. in December-January, 1891-92, from battery cars Nos. 2-6. Bogies were fitted and end platforms extended. Used as electric trailers after 1903.

#### No. 6

Rebuilt by the Bendigo Rolling Stock Co. in February, 1892, from battery car No. 1. Bogies fitted and end platforms (longer than in Nos. 2-6) extended. Used as electric trailer after 1903.

#### Nos. 7-8

Rebuilt by the Bendigo Rolling Stock Co. in February, 1892, from battery cars Nos. 7-8. Bogies fitted and cars lengthened. Used as electric trailers after 1903.

#### Nos. 9-11

4-wheel, 6-window saloon cars purchased in 1894; builder and date of construction unknown. Reported to have been former Melbourne horse trams, but nothing is known of any Melbourne company having cars to sell at that time. It seems likely that the cars were second-hand, however, as they required "slight alterations." Rebuilt as electric cars Nos. 13, 15, and 16 in 1904.

#### Nos. 12-13

Built at Bendigo Depot in 1895. Small, 4-wheel, open saloons with centre entrances, seating only 4 passengers, with a total capacity of 20. No. 12 probably the former battery car No. 9, although contemporary reports referred to "... cars," and subsequently two, new cars of light construction." Used as electric trailers after 1903.

#### Nos. 14—(?16)

4-wheel, 6-window saloon cars acquired in 1896 (builder unknown). The exact number of these cars is uncertain, but at least one (No. 14) definitely existed and became an electric trailer in 1903. A second car either became an electric trailer, or was rebuilt as electric car No. 14 (q.v.). At 30th June, 1896, there were said to be "... about 14 ... cars," but a former employee stated many years ago that the steam service had 16 cars (8 bogie and 8 4-wheel) in its later years. Presumably, therefore, there were, in fact, three of these cars. If one became No. 14 (electric), the third became an electric trailer.

Motor and two 4-wheel trailers at Charing Cross. The troops were marching with arms reversed for the funeral of Queen Victoria after whom the state was named.





Tramway Museum Society of Victoria Ltd., courtesy B. W. B. Miller

One of the larger cars; note the railway-type springs and W-guards.

#### BATTERY CARS

Sandhurst & Eaglehawk Electric Tramway Co. Ltd.

No. 1

Stevens Smith & Co., Millwall (body by G. Milnes, Birkenhead), 1889. Single-truck, 6-window saloon. 2 x 8 h.p. Reckenzaun motors. 72 cells on two trays. Tare 5½ tons (approx.). Assembled at Bendigo early 1890; first trial run 10/4/90. Stored 23/9/90. Sold in 1891 to Bendigo Tramway Co. Ltd. and converted to steam trailer No. 6 in 2/92.

Nos. 2-6

Anglo-American Brush Co., London, 1890. Single-truck, 9-window saloon. One motor; 56 cells on six trays. Seat 22 (?). Tare 6 tons (approx.). Assembled at Bendigo 6-7/90. Stored 23/9/90. Sold in 1891 to B.T. Co. Ltd., and converted to steam trailers Nos. 1-5 in 1/92.

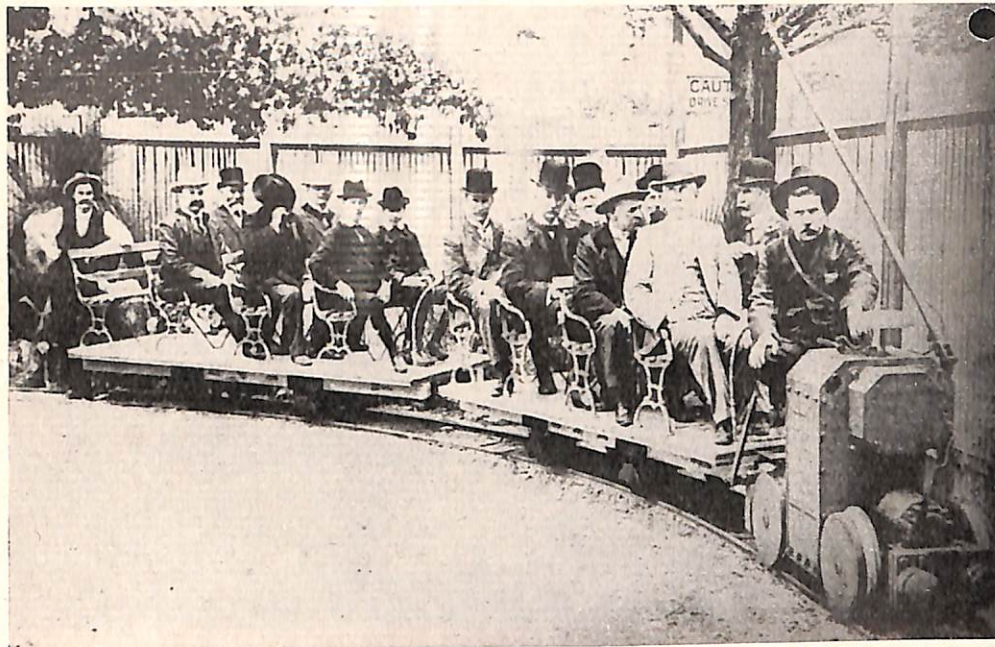
Nos. 7-8

Anglo-American Brush Co., London, 1890. Single truck. Referred to as "Summer Cars" and "Dummies" (body details uncertain). One motor; 56 cells on six trays. Assembled at Bendigo 8-9/90. Stored 23/9/90. Sold in 1891 to B.T. Co. Ltd., and converted to steam trailers Nos. 7-8 in 2/92.

No. 9

Sandhurst & Eaglehawk Tramway Co. Ltd., Bendigo, 1890. Single-truck. Known as "Umbrella Car". A rather small vehicle which ran well but did not carry enough passengers to cover its working expenses. Built, probably in 9/90, in an effort to obtain a vehicle which could be propelled successfully by the batteries.

The rather scanty information given above comprises all that can be gleaned about the battery car fleet. The livery is not known but may have been the same as that subsequently used for the steam trailers.



P. W. Duckett collection

"Official" train on the exhibition railway. Note tramway-type cap-and-cone fitting on the overhead.

#### PIONEER ELECTRIC RAILWAY

In 1901, two years before the commencement of regular electric tramway services in Bendigo, an unusual electric railway, with many tramway features, was in operation.

This line ran immediately inside the boundary fence of the Victorian Gold Jubilee Exhibition which occupied a large site in the centre of the city including part of Market Square and several buildings, notably the TownHall and the old market building. The railway, which was one of the highlights of the exhibition, was a narrow gauge line, the motive power being an early type of mine locomotive. Current was supplied from a 30 h.p. dynamo driven by a 10 h.p. Tangye oil engine, through typical tramway-type overhead, the locomotive being fitted with a trolley-pole. Rolling stock comprised two 4-wheel flat cars fitted with garden seats, each car seating eight persons. Presumably speeds were low, as curves were sharp and the only brake was hand-operated, by means of a lever, and could be applied to one pair of wheels on the locomotive. The line was exhibited jointly by Bennie Teare & Co. Ltd. and G. Weymouth Pty. Ltd.

(From notes by Mr. P. W. Duckett)



K. S. Kings collection

#### THE NEVERWAS

For the benefit of any readers who still believe that the camera does not lie and who may think that we have overlooked yet another Bendigo car type, we print this newspaper picture, captioned "The New Electric Tram" and published in 1901 and again in 1903, prior to the opening of electric services in Bendigo.

The car illustrated was No. 20 of the Brisbane Tramways Co. fleet, the photo being suitably retouched.



B. Overton

Maximum traction car No. 25, showing "zebra" stripes added in recent years as a safety measure.



W. John Webster

Geelong No. 40, a former Prahran & Malvern Tramways Trust car, at the Depot junction. The Depot was entered through an archway below the large window immediately above the rear trolley base of the car.

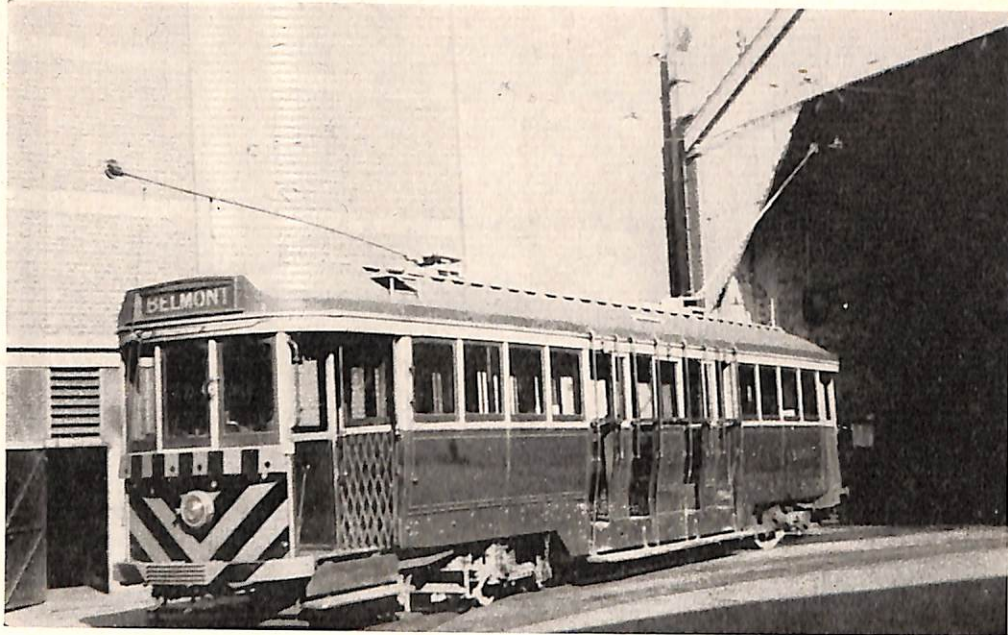
### III. Geelong

Although a proposal was made as early as 1888 to instal electric tramways in Geelong, the city did not receive any form of tramway service until 10th March, 1912, when the Melbourne Electric Supply Company Ltd. commenced running its cars. Apart from the original routes, most of the system was developed during the 'twenties. When the M.E.S.Co. was acquired on 1st September, 1930, by the State Electricity Commission, the latter found, in contrast with its subsequent experiences in Ballarat and Bendigo, that the track and rolling stock were in good condition. After World War II, however, the position had changed, and the poor condition of the system, together with the expansion of suburban development beyond the tram termini, to say nothing of opposition by municipal authorities and certain vested in-

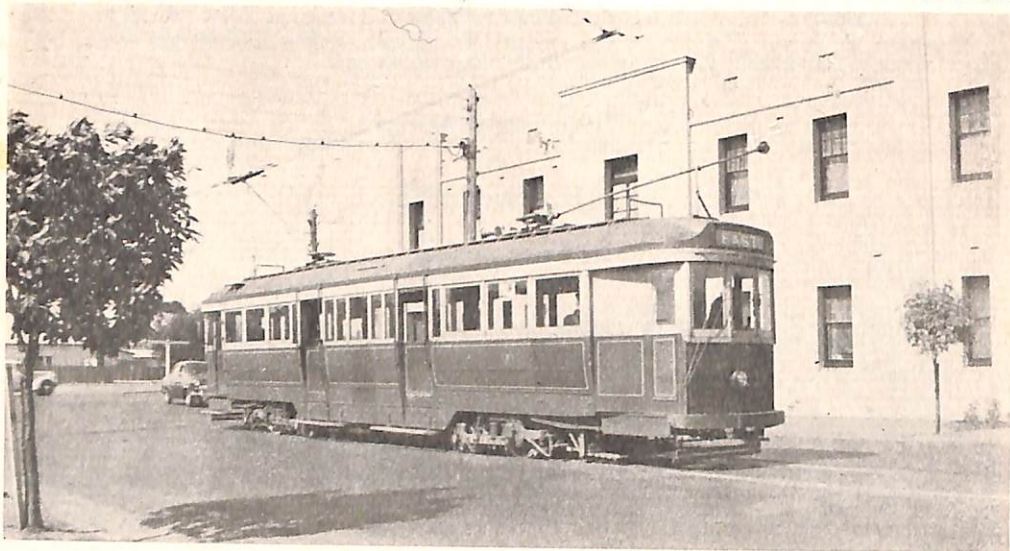
terests, led to abandonment between January and March, 1956. The last tram, which ran on 23rd March, was No. 4 which had opened the system 44 years earlier. Maximum mileage (1945-56) was 11.80, of which 4.74 miles were double track and 7.06 single. The fleet was at its largest between 1951 and 1956 when 31 cars were in service, including 10 bogie vehicles.

#### COLOUR SCHEMES

Details of the M.E.S. Co. livery are not available, but the S.E.C. used approximately the same colour schemes as in Ballarat (officially they were identical, but subtle differences could be noted!) In later years, cars had "zebra" striping painted on each end in an attempt to reduce the number of collisions with motor vehicles.

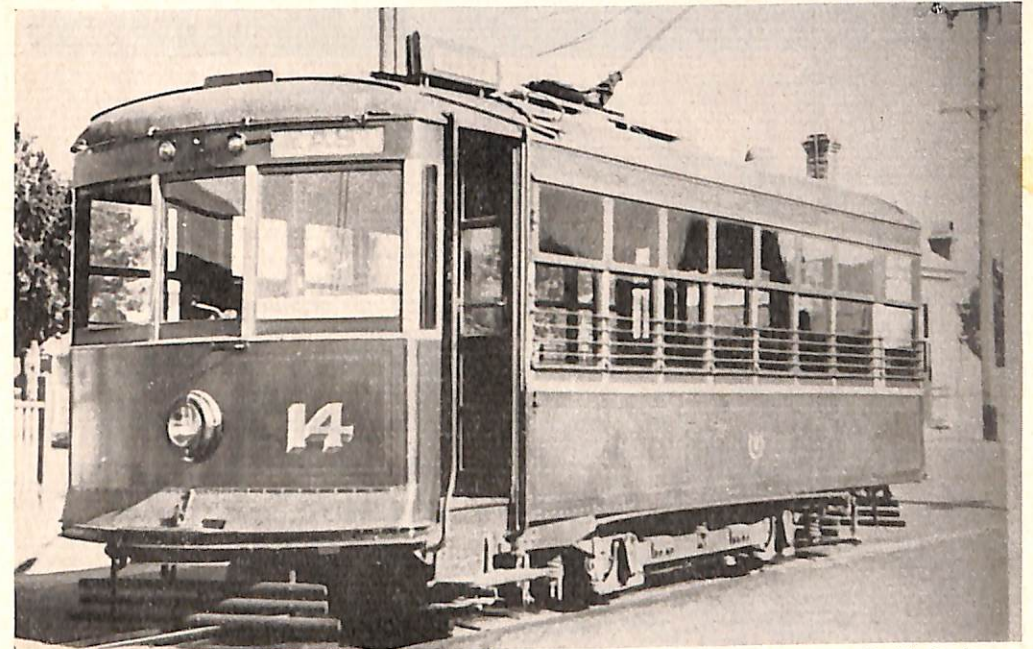
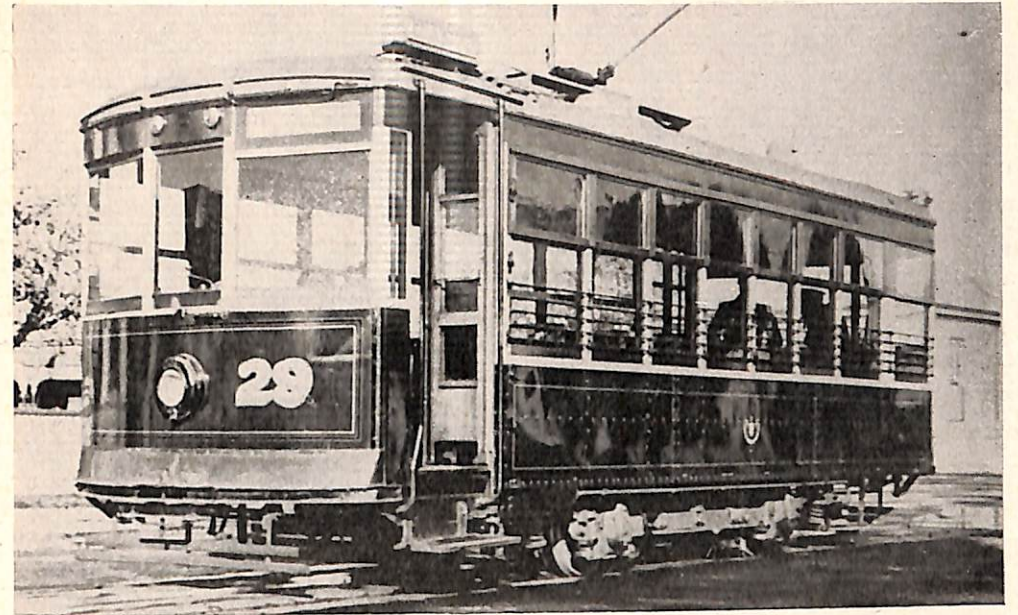


R. Lilburn

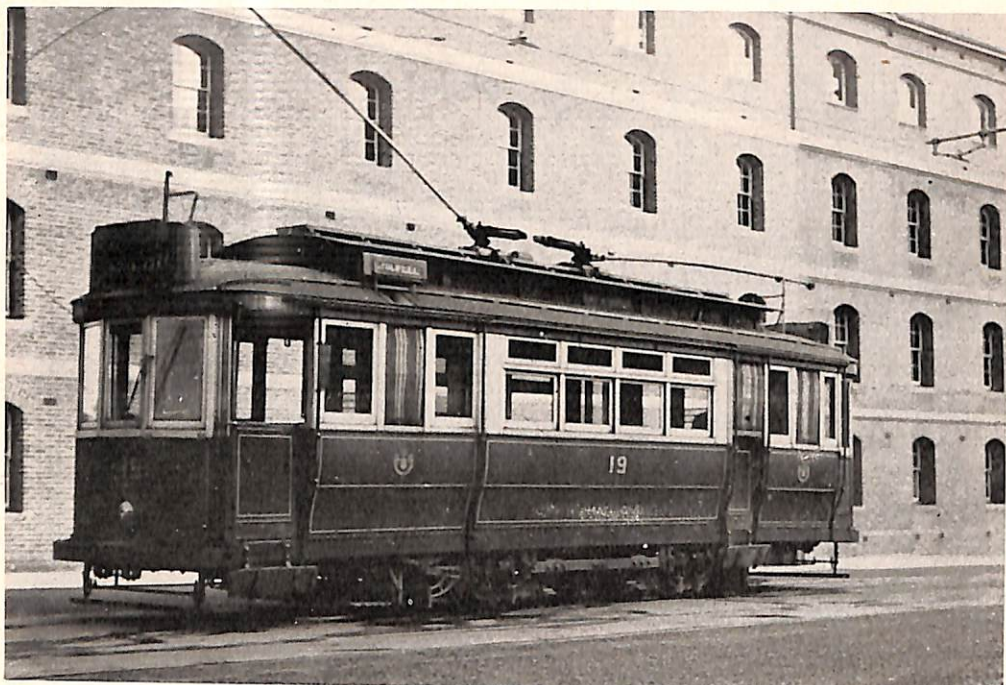


K. S. Kings

(This page, above): No. 31, showing "zebra" stripes; (below): No. 39, the 1-man car, at West terminus. (Opposite page, above): No. 29 in the original S.E.C. colour scheme; (below): No. 14. Several minor differences can be seen.



Tramway Museum of Victoria Ltd., courtesy R. W. O. Pearson



W. John Webster

No. 19, after conversion for 1-man operation.

### BOGIE CARS

Nos. 31-40 (10 cars)

Type: Bogie drop-end-and-centre combination

Built: 1913 (No. 36), 1914 (Nos. 37-40), 1916 (others); all Duncan & Fraser.

Capacity: 44 seats; full load 140.

Trucks: Brill 22E

Motors: 2 x 65 h.p. (GE 201)

Weight: 16 tons.

Length: 44ft. 4½in. (Nos. 31-35); 44ft. 3½in. (others).

NOTES: Former M. & M.T.B. "C" (No. 36), "E" (Nos. 37-40), and "N" classes, Nos. 118, 122, 120, 126, 119, 26, 38, 37, 39, 40. First five originally H.T.T., others P. & M.T.T. (distinguishable by door and window spacing). Purchased in 1947 (Nos. 31-34), 1948 (Nos. 35-36), and 1951. No. 31 was first bogie car in Geelong (14/1/47). No. 39 altered for 1-man operation (1953). Nos. 31-35, 37 received dash canopy lights and zebra stripes in 1955. Nos. 32-36 transferred to Bendigo and Nos. 37, 39-40 to Ballarat in 1956. Nos. 31 and 38 scrapped at Geelong (1956).

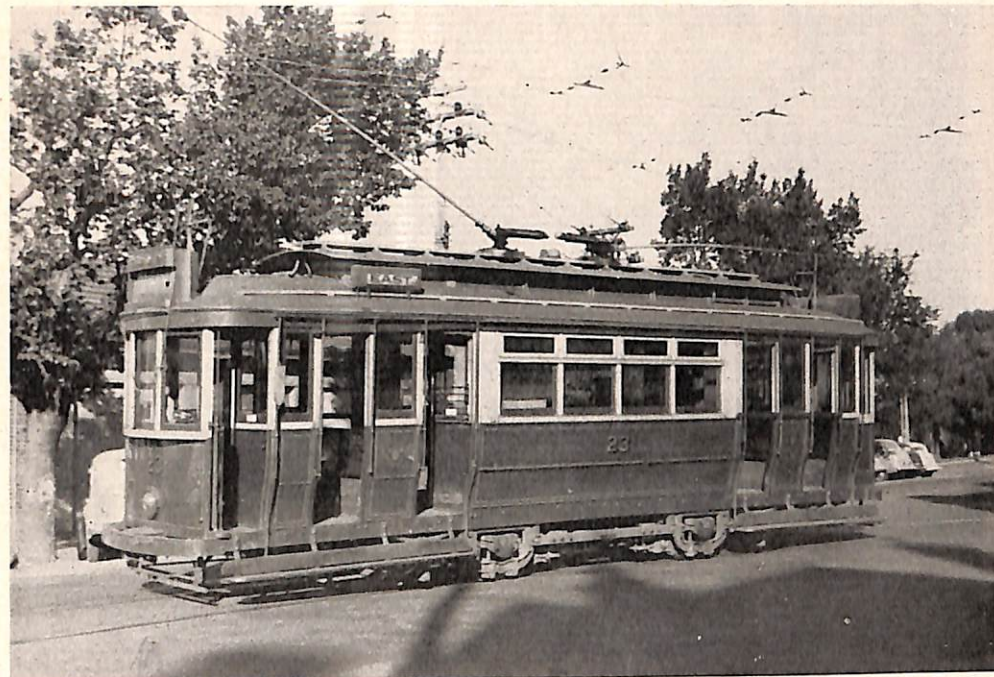
### SINGLE-TRUCK SALOON CARS

Nos. 14-15, (2nd) 27-30 (6 cars)

Type: Single-truck Birney Safety Car.

Built: 1924 (Nos. 14-15), 1925 (Nos. 27-30); J. G. Brill & Co. (U.S.A.)

Capacity: 30 seats (Nos. 14-15), 32 seats (others); full load (all) 50.



K. S. Kings

No. 23 (unaltered) in Corio Terrace, about to enter the Depot.

Trucks: Brill 79E.

Motors: 2 x 25 h.p. (GE264).

Weight: 7 tons.

Length: 28ft. 0in.

NOTES: Nos. 14-15 assembled at Geelong Depot; had twin trolley poles and trolley retrievers (removed 1937). Nos. 27-30 purchased from M.T.T. ("G" class) 1936; former numbers: 303, 304, 302, 301. Nos. 14-15 had longitudinal seats and bulkheads behind driver; others had transverse seats and no bulkheads. Nos. 27-30 transferred to Bendigo in 1947, others in 1948-49.

### SINGLE-TRUCK COMBINATION CARS

Nos. 16-23 (8 cars)

Type: Radial-axle straight-sill closed combination.

Built: 1924-25, Pengelley & Co.

Capacity: 38 seats; full load 110.

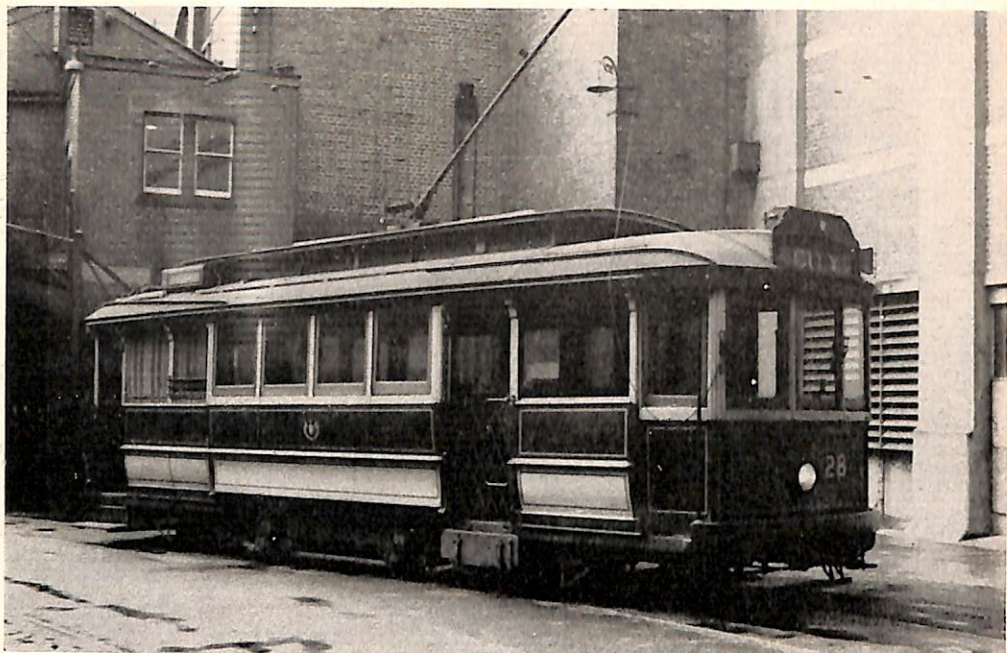
Trucks: Brill Radiax EB1

Motors: 2 x 55 h.p. (MV307VB).

Weight: 14½ tons.

Length: 35ft. 0in.

NOTES: Nos. 16-19 converted for 1-man operation (seating reduced to 30) in 1939. These were the largest single-truck cars in Australia, the last cars to be built with clerestory roofs, and one of the very few single-truck classes with two trolley poles. All scrapped in 1956.



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No. 28, as converted for 1-man operation, in the Depot yard; for unconverted cars of this class, see Bendigo section.

#### Nos. 24-30 (7 cars)

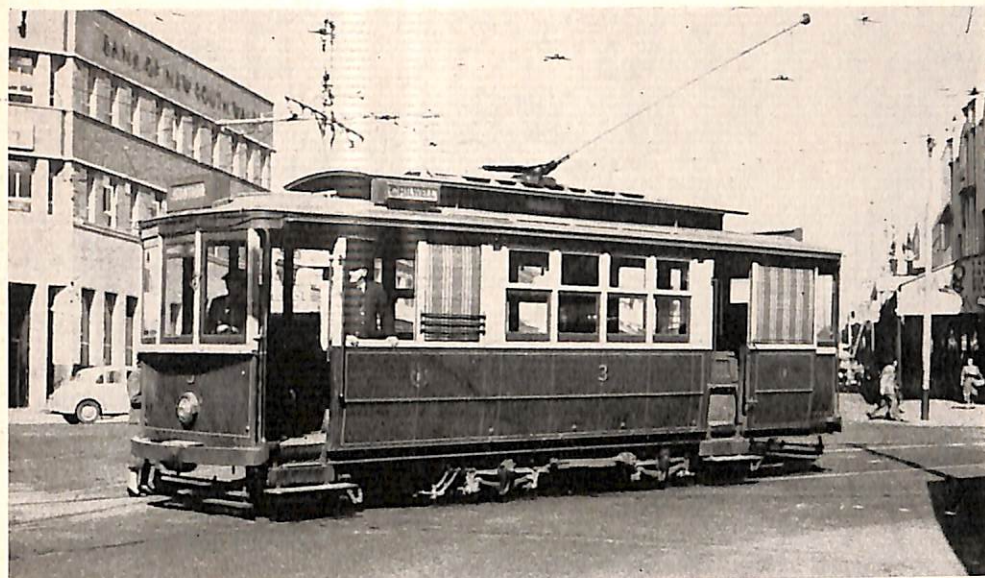
Type: Single-truck drop-end open combination  
 Built: 1915, Meadowbank.  
 Capacity: 36 seats, plus standees.  
 Trucks: Brill 21E  
 Motors: 2 x 45 h.p. (WH225).  
 Weight: 12 tons.  
 Length: 30ft. 11½ in.

NOTES: Former M. & M.T.B. "J" class cars (originally P. & M.T.T.) Nos. 67, 66, 64, 71, 65, 75, 68. Purchased 1928. Converted for 1-man operation in 1932 (seats reduced to 32). Nos. 27-30 transferred to Ballarat in 1935-36. No. 25 renumbered (3rd) 28 in 1951; scrapped 1956, together with Nos. 24 and 26.

#### Nos. 1-10 (10 cars)

Type: Single-truck straight-sill open combination.  
 Built: 1912 (Nos. 1-7), 1915 (Nos. 8-10), Duncan & Fraser.  
 Capacity: 34 seats; full load 92.  
 Trucks: Brush.  
 Motors: 2 x 45 h.p. (WH225N).  
 Weight: 12 tons.  
 Length: 31ft. 0 in.

NOTES: Converted for 1-man operation (seats reduced to 30) in 1931 (Nos. 3-7), 1932 (Nos. 8-10), and 1935. No. 4 fitted with dash canopy lighting and given zebra stripes in 1955. No. 5 given stripes only in 1955. All scrapped in 1956.



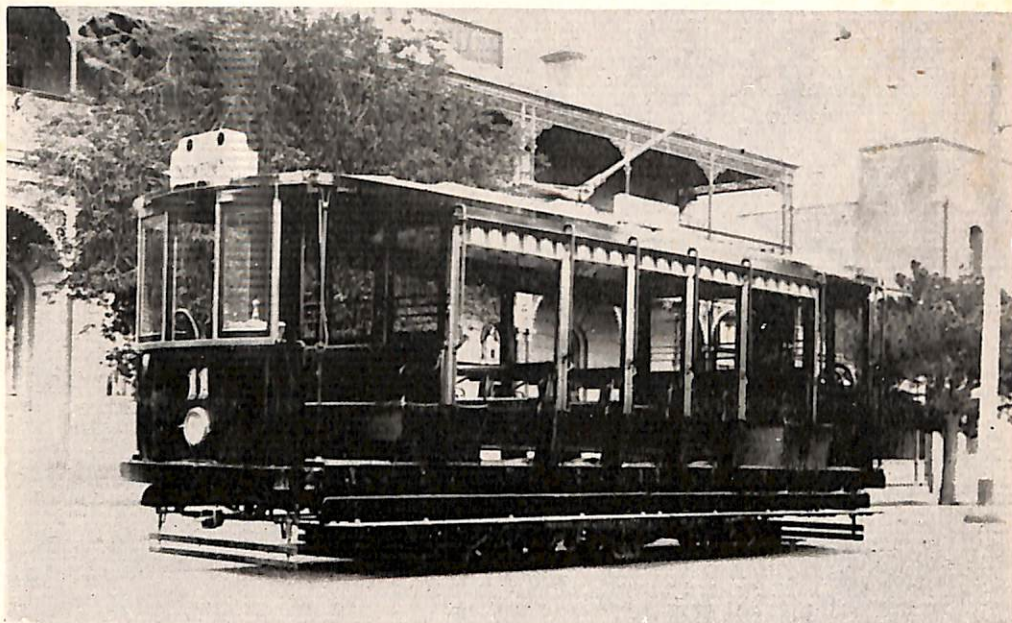
"Butterbox" No. 3, as converted for 1-man operation, but running as 2-man car.

D. Colquhoun

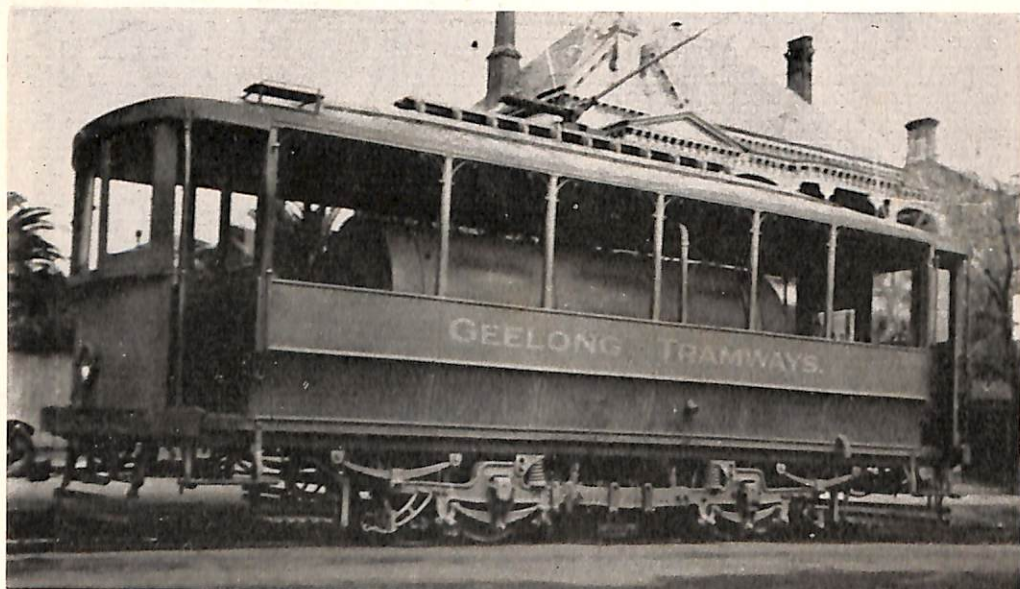


Tramway Museum Society of Victoria Ltd.

No. 10, in unaltered condition, photographed during the late 'twenties.



P. W. Duckett collection



Tramway Museum Society of Victoria Ltd.

## SINGLE-TRUCK CROSSBENCH CARS

## Nos. 11-12 (2 cars)

Type: single-truck straight-sill open crossbench.

Built: 1913-14, Duncan & Fraser.

Capacity: 40 seats plus standees.

Trucks: Brush.

Motors: 2 x 45 h.p. (WH225N).

Weight: (not known).

Length: (not known).

NOTES: These two cars were trailers 1 and 4 motorised. Scrapped 1928.

## TRAILERS

## Nos. 1-4 (4 cars)

Type: Single-truck straight-sill open crossbench trailer.

Built: 1912, Duncan & Fraser.

Capacity: 40 seats, plus standees.

Trucks: (not known).

Weight: (not known).

Length: (not known).

NOTES: Nos. 1 and 4 motorised in 1913-14. Nos. 2-3 scrapped in 1925-26.

## SERVICE STOCK

## Un-numbered

Type: Single-truck track cleaner.

Built: 1928, M.E.S.

Capacity: 950 gallons.

Motors: 2 x 45 h.p. (WH225N).

Weight: 12½ tons.

Length: 27ft. 0in.

NOTES: Constructed principally from the body of a former North Melbourne Electric Tramway Co. trailer purchased from M. & M.T.B. in 1925. Truck and electrical gear from Geelong No. 11. Scrapped 1956. Believed officially numbered "13".

(Opposite page, above): No. 11. Note track brake between wheels.

(Opposite page, below): The Track Cleaning car (scrubber), reputedly No. 13.

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