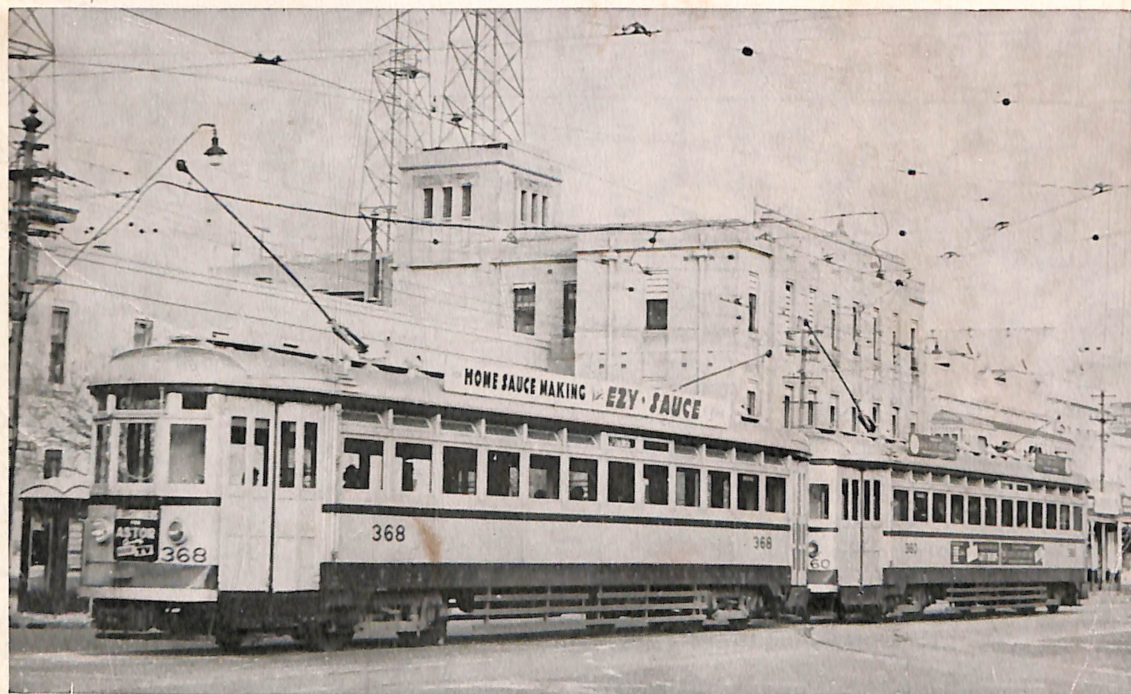


Price: 60c

Destination

PARADISE



A PICTORIAL REVIEW OF ADELAIDE TRAMS AND TROLLEYBUSES

About This Book—

DESTINATION 'PARADISE' differs from other books in this series in that the text is almost entirely the work of members of the Australian Electric Transport Museum (South Australia) Incorporated, the final compilation having been made by Mr. Roger Wheaton, the Treasurer of that organisation. My role has been limited to the mechanics of editing and to decisions, always painful, as to the inclusion or otherwise of this or that photograph in the light of space available. Those critics who believe that poor photographs should never be used will find two or three illustrations not to their taste. However, the purpose of these books is to let readers know what the trams were like, and I feel that a poor illustration is better than no illustration, provided it shows something of interest. Perhaps readers would let me have their views on this question?

Adelaide's tramway fleet was remarkable for the limited number of car types, and for the fact that most cars remained unchanged throughout their working life. This, of course, made for a very small book, and we decided to depart from standard practice by including trolleybuses.

In addition to thanking Mr. Wheaton for his contribution, I must thank Dr. John Radcliffe and Mr. Chris Steele for their help and encouragement in the early stages of preparation. Thanks go also to those who lent photographs, especially to Mr. Douglas Colquhoun.

Readers may like to know that part of the purchase price of every copy of this book goes to the A.E.T.M.; you will find particulars of the Museum elsewhere in this book, and I commend it to your support.

THE EDITOR

WHY "PARADISE"

In selecting titles for the "Destination" series, the name of a terminus unique to the system concerned is always chosen; this condition is more than fulfilled in this book. We recollect dimly a "Paradiso" or "El Paradiso" in one of the Latin countries but, as far as we know, the Adelaide tramways were alone in English-speaking lands in offering to transport their passengers to Paradise on payment of a fare!

The Paradise line was unusual in several ways and a brief description appears elsewhere in this book.

ABBREVIATIONS USED

A.E.T.A.—Australian Electric Traction Association
 A.E.T.M.—Australian Electric Transport Museum (S.A.) Incorporated
 Archives—The Archives of the State Library of S.A.
 M. & M.T.B.—Melbourne & Metropolitan Tramways Board
 M.T.T.—Municipal Tramways Trust
 S.E.C.—State Electricity Commission (of Victoria)
 T.M.S.V.—Tramway Museum Society of Victoria Ltd.

The reproduction of the "Paradise" sign is from a drawing made especially by Mr. L. M. Fenner.

COVER PICTURE

H class cars Nos. 368 and 360, in the silver and red colour scheme, headed south in King William Street. It was more usual for coupled sets to comprise consecutively-numbered cars.
 D. A. Colquhoun

Destination

PARADISE

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Edited by
 J. RICHARDSON

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H class Nos. 351-352-353, operating as a 3-car set, unload morning peak hour passengers in King William Street, Victoria Square, soon after the opening of the Glenelg line.

ADELAIDE, S.A.

Municipal Tramways Trust

Track Gauge: 4ft. 8½ins. Colour of Cars: Silver and Carnation Red

Adelaide was the first Australian city to establish a permanent horse tramway system and the last to convert to a more modern means of locomotion. The first horse tramway was opened to Kensington on 10th June, 1878, the operator being the Adelaide & Suburban Tramway Company Ltd. This concern grew to become the largest and most successful of the horse tram companies, finally operating 25 of the total 51 route miles.

The Municipal Tramways Trust was created by a special Act of Parliament, to which Assent was given on 22nd December, 1906, to operate

electric tramways within a 10-mile radius from the G.P.O. The Trust acquired the various companies operating from Adelaide and set about electrifying the system. There was a trial run on 30th November, 1908, and, on 9th March, 1909, the first electric tram route was opened to Kensington. The electrification scheme was fully implemented by 1914 when the last horse tram on the main system ran into history.

A major event in the history of the Trust was the taking-over of the South Terrace-Glenelg railway and its conversion to tramway

operation. The rebuilt line was opened in 1929 and is today the last section of Adelaide's electric transport system to continue operating.

The tramways of Adelaide can be said to be those of Mr. W. G. T. (later Sir William) Goodman who was the Trust's Engineer from 1907 to 1950 and its General Manager from 1908 to 1950.

The last tram route to be built was the Erindale extension from Murraysville on the Burnside line in 1944. The last new track was laid in 1952 to allow through running between Currie and Grenfell Streets in the City.

The reconstruction of the Board of the Trust in 1953 resulted in the Ten Year Plan to replace trams with buses and, on 22nd November, 1958, only one week short of 50 years' operation, the last street tramway (to Cheltenham) closed.

The tram fleet reached its maximum size in 1931 when it had 312 vehicles.

PORT ADELAIDE

A small, isolated system was operated by the Trust in the Port Adelaide district between 1917 and 1935. Plans to link these lines with the main system failed to materialise. The Port Adelaide tramways were the successors to a horse tramway between Albert Park and Port Adelaide which began operations in 1879. The electric lines served other suburbs in addition.

All rolling stock was single-truck, although it is believed that a D class bogie car was used at Port Adelaide to test clearances. Rolling stock was transferred between the two systems by jinker, normally between Port Adelaide Depot and Findon (the nearest point on the main system at that time).

CAR CLASSIFICATION

The system of car classification used in Adelaide was unquestionably the simplest and most straightforward possible. Classes were designated, by the letters A to H, conversions or modified designs being indicated by a figure suffix, e.g., A2, F1.

Service stock carried no classification, but was usually designated by the prefix "S".

ROLLING STOCK ROSTER

Car numbers in sequence, with class; class to which cars subsequently converted shown in brackets:

Passenger Cars

1-30: A
31-40: B
41-43: B (A2)
44-60: B (A1)

61-100: A
101-120: E (E1)
121-170: D
171-190: C
191-194: D
201-250: F
251-284: F1
301-304: G
351-380: H
381: H1

Service Stock

S1: Sprinkler (Scrubber)
S.2-S3: Sprinkler
A-B: Horsebox trailer
38: Ballast Motor (Tank Car)
50: Drivers' Instruction Car

ROUTE INDICATORS

Route colour symbols similar to those employed in Sydney were in use up to 1917 when route numbers were introduced. One number was used for all termini on any one route, the actual terminus being shown in the destination box. Symbol-type destination boxes were fitted to the A, A1, A2, B, C, D, and E classes; when the route number boxes (which were of similar design) were fitted, the faces of the original destination boxes were blanked out, except for an aperture large enough to show a single-line destination. When the E class cars were converted to E1, both types of box were removed and a built-in destination box fitted at each end.

TROLLEYBUS ROUTE INDICATORS

Trolleybus destinations were indicated at night by coloured lights positioned near the destination sign. There were four lights, two red and two green, and a limited range of combinations was used. The system was last employed on the AEC buses in 1958, the lights on the single-deck vehicles having been placed out of use some time previously.

COLOUR SCHEMES

The original colour scheme was Tuscan Red and Deep Cream, with varnished window frames (later painted Dark Stone). Trim was Black, with Gold and Black lettering. Rocker panels were Cream, except on the E1 class, while the D's lost their Cream panels about 1940; the A, A1, and C classes kept the Cream panels throughout their lives. Goldlining was discontinued at an early stage.

During the 1950's the H and many of the F1, and F classes, also the trolleybuses (except the double-deck Leylands) were repainted in Silver and Carnation Red; the H1 was always in these colours as were the Sunbeam trolleybuses).

Car interiors were finished in varnished woodwork, the H class and the trolleybuses having ivory ceilings. Latterly all Silver passenger cars were finished internally in Asbury Green and Cream.

Service stock was grey and white, except where otherwise indicated.

ACKNOWLEDGMENTS

The compiler wishes to acknowledge his debt for assistance in various ways to Dr. J. C. Radcliffe, Messrs R. I. Merchant, A. W. Perry, K. S. Kings, F. R. Field, C. J. M. Steele, and J. C. Morphet, as well as to members of the Municipal Tramways Trust staff.

Photographs are acknowledged individually.

The Glenelg Line

Glenelg was the scene of the first permanent European settlement in South Australia. At that stage it was known as Holdfast Bay. Today it is a suburb of the City of Adelaide, connected to it by a rapid transit line approximately seven miles in length. This line is built almost entirely on its own right-of-way, inherited by the M.T.T. when the latter acquired the S.A.R. line between South Terrace (City) and Glenelg, in 1929.

Railway connections between the two towns (they were at that time completely separate) began in 1873 when the Adelaide, Glenelg & Suburban Railway Co. Ltd. commenced operations along the present tram route from Victoria Square (City). Seven years later an opposition line began services from the S.A.R. station at North Terrace; this was the holdfast Bay Railway Co. Ltd. 1882 saw the amalgamation of the two companies and, in 1899, both lines were taken over by the S.A.R. In 1914 the section of line between Victoria Square and South Terrace was closed and the city terminus of the southern route was placed at South Terrace. For some years thereafter the M.T.T. conveyed railway passengers between South Terrace and Victoria Square at no charge.

Although there had been proposals for the S.A.R. to electrify these lines—operation with interurban-type cars was one idea—nothing came of them. However, in 1927 the South Australian parliament authorised the transfer of both lines to the M.T.T. The South Terrace line was closed on 2nd April, 1929; the gauge was converted from 5ft. 3in. to 4ft. 8½in. and the line electrified as part of the Adelaide tramway system, being re-opened on 14th December, 1929, on which date the North

Terrace line ceased operations. It was intended to electrify the latter route but the onset of the Depression doomed this scheme.

The conversion of the South Terrace line included the building of the flyover at Goodwood where the main South and Willunga lines of the S.A.R. are crossed, previously on the level.

The H class cars were built especially for the Glenelg lines.

The railway-like appearances of the Glenelg line was enhanced with catenary overhead which was, however removed in 1953, and again in 1959, when automatic level-crossing bells were introduced.

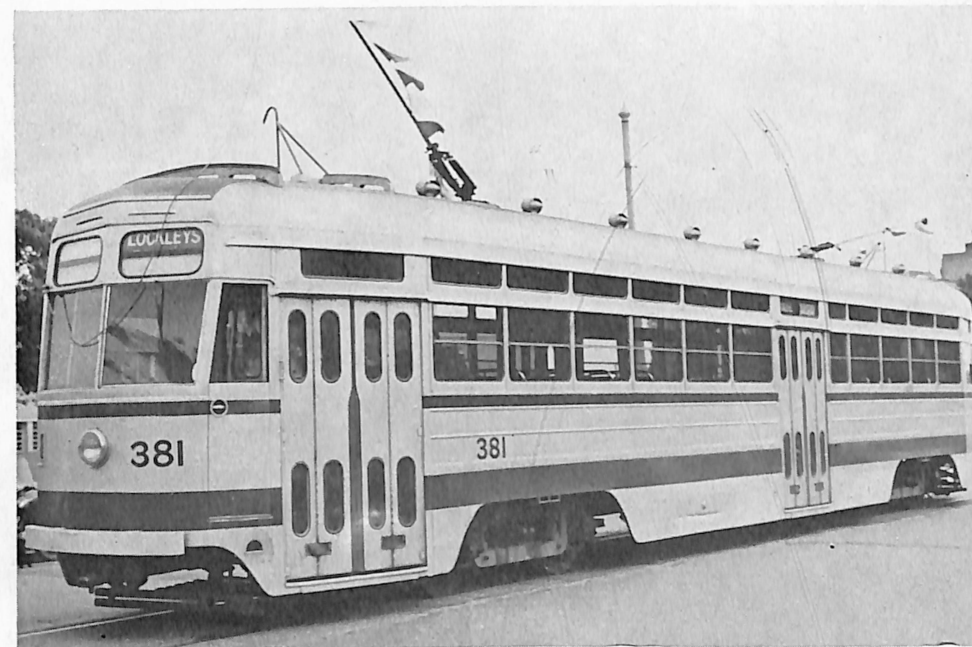
Glenelg formerly had its own horse tramway to Brighton which was not, however, acquired by the M.T.T., the service ceasing in 1914, on the opening of the S.A.R. railway to Brighton. Today Glenelg is the terminus of a number of local and cross-suburban bus routes.

The Paradise Line

Paradise is today a suburb of Adelaide amidst the rapidly-growing northeastern subdivisions which have grown up since the end of World War II. However, horse trams started running to the district as early as 1884, despite the sparseness of the population. The latter feature probably accounted for the poor financial situation of the operators of the service. Electrification of the line took place as part of the M.T.T.'s general plan, and electric trams reached Paradise in 1911, continuing to operate until 1958 when motor buses took over the service. Even at this stage the area served by the line was still largely taken up with market gardens beyond Glynde Road. The name is one which has intrigued visitors for many years and is certainly different from the normal run of place names, usually borrowed from overseas.

The route itself was noted for the very long stretch of single track beyond Jeff's Loop—approximately 1½ miles to the terminus—although earlier there had been Thorndon Loop at the Gorge Road to break this section. The Torrens Valley Show at nearby Campbelltown Oval was probably the only country show in Australia accessible by tram from the capital city, and special services were operated.

The limited service requirements of the Paradise route made it the choice for the experimental trolleybus service (1932-34), as the service between Payneham, where connection was made with a tram, and Paradise could be maintained with a single vehicle.



D. A. Colquhoun

H1 class No. 381 decorated for a festive occasion.

H1 Class: No. 381 (1 car)

Type: Bogie front-and-centre-entrance saloon

Built: 1952, J. A. Lawton & Sons

Capacity: 52 seated, crush load 184

Trucks: Commonwealth Steel type, 5ft. 11in. wheelbase, 31ft. 0in. centres

Motors: 4 x 65 h.p. EE308

Weight: 26 tons

Length: 57ft. 3in.

Width: 8ft. 4in.

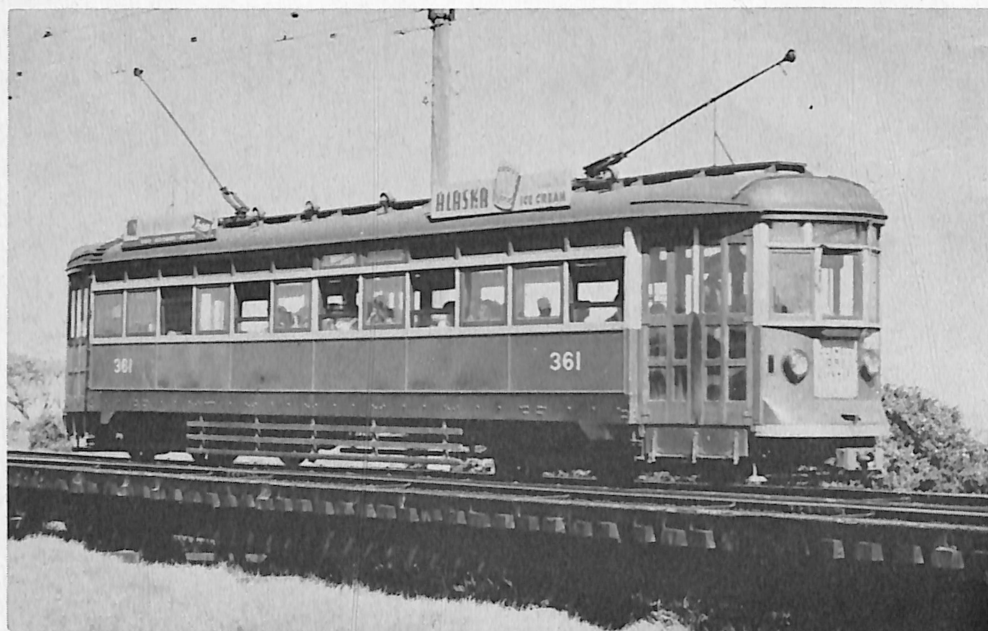
NOTES: This car was originally intended to be the first of a fleet of 40 planned in 1939. World War II prevented their construction and, although work commenced some years after the war, only one car had been completed when the order for the remaining 39 was cancelled in 1953, following the reconstitution of the M.T.T. Board; the second car had just been started. No. 381 was thus the last tramcar to be built for Adelaide and the only one to be built by J. A. Lawton & Sons. The PC5L2 auto-acceleration control equipment fitted, came from F1 No. 264. Due to differing electrical characteristics, No. 381 could not run in multiple with the H class, so was not at first fitted with Tomlinson automatic couplers. Towards the end of its service, however, this type of coupler was provided to facilitate towing. No. 381 had unsatisfactory braking and was unpopular with crews, so was withdrawn from traffic in December, 1957, after less than five years' actual running. It was stored at Maylands Per-way Depot until June, 1965, when it was moved to St. Kilda where it is now preserved by the A.E.T.M.

H Class: Nos. 351-380 (30 cars)

Type: Bogie, end-loading saloon

Built: 1929, Pengeley

Capacity: 64 seated, 160 crush load



D. A. Colquhoun

H class No. 361 crossing low-lying ground near Lockleys on the Henley line.

Trucks: Commonwealth Steel type, 5ft. 11in. wheelbase, 31ft. 0in. truck centres
Motors: 4 x 65 h.p. EE308 (as re-motored)
4 x 60 h.p. DK108G (as built)
Weight: 23.1 tons
Length: 56ft. 4in.
Width: 8ft. 6½in.

NOTES: These cars, which have many characteristics of American interurban cars, are known to the public as "Glenelg" or "Bay" cars by association with the route for which they were built. Originally 3-car sets were operated in peak hours, but this practice was short-lived; 2-car sets are run as necessary. The H class have PC5L2 auto-acceleration control equipment and are fitted with Tomlinson automatic couplers. They have power-operated jack-knife doors and folding steps. In addition to the usual tramcar gongs, air horns are provided. No. 371 originally had opening windows on either side of the end destination boxes. No. 378 had a different style of roof ventilators from other cars. All H class cars have been re-painted in the new colour scheme; Nos. 379 and 380 ran for a brief period in an experimental livery of grey and red. Also for a short while, advertisements appeared on the side panels. As the number of cars was more than sufficient for the Glenelg line, the surplus was used on the Henley North route; when this route was through-routed with that to Kensington Gardens in 1952, the H cars ran through. When these routes were closed in 1957, the cars were transferred to the Cheltenham line.

During the 1930's experiments were conducted with different methods of current collection for comparison with the standard trolley pole method:

No. 376 was fitted with a Siemens-Schuckert (German) pantograph on a tower;
No. 377 had a Fischer (English) bow collector;
No. 378 received an A.S.E.A. (Swedish General Electric) pantograph fitted direct to the roof;
No. 379 was equipped with a Metropolitan Vickers pantograph on a raised tower;



M.T.T. Photo

G class Birney Safety Car No. 303 shortly after entering service.

No. 380 was given an English Electric pantograph on a raised tower.

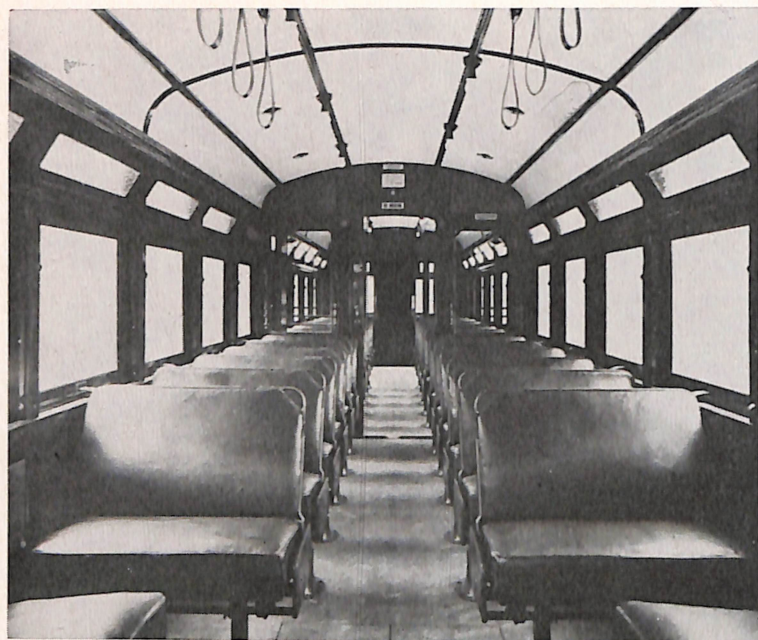
These experiments were not considered successful, the main reason being that, because the overhead was not staggered, wear on the collectors was uneven. The roof platforms are still in place on the cars concerned.

In 1956 the H class cars were re-motored, using motors purchased for the proposed H1 class. During May, 1959, a spate of re-numbering took place, due in part to the Trust's policy of coupling consecutively-numbered cars in peak periods, so as to simplify the keeping of mileage figures for overhaul purposes. No. 352 was scrapped, following an accident, so that 351 was left "mateless". At about this time the City Depot was converted to a combined tram/bus shed, with room for only 28 cars, so No. 380 which happened to be in the worst condition, was renumbered 351 and placed in storage at Maylands Per-way Depot until scrapped in 1965. No. 351 was renumbered 380; it later exchanged numbers with No. 359. In May, 1968, Nos. 366 and 377 were scrapped, and Nos. 353-354 were re-numbered 366 and 377, respectively. As a result of all this, although Nos. 352, 377 and 380 have been scrapped, the present fleet is numbered 355-380.

G Class: Nos. 301-304 (4 cars)

Type: Single-truck Birney Safety Car
Built: 1925, J. G. Brill & Co., U.S.A.
Capacity: 32 seated, 50 crush load
Trucks: Brill 79E, wheelbase 8ft. 0in.
Motors: 2 x 25 h.p. GE264
Weight: 7.6 tons
Length: 28ft. 0in.
Width: 7ft. 8½in.

NOTES: These cars entered service on 6th December, 1925, and, as a class, were unique in Adelaide: they were the only cars built overseas, the only 1-man cars, and the only lightweight cars in a city noted for heavyweight vehicles, as well as being the first cars in Adelaide with power-operated doors and steps. They were used solely on the isolated Port Adelaide system



Left:
H interior.

Left below:
No. 378 with
ASEA panto-
graph.

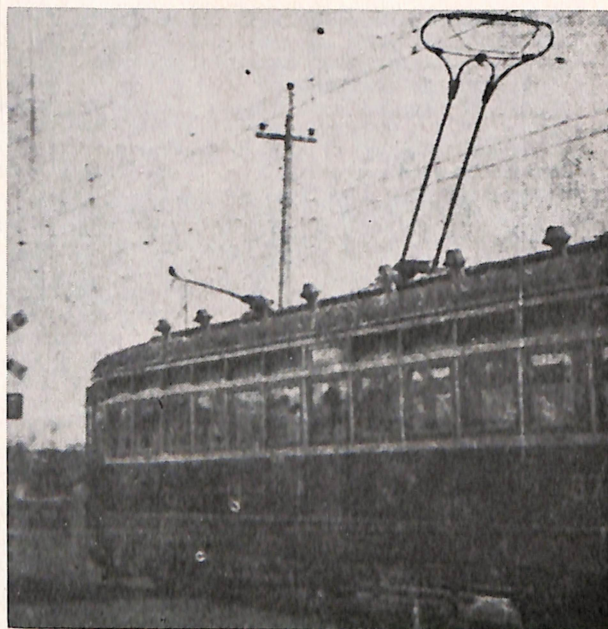
Below:
No. 377 with
Fischer bow
collector.

M.T.T. Photo

M.T.T. Photo



Archives



H. D. Ellerton

F1 No. 255, the first silver-painted car, in an experimental livery.

and, on the closure of the latter in 1935, were sold to the State Electricity Commission of Victoria for use on the Geelong tramways where they became Nos. 30, 29, 27, and 28. They were subsequently transferred to Bendigo where three are still in service, the former No. 303 having been scrapped in 1956. The design was developed in the U.S.A. for lightly-trafficked routes. The only other cars of this type in Australia were ordered by Melbourne and Geelong, both systems obtaining two cars.

F1 Class: Nos. 251-284 (34 cars)

Type: Bogie drop-centre

Built: 1925-29, Pengelley (except Nos. 262, 283-284, M.T.T. Hackney Shops)

Capacity: 60 seated, crush load 170 (but see notes)

Trucks: Brill 77E2 (Nos. 251-262)

Commonwealth Steel type (Nos. 263-284)

Motors: 4 x 40 h.p. DK84B (Nos. 251-262)

4 x 50 h.p. DK105 (Nos. 263-284)

Weight: 20.01 tons (Nos. 251-262)

20.1 tons (Nos. 263-284)

Length: 49ft. 0in.

Width: 8ft. 10in.

NOTES: Originally all F1's had automatic acceleration control equipment, with 3-notch master controllers. Most had some form of PC5 controller, but Nos. 251-261 had Dick Kerr all-electric control with deadman's handle. During 1952-53 Nos. 259-261 had their controllers replaced with PC5L2 equipment, while Nos. 251-258 and 264 had their controllers replaced with English Electric 14-notch direct controllers, the PC5L2 equipment from No. 264 going to No. 381. Nos. 274-275 were fitted in 1929 with air hoses (later removed) for hauling horseboxes (q.v.). Saloon seating was rattan (replaced by leather after 1946) in Nos. 251-261, moquette in No. 262, and wooden in Nos. 263-284. After October, 1953, Nos. 254, 256-257, 260-261, 264-265, 267-269, 271-279, 283-284 were fitted with motorman's exit doors to the saloons, reducing the seating capacity to 56, and at the same time were repainted silver and red; No. 282



No. 265 of the F1 class awaits return Race traffic at Morphetville.

D. A. Colquhoun

received the doors but remained in the old colours. Nos. 251-253, 255, 258-259, 262-263, 270 were repainted earlier and did not receive the doors. Nos. 255 and 262 ran for a time in experimental colour schemes. During 1958 F class cars Nos. 234, 245 and 249 were retrucked with Commonwealth trucks from Nos. 266, 284, and 263, respectively, and renumbered with these numbers. The F1's were last used in traffic on 22nd November, 1958, when the Cheltenham line closed. The last of the class to run on Adelaide streets was No. 282 on 28th February, 1959, when it was driven on the first stage of its journey to St. Kilda where it is now preserved by the A.E.T.M.

F Class: Nos. 201-250 (50 cars)

Type: Bogie drop-centre

Built: 1921-25, Pengelley

Capacity: 60 seated, crush load 170 (but see notes)

Trucks: Brill 77E2, 5ft. 4in. wheelbase, 29ft. 0in. truck centres

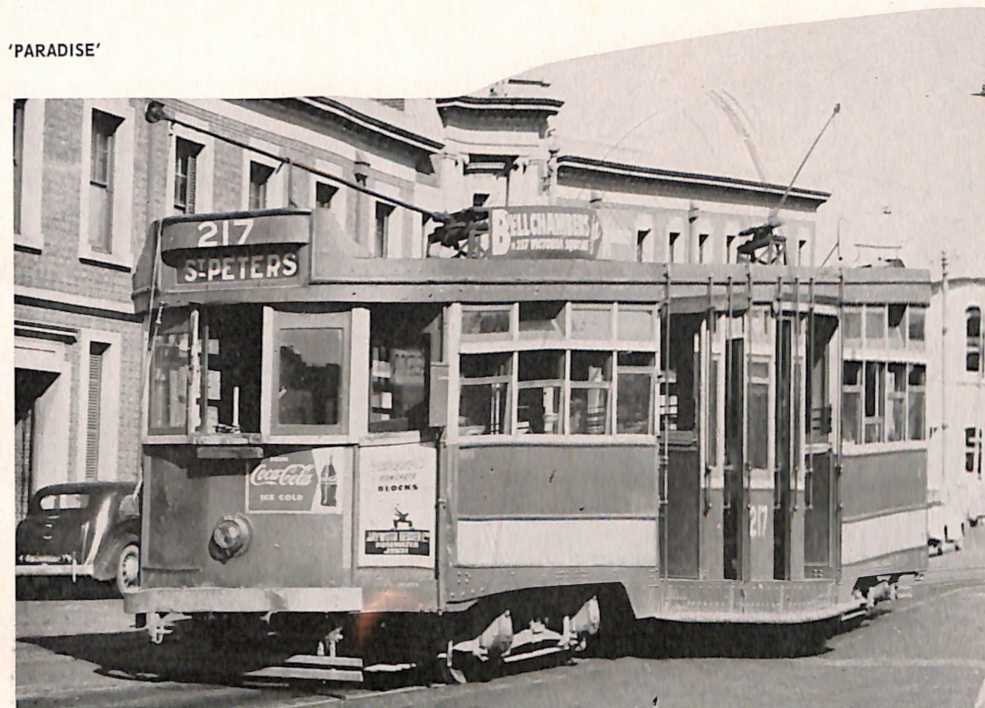
Motors: 4 x 40 h.p. GE247B (Nos. 201-225), DK84B (Nos. 226-250)

Weight: 19.64 tons (Nos. 201-225); 19.7 tons (Nos. 226-250)

Length: 49ft. 0in.

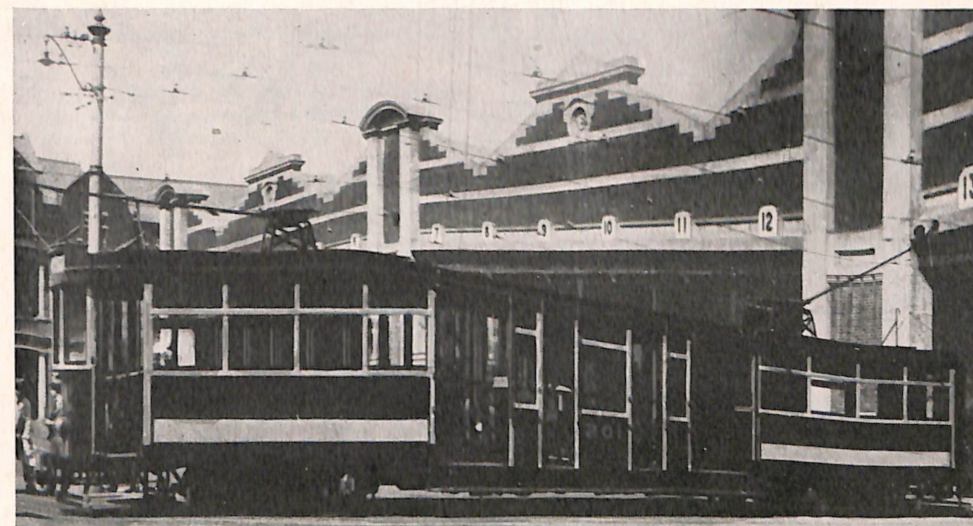
Width: 8ft. 10in.

NOTES: The F's were the first Adelaide cars built with air-brakes. All had automatic acceleration, with some form of PCS control equipment. No. 250 had moquette seating in the saloons; the remainder had rattan (replaced by leather after 1946). Nos. 208, 215, and 216 (and some others) had a stanchion fitted in the centre of each saloon because of structural weakness in the roof. Lack of roof curvature created drainage problems in F and F1 classes. No. 203 had a white ceiling until the introduction of new interior colours. During the latter part of World War II No. 247 was painted white to advertise war loans, later victory loans; afterwards it carried commercial advertising, the only non-silver car to do so. As from October, 1953, motorman's exit doors were cut through to the saloons of Nos. 201-204, 213, 216, 218-219, 224-225, 227-230, 246, 248, reducing the seating capacity to 56. These cars were at the same



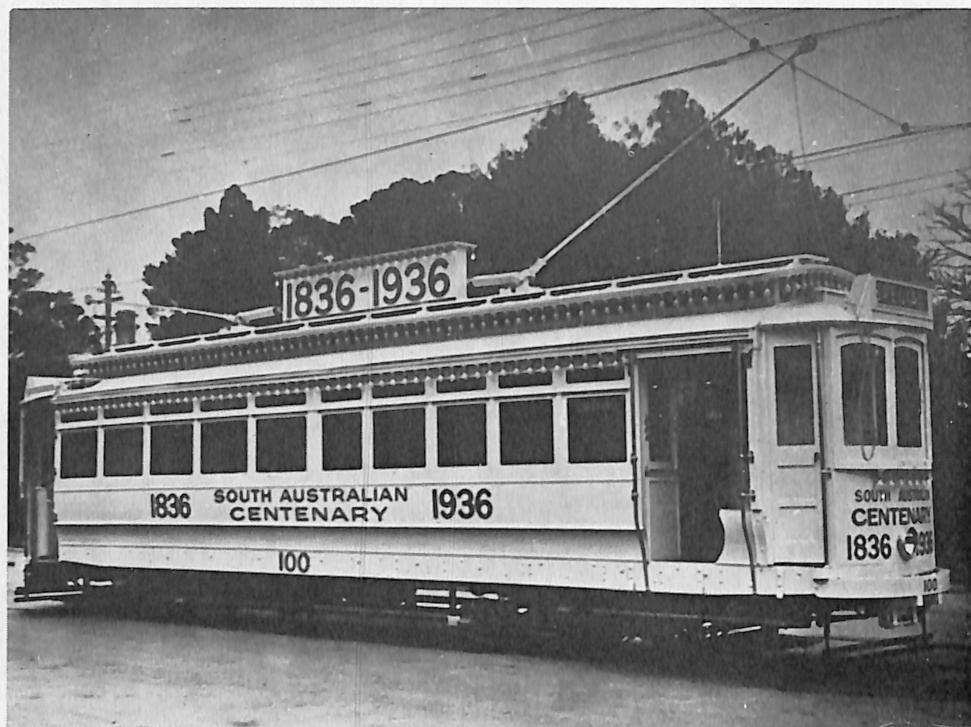
F class car No. 217 on the southeast loop in Victoria Square.

D. A. Colquhoun



F class No. 201 as built, with driver's cabins open at the sides and smaller destination boxes.

M.T.T. Photo



M.T.T. Photo

E1 class car "No. 100" (actually No. 101) decorated for the centenary of South Australia.

time repainted in the silver and red colours. Nos. 208, 211, 222, 223 had been repainted earlier and did not receive the doors. No. 224 was painted in an experimental silver scheme with the bottom red stripe only. Most of the F's were scrapped prior to the cessation of street tramway operation.

EDITOR'S NOTE: The essential difference between F and F1 cars, not readily apparent from the foregoing, lay in the heavier underframes of the F1's—the illustrations show this clearly.

E1 Class: Nos. 101-120 (20 cars)

Type: Saloon cars with one drop end and one straight-sill end

Built: 1936, M.T.T., Hackney Shops (rebuilt from E class)

Capacity: 49 seated, crush load 150

Trucks: Brill 22E maximum traction, 4ft. 0in. wheelbase

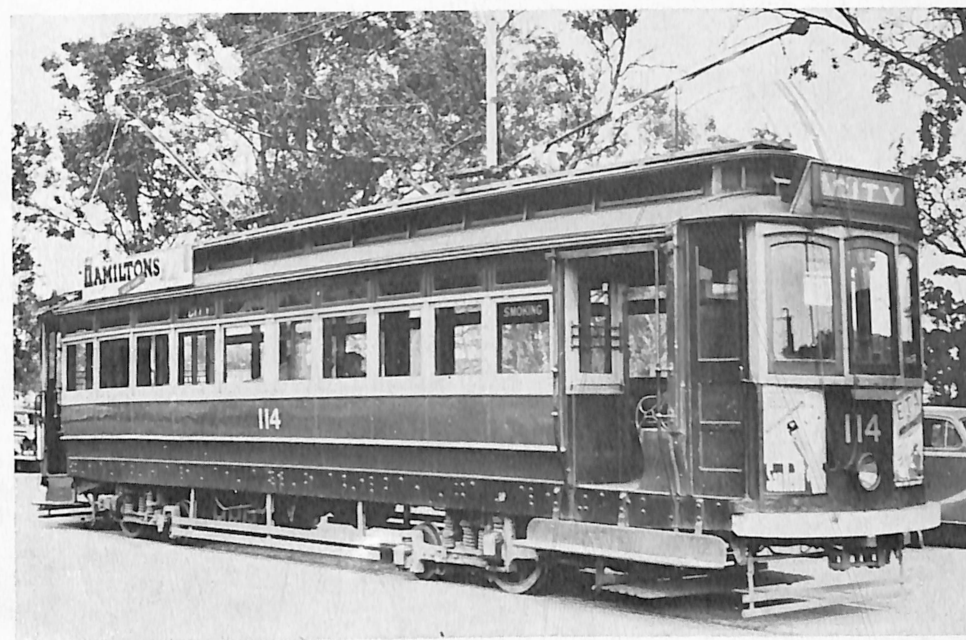
Motors: 2 x 65 h.p. GE201

Weight: 15.8 tons

Length: 43ft. 0in.

Width: 7ft. 8½in.

NOTES: One fixed cross-bench against driver's bulkhead at straight-sill end retained when rebuilt. No. 101 was painted in ivory and gold in September, 1936, and temporarily renumbered 100 as part of the South Australian Centenary celebrations; the metal work on the car was chromium-plated and a multitude of electric light globes were strung on the sides and roof. "No. 100" operated under special instructions on specially selected routes. The E1 class were last used on 5th March, 1958. No. 111 is now preserved by the A.E.T.M. at St. Kilda.



D. A. Colquhoun

No. 114 of the E1 class in more sedate colours.

E Class: Nos. 101-120 (20 cars)

Type: Bogie half-open half-closed combination with one drop-end platform

Built: 1910-1912, Pengelley & Co.

Capacity: 54 seated, crush load 150

Trucks: Brill 22E maximum traction

Motors: 2 x 65 h.p. GE201 (as re-motored)

2 x 50 h.p. GE202 (as built)

Weight: 15.8 tons

Length: 43ft. 0in.

Width: 7ft. 8½in.

NOTES: Built by Pengelley & Co. under arrangements with J. G. Brill & Co., using some materials supplied by that firm. Re-motored in 1918, the original motors going to the C class. Originally fitted with magnetic brakes, replaced by air brakes in early 1920's (the first car so equipped was No. 105 as from 10th August, 1921). Converted to E1 class.

D Class: Nos. 121-170, 191-194 (54 cars)

Type: Bogie closed combination car with one drop-end platform

Built: 1910-1912, Pengelley & Co. (Nos. 121-170)

1912, Duncan & Fraser (Nos. 191-194)

Capacity: 54 seated, crush load 152 (but see notes)

Trucks: Brill 22E maximum traction (Nos. 121-125); car wheelbase 23ft. 0in. (all)

Brush 22E maximum traction (Nos. 126-170, 191-194)

Motors: 2 x 65 h.p. GE201 (Nos. 121-125, 191-194)

2 x 50 h.p. DK11B (Nos. 126-150)

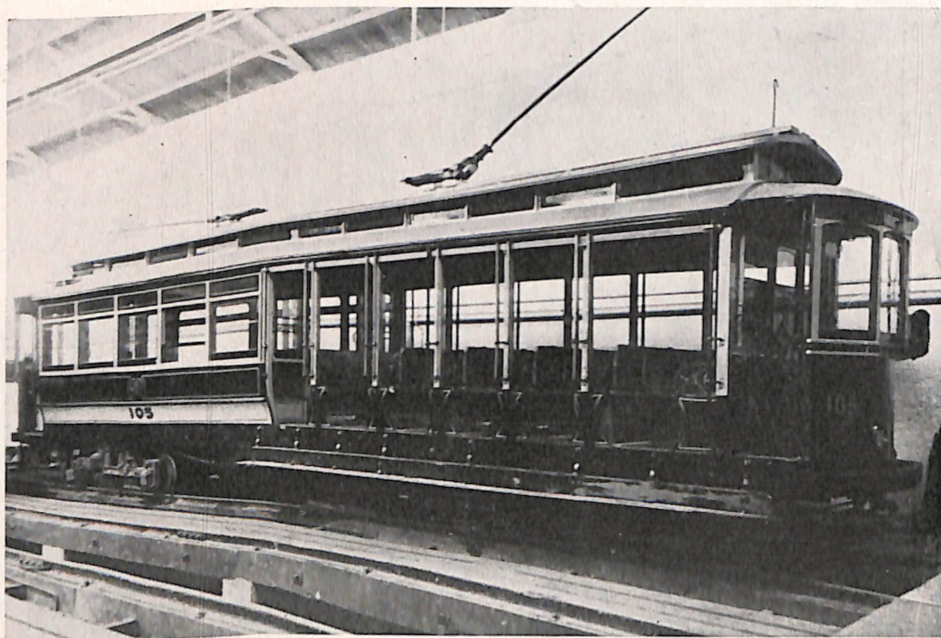
2 x 50 h.p. GE202 (Nos. 151-170)

Weight: 16.3 tons (Nos. 121-125, 191-194)

15.8 tons (Nos. 126-170)

Length: 43ft. 0in.

Width: 7ft. 8½in.



Archives

(Above): E class No. 105, as built.

(Opposite page, above): D class No. 122 turning into North Terrace from King William Street.

(Opposite page, below): An early evening view of C class No. 184 returning to Hackney Depot; the narrow stained-glass windows in the end bulkheads were an unusual feature of a car built in 1919.

NOTES: Originally fitted with magnetic brakes, replaced during the 1920's by air brakes. Nos. 191-194 were built for the Prahran & Malvern Tramways Trust (Melbourne) as their Nos. 21-24; the P. & M.T.T. sold them to the Hawthorn Tramways Trust which used the same fleet numbers. When the Melbourne & Metropolitan Tramways Board was formed, these cars became its O class Nos. 127-130. The M.T.T. purchased them in January, 1927. Because of accidents to conductors working on the footboards a centre aisle was cut through four of the six cross benches of Nos. 121-170 in 1936, reducing the seating capacity to 50. Nos. 191-194 already had aisles cut through five benches, reducing the seating to 49. The D class was last used on 5th March, 1958. No. 192, formerly M. & M.T.B. No. 130, is now preserved by the A.E.T.M. at St. Kilda.

C. Class: Nos. 171-190 (20 cars)

Type: Single-truck drop-end "California" combination

Built: 1918-1919, Duncan & Fraser

Capacity: 40 seated, crush load 102

Trucks: Brill 21E, 9ft. wheelbase

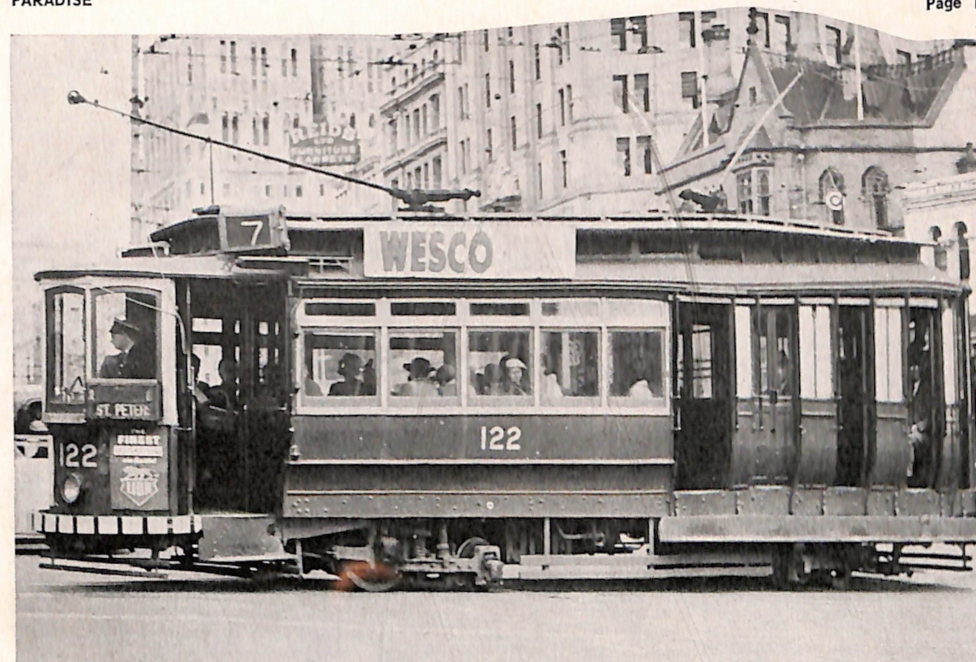
Motors: 2 x 50 h.p. GE202

Weight: 11.2 tons

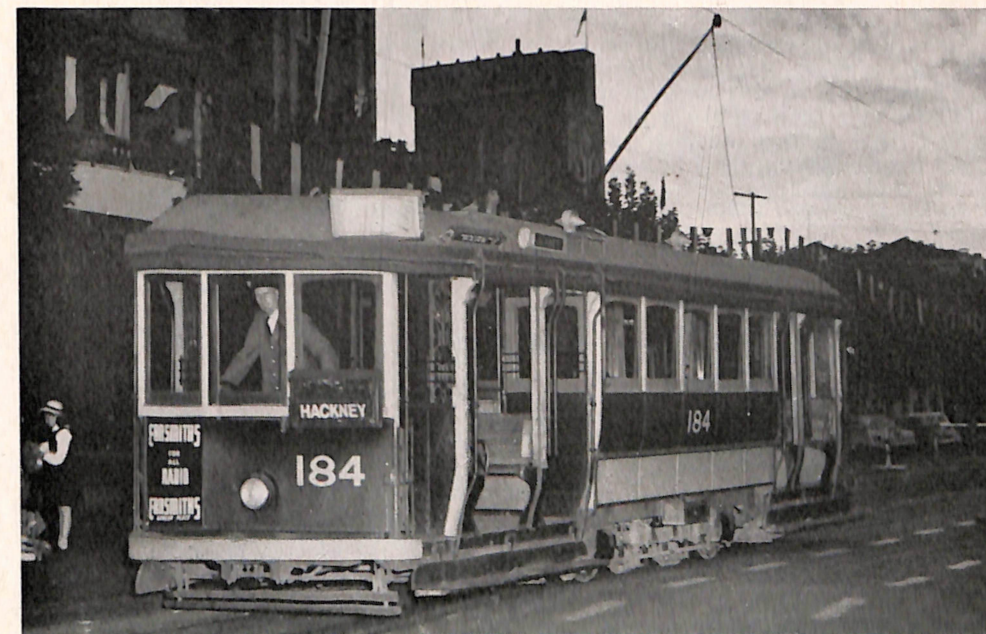
Length: 30ft. 0in.

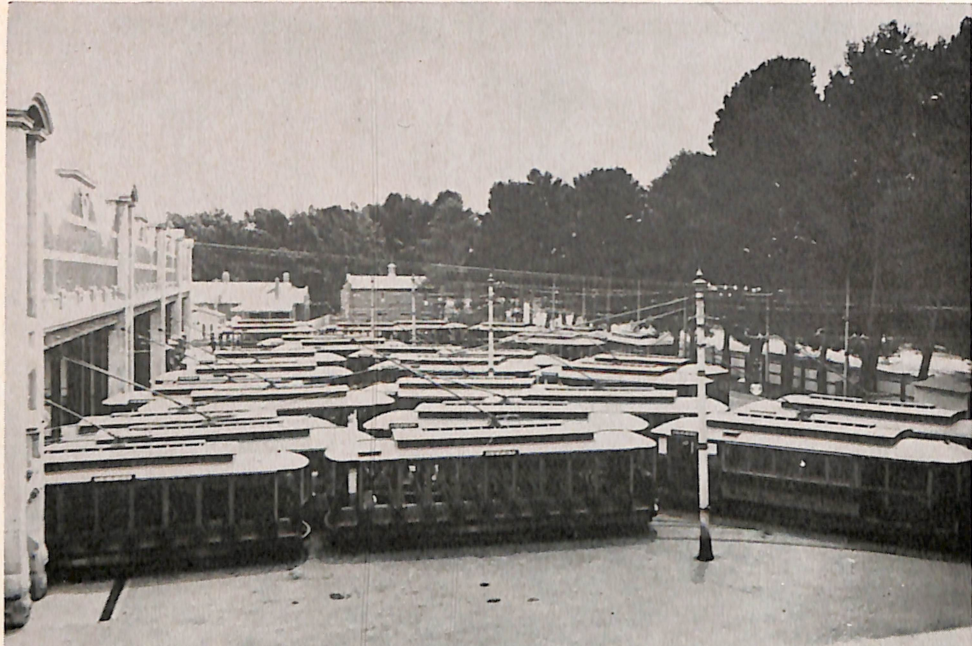
Width: 8ft. 11in.

NOTES: The shortage of tramcars after World War I, when there was also a serious shortage of materials, resulted in this small group of cars being constructed to an obsolete design. The motors were originally in the E class. The C's acquired the name "Desert Gold" after a



Both Photos D. A. Colquhoun





Archives

Two B class cars (foreground) in a crowded line-up at Hackney Depot.

well-known racehorse of the period, because of their relatively high speed (they were reputed to be the fastest single-truck cars in Australia) which led to their use as "nark" cars—the Trust's answer to the pirating of tramway passengers by unlicensed bus operators during the 1920's, prior to the introduction of Transport Control: their high speed enabled them to keep ahead of the buses, such trips often being unscheduled. They were the widest cars in Adelaide. Magnetic track braking was used, no air brakes being fitted. Several cars were fitted with black plywood "skirts" over the truck sides, almost to rail level, during a modernisation programme in the 1940's; these became unsightly from damage by water or track obstruction and were removed, the last car to carry them being No. 189. Seating from A class cars was installed in the C's following complaints in 1937 about the lack of comfort in the fixed rattan seats in the saloons. The C's were last used on 22nd March, 1954, during the Royal Visit of that year.

B Class: Nos. 31-60 (30 cars)

Type: Single-truck open cross-bench (reversible seating)

Built: 1909, Duncan & Fraser

Capacity: 50 seated, crush load 100

Trucks: Brill 21E, 9ft. wheelbase

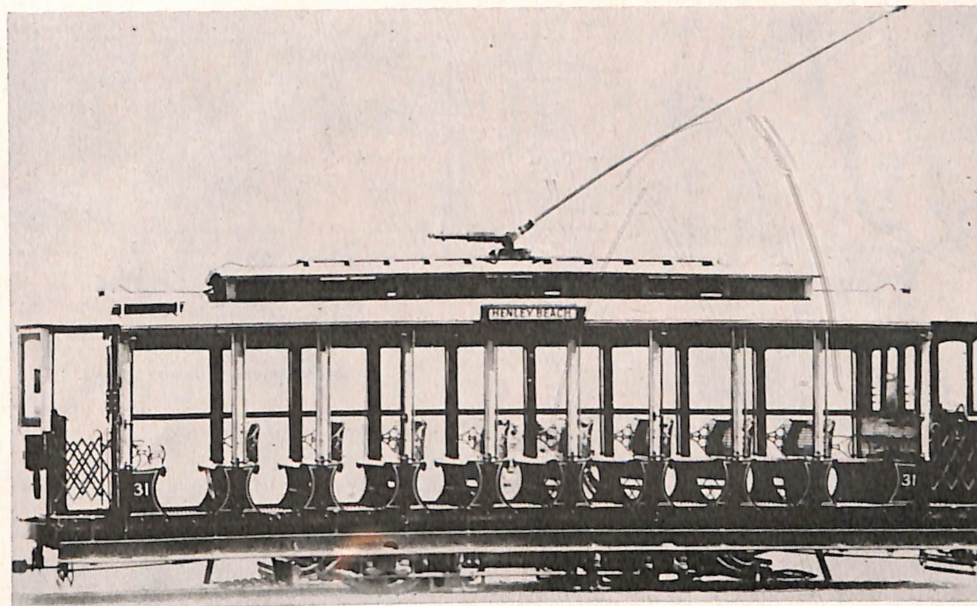
Motors: 2 x 33 h.p. WH204

Weight: 10.62 tons

Length: 33ft. 5in.

Width: 8ft. 10in.

NOTES: Built for summer and excursion traffic; also used to convey the Tramway Band between the City and either Henley Beach or Kensington Gardens, and, for a short period, between Port Adelaide and Semaphore; the Band played for the last time on 28th March, 1925. Magnetic track brakes fitted. Nos. 41-43 converted to A2 class and Nos. 44-60 to A1 class in 1917; No. 38 converted to ballast motor in 1929. Remainder withdrawn in 1936, but some were still at Hackney in 1946, though not used in the interim.



M.T.T. Photo

B class No. 31, as built.

A2 Class: Nos. 41-43 (3 cars)

Type: Single-truck straight-sill open "California" combination

Built: 1917, Hackney Shops (converted)

Capacity: 40 seated, crush load 101

(Other details as for B class)

NOTES: Had straight-sided centre saloons with three large windows. Used mainly on the Port Adelaide system. Withdrawn from traffic prior to World War II and stored at Hackney. No. 42 used as advertising store until 1958; now used by A.E.T.M. to house exhibits at St. Kilda. Others scrapped 1946. These cars were known as "tank cars" from their heavily-riveted steel side panels, calling to mind the army tanks of World War I.

A1 Class: Nos. 44-60 (17 cars)

Type: Single-truck straight-sill open "California" combination

Built: 1917, Hackney Shops (converted)

Capacity: 40 seated, crush load 101

(Other details as B class)

NOTES: Rebuilt from B class to a design closely resembling the A class, but without drop ends. No. 44 had longitudinal wooden seats in lieu of fixed rattan seats normally fitted in saloon; body used as first-aid station at Hackney, 1946-1961, being the last single-truck body to leave there. Nos. 45, 48, and 52 used until 1954 as stores for parts for H1 cars. No. 47 used as lunchroom at Hackney. No. 50 converted for use as Drivers' Instruction Car. Remainder scrapped in 1946.

A Class: Nos. 1-30, 61-100 (70 cars)

Type: Single-truck drop-end open "California" combination

Built: 1908-1909, Duncan & Fraser

Capacity: 40 seated, crush load 101

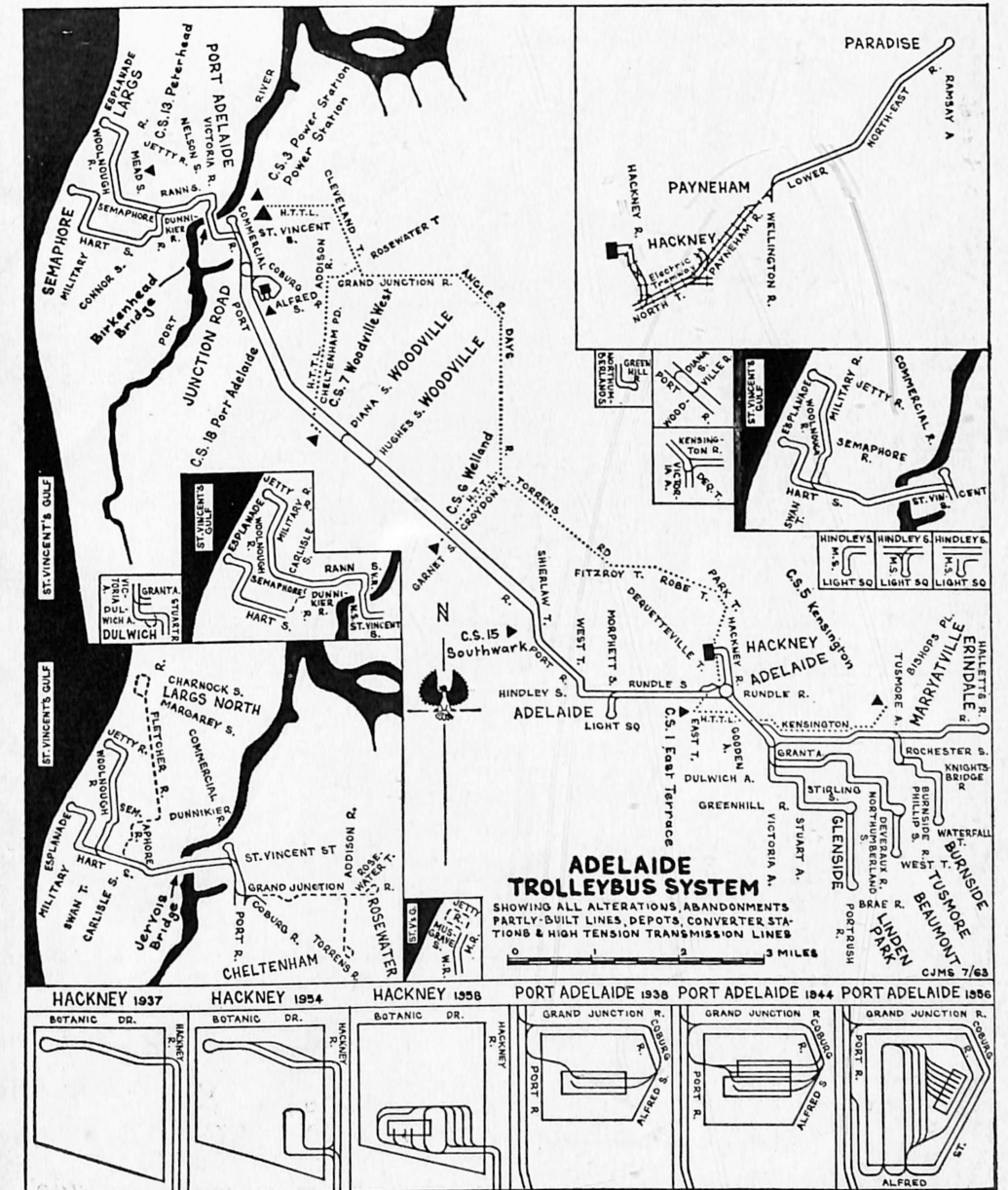
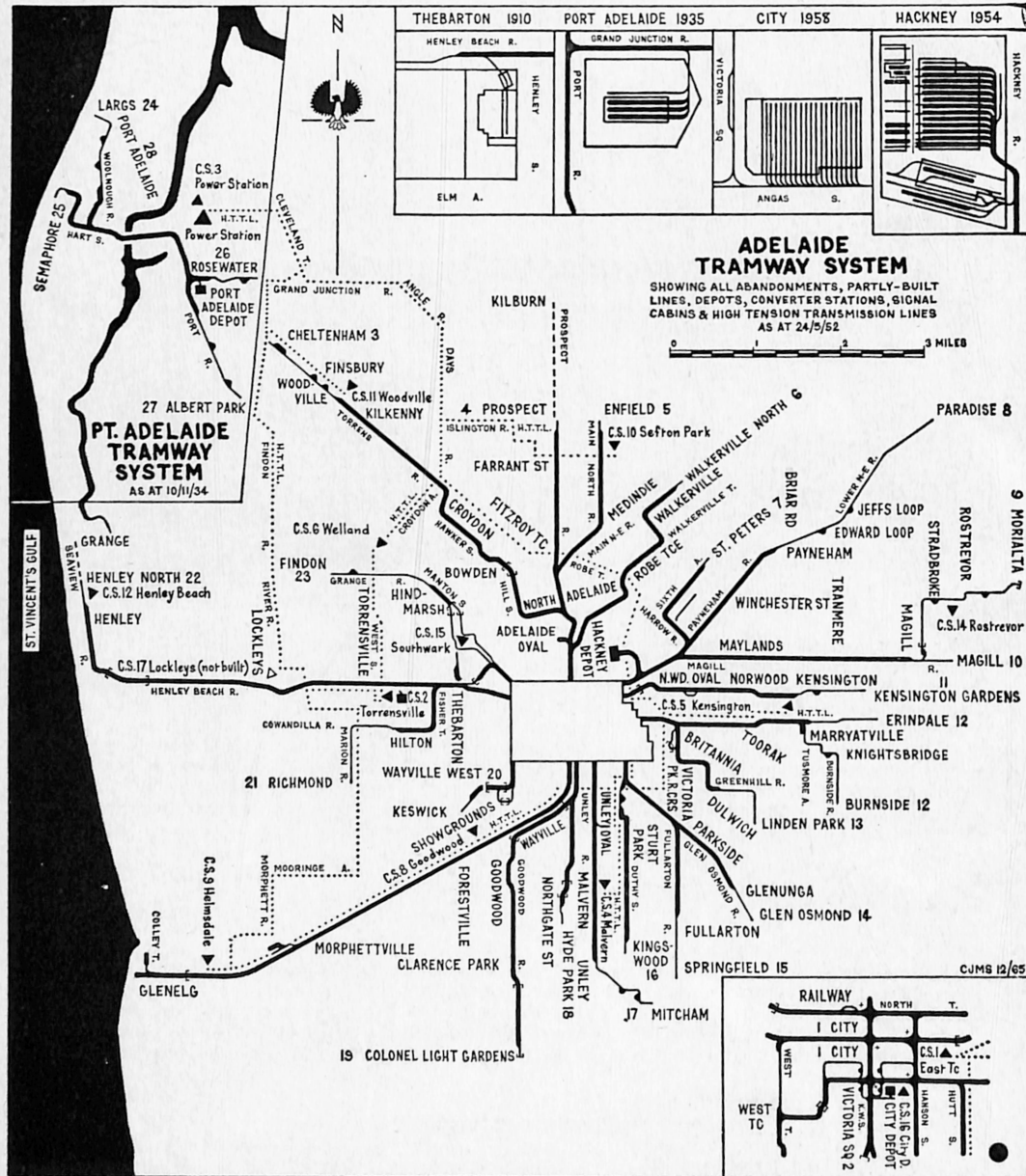
Trucks: Brill 21E, 9ft. 0in. wheelbase

Motors: 2 x 33 h.p. WH202

Weight: 10.9 tons

Length: 33ft. 5in.

Width: 8ft. 10in.



The maps on this and the next page were provided by courtesy of the A.E.T.M. (S.A.) Inc.

In the tramway map heavy lines represent double track and light lines single track, while the beginning and ending of reserved track is shown by brackets across the line. Signal boxes are denoted by plus signs;

route numbers are shown against outer termini only. Depot plans show the maximum development of each running shed.

In both map routes abandoned other than as part of the general closure are shown disconnected, while routes proposed but never completed appear as broken lines. High tension transmission lines are indicated by dotted lines, converter stations by triangles. Depots are shown as rectangles.



A2 class car No. 42 in St. Vincent Street, Port Adelaide, in 1923.

Archives

NOTES: These cars were built to open the tramway system, the first batch being assembled at Hackney Depot; No. 1 was the first car to operate (on a trial run on 30th November, 1908). Nos. 10, 69, and 92 were sold in 1936 to the S.E.C., Ballarat, Vic., where they became Nos. 21, 23, and 22, respectively, No. 21 being still in service. No. 100 was renumbered 100A in 1936 to permit the specially decorated E1 class car No. 101 to be renumbered 100 temporarily for the centenary celebrations. 58 of these cars were coupled in 2-car sets between 1940 and 1950. Withdrawn May, 1952. No. 1 escaped scrapping and, for a time, was used as a shunter at Hackney. It is now preserved by the A.E.T.M. at St. Kilda.

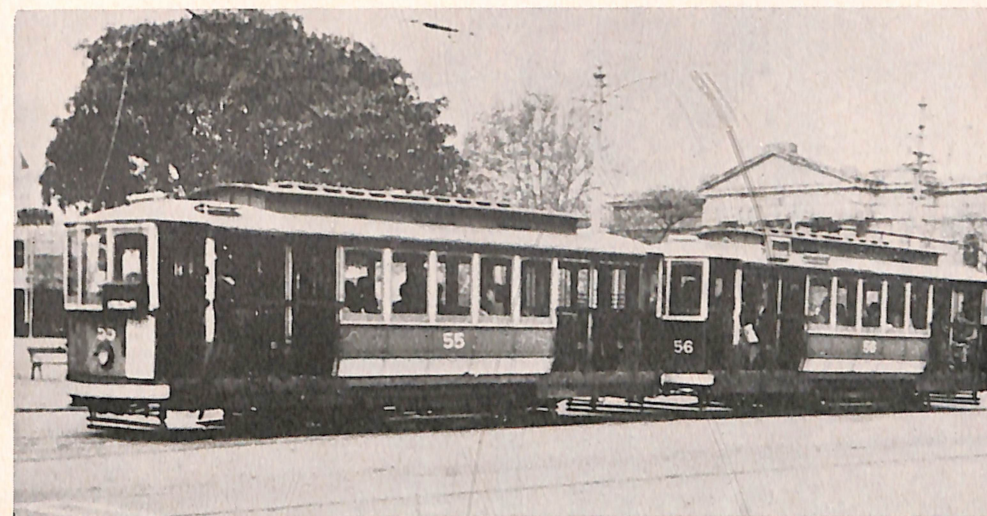
COUPLED CARS

During World War II large numbers of the A and A1 classes were coupled permanently in pairs as part of a programme to conserve manpower. The gap between the cars measured 2ft. 5in. Minor alterations to the cars included removal of controllers from the centre driving compartments, provision of continuous bell cords between the cars, moving of destination boxes at the inner ends to the sides, and roofs painted grey to distinguish coupled cars from others which had the standard dark stone roofs. These sets were known as "Bib and Bub" after May Gibb's famous bushland characters. Each set was regarded as one car for traffic purposes, but cars retained their individual numbers. An unsatisfactory feature of the sets was the inadequate braking: the magnetic brakes worked on both cars, but the hand brakes, which were the normal service brakes, operated only on the front car of each set. The sets were as follows:

A class: 1/2, 4/5, 6/12, 8/9, 11/13, 14/16, 17/18, 19/20, 21/23, 22/24, 25/26, 27/28, 29/30, 61/62, 64/65, 66/68, 70/72, 71/74, 73/75, 76/78, 77/79, 80/81, 82/83, 84/86, 85/88, 87/89, 90/91, 94/95, 97/98.

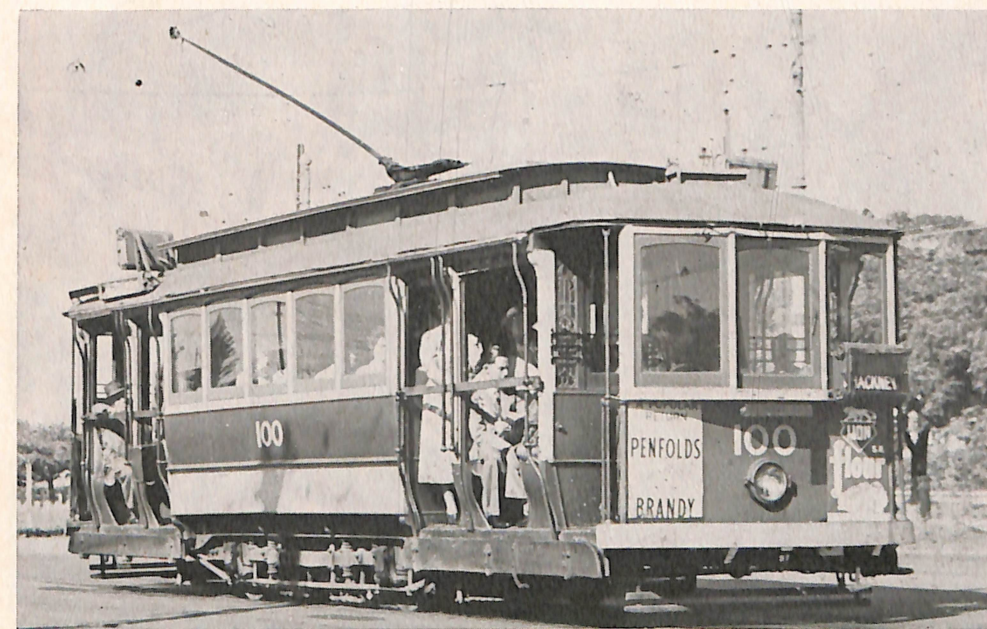
A1 class: 55/56, 57/58.

The 31 sets were issued to traffic from August, 1940, and their operation continued until 1950. The following cars, all A class, returned to traffic as single cars, retaining their grey roofs: 1-2, 11, 13, 17-21, 24, 29-30, 66, 68, 71, 74, 77, 79, 82-83, 89-91, 94-95, 97-98.



Late W. A. Jack (courtesy T.M.S.V. Ltd.)

Coupled set of A1's, Nos. 55-56 in King William Street near Angas Street.

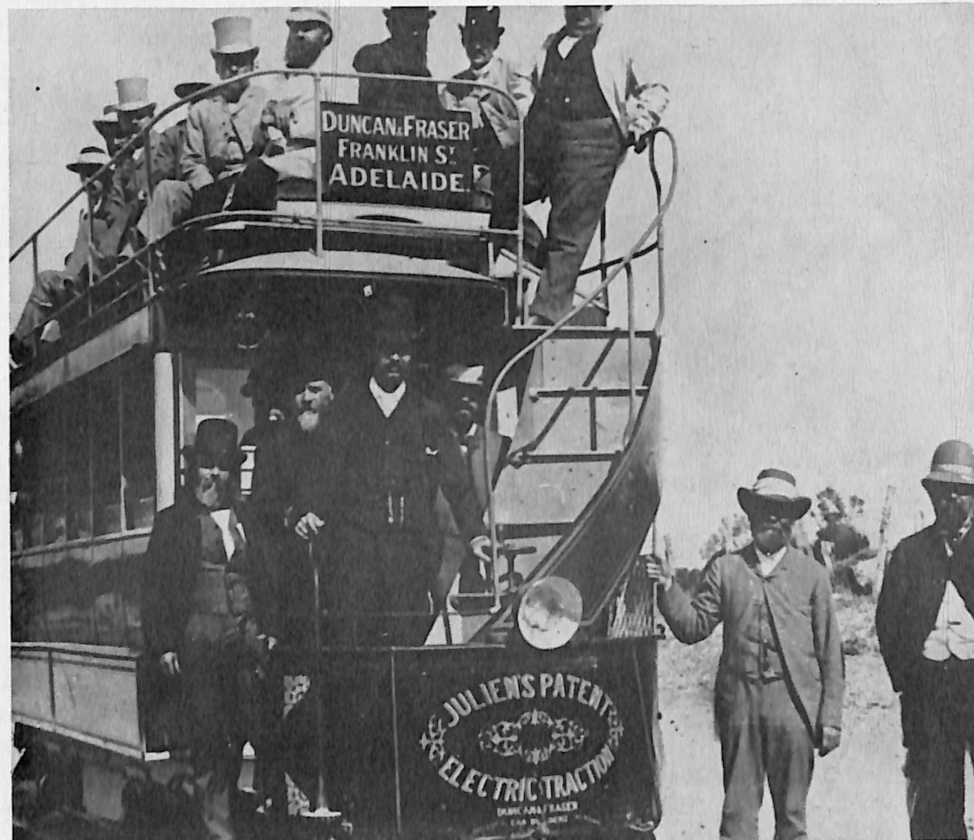


The "real" No. 100, the last of the 70 A class cars.

D. A. Colquhoun



Late W. A. Jack (courtesy T.M.S.V. Ltd.)



"Julien's Patent Electric Traction" battery car on a trial run.

Archives

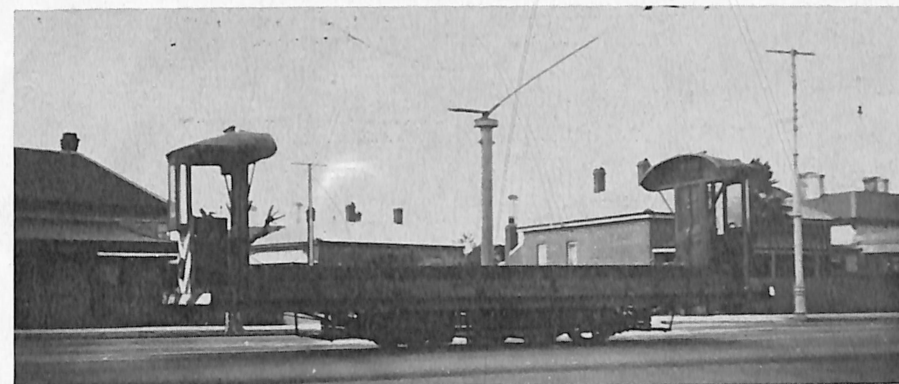
JULIEN'S PATENT ELECTRIC BATTERY CAR

Although this car was never part of the electric tramway system, it was the first electric tramcar in Adelaide and is therefore included in this book. Its operation was one of the few attempts in nineteenth century Adelaide to deviate from traditional horse-drawn street transport.

The car was introduced experimentally by Messrs. Bullimore and Cowan in 1889 and was adapted from a standard horsecar built by Duncan & Fraser. The batteries were placed under the seats and a portable controller was provided.

The initial run was made on 10th January, 1889, along the tracks of the Adelaide, Hindmarsh & Henley Beach Tramway Co. The experiment was not successful, the car having a short life as an electric vehicle—it was subsequently used as a normal horse tram. Among the reasons given for the failure were excessive weight and a tendency for the wheel flanges to jam in the grooves on curves.

SERVICE STOCK



J. Richardson collection

Ballast Motor No. 38.

Ballast Motor: No. 38 (1 car)

Type: Single-truck motor flat-car

Built: 1929, Hackney Shops (converted)

(Other data generally as B class)

NOTES: Converted to assist in the reconstruction and electrification of the Glenelg line. Bodywork removed, except for part of the cabin at each end, and centre pillar provided for mounting trolley pole. During World War II car was fitted with a tank and used to store petrol.

Drivers' Instruction Car: No. 50 (1 car)

NOTES: A1 class No. 50 was mounted on the underframe and trucks of Sprinkler S2 in 1951 or 1952, for use as a Drivers' Instruction Car. It was at Hackney in December, 1952, in an incomplete state and was never completed.

Horseboxes: A, B (2 cars)

Type: Bogie horsebox trailer

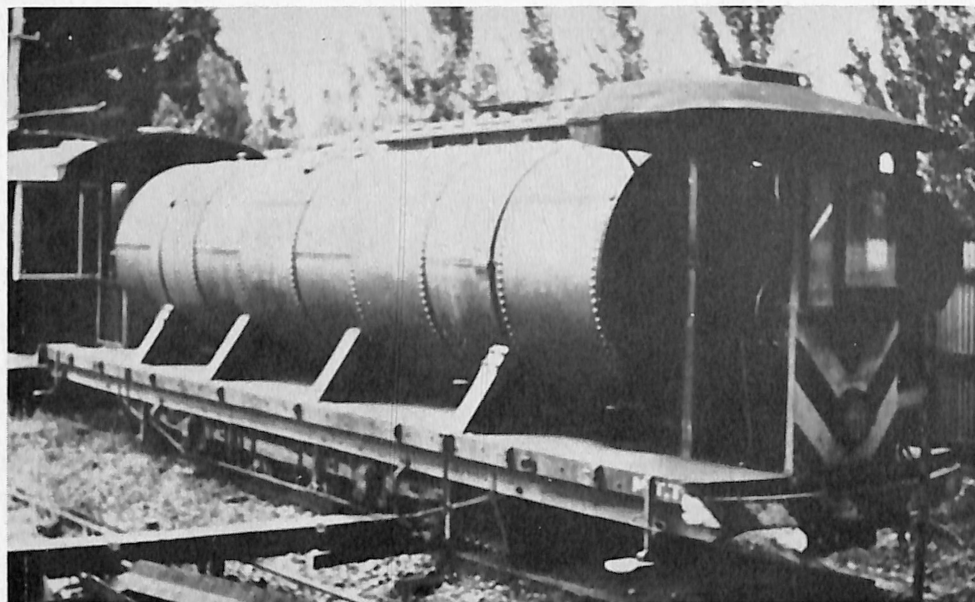
Built: 1929

Capacity: 8 horses in 4 compartments, plus 4 compartments for grooms

Trucks: Not known; truck centres were at 22ft. 2in.

Length: 38ft. 4in. overall; 34ft. 6in. over body

Width: 8ft. 4in.



J. C. Radcliffe

NOTES: These single-sided cars, unique in Australia, were built to convey racehorses to and from Morphettville Racecourse on the Glenelg line. The service was provided to replace that given by the former railway. F1 cars Nos. 274 and 275 were fitted with airbrake connections, pipes, and chains to haul these cars, the service commencing on 20th May, 1930, when the famous racehorse Phar Lap travelled to the course in one of them. Service abandoned for economic reasons after 1st April, 1936. Vehicles then used as storerooms, one at Hackney and one at Welland Per-way Depot. One is still in existence as a stable, in recognisable condition.

Rail Grinder: Un-numbered (1 car)

Type: Woods Gilbert Rail Planer

Built: 1915

NOTES: Operated under contract from 19th November, 1915, purchased on 30th January, 1916. Still at Hackney in 1951, but subsequent disposal unknown. One of the few M.T.T. vehicles not built locally, the grinder was usually operated at night and was rarely seen by the people of Adelaide.

Rail Hardener: Un-numbered (1 car)

Type: Sandberg Sorbitic In-situ Rail Hardener

Built: 1927

Type: 4-wheeled rail trolley carrying 6 x 100 cu. ft. oxygen cylinders and water tank, with acetylene generator

NOTES: Hauled to and from depot by Sprinkler which supplied water as required to replenish tank; hand-propelled during operation. Could generate 300 cu. ft. of acetylene gas per hour. Operated during early morning hours when no trams were running; could treat 140ft. of track in a 5½-hour period. Monthly running costs were £1200, mainly in royalties!

Scrubber/Sprinkler Car: S1 (1 car)

Sprinkler Cars: S2, S3 (2 cars)

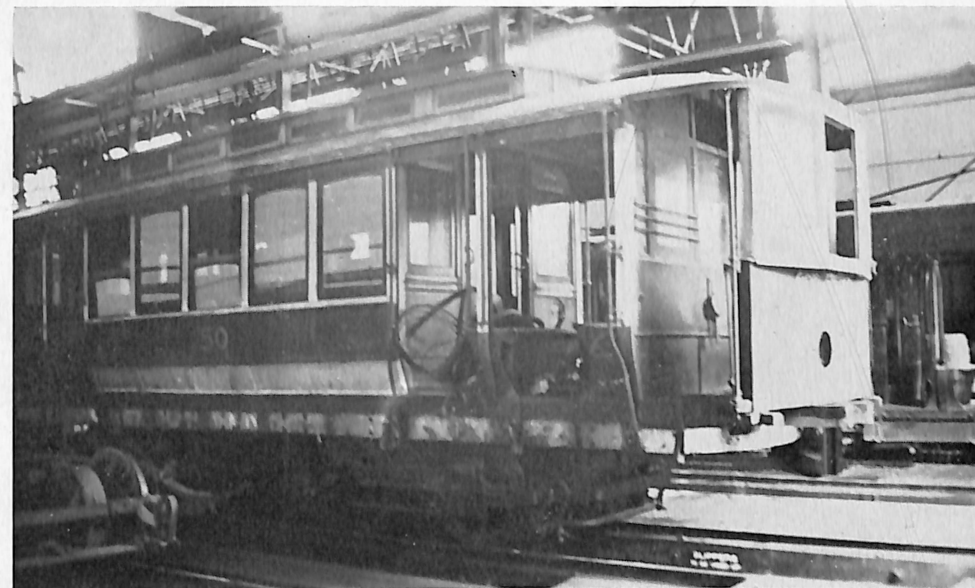
Type: Bogie water tank cars

Built: 1910, Pengeley

Trucks: Brush, 4ft. 0in. wheelbase, 12ft. 0in. truck centres

Motors: 4 x 33 h.p. WH204

Capacity: 2000 gallons (8.4 tons of water)



K. S. Kings

Weight: 16.6 tons (tare)

Length: 29ft. 0in.

Width: 7ft. 6½in.

NOTES: Painted grey with white lettering. S1 was fitted with carborundum blocks (operated by means of an airbrake valve) for removing track corrugations. S2 and S3 were not provided with these blocks. All had Jones Patent Railgroove Cleaners. S2 scrapped 1951, underframe and trucks being used in construction of Drivers' Instruction Car. S3 scrapped 1954. S1 used on Glenelg line in 1959, after being out of service for some years, then scrapped.

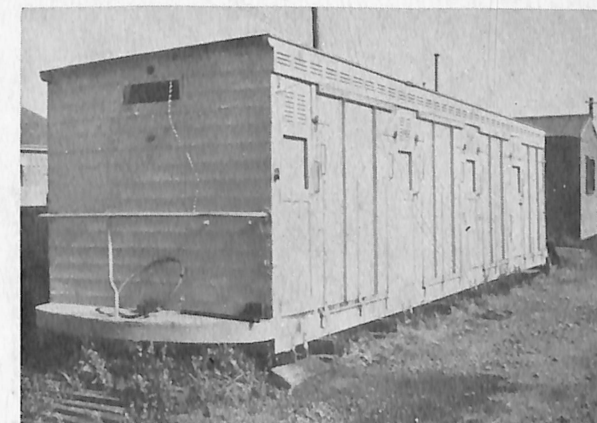
Tower Wagons (Rail-mounted)

NOTES: Towers mounted on 4-wheeled rail trolleys, for use on Glenelg line; stored near Goodwood bridge and propelled by hand as required. More than one type existed.

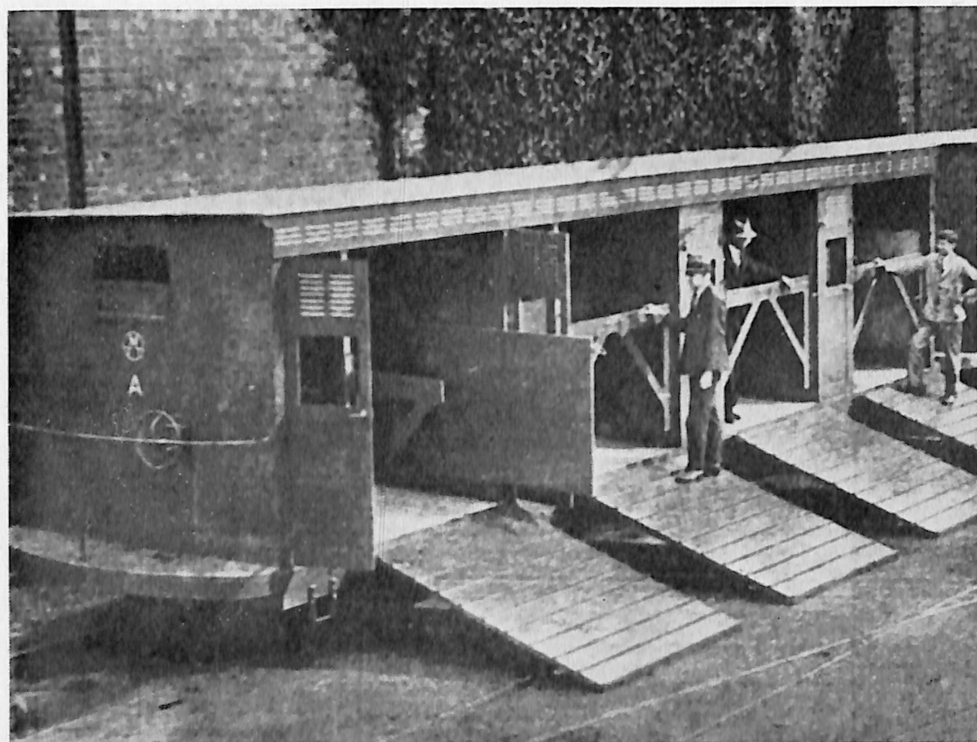
(Opposite page): No. 38 as a petrol tank car.

(Above): No. 50 in Hackney Workshops.

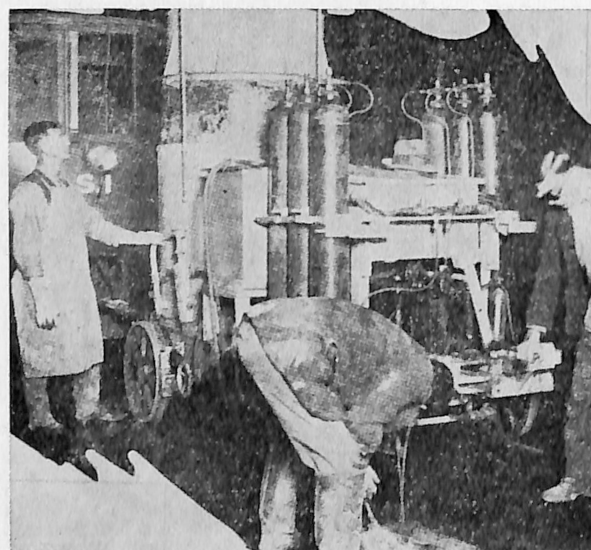
(Right): Former horse box at Welland Per-Way Yard.



J. C. Radcliffe



Both photos Archives



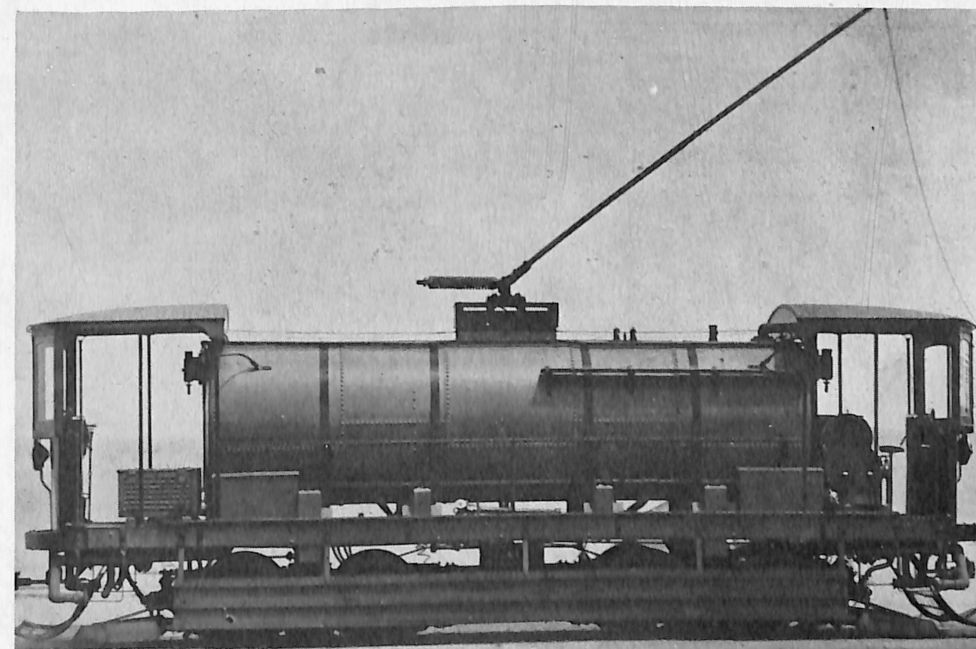
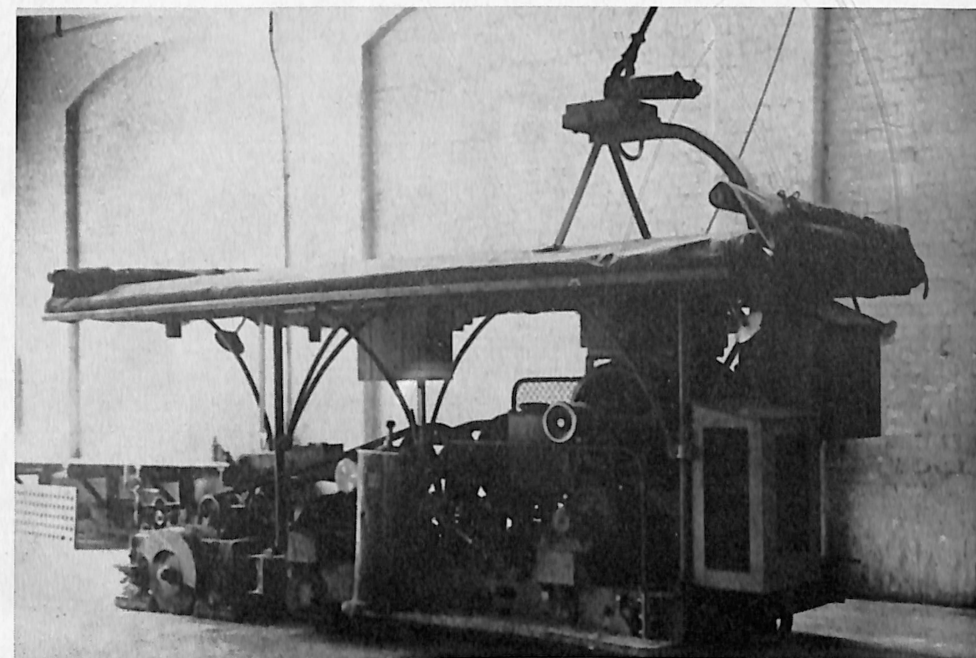
(Above): Horse box "A" with doors open for loading.

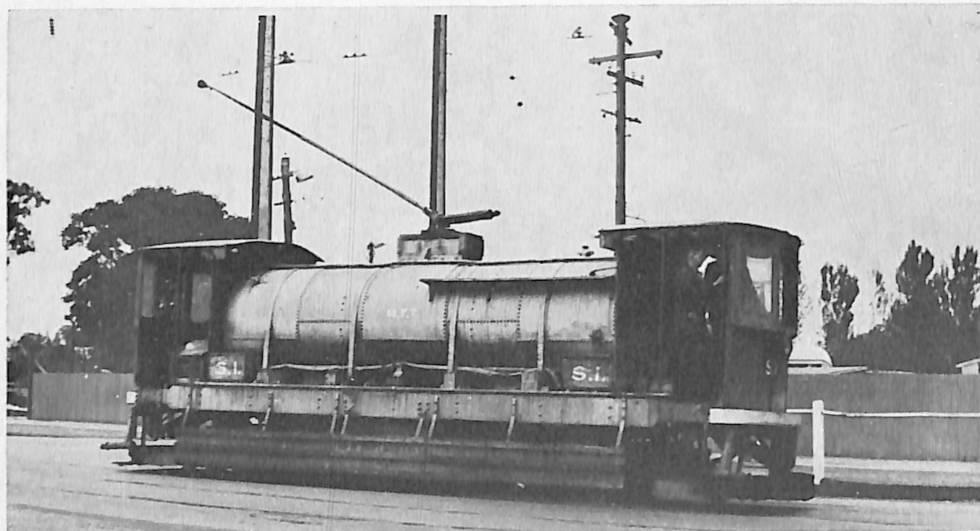
(Left): The Sandberg In-Situ Rail Hardener in operation.

(Opposite, above): The reciprocating grinder.

(Opposite, below): Sprinkler S3 poses for an official photo.

Both photos M.T.T.

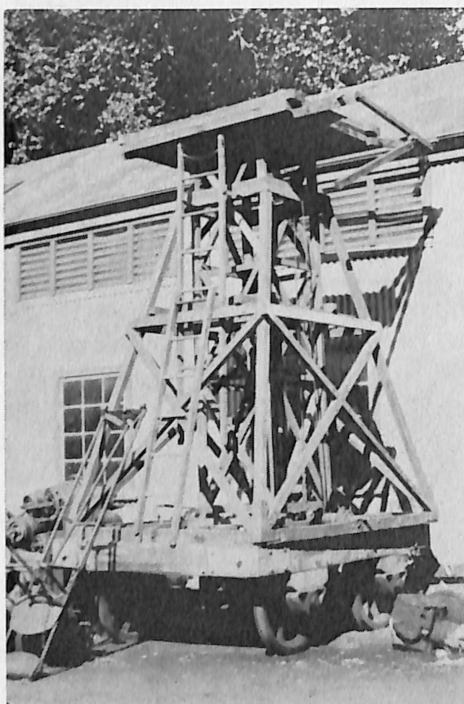




Scrubber/Sprinkler Car S1 in Hackney Road on 28th November, 1952.

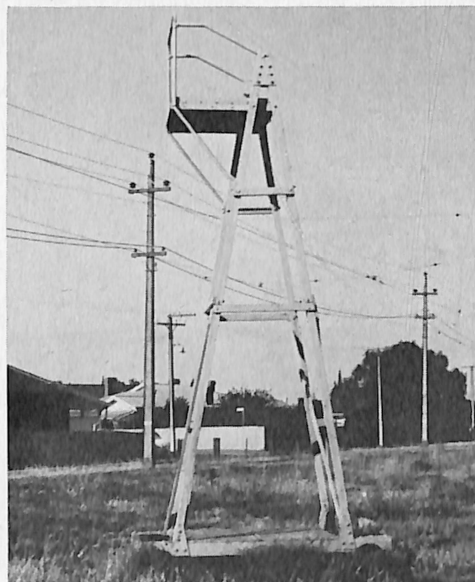
K. S. Kings

J. C. Radcliffe



A large tower wagon at Hackney in 1955, and a small tower wagon beside the track on the Glenelg line. Both types ran on the tramway rails.

R. T. Wheaton



TROLLEYBUSES

THE TROLLEYBUS SYSTEM

The M.T.T. was the first Australian transport authority to consider the trolleybus seriously as having a role in the transport scene. The first move was the provision of an experimental trolleybus service between Payneham and Paradise, along the outer reaches of the Paradise tram route. The initial run was made on 2nd March, 1932, and, following further trials, a regular service was inaugurated on 2nd May, 1932, replacing the tram service between Payneham (where passengers changed vehicles) and Paradise between 9.25 a.m. and 4.04 p.m., Mondays to Fridays, and between 9.25 a.m. and 12.06 p.m. on Saturdays. The Paradise route was selected because an adequate service could be provided by one vehicle. The service operated until 11th August, 1934.

The experiment proved successful, resulting in the decision to convert the Tusmore motor bus route to trolleybus operations, and the new service began on 5th September, 1937. The following year saw the system extended on the other side of the city to Port Adelaide, Largs, and Semaphore. This new service replaced a motor bus service which itself was the successor to an earlier service from the City to Albert Park (where connections was made with the Port Adelaide trams).

The trolleybus system, in terms of mileage, remained static until 1952-1953, which period saw a rapid extension to the eastern suburbs. The Tusmore route was extended to Beaumont and trolleybuses, after an interim of motor bus operation, replaced trams on the Burnside

Erindale, and Linden Park routes, the last-mentioned being extended beyond the former tram terminus. Two further routes were planned: these were to Largs North and Rosewater, from Port Adelaide.

During 1960 the Jervois Bridge, which carried the Semaphore and Largs trolleybuses, was declared unsafe for heavy vehicles, necessitating the re-routing of buses via the Birkenhead Bridge. The operations of trolleybuses were curtailed beyond Port Adelaide, the majority of services being operated by motor buses. The Birkenhead Bridge was a bascule type, presenting difficulties for trolleybus wiring, but these were overcome and through trolleybus operations to Largs resumed on 25th August. The Semaphore service was further delayed by Engineering and Water Supply Department works, and trolleybuses did not recommence running until 13th February, 1961, and then along a different route.

However, trolleybus operations soon became a weekdays-only affair, with motor buses becoming more prominent on trolleybus routes, and the last regular trolleybus ran on 12th July, 1963. The next day saw a farewell tour, organised by the South Australian Division of the Australian Railway Historical Society, marking the end of almost 26 years' continuous trolleybus operations in Adelaide. The last trolleybus to operate was No. S106 the meal bus for crews at Kent Town; this vehicle continued to operate between Hackney and Kent Town until 25th July, after which it was towed to its position each day until 6th February, 1967, when it was no longer required.

No. 422 in the original colours and before fitting of lower deck stiffening (for later picture see page 35).



Block courtesy A.E.T.A. (S.A. Branch)



Sunbeam Trolleybus No. 520

D. A. Colquhoun

Nos. 497-526 (30 vehicles)

Type: Single-deck, front-and-rear entrance

Built: 1951-1953, J. A. Lawton & Sons

Capacity: 40 seated, crush load 73

Chassis: Sunbeam, 17ft. 6in. wheelbase

Motor: 114 h.p. BTH210

Weight: 8.36 tons

Length: 35ft. 7½in.

Width: 8ft. 0in.

NOTES: Entered service between 8th January, 1952, and 15th May, 1953, and continued to run until the closure of the system. They appeared new in the silver and red colours, No. 503 being in an experimental grey and red livery for a time; the red band was removed from all except Nos. 503 and 525 during 1959-1960. No. 517 was displayed at the 1952 Royal Adelaide Exhibition as an example of South Australian coachwork. All had tinted anti-glare windows. No. 512 was rebuilt after an accident without destination colour lights. Nos. 497-500 were renumbered 527-530 to group the numbers into a suitable fleet series. No. 497 fitted with experimental Earll trolley retrievers from Leyland No. 480 in 1954. Nos. 519, 526, and 530 were used on the A.R.H.S. farewell tour, No. 515 following as an emergency vehicle on the final journey up the Port Road. No. 526, the last to be built, is preserved by the A.E.T.M. at St. Kilda.

Nos. 471-496 (26 vehicles)

Type: Single deck, front-and-rear entrance

Built: 1942-1944, M.T.T.

Capacity: 34 seated, crush load 60 (but see notes)

Chassis: Leyland

Motor: 80 h.p. GEC

Weight: 6.88 tons



No. 472, a Leyland "Canton", in the silver and red colours.

D. A. Colquhoun

Length: 31ft. 11½in.

Width: 8ft. 0in.

NOTES: These vehicles resulted from the wartime diversion of trolleybus equipment intended for Canton, China, 20 similar equipments going to Hobart, and 18 to Perth, all originally ordered in 1937. The equipment arrived in two shipments during 1942-1943 and was fitted to locally-made bodies on imported chassis. Chinese characters on various components were a reminder of the intended destination. The buses entered service over a period—471-476 in 1942, 477-486 in 1943, 487 in 1944, and 488-496 in 1945. Seating reduced to 31 in 1955 to provide more standing space. All were eventually repainted in the new colours, but No. 481 was grey and red for a while; all subsequently lost the red band. During 1953 No. 480 was fitted with trolley retrievers as an experiment. During 1962 Nos. 474, 476, 478-481, 487 489, 490, and 492 were scrapped and the remainder renumbered, No. 471 becoming 481, 472 to 492, 473 to 489, 475 to 490, and 477 to 487. All were scrapped after the system closed. These buses were sometimes known as "Wombats" or "Cantons".

Nos. 431-435 (5 vehicles)

Type: 3-axle double-deck with front and rear entrances and rear staircase.

Built: 1942, M.T.T.

Capacity: 66 seated (29 on lower deck), crush load 93

Chassis: Leyland, 18ft. 7in. wheelbase

Motor: 90 h.p. MV201

Weight: 9.13 tons

Length: 31ft. 0½in.

Width: 8ft. 4in.

NOTES: The largest buses operated by the M.T.T., they were built on chassis acquired in 1938. Operating problems were experienced with them and they were withdrawn during 1957-1958. They retained the old colour scheme throughout their service.



D. A. Colquhoun

Leyland No. 435, the last of the double-deckers to enter service.

Nos. 401-430 (30 vehicles)

Type: 2-axle double-deck with front and rear entrances and rear staircase
 Built: 1937-38, J. A. Lawton & Sons
 Capacity: 59 seated (26 on lower deck), crush load 84
 Chassis: AEC, 18ft. 7in. wheelbase
 Motor: 90 h.p. MV201
 Weight: 8.75 tons
 Length: 29ft. 10½in.
 Width: 8ft. 3¼in.

NOTES: These buses were built in two groups—Nos. 401-420 and 421-430, the principal difference being in the front windows of the upper deck (Nos. 401-420 had 2-segment windows in which the top segment could be lowered, while those in Nos. 421-430 were in one piece). Bodies were structurally weak and had to be strengthened, necessitating the diagonal halving of the end windows on the lower deck sides. No. 404 painted white to advertise War Loans and Victory Loans. All buses of this class were eventually painted in the silver and red colours. All withdrawn by 30th June, 1957, and stored. However, due to shortage of motor buses following tramway conversions, several temporarily returned to service in August, 1958. No. 417 converted to Meal Bus for crews at Kent Town, being renumbered S106; it had tables in lower saloon and a hot water service operated off the mains. In this form it was the last trolleybus to operate (see account on page 31), and is now preserved by the AETM at St. Kilda.



D. A. Colquhoun

Trolleybus No. 422, one of the second group of 2-axle AEC double-deckers.

No. 216 (1 vehicle)

Type: Single-deck front entrance
 Built: 1932, M.T.T. (converted)
 Capacity: 23 seated, crush load 43
 Chassis: Garford motor bus
 Motor: Metropolitan Vickers
 Weight: 6.5 tons
 Length: 26ft. 0in.
 Width: 8ft. 0in.

NOTES: Originally built as one of 28 open-top double-deck motor buses in S.A.R. Islington Shops for use on the Railways' Glenelg and Edwardstown bus routes. Acquired by M.T.T. in 1927 when S.A.R. abandoned bus operations. M.T.T. fleet numbers were 201-228. No. 216 rebuilt as trolleybus for experimental Paradise route (see page 39), back platform and stairs to upper deck being removed, along with upper deck seats. In addition to the normal trolley poles, a skate (actually an inverted trolley pole) was attached under the body near the door to provide the return circuit through a tram rail when the bus ran between Hackney Depot and Payneham, only one pole being raised. The rebuilt bus was painted green and yellow instead of the standard tramway livery and soon acquired the popular name "Green Goddess". With the opening of the permanent trolleybus service, No. 216 was used to grease the overhead wires until the introduction in 1945 of carbon-insert trolley shoes. No. 216 was then stripped and used as Meal Bus for Per-way gangs, being towed to sites as required; at this stage it was painted grey and white and numbered 32P. In 1957 it was acquired by the A.E.T.M. and has been externally restored and preserved at St. Kilda.



M.T.T. Photo

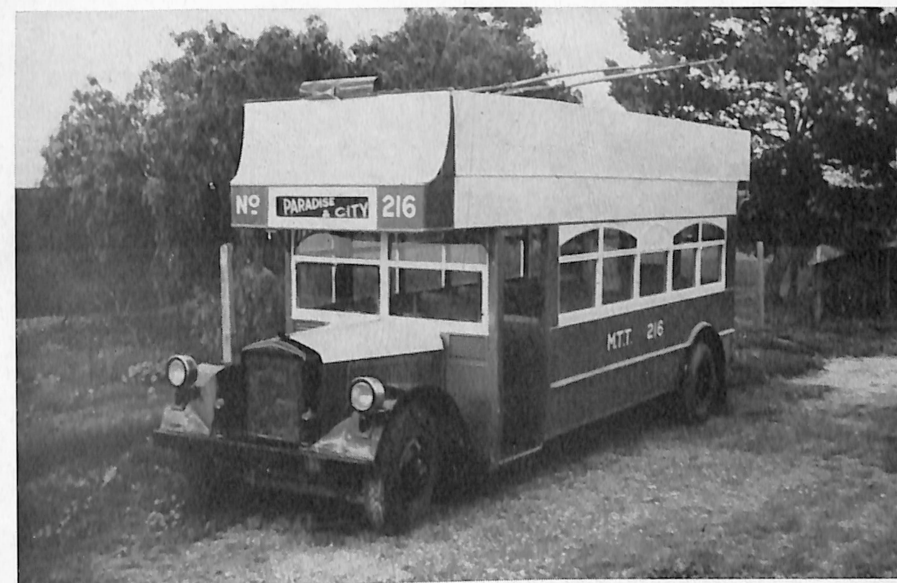
(Above): Experimental trolleybus No. 216 at Payneham, making connection with a City-bound F class tramcar.

(Opposite, above): Scene in King William Street showing A class No. 67 and other cars with a Garford bus of the type from which No. 216 was converted.

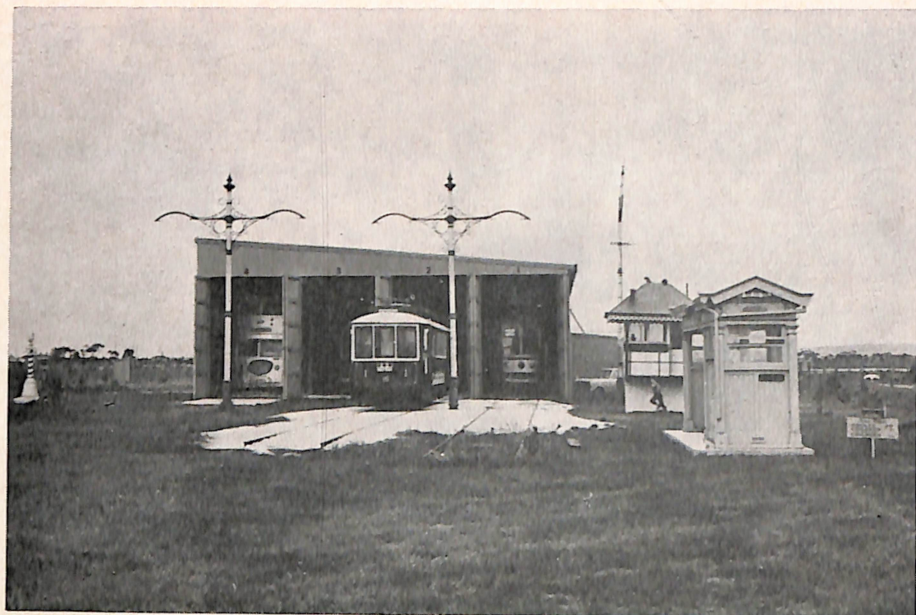
(Opposite, below): No. 216 restored externally.



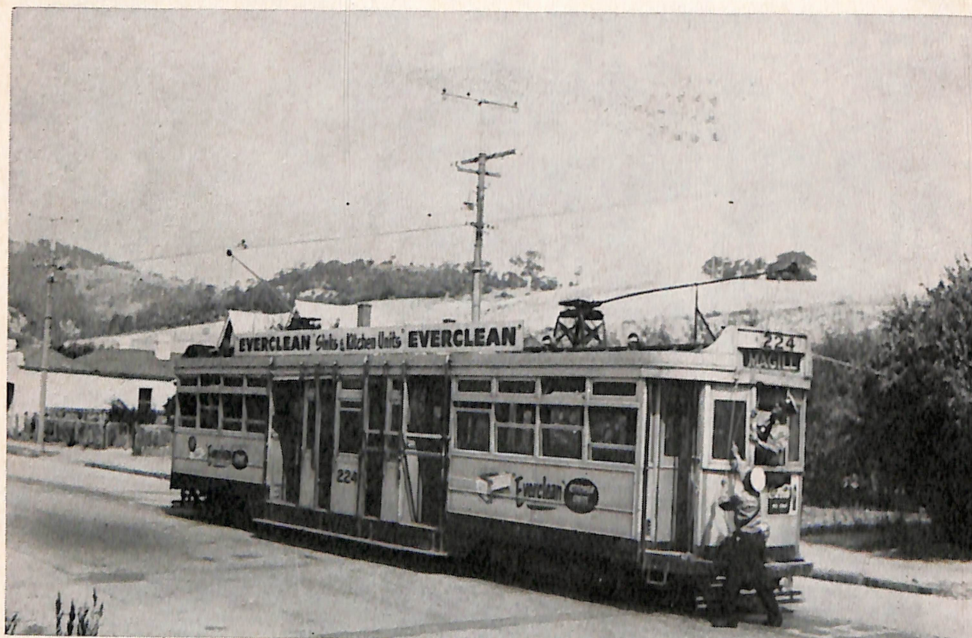
Archives



J. C. Radcliffe



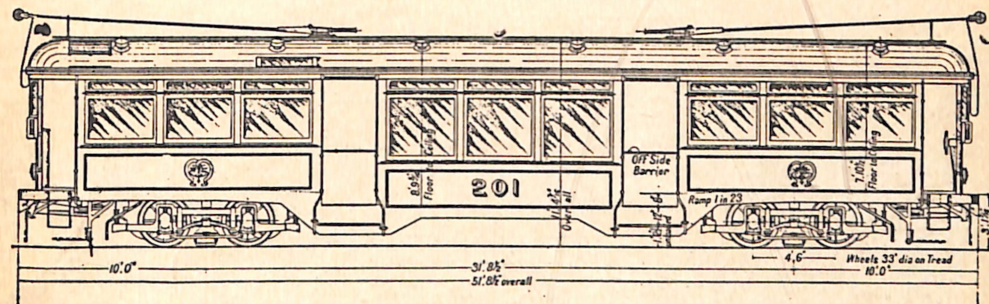
J. C. Radcliffe



H. D. Ellerton

(Opposite page):

The Tramway Museum at St. Kilda, with No. 1 run out for public inspection. Trolleybus No. 417 can be seen in the left hand bay, while the H1 class car, No. 381, is visible at the right of the depot. The Hanson Street signal cabin and other items of tramway interest are displayed nearby.



THE "NEVERWAS"

If the construction of the F class cars (Nos. 201-250) had not been delayed by the shortage of materials which followed World War I, they would have been of the striking design shown above which was adopted by the Trust early in 1918. Designed by Mr. W. G. T. Goodman (later Sir William), they were to have measured 51ft. 8in. in length, with widths of 8ft. 4in. over steps. There was to have been seating for 74 passengers (25 in each end saloon and 24 in the enclosed drop-centre), with a crush load of 174. Brill 77E trucks were to have been fitted. Most Australian tramway systems had a "neverwas" tucked away in the drawing office cupboard, but few can have been so dramatic as this design, or so far in advance of contemporary practice. Many of the features were adopted in the F class, but the overall result was very different.

Another design which was never constructed was that made in 1912 for a "Parlor Car" which was to have been a maximum-traction, drop-end saloon equipped with cane chairs and coffee tables.

TRAMCARS AND TROLLEYBUSES PRESERVED

Museum at St. Kilda

Despite the closure of Adelaide's street tramways in 1958, and its trolleybus services in 1963, not all trace of them has disappeared. As indicated in this publication, several vehicles have been preserved by the Australian Electric Transport Museum (S.A.). Incorporated on their site at St. Kilda, some 17 miles north of Adelaide. The Museum is comprised of interested persons from different walks of life who feel that the vehicles are worthy of preservation, and the project is financed by donations from members and others interested. The Museum was opened officially in 1967 and is open for public inspection each Sunday between 2 p.m. and 5 p.m.

Further details are available from the Secretary, A.E.T.M. (S.A.) Inc., G.P.O., Box 1468L, Adelaide, South Australia, 5001.

(Opposite): F class No. 224 in an experimental colour scheme (with bottom red stripe only) at Magill terminus.

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