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- Sydney's Ambulance Trams

TROLLEY WIRE

AUSTRALIA'S TRAMWAY MUSEUM
MAGAZINE

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Front Cover:

It is 27 March 2014, and the Inner West extension of Sydney's light rail line is open for business. Leased Urbos 2 tram 2108, bound for Central, passes outbound Variotram 2101 in its new red and white livery between the Hercules Street bridge and the Dulwich Grove stop. Tram 2101 is still showing Lilyfield as its destination as it has yet to be fitted with new signs for the extension.

Timothy Boxsell



A happy Sydney Tramway Museum member Don Chandler celebrated his 85th birthday at the Museum's Tramway Festival Day on 23 February. Workshop Manager, Bill Parkinson is showing Don the controls of Sydney R1 class 1979.

Martin Pinches

Our thanks to Ross Willson for providing the informative articles in this issue on the Melbourne, Brunswick & Coburg Tramways Trust and its trams.

This article was originally published in the Minutes of the Proceedings of the Institute of Civil Engineers (UK) as Paper No. 4244 on 1 January 1918.

THE MELBOURNE, BRUNSWICK AND COBURG ELECTRIC TRAMWAYS

By Struan Sholto Douglas Robertson. B.Sc., Assoc. M. Inst. C.E.

TRANSPORTATION SYSTEMS OF MELBOURNE

The passenger-transportation problem in Melbourne is exceedingly complicated, and it is doubtful whether such conditions are to be found in any other city of similar size. Greater Melbourne, which covers approximately 200 square miles, has the following transportation services:-

	Route-Miles.
Steam Railways	100.0
These are at present being electrified on a 1500 volt system,	
Cable Tramways (double track)	48.0
Electric Tramways-North Melbourne Tramways and Lighting Company (double and single track)	7.25
Brighton-St. Kilda Electric Tramway (double track)	5.12
Prahran and Malvern Tramways Trust (double track)	27.36
(single track)	4.69
Hawthorn Tramways Trust (double track)	6.82
(single track)	4.31
Melbourne, Brunswick and Coburg Tramways Trust (double track)	5.26
(single track)	1.77
The following electric tramways are under construction :-	
Footscray Tramways Trust (double track)	0.375
(single track)	5.0
Fitzroy, Northcote and Preston Tramways Trust (single track)	5.75
Sandringham to Black Rock Tramway (double track),	2.24
(single track)	0.25
Total route-miles	224.100

There are altogether nine controlling authorities operating or constructing tramways or railways in Melbourne.

The Victorian Railways Commissioners.	Steam railways.
	Electric tramways – (Brighton-St. Kilda). (Sandringham-Black Rock).
The Tramway Board	Cable tramways.
A Government nominee body representing the Government and Municipalities concerned.	
The Prahran and Malvern Tramways Trust	Prahran & Malvern Electric Tramways.
A body elected by seven Councils and operating street tramways through the seven Municipalities interested.	
The Hawthorn Tramways Trust	Hawthorn Electric Tramways.
A body elected by four Councils, of which two are also represented on the Prahran and Malvern Tramways Trust and operating street tramways through the four Municipalities interested.	
The Melbourne, Brunswick and Coburg Tramways Trust	M. B. & C. Electric Tramways.
A body similar to the two above, and operating an electric tramway through the Municipalities concerned.	

The North Melbourne Tramways and Lighting Company	..	..	N, M. Electric Tramways.
Which owns and operates an electric tramway in		Essendon.	
The Northcote City Council	..	..	Cable tramways.
The Fitzroy Northcote and Preston Tramways Trust	..	..	Constructing electric tramways.
Similar to trusts above.			
The Footscray Tramways Trust	..	..	Constructing electric tramways.

The position is very unsatisfactory, involving multiplication of authorities and staffs and consequent waste of money, various styles of construction, break of journeys for passengers, and competition between the various tramways on the one hand and the Government railways on the other. The multiplicity of tramway systems is due primarily to the construction, 34 years ago, of a system of cable tramways to serve the Melbourne of that day, and the leasing of this system for a term of 33 year; to a company. No extensions were made during the whole of that time, and consequently Melbourne and its suburbs grew much too big for its tramways, increasing from a population of 350,000 to one of close on 700,000. The suburban railways coped with this increase to a certain extent, but in the past 10 or 12 years the electric tramways enumerated above have been built to meet the ever-increasing demands for travelling facilities.

It will be seen from Fig. 1 that the cable-tramways, being centrally situated, have the cream of the traffic. All the other tramways except the Hawthorn Trust's property are suburban undertakings, and their revenues suffer in consequence. The Prahran and Malvern Trust has a heavy traffic to the seaside in the summer months, which compensates to some extent for the disadvantage indicated. The Hawthorn Trust was able to get a city terminus, and in consequence has so far been in receipt of a satisfactory revenue per car-mile. Since the lease of the cable-tramways to the Company expired, there has been much talk of constituting one controlling authority for all tramways, but nothing has been done. An Act of Parliament is necessary, and there are many views as to the most suitable controlling body. The Labour Party and the country members of the Liberal Party in the Assembly desire that all tramways should be taken over by the State, the one for socialistic reasons and the other to assist railway revenue, and thus help to cheapen railway freights on country produce; while the municipalities, who have constructed all the tramways, consider that the various properties should be controlled by some type of municipal trust, and that the profits - if any - should be paid to constituent councils in relief of rates.⁽¹⁾

(1) Since this Paper was written an Act of Parliament has been passed providing for the formation of a central controlling body which takes over all the tramways systems. The new body will take up its duties about the end of 1919. The members are nominated by the Governor in Council.

Owing to the high cost of all imported tramway-supplies in Australia, and of labour, it is very doubtful if there are any profits from the electric tramways where legitimate reserves are provided. The cable-tramways are showing a profit of between £300,000 and £400,000 annually, which is being paid temporarily into a trust fund. In the Author's opinion, these funds ought to be used to provide capital for the reconstruction of the obsolete system of cable-tramways and the welding of the various systems into one efficient, modern and uniform electric-tramways system. Certain reserve funds are being formed in connection with the cable-tramway system to provide for reconstruction, but if provision is to be made for electrification after, say, 7 years, an excellent ease could be made out for taking the whole of the above "profit" for the purpose.

Electric Tramways.- All electric tramways in Melbourne have been constructed on the overhead-trolley system. The track is for the most part similar in a general way to railway track, the rails being fastened to sleepers resting on broken-stone ballast. The road-surface within the track-area is, except for a few small sections, constructed of tarred or other asphalt macadam laid on a foundation of crushed rock. Working-costs of tramways controlled by municipal bodies have been rising steadily. The annual reports of a Tramways Trust operating in Melbourne show the results set out in the Table on the following page.

It is generally recognized that the amount put aside to cover renewals, depreciation and obsolescence should not be less than 4 per cent of the capital cost of renewable assets, so that the net revenues shown in the above Table are not sufficient to provide adequate reserves for the above purpose.

There are two ways in which improvement can be obtained:

- (1) Increasing revenue by all possible means;
- (2) Reducing operating expenses.

(1) Electric tramways in Melbourne are supplying a ride of between 1½ and 1¾ mile for 1d. On a strictly commercial basis the Author has calculated that this distance should not be more than 0.875 mile per 1d. to give sufficient revenue to cover all operating, interest

Fig. 1.



and sinking-fund charges and adequate reserves. Unfortunately, owing to various causes, such as competition, influence of councils and public outcry, it has been impossible to have this desirable state of affairs. The distance mentioned will seem very short

when compared with that given per penny on tramways in Great Britain, but it must be remembered that the capital cost of works in Australia is at least 80 per cent greater than in Great Britain, and that all other expenses are in proportion.

Year Ending Sept. 30	Capital Cost	Operating Costs per Car Mile	Maintenance Costs per Car Mile	Interest Costs per Car Mile	Revenue per Car Mile	Net Revenue per Car Mile	Net Revenue Total	Net Revenue Percentage of Capital
	£	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	£	
1910	90,941	8.424	0.638	1.742	12.164	1.998	1,174	3.867
1911	131,894	8.458	1.051	2.006	130473	3.009	5,877	4.46
1912	182,560	8.409	1.250	1.868	12.844	2.607	7,664	4.2
1913	238,321	9.563	1.509	2.274	14.442	2.585	10,724	2.22
1914	414,236	10.374	2.000	2.565	14.595	1.656	12,295	2.59
1915	654,599	10.046	1.640	2.775	14.043	1.222	10,523	1.60
1916	691,577	9.812	1.755	2.775	13.999	1.412	15,233	2.2
1917	..	10.34	..	..	14.53			

Net revenue is available for sinking fund, renewals and other reserve funds.

1910 - Four months to 30th September, 1910.

1917 - Nine months to 30th June, 1917.

THE MELBOURNE BRUNSWICK AND COBURG TRAMWAYS

(2) When the Author was appointed Engineer and Manager to the Melbourne, Brunswick and Coburg Tramways Trust, he was aware that the revenue would not be greater than that which was being obtained by electric tramways in existence, namely, 14d to 15d per car-mile, and would probably be less, because of competition from the cable-tramways (Fig. 1). He was also aware that, of the various items of which operating costs are made up, the constructing engineer would have much influence only on "General Repairs and Maintenance". "Traffic-expenses," which consist mainly of wages, and are therefore more or less fixed for the management by rates ruling in the district, could not give much scope for economy. "General Expenses," i.e., management, office-expenses, insurance and the like, form a small percentage of the whole. Lastly, "power expenses" were also fixed, as the Trust would purchase from the Melbourne City Supply at a rate which was not within the control of the management. The Author, therefore, decided that it was necessary to design all work with a view to the most efficient operation and low maintenance-costs, and he has kept these objects steadily in view. The following description of the engineering details of the tramway show how he has endeavoured to carry out his ideas.

Permanent Way.-The tramway consists of 5.26 miles of double track, and 1.77 mile of single track, making a total of 12.29 miles of track of 4-foot 8½-inch gauge. The rails are 90-lb. rails of British Standard section No. 1 on straight track, and 96-lb. rails of British Standard section 1C. on all curves of sharper radius than 300 feet. The British Standard straight profile head was modified to a curved head, having a radius of 12 inches with a radius at the running-edge of 5/16 inch, as the Author was of the opinion that a much wider bearing of the wheels on the rail would be obtained, avoiding extreme stresses on the rail-head at the gauge-line, and consequent distortion, and thus tending to prevent corrugation. Operation has shown that this view is correct, as from the commencement a bearing of wheel on rail-head for at least 60 per cent of its width was apparent, and this has increased after about 12 months' operation in all cases to 90 or 100 per cent. The wheels have worn to a contour to suit, and all wheel-treads will in future be turned to the contour which they are found to develop in working.

The rails are of Sandberg open-hearth silicon steel. Some of the joints were made by a process similar to thermit welding, using a locally-made compound. As this proved unsatisfactory, an oxy-acetylene method was adopted, by which a sole plate was welded under the rails with a fish-plate on each side of the rails; and

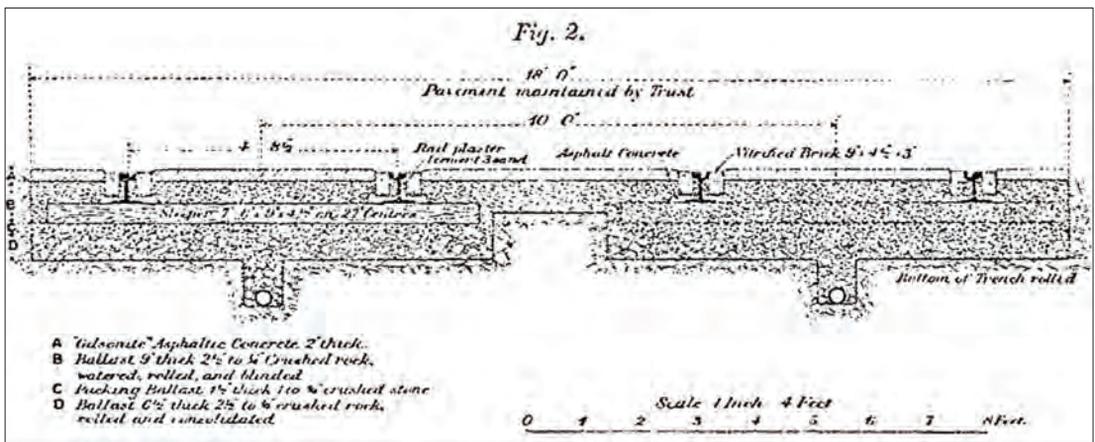
the joints made by this process have so far proved perfect. All joints in curves sharper than 300 feet radius were fish-plated and bonded with two 4/0 B. & S. copper compressed terminal bonds, and a sole plate was riveted as a butt strap under the rail. No expansion joints are provided, and so far no trouble has developed. Temperatures range from a minimum of 25 degrees F. on winter nights to 180 degrees F. in the sun in the hottest summer days, with variations in summer of as much as 50 degrees in 1/2 hour. All points and crossings are of manganese-steel, and the inside rail in all curves of less than 60 feet radius is fitted with a renewable manganese-steel flange. The rails are spiked direct to hardwood sleepers, spaced 21 inches apart between centres, and no brace-plates or tie-bars are used, except where culverts, etc., prevent the use of sleepers. The native red gum (*Eucalyptus rostrata*) from which the sleepers are cut is expected to have a life equal to that of the rail.

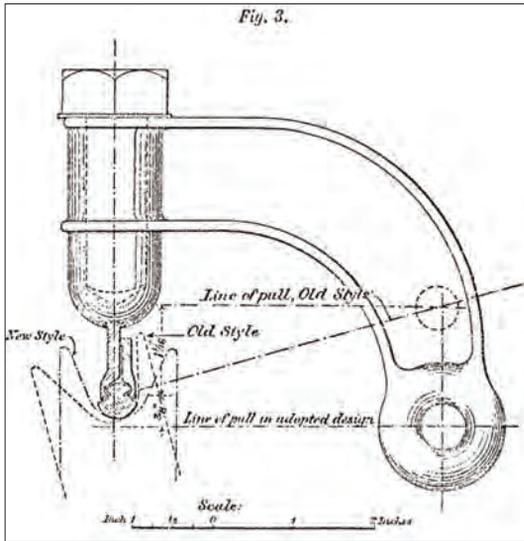
Owing to the unsatisfactory nature of the foundation, a subsoil drain below the bottom of the excavation was provided: it is of agricultural tiles, the full length of each track, with frequent out-falls; and there is a depth of 8 inches of 2 1/2-inch to 3/4-inch ballast under all sleepers, which are beater-packed. The soil along most of the route is a heavy volcanic clay, very spongy and soft when wet. After one of the wettest winters ever experienced in Melbourne it has not been necessary to lift and pack more than 25 feet of rail. The general construction of the permanent way is shown in Fig. 2. The vitrified bricks along the rail were adopted to prevent breaking away of the asphalt surface at that place, which on other tramways has been responsible for at least 60 per cent of the cost of track maintenance. The use of these bricks is an innovation in Melbourne and is proving a success. The price of stone cubes or wood blocks was prohibitive. The Gilsonite asphaltic

concrete surface is also new in Australia. It was adopted in the expectation that the charges for maintenance would be lower than they are where tarred macadam finish is used; and so far this anticipation has been realized. If the Author were designing the work again, he would substitute a concrete paving base 5 to 6 inches thick as a foundation for the asphalt pavement, and would lay all bricks as headers, giving a tracking-strip 9 inches wide on each side of the rail.

All curves have been provided with easements, varying in length with the degree of curvature of the body of the curve, and designed with the idea of varying the degree of curvature continuously from zero to that of the body of the curve. For example, taking a main curve of 10 degrees (573 feet radius) and a transition 100 feet long, the curvature is made to increase by 1 degree every 10 feet, from zero at the commencement to 10 degrees at the point of circular curvature. The resulting behaviour of cars when taking curves at speeds up to 25 miles per hour has been very satisfactory.

Overhead Construction.—Side-span poles and span wires support trolley-wires of 3/0 B. & S. gauge and non-fouling section. On 5 miles of the route steel poles, and on 2 outlying miles of route iron-bark (*Eucalyptus sideroxylon*) poles, neatly trimmed all over, have been used. All poles are planted 6 feet in the ground in concrete. The cost of excavating holes was heavy, as basalt boulders were encountered in many places. Explosives were necessary and the excavation of some holes took two men as much as 16 hours. The ironbark poles should, from past experience, last at least 20 years, and in appearance they are neat enough for any situation.





There is nothing out of the ordinary in the design of the overhead equipment except at curves. All single pull-overs have been designed with an arm long enough to bring the line of pull about $\frac{3}{8}$ inch below the point where the ear grips the trolley, with the result that the ear is held in a vertical position and there is no more wear on the ears on curves than on the straight (Fig. 3, on next page). The wire is also placed at curves in the correct position calculated to allow for super-elevation of rail, length of trolley-pole and height of trolley-wire. All feeders are of stranded copper and parallel to the trolley-wire for the whole length of the route. Lightning arrestors and choke-coils are used at all feed-in points. Under the worst conditions the potential drop at the end of lines is not more than 100 volts. The trolley-wire is divided into $\frac{1}{2}$ -mile sections, and the insulators are bridged by section knife switches.

Sub-station.-Power is bought from the Melbourne City Council Electric Supply Department. A three-phase 6,000-volt supply is transmitted by underground cables a distance of $5\frac{1}{2}$ miles, and is measured at the Tramway Trust's sub-station. Transmission-cables are in duplicate; $\frac{3}{4}$ miles are unarmoured lead-covered cable, laid in bitumen in a wooden trough, and $\frac{2}{4}$ miles are steel-armoured over lead covering, laid direct in the ground with a plank of red gum 8 inches by $1\frac{1}{4}$ inch laid directly over the cables for protection. Payment is made per unit (varying, with the cost of coal) plus a sum of £4 10s. per annum per kilowatt of maximum demand. The basic rate per unit is 0.65d., and for every half-crown increase in the cost of coal above 13s. per ton an additional 0.045d. is paid. The price per high-tension unit has so far worked out at approximately 1d.

The sub-station is equipped with two rotary-converter sets of 200 kilowatts each supplied by two three-phase transformers for transforming from 6,000 volts to the voltage necessary for the rotaries which supply direct current at 600 volts. There are also two series transformers of 10 kilowatts capacity each, which supply power for lighting along the route of the tramways. Series incandescent lamps are used of 100, 200, 250 and 400 candle-power sizes. Power and lighting for the depot and offices is supplied by a 50-kilowatt three-phase four-wire transformer, supplying current at 415 volts between phases.

All oil switches and circuit-breakers on the switchboard are fitted with bell alarm-switches. It is thus possible to run the station without a regular attendant, as a mechanic from the depot attends to the station on hearing the alarm-bell. The station is large enough to accommodate 1,400 kilowatts of rotary converters. An overhead travelling crane of 10,000 lbs. capacity is provided.

Rolling Stock.-At present there are twelve cars in service [later the MMTB's S class - Ed.] and one works car used for track-cleaning and repair-work generally. The cars are mounted on single trucks, and have bodies of combination type, capable of seating forty-four passengers. Their principal dimensions are:-

	Ft.	Ins.
Wheel-base	7	0
Length over bumpers	35	0
Length over headstocks	31	0
Length over saloon end pillars	10	0
Overall width	8	0½
Height from rail to trolley-board	10	7
Weight of car complete	23,008 lbs.	

The motors are of 55 HP. box-frame type, with forced ventilation. The pinions are of special heat-treated steel, and the gears are solid, of the same material, and pressed on the axles. Axles are $4\frac{1}{2}$ inches in diameter, with journals of railway type, which were preferred to the button type because of the lower cost of maintenance. The wheels are of the rolled-steel disk type, 33 inches in diameter. When worn to the limit they will be turned down to form centres on which steel tires will be mounted. The gear ratio is 60 : 17, and the motors are capable of running a 12-miles-an-hour schedule with five stops, of 7.5 seconds each, per mile. The cars are equipped with straight air-brakes, compressed air being supplied by a self-contained



Melbourne. Brunswick and Coburg Tramways Trust car No. 8 in Coburg. The walls surrounding Pentridge Gaol are on the right.

motor-driven compressor. Air is also fitted for sanding, and the sand is delivered right under the wheels. There have been no troubles of any sort with the electrical equipment after 15 months' operation. These air-brakes were the first to be used in Melbourne for street-tramway work.

To cope with traffic demands another six cars are being constructed [later the T class – Ed.]. They are of the same general type, except that the trucks are of radial type, with 12 feet wheel-base, and the car-bodies have a saloon 19 feet long, and only one cross seat in each open compartment, The weight of this car will be considerably less than that of the older type. All bodies are constructed throughout, as far as possible, of native-grown Australian timbers, mainly Queensland maple, which gives a very pleasing effect for inside work when finished in natural wood polish. Interior lighting is provided by means of six metal-filament lamps, each of 23-watt rating provided with "Sudan" reflectors of opalescent ware.

Depot and Offices.-The construction is of brick throughout, except where temporary timber and iron walls have been provided in case future extensions are

required. The floors in the car-storage bay, storeroom and workshop are of concrete, and in the sub-station of tiles on concrete. Storage is provided for twenty cars. The workshop is equipped with the tools necessary for general repairs. All tools are separately driven by direct-connected three-phase motors, and an overhead runway extends the full length of the shop and out into the car-storage bay. The office-block is of two stories and provides all necessary accommodation.

The whole installation was designed by and constructed under the supervision of the Author, as Engineer, and is being operated by him as Manager and Engineer. Data corresponding with those given in the Table on 6 are given in the Table on the following page for this system.

The capital expenditure is high, due to a large extent to construction having been carried out since the commencement of the war. For example, the cost of rails landed in Melbourne was £26,234 for 1,950 tons, or £13 10s. per ton. These rails before the war could have been obtained for not more than £19,500, or £10 per ton. Other large items of expenditure are similarly affected.

Twelve Months Ending Sept. 30	Capital Cost	Operating Costs per Car Mile	Maintenance Costs per Car Mile	Interest Costs per Car Mile	Revenue	Net Revenue per Car Mile	Total	Net Revenue Percentage of Capital
	£	d.	d.	d.	d.	d.	£	
1917	158,283	8.359 (1)	0.286	2.872	12.780	1.549	3,475	2.195
1918	168,079	9.022	0.578	2.646	13.132	1.464	4,019	2.38

(1) This includes an amount of £1,076 5s. 5d. representing an increase in wages of approximately 20 per cent., and equal to 0. 479d. per car-mile, so that, on the same footing as prevailed in the Table already given, operating costs would have been 7.88d. per car-mile.

Notes on the author

Struan Robertson was Engineer and Manager of the Melbourne, Brunswick & Coburg Tramways Trust when his paper appeared at the beginning of 1918. The Institution of Engineers, Australia was not established until 1919, so before that time a British journal was the only avenue for publication.

Robertson graduated from the Canterbury College of the University of New Zealand in 1915 with the degree of Bachelor of Science in Electrical Engineering. He had been working in the tramway field well before this. In 1905 he was a claimant in a court case in New Zealand about payment for bonding of tram rails.

He was Engineer and Manager of the MBCTT when the Trust's trams started running in April 1916. According to the Melbourne *Argus*, "The work has been carried out by Messrs. Burt and Thomas, contractors for the permanent way, and the Sim Paving and Roofing Company Pty. Ltd., contractors for the asphalt pavement, under the supervision of Mr. Struan Robertson, M.A., B.Sc., who has received numerous

favourable opinions on the work from leading tramway experts. Mr. Robertson has converted the Sydney road, which was notoriously the worst suburban road round Melbourne, into what is now one of the best pieces of suburban road in Australia."

He is credited by the Friends of the Hawthorn Museum as designer of the MBCTT's cars, which became the MMTB S and T class trams.

By mid-1918 Robertson had taken over as Engineer and Manager of the Hawthorn Tramways Trust. On 10 June 1918 he was reported in *The Age* in connection with 'The Tramway Scandal - Hawthorn Trust's electric line'. The track was in poor condition, and Robertson was tasked with fixing the problems.

Robertson apparently disappeared from the tramway scene with the formation of the MMTB. Perhaps he and other trust managers were made redundant when the MMTB was formed, with PMTT people in key positions. He died, a resident of Gardenvale, on 7 October 1956.

S class veterans 157 and 158 load patrons from a VFL football match in Barkly Street at Gordon Street, Footscray on 28 April 1951. These cars are former MBCTT cars 4 and 5.

Keith Kings



S 159 (ex-MBCTT car 6) as an all-night tram at the corner of Swanston and Flinders Streets early on the morning of Sunday, 14 March 1948.

Keith Kings

This article was originally published in *The Commonwealth Engineer*, dated October 1, 1917.

NEW CARS FOR THE MELBOURNE, BRUNSWICK AND COBURG TRAMWAYS

By Struan Robertson, M.A., B.Sc.

Modern engineers and managers of electric street tramways are every day more clearly recognising that where traffic is not exceptionally heavy the most satisfactory method of encouraging people to ride in tramcars and of providing ample accommodation is to run more cars with a reduced headway between cars. If the intending passenger has just missed a car, he will not walk if the next car is in sight. In order to attain this object without unduly loading the power plant, and increasing the power bill, light cars to give reasonable seating accommodation must be provided. In designing cars for the Melbourne, Brunswick, and Coburg tramways trust, with which undertaking the writer is connected, he worked along the lines indicated above. The first twelve cars put into operation by the trust were of the single truck rigid wheel base type, having a wheel base of seven feet and an overall length of 35 feet, a weight of 23,600 lbs., and seating 44 passengers. Although the cars ride very smoothly on a well surfaced track, their great length compared to the wheel base is inclined to increase the amount of "pitching" that may occur owing to unevenness in the permanent way.

When recently ordering new cars [which later became the MMTB's T class - Ed.] to cope with increased traffic requirements, the writer decided to get over this difficulty by adopting radial trucks of the newest type with a 12 feet wheel base which, as compared with double truck cars, would allow the double advantage of lightness, and uniformity of car-body construction with existing cars. The new car is not as heavy as the first type, while the overall dimensions are the same. The decrease of weight has been obtained by cutting out "atrophied" parts, which are an inheritance from former days, and designing weight-carrying parts on scientific principles.

The main dimensions and particulars of the new cars are given hereunder:-

Car-Body.

Length over headstock in centre	..	33 ft. 10 in.
over bumpers .. ..	..	35 ft. 0 in.
over roof .. ..	..	34 ft. 7 in.
of saloon over pillars ..	..	19 ft. 10 in.

Width over waist rail	..	7 ft. 1 in.
over belt rails .. ..	..	7 ft. 1 in.
over weather rails ..	..	8 ft. 0½ in.
over sill plates .. ..	..	6 ft. 4½ in.
over footboards.. ..	..	7 ft. 8 in.
of doorways .. ..	..	2 ft. 2 in.
Height of doorway .. ..	..	6 ft. 3 in.
from outside floor to saloon floor	..	10 in.
from step to outside floor ..	..	11¾ in.
from road to step .. ..	..	13½ in.
to trolley board.. ..	..	10 ft. 5 in.
Side Sills .. steel plate	..	7 in. x ⅝ in.
Weight complete .. ..	..	8500lb.

Truck and Wheels and Axles.

Length of top plate	..	19 ft. 0 in.
Wheelbase .. ..	..	12 ft. 0 in.
Gauge .. ..	..	4 ft. 8½ in.
Wheel diameter .. ..	..	33 in.
Axle diameter .. ..	..	4½ in.
Journals .. ..	..	7 in. x 34 in.
Weight of truck.. ..	..	3550lb.
Weight of four wheels and two axles	..	2800 lb.

Electric Equipment.

Motors .. ..	..	2 - 55 h.p.
Gearing .. ..	..	60/17
Weight of electric equipment	..	6840lb.

Air Brakes.

Air pressure .. ..	..	50lb. to 60 lb.
Weight of air brake equipment	..	1747 lb.
Total weight of car .. ..	..	22,837lb.

Car-Body Details - The principal parts that have been cut out of the car-body are, the monitor roof, ceiling linings, and bulkhead behind the motorman's platform, while all parts have been cut down to the minimum section consistent with stiffness and safety. Owing to the length of the truck top plate, the total length of the saloon body was made 19 feet, and advantage of this was taken to provide an inside smoking compartment. This compensates for the loss of outside seating accommodation for ten passengers entailed by the construction of the car-body.

The whole of the inside of the car is finished in Queensland maple. The roof boards are also made of this timber, and three coats of covering material were

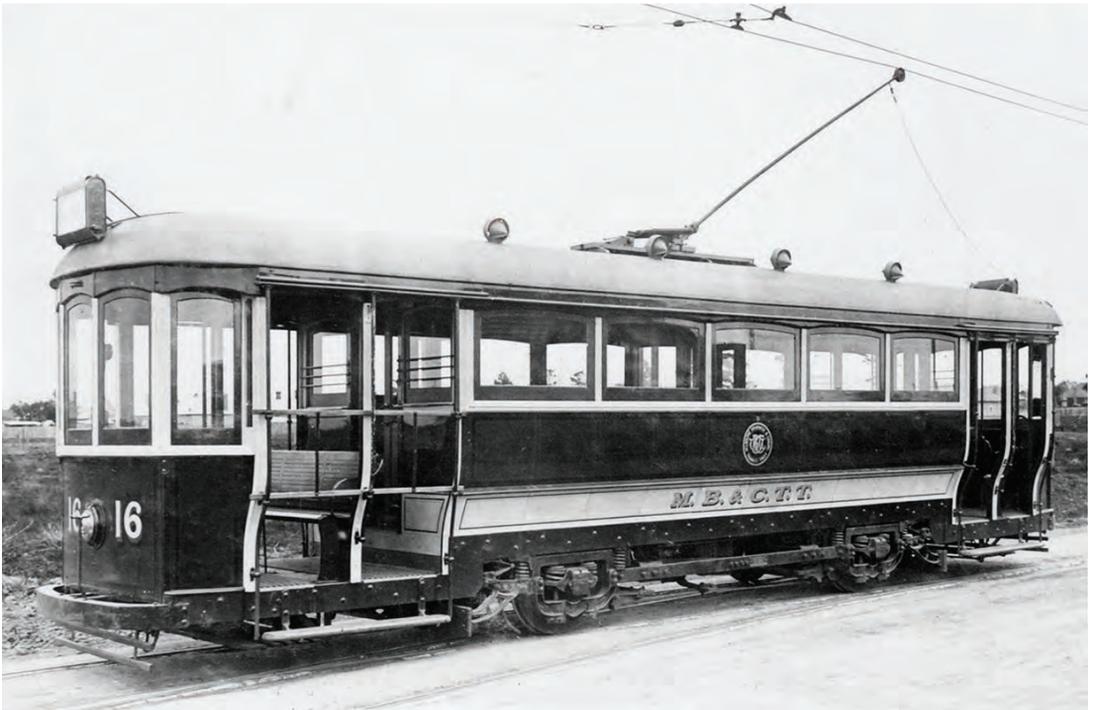


Fig.1 – Melbourne, Brunswick, and Coburg tramcar No. 16 Showing Features of Body Construction.

applied, viz., one coat of raw oil, one coat of French polish, and one coat of flattening varnish. This flat finish brings out the grain of the wood and lends itself to renovation with a polishing cloth. All seats are shaped to fit the body when seated; the seats in the smoking compartment are of wood slats, and the seats in the saloon have been fitted with helical springs and upholstered with rattan.

Ventilation has been provided by means of eight automatic extractors, which do not break the continuity of roof lines. The illustrations (Figs. 1 and 2) show the various features of the body construction.

Truck – The radiating feature of this is the most interesting point. As will be seen from the view shown in Fig. 3, a cross-beam is pivoted by means of a large king-pin and bearing midway of the cross member of the truck. The motor is secured to the ends of the beam and serves as the connecting member between the wheels and axle and the truck, through the king-pin. The weight of the car and truck proper is taken by eight spring posts which are supported from the axle boxes by means of helical springs. These latter carry a hemispherical pivot bearing seated in the top of the spring. The spring posts hang through the spring and the truck is secured to the bottom end of each post by means of two pins. It will be seen that the relative movement of the axle boxes – which radiate about the king-pin – and the truck is permitted by this support.

Fig. 2 – Interior View of the Car.

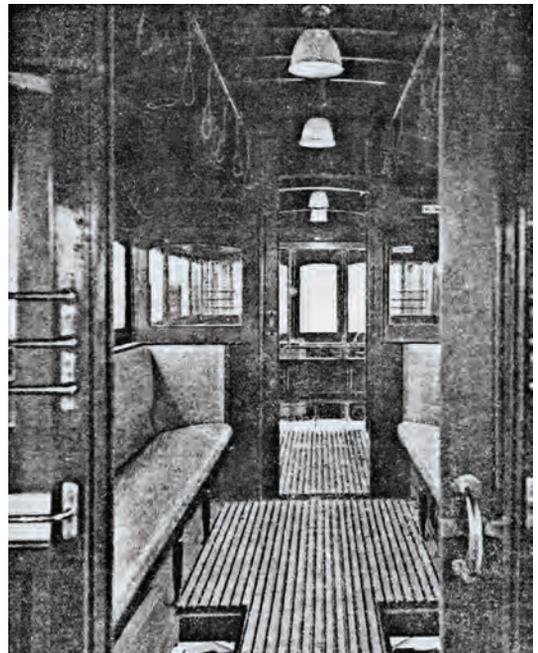
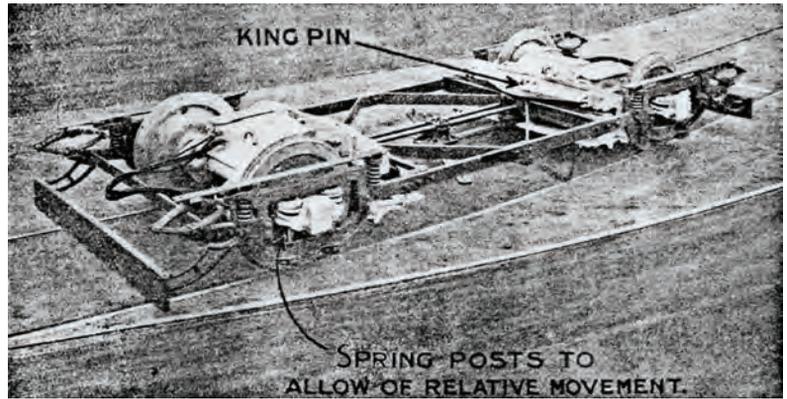


Fig. 3 – Under-carriage of Car. Gear painted white pivots on the King pin.



In swinging round a curve, the weight of the car is taken by the pin which is furthest horizontally from the vertical line through the centre of the pivot bearing, and which passes through the post. There is, therefore, a positive tendency for the wheels to come back into their normal position and remain there when the car gets into the straight track and after the centrifugal effect of the weight of the body ceases.

Electrical Equipment – The motors are of the box frame self ventilating type, each of 55 h.p. on hourly rating at 600 volts. A novel feature has been added which does away with all interruption of current in the controller. The main circuit is made in a relay operated contactor located under the car. In cutting off, the initial movement of the controller backwards at any point opens the contactor relay circuit, and the main current is interrupted in the contactor. It is hoped that this innovation will cut down controller maintenance to a minimum and prevent any danger of fire on the motorman's platform. The contactor replaces the automatic feature of the canopy switches, so that there is only one of these, which acts simply as a main switch and not as a circuit breaker. In addition, there are two small relay switches, one at each end of the car. The wiring is shown in Fig. 4.

Air Brakes – The cars are equipped with the trust's standard straight air brakes. Compressed air is supplied by a motor-driven air compressor supplying 10 cubic feet of air per minute at 60 lbs. pressure. The brake cylinders are 8 in. diameter, and the working length of stroke is 6 in. At this point a slack adjuster – air operated – moves the fulcrum of the cylinder lever and takes up the brakes. Cars fitted in this way may be run 1000 miles without any adjustment of the brakes. The pressure gauges in the motorman's cabin are of two hand type, one hand indicating reservoir pressure and the other pressure in brake cylinder. This latter feature is a great aid to the motorman in making stops. The automatic pressure governor cuts in the compressor at 50 lbs. and cuts out at 60 lbs. pressure. Air sanding gear is fitted so that sand is supplied under the wheels.

Lighting Circuits – Head lights are fitted with 46 watt 100 volt concentrated metal filament lamps, which are in series with two lines of 23 watt 100 volt car lighting lamps, each of five lamps, these two lines being in parallel. This arrangement provides four destination sign lamps – two to each – and six car lighting lamps. These latter are fitted with opalescent shades of Sudan pattern, and consequently provide ample lighting for all purposes.

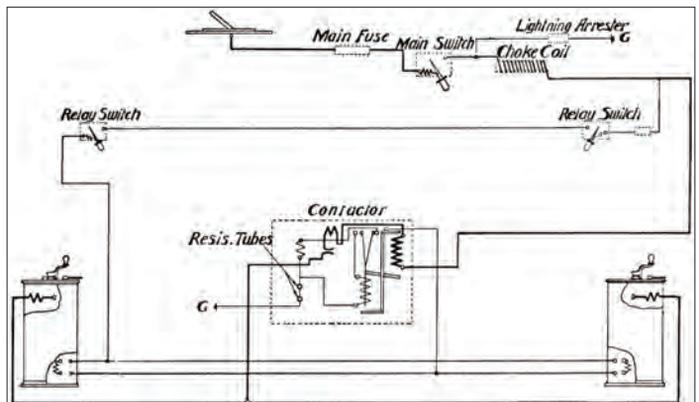


Fig. 4 – Wiring Diagram of the Contactor Connections.

*T 178 (ex-MBCTT car 14) waits for departure time at Point Ormond.
STM archives*



*Below: T 180 on a night tour outside the Melbourne GPO in Bourke Street.
Jim Seletto*



*Below: T 177, previously MBCTT car 13, stands outside the former Footscray Tramways Trust's depot.
Noel Reed*

An afterword:

The MBCTT's trams in MMTB ownership

Melbourne's council-owned tramway trusts were taken over by the newly formed Melbourne and Metropolitan Tramways Board on 2 February 1920.

The trams of the Melbourne Brunswick and Coburg Tramways Trust were renumbered into the Board's fleet and given classification letters as follows:

MBCTT cars 1-12 became S class 154-165

MBCTT cars 13-18 became T class 177-182

Trams ordered by the MBCTT but not delivered until after the change of ownership became additional S class cars, numbered 166-171.



This article was originally published in the Electric Railway Journal, Vol. 50, No. 1, dated July 7, 1917

A RECENT AUSTRALIAN TRAMWAY

This New Australian Electric Line Includes 12 Miles of Track Laid with 90-Lb. Rail on Hewn Ties – Standard Span-Wire Construction Has. Been Installed for the Contact System, and the Cars Are Similar to the California Type Used on the [US] Pacific Coast

By STRUAN ROBERTSON, Assoc. Mem. Inst. C. E.
Engineer and Manager Melbourne, Brunswick & Coburg Tramways

The new Melbourne, Brunswick & Coburg Electric Tramway is the most recent example of Australia's semi-suburban electric railways. Melbourne, with its suburbs, has a population of roughly 600,000 people, but there is no central municipal control, since it is cut up into several small cities, towns and boroughs, and each of these has its municipal affairs controlled by its own elected council. The system of control adopted for new projects has by an act of Parliament been constituted a tramways trust, whose members are elected by the municipalities concerned. The tramways have been constructed and are being operated under these controls in the interests of their constituent bodies. The capital for construction was obtained by loans advanced on the securities of the various municipalities concerned.

The new tramway has a total route of 7 miles, of which 5 miles are double-track and 2 miles single-track, making 12 track-miles in all.

The permanent way construction has several special features that are unusual in Australasian construction. Among these is the use of a sub-soil drain of agricultural tiles with frequent outfalls. This has been provided for the full length of tracks. In addition, an 8-in. depth of

graded ballast has been used below the ties. For pavement of the roadway adjoining the rails a "gilsonite" asphaltic-concrete surfacing has been adopted, vitrified bricks being installed against the rails to prevent the asphalt surface from being broken down along the line of contact between the rail metal and the paving.

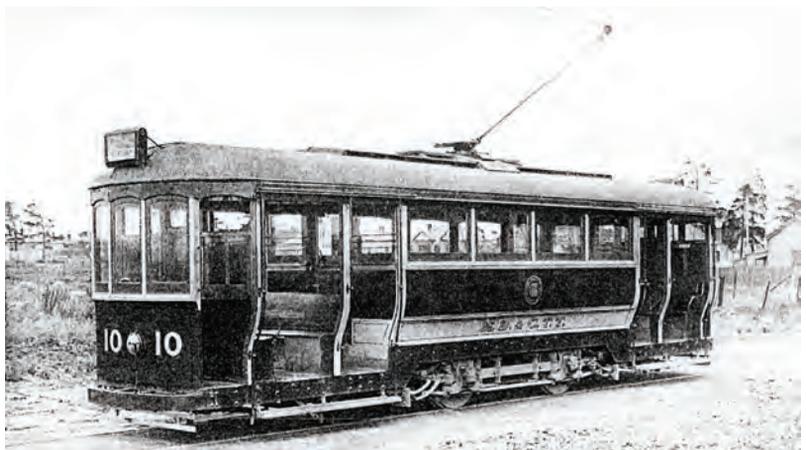
The rails weigh 90 lb. to the yard, and they are British standard, grooved-girder section on tangent track. A similar type of rail weighing 96 lb. to the yard is used on all curves of less than 150 ft. radius. The rail heads are curved with a radius of 12 in. The sharpest curves on the system are of 50 ft. radius. On curves of 60 ft. radius or less the inside rail is fitted with a removable, rolled manganese-steel flange. All rails are made of silicon steel, under the Sandberg patents.

For the ties native hardwoods, i.e., red gum, iron bark and gray box are used. All ties are hewn and they are spaced on 27-in. centres. It is expected that the ties will have thirty years of life.

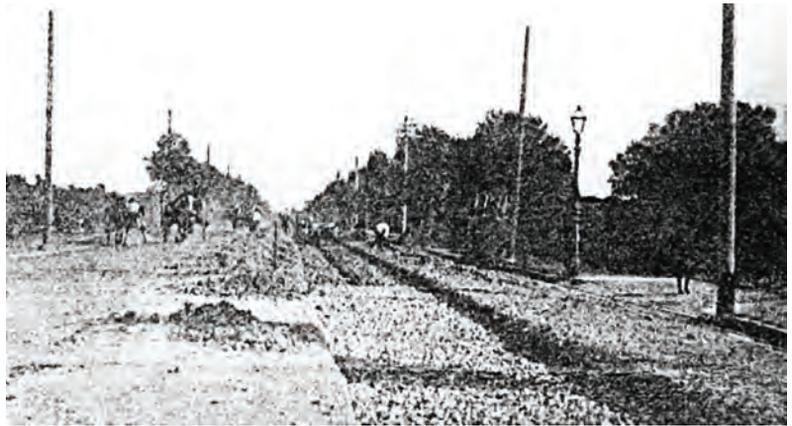
No tie bars or brace plates are used, and the heaviest axle load is not more than 8 tons.

New Melbourne Tramway combined open and closed car. [This car became S class 163 under MMTB ownership].

Electric Railway Journal



View showing substructure and subsoil drain for track.
Electric Railway Journal



Overhead construction is of side-pole span type. Steel poles are used throughout 5 miles of the route, and native iron-bark poles, neatly dressed, on the other 2 miles of the route. Non-fouling trolley wire with mechanical ears has been adopted.

A 5000-volt, three-phase, 50-cycle current supply is purchased from the electric supply department of the Melbourne City Council. Payment is made on a maximum demand system at a price which works out to approximately 2 cents per alternating-current unit delivered. The tramway has installed its own substation, which is equipped with two 200-kw. rotary converter sets, a 50-kw. general service power and lighting transformer and two 10-kw. series transformers for track lighting, the whole being controlled from a handsome black-slate switchboard. All the substation equipment has been supplied by the Australian General Electric Company, Ltd., Melbourne, representing the General Electric Company, New York. Space has been provided for increasing the capacity of the substation to 1600 kw. for traction purposes when the growth of traffic makes this necessary.

At present there are twelve cars in service. These are mounted on single trucks of the Brill 21-E type, having

7-ft. rigid wheelbase and 33 in. rolled-steel wheels. The car bodies were manufactured in Australia and are of the combination saloon and open type, having a seating capacity of forty-four. The over-all length is 35 ft., and the weight is 23,500 lb. Each car is equipped with two GE-241 box-frame motors rated at 55 hp. This motor capacity enables the car to maintain with five stops per mile a schedule speed of 12 m.p.h. Other features of the equipment are form K controllers and GE straight-air brakes. These cars are the first street railway equipments in Melbourne to be fitted with pneumatic brake equipment.

One carhouse serves the entire property. This includes under one roof storage for twenty cars, a workshop fitted with a 200-ton wheel press, a wheel lathe, an 8-in. lathe, a radial drill press, a sensitive drill, an emery and buffing wheel, and a wet emery stone. All of these tools have individual direct motor drives from three-phase, 50-cycle, 415-volt induction motors. The same building contains the substation, store, offices for staff and a messroom for the men. The complete installation, which was designed by and constructed under the supervision of the writer, was completed and placed in regular service on October. 28, 1916.

View showing depot yard, office building and car storage.

Electric Railway Journal



SYDNEY'S AMBULANCE TRAMS

By V.C. Solomons and R.I. Merchant

Some of the unusual trams that operated in Sydney were its ambulance trams. The set consisted of two C class single truck saloon cars, 31 and 44.

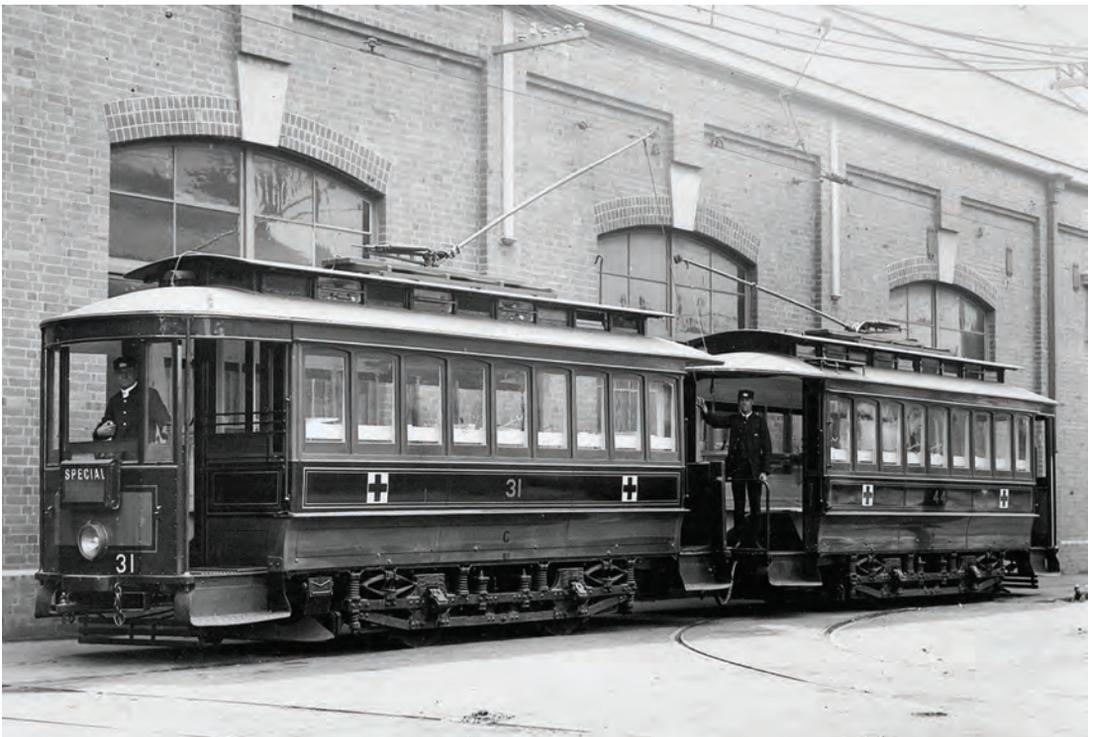
Cars 31 and 44 entered service on 30 June 1899. Car 31 was coupled to car 55 and car 44 was coupled to car 64. Driver's protective windshields were fitted at

C class trams 44 and 64 in Castlereagh Street, crossing Hunter Street bound for Circular Quay in 1911.

V.C. Solomons collection

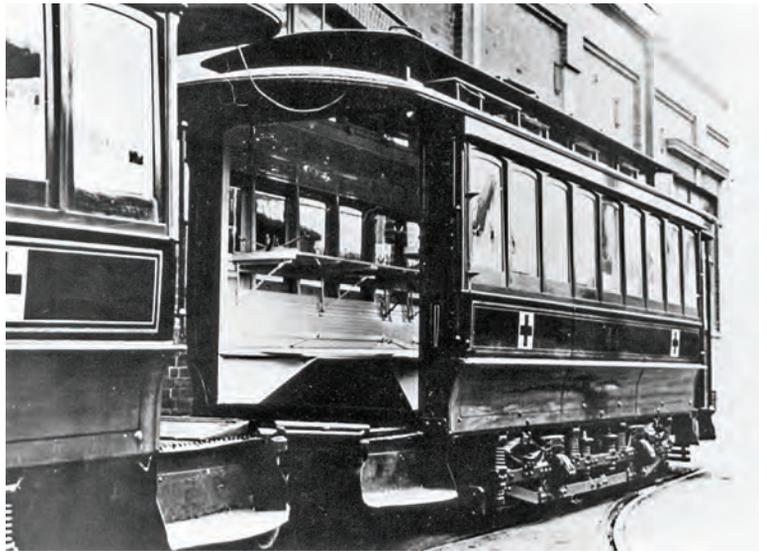
Ambulance trams 31 and 44 pose for their official portrait opposite the entrance to Randwick Workshops.

Railway Ref P544
STM archives



Ambulance tram 44 showing the centre railings removed for loading stretchers.

Railway ref P545
V.C. Solomons collection



Randwick Workshops on 13 July 1911 for car 31 and on 26 September 1911 for car 44.

As larger and faster bogie cars entered service, the C class cars were replaced in heavy passenger duties. These small cars found their way into many unanticipated roles. In October 1915, cars 31 and 44 were altered for ambulance service. The interior seats and the bulkheads on the inner ends were removed so that eight stretcher cases could be swiftly and gently loaded and carried by each tram.

The Australian Town and Country Journal reported on 20 October 1915:

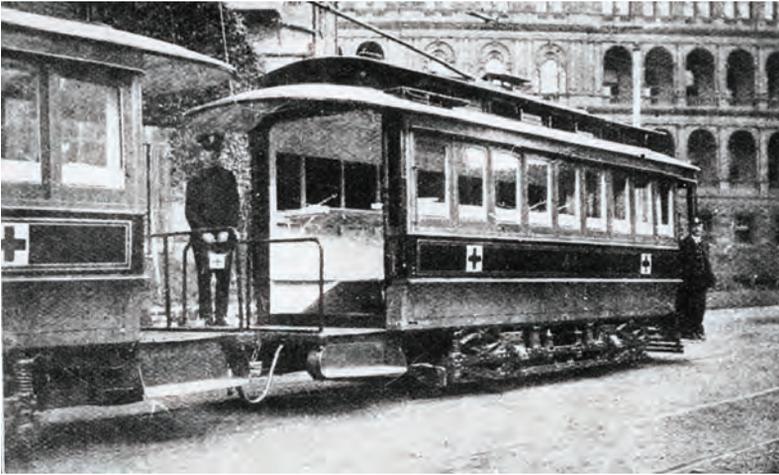
“The NSW Railway Commissioners have equipped two tram cars for the conveyance of wounded soldiers from the transports to the hospital. Each has accommodation for eight stretchers. The entrance at each end extends across the whole width of the car and the platform rails can be unshipped leaving a clear entrance for the stretcher bearers. When the stretcher is placed in position in the car they rest upon strong springs which lessen the jar caused by the motion of the car.”

The coupled set of trams met the arriving troop ships and carried World War I wounded soldiers from



A view from car 44 into car 31 shows the internal arrangement for carrying stretchers.

Railway ref P546
STM archives



Car 44 in Bridge Street yard with the centre railing in place. The illustrations on this page originally appeared in *The Australian Town and Country Journal* in October 1915.

V.C. Solomons collection

Woolloomooloo Wharf to a special siding in Avoca Street at Randwick Hospital, and then known as No. 4 General (Military) Hospital. The complex is now known as the Prince of Wales Hospital, Sydney Children's Hospital and the Royal Hospital for Women.

The Sydney Morning Herald for Monday, 15 May 1916 reported:

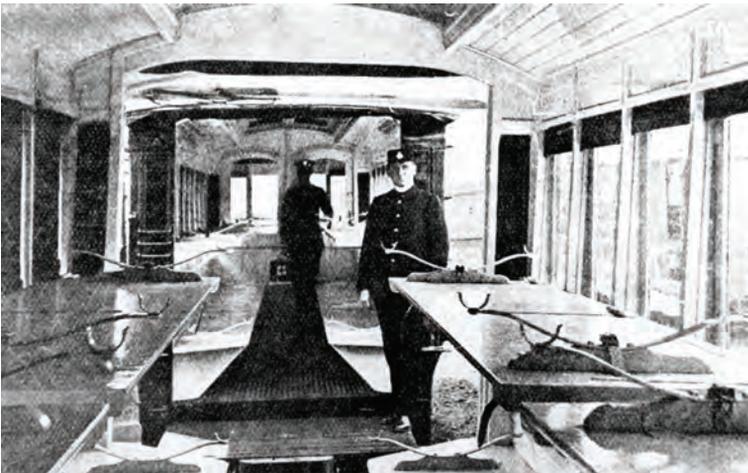
“Quite the newest thing in connection with the transportation of returned soldiers was seen yesterday. It was a tram-ambulance. The Tramway Department is to be congratulated. From its own workshops at Randwick has been turned out two fine stretcher-carrying cars. There are two tiers, as with railway sleeping berths, so that each car can carry eight stretchers. The mechanism of the undergear of the cars has been specially constructed to reduce the vibration when travelling on the rails to a minimum. By these means it is

claimed that there will be a great deal less vibration than in any other method of ambulance stretcher-bearing. This Red Cross ambulance tram made its first trip from Woolloomooloo Bay to Randwick yesterday, carrying eleven sick soldiers from the *Karoola*. The stretchers rest on solid springs, the four handles fitting firmly into a sort of rowlock at each end.”

A military officer also commented on the ambulance tram service. On 19 June 1916, the *Herald* reported:

“The cot cases were brought to the hospital by the ambulance tram, on which also Captain J.W. Bell, Staff Officer for Invalids, travelled. This officer expressed his appreciation of the tram, and stated that its running was smooth and that the patients were subjected to a minimum of jolting.”

Under the heading ‘ANZACS Return – Heroic Work in France’, the *Herald* reported on 12 March 1917 the



Looking through the interior of car 31 into car 44 in Bridge Street yard.

V.C. Solomons collection



The ambulance trams in Bridge Street yard - only one visible - with crew and nursing staff wearing masks and gowns to prevent the spread of infection.

University of NSW and Teaching Hospitals
Dept Medical Illustration ref 45
V.C. Solomons collection

arrival of the hospital ship *Kanowna* at No. 1 Wharf, Woolloomooloo:

“A medical staff consisting of Captain Lewis, Captain Curtis Elliott, Lieut. Ward and Warrant Officer Newitt, boarded the up the harbour a couple of hours before she came alongside, and the patients were classified. The cot cases, of which there were 16 for New South Wales and 10 for Queensland, were the former conveyed by the special ambulance tram to No. 4 Hospital Randwick, while the Queenslanders were conveyed by motor ambulance to Rose Hall, Darlinghurst until they left for the northern state to catch the 1.35 special train.

“There is one thing that I would draw attention to,” said Colonel Stokes, while seeing the cot cases placed on the ambulance tram at Woolloomooloo, “and that is the fact that the tramline does not come within a good distance of the wharf. This necessitates the placing of cot cases in motor

ambulances when they are carried down the gangway, and then the transferring of the cases again to the tram.”

The ambulance trams performed a similar task during the pneumonic influenza (commonly called Spanish ‘flu) epidemic of 1919, this time with civilian patients⁽¹⁾. Plans were being made as early as November 1918 for the use of the ambulance trams should an outbreak occur beyond the quarantine grounds.

The *Sydney Morning Herald* reported on Thursday, 20 March 1919 that:

“The Board of Health, assisted by the Railway Commissioners, and also aided by the loan of stretchers from the military authorities, has inaugurated a new method of transporting the sick to the Coast Hospital.

(1) The swine influenza pandemic, which first appeared in January 1918 and faded away by December 1920, was one of the deadliest natural disasters in human history. It infected 500 million people across the world and killed 50 to 100 million of them or three to five per cent of the world’s population. In Australia, 12,000 perished from the disease. Wartime censors minimised early reports of illness and mortality in Germany, Britain, France and the United States, but papers were free to report the epidemic’s effects in neutral Spain. This created the false impression that Spain had been especially hard hit, and led to the pandemic’s nickname ‘Spanish flu’.

“Commencing from to-day all patients suffering from pneumonic influenza will be collected by ambulance at their homes or at places at which they are reported, and taken to a clearing station in the city, where they will be placed on board special ambulance trams, and taken to the Coast Hospital.

“Four [*sic*] of these trams (which run in pairs and carry eight patients each) are available for use. It was anticipated that this method of transit will considerably assist to the comfort of the patients, as they will prevent a long journey to Little Bay over bad roads, and will also expedite the removal of cases from the city.”

That same afternoon the *Evening News* reported:

“The ambulance tram supplied by the Tramway Department to the Board of Health for the conveyance of patients from the city depot to hospital made its first trip to the Coast Hospital this morning.

“The depot, to which the patients are taken by motor ambulances, is in an isolated portion of the Bridge-street tram depot. There are two connected trams of the corridor type, and the sufferers are placed on stretchers along the sides. The car carries 16 patients, eight in each saloon. Six patients were carried by the tram this morning, and they were attended by a nurse, who will be permanently on this duty. Among those who witnessed the arrangements for the first trip were

Mr J. D. Fitzgerald, Minister for Health, Mr Garland, Minister of Justice, and Dr Paton, Director of Public Health.

“The arrangements were in the hands of Mr A. J. Craymer, of the Civil Ambulance Brigade, and Mr T. H. Henderson, of the St John Ambulance. It is intended that the car shall make three trips a day.”

The Coast Hospital was renamed The Prince Henry Hospital of Sydney in 1934.

At the height of the 'flu epidemic, six condemned C class cars were handed to the Volunteer Aid Detachment for use as fumigation chambers. Trams 53, 62 and 97 were three of the cars used for this task from July 1918, while cars 68, 69 and 72 followed three months later. As far as can be ascertained the six vehicles in this service stood on sidings adjacent to the showground until late 1919.

Cars 31 and 44 were written off on 11 November 1924 and dismantled on 7 January 1925.

The ambulance trams on the siding at the Coast Hospital. A motor ambulance with its rear doors open and a nurse in attendance, stands next to the trams.

University of NSW
Dept Medical Illustration &
Prince Henry Hospital ref 4943
H.R. Clark collection



HERE AND THERE

AUSTRALIAN AND OVERSEAS NEWS

Sydney's light rail extension opens

The 5.6 kilometre light rail extension from Lilyfield to Dulwich Hill opened on Thursday, 27 March. It has been described as a thief-in-the-night opening set in the cold, wet light of a sullen morning.

The first service was operated by Variotram 2102. Later in the morning, NSW Premier Barry O'Farrell and his Transport Minister Gladys Berejiklian arrived by car at the Hawthorne stop near Leichhardt to meet the press and unveil a plaque.

The nine new stops are Leichhardt North, Hawthorne, Marion, Taverners Hill, Lewisham West, Waratah Mills, Arlington Dulwich Grove and Dulwich Hill. Prices for properties close to the line are already rising.

Many of the commuters using the new service work in Pyrmont and Ultimo, fast-growing inner-city suburbs well served by the new tram line. Outside of peak hours trams are running about every 15 minutes, though frequency should increase when new trams enter service. Between 7:00am and 10:00am, and 3:00pm and 6:00pm, trams are running every 10 minutes.

Fares are \$4.60 for an adult to travel one way between Dulwich Hill and Central, and \$2.30 for a child. The return fare is \$6:20 for an adult and \$3:10 for a child.

At the end of April 2014 the Sydney light rail fleet consisted of the following:

- Variotrams - 2101 to 2105 and 2107 are in service; 2106 has been scrapped, following one of the derailments on 7 October last year.
- Urbos 2 cars (leased) - 2108 – 2011 are in service.
- Urbos 3 cars – 2112, and 2114 to 2116, have been received and are undergoing commissioning. The first is expected to enter service at about the end of May. (The number 2113 is not being used because of superstition, particularly among Chinese who travel to the Star casino by light rail, about numbers ending in 13.) Two more cars are on their way from Spain, and a further six are on order. This final group will replace the remaining Variotrams.

It may be noted that CAF are discontinuing the use of the classifications Urbos 2 and Urbos 3. All 100% low floor cars are now classed Urbos 100.

Advertising for the new line appears at each station. The red graphics show the station names.

Liam Brundle

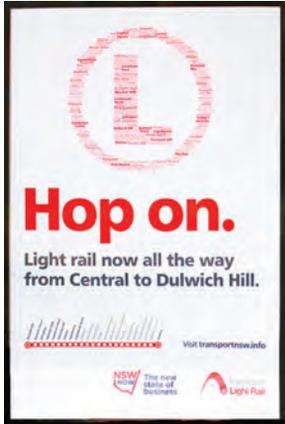


The time is 5:27am and Variotram 2102 is running a few minutes behind its official departure time of 5:25am. It is ready to depart on the first official passenger-carrying journey to Dulwich Hill.

Matthew Geier

Dulwich Hill terminus at 6:07am and Variotram 2102 prepares for the return journey to Central.

Matthew Geier



Central-bound Variotram 2104 arrives at Hawthorne at 7.55am with a crowd of locals ready to board for the city. The wetness of the early morning shows up nicely.

John Cowper



The Premier of NSW Barry O'Farrell, Member for Strathfield Charles Casuscelli, and Minister for Transport Gladys Berejiklian arrive at Hawthorne.

John Cowper

The plaque unveiled by the Premier at Hawthorne to mark the opening of the Inner West Light Rail extension.

Tim Boxsell





The first of the leased Urbos 2 cars, No. 2108, at Dulwich Hill terminus at 8:08am.
Matthew Geier



How do you hide a traffic signals control box? Paint it like a tram! This example is at the corner of Watson Street and Bondi Road, Bondi in Sydney's eastern suburbs.
Chris O'Sullivan

Second Memphis trolley catches fire

A second Memphis trolley caught fire on Madison Avenue near Danny Thomas Boulevard around 7:45am on 7 April 2014.

Former Melbourne car W2 553, owned by the Memphis Area Transportation Authority (MATA), erupted in flames with six passengers on board. All escaped without injury.

Car 553 was built by the Melbourne & Metropolitan Tramways Board and entered service in 1928. It was withdrawn in 1991. MATA purchased the car in 1997 after a US\$387,000 refurbishment by Gomaco Trolley Company of Ida Grove, Iowa.

Gomaco has supplied nine refurbished W2 cars to Memphis. Gomaco strips the cars down to the frame and then rebuilds them, including new side panels, roof and interior ceiling. Wiring, piping and other equipment is also rebuilt or replaced.

It is reported No. 553 last received preventative maintenance on 25 March, and there had been no previous major problems with the car.

The 3.5km Madison Avenue extension was opened in 2004 and service has been suspended until the cause of the fire is known.



Firemen have put out the blaze which has consumed MATA trolley 553 in Madison Avenue, Memphis.

Courtesy WREG Memphis

COTMA

COUNCIL OF TRAMWAY MUSEUMS OF AUSTRALASIA

PO Box 61, Carlton South, Victoria 3053

www.cotma.org.au

From Dave Hinman, Deputy Chairman

2014 Conference – Sydney, October 2014

The next Conference of the Council of Tramway Museums of Australasia (COTMA) will be held in Sydney from Thursday, 9 October to Tuesday, 14 October. The Conference is being hosted jointly by the Sydney Tramway Museum and the Valley Heights Steam Tramway.

An exciting program of activities has been developed and details will be available shortly.

Program outline:

- Thursday, 9 October - Evening registration and welcome function at the Rendezvous Hotel
- Friday, 10 October - Conference activities and papers
- Saturday, 11 October - Full day at the Sydney Tramway Museum, Loftus
- Sunday, 12 October - Valley Heights Steam Tramway and the Blue Mountains
- Monday, 13 October - Sydney Light Rail, Conference papers and Sydney Harbour cruise using a heritage ferry
- Tuesday, 14 October - COTMA AGM

Further conference details and booking forms including the partners program will be available on the COTMA website under the conference tab as soon as they become available from the Sydney Tramway Museum.

For enquiries contact David Critchley by email: eclass436@gmail.com

Pre and post-conference tours

Richard Gilbert, our well-known and experienced tour organiser, is planning for:

1. A pre-conference tour that will commence in Brisbane on the afternoon of Monday, 6 October with a visit to the Ferny Grove Museum. On Tuesday, a visit to the Workshops Rail Museum at Ipswich is planned, then to the Gold Coast in the evening. The whole of Wednesday will be spent on the Gold Coast, visiting the new tramway. On Thursday, 9 October, fly from Coolangatta airport to Sydney at convenient times (flight not included in the tour).

2. A post-conference tour is planned to commence on Wednesday, 15 October, taking in Canberra, Cooma, Junee Roundhouse and Wagga Wagga. Travel by 3801 Limited's heritage diesel train from Sydney to Moss Vale, and Explorer train to Canberra. A road coach will be used between Canberra and Wagga Wagga. The tour will arrive in Wagga Wagga on Sunday, 19 October, with departures for Melbourne and Sydney by XPT on Monday, 20 October.

Further details and booking forms will be posted on the COTMA website when they are available from the conference organisers. If you are not connected to the web, please send a note with your contact details to our mailbox: PO Box 61, Carlton South, Victoria 3053.

Australian (only) members of COTMA

Archer Park Rail Museum
 Australian Electric Transport Museum (SA) Inc
 Australian Railway Historical Society (Vic. Div.)
 Ballarat Tramway Museum Inc.
 Brisbane Tramway Museum Society
 Bendigo Tramways
 City Tram
 Hobart City Council
 Launceston Tramway Museum Society
 Melbourne Tramcar Preservation Association Inc
 Newstead Tramcars
 Perth Electric Tramway Society Inc
 Portland Cable Trams Inc.
 Sydney Tramway Museum
 Steam Tram & Railway Preservation Society
 Tasmanian Transport Museum Society Inc
 The Tramway Museum Society of Victoria
 Tramcar W2 568 Inc
 Victor Harbor Horse Tramway

LAUNCESTON

LAUNCESTON TRAMWAY MUSEUM SOCIETY

PO Box 889, Launceston, Tasmania 7250

www.lims.org.au

Sydney Tramway Museum member Peter Neve undertook during March a week-long group tour of Tasmania, visiting various tramway and railway museums around the Apple Isle. Presented here are Peter's views taken at the Launceston Tramway Museum on 15 March 2014.

All photos taken by Peter Neve.

Our thanks to Robert Quinn for providing additional information for some of the captions.



An unusual and novel gateway between the public area and the sales counter.



A tramway passenger shelter shed from High Street has been restored and erected in the display area of the museum.



The depot and museum building.

As recovered: tram 23 was rescued from a local property and is displayed in its 'chook house' condition.



This structure is known as Trevor the Tram. It is popular with small children and is soon (within the next few weeks) to be fitted with a carved face. 'Trevor' has an industrial motor controller installed, and the plan is to make it rumble and sound like a tram.

No.26 was originally an un-numbered water sprinkler car that saw little use by mid-1927. Launceston Municipal Tramways decided to scrap the sprinkler and tank assembly, and build another single-truck tram. The new tram, No.26, was the first tram to be constructed in the LMT workshops. It is in good order as it was kept under cover when in private hands.





Launceston's first tram, car No. 1, is undergoing major reconstruction in the workshop.



A view from inside the depot complex, looking towards car No. 29. The tram is standing on the main line, awaiting its next load of passengers.



No. 29 with its generator. The depot and museum can be seen in the background.

Restored No. 29 stands on main line, immediately adjacent to depot branch junction, at left.



LMT monogram on Car 29.

Above: Tram 29 at the terminus. The building represents the original Launceston railway station. Its orientation is north-south, whereas the original station was on an east-west alignment. The building is occupied by Tasmania's Department of Education.

The running track ends in a gentle curve behind the photographer. Normally the tram terminates at this platform, which the LTMS uses from time to time as a loading point for wheel chairs.



No. 29 at the former TGR roundhouse end of the line, with the depot turntable behind the temporary fencing.



The roundhouse at Launceston on 3 February 1971. The adjacent former Railway Workshops have been retained and incorporated into a museum site.

ST KILDA

AUSTRALIAN ELECTRIC TRANSPORT MUSEUM (SA) INC

PO Box 213, Salisbury, South Australia 5108

www.trammuseumadelaide.com.au

From Colin Seymour

40th Anniversary of St Kilda tramway

Sunday 23 March 2014 marked the 40th anniversary of the opening of the museum tram line. It was a low-key event this year as the focus has been on the new tram depot.

Five trams, rather than the usual three or four, were in service on the day. These were Adelaide cars 42, 118, 264 and 360, and Melbourne car W7 1013. This shows the number of additional trams available for traffic after 40 years. Only one of the trams, car 42, was at the Museum on the line's opening day. At that time, it was still in its Port Adelaide A2 configuration and was used as a display facility. Cars used at the opening were Adelaide cars 1, 111, 282 and Ballarat cars 21 and 34.

New depot

The section between Roads 4 and 5 in the new depot was concreted during the week 17-21 March 2014. This leaves Road 6 as the only depot track in the museum not in concrete - quite an achievement. As this will be the new pit area, much work and considerable finance will be required over the next year or so to finish it off.

Recently some shelving has been erected alongside Road 6 in the new depot to house overhead fittings. Fittings that have been previously stored on the works tram W2 354 are being transferred to this shelving to reduce the clutter on the tram.

Passengers enjoying a ride on Adelaide toastrack tram No. 42 on 9 March 2014. This day in March is a special one in Adelaide tramway history as the electric tram system opened on that day in 1909 when a number of toastrack trams took part in the official cavalcade.

Peter Vawser



This bird's eye view from the platform on the roof of works tram W2 354. The photo shows the new ear assembly in place on Pole 28 on 9 February 2014. Also shown is the drained salt lake next to the tram line.

William Adams



bulkhead bench seat backs have already been fastened into car 15 with car 14 ready to receive its bench seat backs. John Pennack, Bruce Lock and Charlie Rodgers have been instrumental in carrying out this work.

When Tony Smith from the Melbourne Tramcar Preservation Association recently visited St Kilda, the opportunity was taken to commence the final stripping of any remaining salvageable parts from the shell of A type car No. 17. All of the body head extruded beading and some of the bulkhead and clerestory glass was removed. William Adams assisted Tony to carry out the work.

Overhead

A team of members replaced Pole 28 during February, with our contractor North East Demolitions also installing some additional poles at the Loop for further pole replacements.

The disappearing lake

The visual environment alongside our tram line is undergoing a significant change. There is now a noticeable absence of water in the salt lake beside the line. The south lake and all lakes through to the Port Wakefield Road are being drained before they are cleaned up and the area used for housing (in the long term). The northern lakes will remain filled at this time to provide for bird life, and a pipe connects to a pump and pipe that goes under St. Kilda Road to circulate the water back to the irrigation channel, so the north lakes do not stagnate.

Body shop

As part of ongoing tram maintenance cars 118, 186 and 264 recently had their controllers serviced.

Work on the Bib and Bub set has continued with the final drop-end pillar, guttering and grab rails either placed on car 14 or about to be installed. The new

HADDON

MELBOURNE TRAMCAR PRESERVATION ASSOCIATION

324 Sago Hill Road, Haddon, Victoria 3351

www.mtpa.com.au

From Kym Smith

Tram restoration

The refitting of components to SW5 849 has continued and the interior is now substantially complete. Painting of seat frames, trims and floor paint was undertaken prior to the refitting of seats. The signwriting was completed during the Open Day at Haddon on 23 March, providing a striking contrast to the other trams in the MTPA collection. Following completion of the refitting of interior components 849 will be transferred to the Car barn to allow it to be placed over the pit for re-fitting of lifeguards and for final servicing prior to it entering passenger service for the Association.

VR 41 dares to go where no tram has gone before, entering the south-west curve at Haddon. Anthony Smith



Scissor-lift truck

The repair and overhaul of Hino scissor-lift truck was completed during March allowing it to undertake the required roadworthy check to allow it to be transferred and registered to the Association. The MTPA thanks Bendigo Tramways and Jos Duivenvoorden for their assistance in making this truck available for purchase.



The immaculate interior of SW5 849 after completion of painting, revarnishing and refitting of seats.

Anthony Smith



Under the warm glow of the work lights, Jacqui Smith completes the painting of the seat frames in SW5 849.
Anthony Smith

Anthony Smith modifying the ex-Latrobe Valley SEC hangers to use modified former MMTB Allen-key ears.
Jacqui Smith



The refurbished RC2 controller in SW5 849 with the highly polished handle and the new MMTB RC2 plates fitted.
Anthony Smith



Kym Smith peels back the application paper to reveal The Met logo on the drop-centre side panel of SW5 849. The yellow on the logo, numbers and stripes is reflective under direct light but appears as a normal yellow when viewed in natural light.
Anthony Smith



Track and overhead

VR 41 was successfully tested around the north-west curve on 22 March. It was also driven into the start of the south-west curve to the extent currently allowed by the overhead to check the flange gap on the curve, with all appearing satisfactory.

A number of former Latrobe Valley SEC slider hangers have been rebuilt using modified Allen-key ears to allow easier installation and maintenance. Two of these have been installed on the bracket arm poles

along the main line replacing the originals that were in these locations.

The overhead at the former Lower Terminus has been removed as have a number of redundant poles. Our local earthmoving contractor was then engaged to level the surrounds and spread blue metal gravel so that the area can be used for parking or other activities as required.



Frank Schroeders pressure-cleans the hydraulic equipment under the scissor-lift on the Hino truck as part of a final clean in preparation for its undertaking its roadworthy test.

Anthony Smith

Tram storage shed project

The Association is preparing to construct a shed at the end of the track at the relocated Lower Terminus. Additional undercover storage is needed to allow recently acquired W5 792 to be housed and so that work can commence on its restoration. The proposed location sites the shed in an area where it will minimise impact on tram operations and will ensure safe clearances are maintained around the tracks through the prevention any additional blind spots around the existing track network.

Locating the new shed away from existing buildings also helps in segregating the collection, a risk mitigation strategy that is recommended by heritage organisations to protect assets by reducing the risk of the entire collection being lost if an unforeseen disaster occurred.

The proposed shed measures 19 metres long by 6 metres wide by 5 metres high to eaves, allowing space around the tram for restoration activities, movement of the tram once restored and for public viewing of the tram within the shed. It is intended to construct the shed with Colorbond steel sheeting in a



Two trucks were in use for the removal of the redundant overhead from the former Lower Terminus, with Daniel Edwards in the bucket truck and Kym Smith on the scissor-lift.

Anthony Smith

The former Lower Terminus after removal of the overhead and redundant poles, and the spreading of blue metal gravel. The site for the new Tram Storage Shed is identified by the two orange witch's hats that denote the approximate locations of the front and rear of the planned shed.

Anthony Smith



colour that blends with the surrounding environment, likely to be Pale Eucalypt or similar. Not only will the Colorbond be more visually appealing but the colour will be less likely to cause adverse reflection and glare of sunlight on the adjacent Sago Hill Road than would other colours or Zinalume.

The shed is projected to cost \$26,627.00 to construct on site. Donations to assist this project would be welcomed from members and friends. Please contact Anthony Smith if you can assist, or send your donation directly to the Treasurer at the MTPA's address.

LOFTUS

SOUTH PACIFIC ELECTRIC RAILWAY CO-OP SOCIETY

PO Box 103, Sutherland, NSW 1499

www.sydneytramwaymuseum.com.au

From *SPER News*

Vintage Tramway Festival

The annual Vintage Festival was held on Sunday, 23 February. It had been decided to use some of our older trams this year. Consequently, in the preceding weeks C 290, F 393 and N 728 were moved from the display hall into the running shed. They were inspected and approved for operations, and together with LP 154, J 675 and C 29 were readied for the day. A number of hours were spent cleaning and dusting the interiors of the trams prior to the Sunday. We thank all those members who assisted with the preparations for the big day.

On 23 February sufficient traffic staff made themselves available to ensure a successful day. A timetable was prepared providing a 10-minute service and everything went smoothly.

A steady stream of visitors during the day kept the traffic staff busy and despite the National Park line being unavailable, visitors were able to ride all the vintage trams that were out for the day over all the available track. With the double track between Pitt Street crossover and Railway Square points being available for service, trams passing in Tramway Avenue provided photographic opportunities for enthusiasts and visitors alike.

A second-hand book table was again operated with many books, DVDs and videos being purchased. A sizeable amount was raised for the Museum's finances. Thanks to Vic Solomons for his work on the day and also for collecting the books from various donors.



Awaiting their turn in traffic on 23 February are F 393, LP 154, N 728 and J 675. Other cars in service for the Tramway Festival were O 1111 and C cars 29 and 290. Richard Jones

N 728 and J 675 in Tramway Avenue during our Tramway Festival on 23 February.

Brian Blunt



Traffic operations

A website which lists the museum as a Sutherland Shire attraction is Tripadvisor.com.au. It provides for visitors to comment on their visit to the listed attraction. At present there are eight very favourable comments

and our traffic staff are highly praised. The comments include:

“Thoroughly enjoyed our visit, extremely interesting, value for money and with very friendly staff who went out of their way to help.”



The eastern track at the northern terminus is ready to receive concrete on 16 April.

Martin Pinches

A temporary track is being laid into the new south shed to enable three trams to be moved on to the western track within the shed. This work was being carried out on 30 April.

Martin Pinches



“It is amazing. The volunteers that work there do a fantastic job looking after the visitors.”

A Japanese visitor commented on how well we treat the elderly, an important aspect of Japanese culture.

Track and associated work

The last track drain on the eastern track was installed near the end of the concrete near the first curve on the Sutherland line, and concreting with surplus concrete has continued when available.

A staggering nine cubic metres turned up on 8 March, almost allowing the finishing of the cess area along the bank south of Railway Square. A small area around unfinished service access pits remains to be done. The rest was placed on the eastern track and it will only take about another three cubic metres to complete the track to the curve. We are running out of locations ready to place surplus concrete so we are currently not requesting any from Concrete on Wednesdays. Concrete deliveries on Saturdays are generally less common than weekdays.

With some breathing space, attention has now turned to North Terminus where the eastern track in the terminal area is being laid to provide places to take more concrete. First we had to clear weeds as high as the gates from the Sydney Water crossing to the concrete crossing near the top of the grade.

The old rails were de-spiked and dragged into the terminus area to be descaled for further use. About 20 metres of new welded track has been laid and leveled to date.

While the National Park line is closed it is intended to lay a temporary track into the new shed to place three trams into the western shed road, with motor vehicles on the other track for the time being. This will free up a lot of existing track space in both the top shed and the main building.

On 19 March our contractor, David Cannini loaded some large rocks from the vicinity of the new shed. These were taken to North Terminus for a new rock retaining wall. David also filled and leveled along the track where there has been significant erosion.

Overhead work

The joiner to re-tension the eastern track overhead in Tramway Avenue is complete and ready to be installed. At the same time adjustment of the Railway Square Junction frog pan will be looked into.

New side arm brackets have been completed to be installed on replacement poles on the Sutherland line. The removal of the redundant pole on the National Park line has been deferred until further notice, and will be carried out once the line is back in action.

The western track frog pans over the scissors crossover have been adjusted and they seem to be working well. Once the eastern track is tensioned, the eastern pans over the scissors will also be adjusted.

Glenn Killham is to make a start on additional pull-offs on the Park line (commencing with the curve near the No. 2 Substation) once it is back in action. We need to consider designing, acquiring or manufacturing suitable pull-off arms for this work that are pantograph-compatible.



Ian Hanson and Vic Solomons prepare to fit a new concertina canvas door to P car 1497. Martin Pinches

Also on the drawing board is the alteration / joining of contact wire at the northern end of the concrete track north of the Pitt Street crossover. This will enable the removal of the temporary frog pan currently in use and free it up for use elsewhere on site (probably over the scissors crossover). The overhead over both tracks on the concrete will be re-tensioned when this work is done.

Tramcar news

The repainting of the body, inside and out, of **Sydney P car 1497**, and the replacement of concertina doors on one side of the tram has now been completed. The doors on the other side were replaced some years ago

All the painstaking work has made 1497 rather resplendent. It is a credit to all those volunteers who gave up their time over the last eight months to undertake the job.

Final detailing was completed on 1497 on 12 April and the car can now be transferred to the maintenance department for further engineering work before it returns to service.

Rod Burland continues refitting small parts to **Sydney C 37**, including replacement C section steel strip on the waist rail, filling and sanding all screw holes on the cover strips etc., sanding and undercoating. He has also finished final coats of varnish on the internal seats ready for installation.

Melbourne cable grip car 322 received further work by the Wednesday crew on the clerestory section of the roof including fitting new curtain railing to the inside, new roof ribs and roof boards. It was canvassed and will be completed before the new ribs for the main roof are fitted. Delivery of the new seats from the joiner is eagerly anticipated.

Sydney P car 1729 has had new footboards and destination mechanisms fitted, and cab interiors re-lined, by Geoff Spaulding. This included the painstaking installation of replacement drivers seats which had been roughly removed in Canberra to allow for installation of bistro seating against the cabin bulkheads. Repairs to the bulkhead timbers were also necessitated before the seats could be installed.

Rod Burland fills and sands screw holes on the cover strips on Sydney C car 37 before applying undercoat.

Martin Pinches



Bob Cooper has been drilling and machining components laser cut for new door mechanisms for the car. The door components were removed and lost during its time in Canberra.

Work is progressing on **Launceston car 14** at a measured pace in Bendigo. Saloon side panels, along with necessary repairs to support timbers and sills, have been completed and undercoated. The next phase of the work, removing blue paint from the internal Blackwood and Huon pine timbers and mouldings, is underway. The grain patterns in the pine mouldings have sanded up well and will present a beautiful finish, once installed and varnished. The next phase, planned for June /July, will be to install the vented centre roof ribs and roof boards.

Work continues in Bendigo with restoration works on **Melbourne Y1 611**. Howard Clark, Warrington Cameron and Hugh Ballment visited on Wednesday 16 April to review progress. Repairs to external body panels have been completed and the car has been repainted in traditional MMTB green and cream, with only centre doors and finishing touches to be done.

A further coat of Navy dressing to the roof is required when additional supplies are delivered from our friends at Pichi Richi Railway in South Australia. Internally the car is almost complete with replacement Blackwood panels in place and varnished, newly upholstered seats installed, and polished bell cord brackets fitted. The Blackwood ceiling has had final coats of varnish applied and the original light fittings refitted, except for the original glass shades. Trucks and life guards are still to be painted. Arrangements are being made for authentic numbers and logos to be produced for application to the car. Completion of these works is expected by late June.

Sydney R1 2050, which was one of the six cars located in the former Rozelle depot until late 2012, was

acquired from the Museum by a private investor/developer for authentic external body restoration in Bendigo. On completion it is to return to Sydney for installation at an undisclosed location.

The body of the tram was grit blasted and primed, and it has now entered the depot building at Bendigo, where staff have stripped the interior completely and have removed the cement cavity infill in what was the original café end of the car. This has exposed timber pillars which have suffered badly from dry rot and will need replacement.

We continue to assist the new owner with his restoration plans. Howard Clark delivered a cast window top and fixed upper aluminium window casting, to be used as samples for making replacements for the car.

Sydney P car 1501 leaves Bendigo gasworks

The body of P car 1501 (and the two end destination box valances from PR1 1517) was moved from Bendigo gasworks depot on 12 February 2014 for storage at Newstead Tramcars. The move was organised on behalf of Sydney Tramway Museum by Julie Cain.

Special thanks are due to Julie, Darren Hutchesson and Len Millar for their efforts in handling the move, and to Len for making his property available. The tarpaulin which has protected the roof of 1501 since 2008, originally came from PR1 1517. Car 1517, owned by the Sydney Tramway Museum, was scrapped in Bendigo some time ago. The tarpaulin was meant to have a life of three years, but it lasted for more than 14 years. It has now been replaced with a heavy duty tarpaulin.

No. 1501 has enjoyed a chequered history. It entered service in 1923, and was noted as sold on 5 January 1960, one day after PR1 1562. Both cars were delivered to Lightning Ridge with the latter being first used as a

Sydney P car 1501 being moved on 12 February from the Bendigo Gasworks to Newstead Tramcars.

Julie Cain



'Tram-o-Tel' (and more recently as a meeting room behind the local pharmacy), whilst 1501 found its way to a 'Bush Moozeum' in the town. Of the 258 P cars delivered, only 16 (including the four PR1s) were not burnt. Car 1501 is one of only four intact P car bodies still in existence. P 1497 and P 1700 are in tramway museums half a world apart – the Sydney museum and the Seashore Trolley Museum in Maine, USA.

In 1999 the contents of the 'Moozeum', including the tram, was up for auction. At the time there seemed no likelihood of P 1729 becoming available from the Canberra Tradesmen's Union Club, and thus if a second P car was to be obtained for STM, 1501 was the only likely candidate. On 21 May 1999, Howard Clark was in Lightning Ridge and purchased the tram at the auction. Soon after, an apparent opportunity arose to have the car restored as part of a proposed joint restoration/employment project with a local 'coachbuilder' and the Bourke Council. By March 2001 this project had faltered and the car was in open storage near the old Darling River bridge on the edge of town. Howard flew to Bourke on 8 March 2001 and

learned that arrangements had been made for the car to move to undercover storage by 25 March at Byrock.

From this time onwards the Sydney Tramway Museum began experiencing communication difficulties with the parties concerned, and no work on the tram was undertaken. Finally, after several years had passed, STM made contact with the property owner, who made numerous allegations against the coachbuilder, particularly a lack of rental payments, which came as news to STM. Finally, with financial assistance from five key donors, \$12,000 was raised to cover storage and delivery costs to Bendigo where the car arrived on 28 February 2008.

Subsequently P 1729 finally became available in 2010, and as its body was in a much better condition, restoration efforts turned to this car. Nevertheless, because of its rarity, and to keep faith with the original donors, 1501 has been sent to a good home at Newstead, pending a possible future opportunity for eventual restoration.

BALLARAT

BALLARAT TRAMWAY MUSEUM

PO Box 632, Ballarat, Victoria 3353

www.btm.org.au

From Dave Macartney

January 2014 was hotter than average, but the trams ran on two days more than the previous year, due to the National Cycling Championships being held away from Wendouree Parade. The passenger tally for the month came in at 1595, precisely six people more than in 2013. If nothing else, we are consistent. The 14th was particularly hot, with the tyre of the wheelbarrow exploding after being left out in the sun.

Australia Day was arranged to be a horse tram operating day, but unfortunately our horse man, Bruce Hill, died unexpectedly on the 21st, so the best that could be managed was a static display of No. 1 outside the shed. The weeks prior had seen its platform floors and the upper deck seat repainted in anticipation. In the event, a two car electric service was run on the day, attracting 90 passengers, while sales at the depot were brisk. The only downside was a graffiti attack on the shed on the Monday night. It resisted all attempts at removal, and was eventually painted over. Dulux

'Mulga' is a pretty close match for faded bronze olive Colorbond. Fortunately the depot is outside the range of these morons, and has received very little unwanted attention over the years.

The annual Begonia Festival in March yielded the second-best result for the previous decade, with 7283 passengers riding – over 2000 on each of the three days.

On 21 January Melbourne restaurant car No. 939 arrived at Bungaree. This move was largely to prevent its scrapping, and there are no plans currently to operate it.

Following a general clean up of the workshop area, the track on the rear half of 4 road was concreted, butting up to the existing concrete on 5 road. This has provided a major improvement to working conditions in that part of the shed.

WHITEMAN PARK

PERTH ELECTRIC TRAMWAY SOCIETY (INC)

PO Box 257, Mount Lawley, Western Australia 6929

www.pets.org.au

From Michael Stukely

Traffic operations and service cars

Patronage in all of the summer months was significantly lower than expected, with prolonged hot and extremely dry weather periods being experienced in Perth. Services ran on seven days per week throughout the school holidays, as usual. Five days were lost due to high fire danger, including two weekends. In December and January, W7 1017 was the main service car with W2 441 also running. W2 329 was the main service car in February, with 1017 and 441 also used.



W2 329 at the Village tram stop on 30 March, in front of the Park's new Visitor Information Centre.

Michael Stukely

Adelaide H 371 at Whiteman Village Junction Station while under test on 30 October.

Lindsay Richardson



Early autumn, on the other hand, has produced far more pleasant conditions and some very busy days in the Park. Tram Heritage Days, when the Carbarn is open for the public, are being held on the fourth Sunday of each month in autumn by Tony Kelly and his team.

An unusual incident in mid-February led to the loss of four more running days including another weekend. On a non-running day, Park staff noticed that a very large, green tree branch had fallen onto the overhead just north of Red Dam on the incline between Stockman's Triangle and the Village. One timber traction pole suffered a direct hit and was snapped off at ground level, and the span wire was detached from the supporting bracket arm on the next pole. The copper running wire, although brought down, remained intact. The branch had fallen in strong easterly winds overnight. The very dry summer has resulted in many trees in the Park showing clear signs of drought stress, and this factor may also have contributed.

Donations received

A load of some 240 used steel sleepers plus two drums of fittings arrived at the Carbarn on 5 April.



W2 329 at the Village tram stop on 30 March with the platform and portable ramp built by Park management for access by disabled passengers at right, beside the stop. The platform is used only when required and at other times, boarding is from street level.

Michael Stukely

With restoration of the body complete, Perth B 15 stands on the short 1067mm gauge track section outside the Lindsay Richardson Car barn on 22 January. It will be placed in a planned future static display at Mill Point by the City of South Perth Historical Society.

Lindsay Richardson



Tony Kelly was in attendance from 6.00am to direct the trucks to the unloading site, and carried out the task of unloading the two trucks using the forklift. We are very grateful to Brookfield Rail for the donation of the sleepers, including transport from Kalgoorlie. Thanks also go to our Secretary, Bob Pearce, for liaising with Brookfield and making the arrangements.

Eight new concrete traction poles were recently donated by Allworks Contractors.

Three large tanks have been donated from different sources through the efforts of Garry Barker. Weed-spraying equipment is soon to be set up for use on our track, and the tanks will be used with this.

Tram restoration

Apart from some final paint touch-up work being done in March and April by David Carling, the body

restoration work on Perth B class single-truck car 15, for future static display by the City of South Perth Historical Society, is complete. Final work included the sign-writing of the number '15' on both aprons and the saloon sides, and in gold leaf on the saloon doors; lining-out of the aprons and sills below the saloon windows in red; and the installation on the roof of the trolley base and trolley pole with wheel, and rope tie-off eyes on the aprons.

Great credit is due to Bryan Adcock, and all who have assisted on his team throughout the project, for the superb finish that has been achieved. This car body restoration has been managed and coordinated as a Special Project since inception by Lindsay Richardson.

General

With the approval of Whiteman Park management, repairs were carried out on 11 December on the failed

Jack Kendall (right) and Bryan Liversidge preparing for repairs to the collapsed rail joint in the Village Mall on 11 December 2013. Lindsay Richardson



The 14-metre extension of the truck storage road on 23 October. Lindsay Richardson



rail joint in the paved Village Mall just north of the main Village road crossing. The work was done by Jack Kendall, Paul Pickett and Bryan Liversidge in conjunction with our track adviser, Lindsay Richardson. This has resulted in a greatly improved ride here.

The 14-metre extension to the truck storage road south of the Lindsay Richardson Car barn was completed on 9 November.

A steel traction pole was erected at the west end of the Oketon Geddes Spare Parts Shed on 18 March, and work was progressing on wiring the pit road through the Noel Blackmore Tram Service Centre from here to the new section insulator on the car barn fan.

Wiring to the evacuation sirens in all sheds was completed by Colin Spooner.

A new windscreen has been fitted by Pat Ward and Jack Kendall to the bucket tractor, an indispensable vehicle especially for the track team.

W2 329 passes the Motor Museum of WA as it departs the Village for Mussel Pool on 30 March.

Michael Stukely



BENDIGO

BENDIGO TRAMWAYS

1 Tramways Avenue, Bendigo, Victoria 3550

www.bendigotramways.com

From Bendigo Tramways

Another busy Easter

Our trams and crews were all out in force and we hosted a lot of passengers throughout the holidays without any major incidents.

We worked hard to have No. 17, our toastrack tram, back in traffic and it was definitely the highlight of the Easter weekend.

On Good Friday we ran a 20-minute service with trams 17, 19 and 84. Overcast weather and a brief shower before lunch saw us preparing to bring the open trams back to the depot. However the rain cleared to a mostly cloudy day and our open cars were able to remain in service.

On Easter Saturday we continued the 20-minute service with trams 44, 17 and 19. That evening we also had six trams in the Easter Torchlight Procession.

On Easter Sunday we ran shuttle trams to the Bendigo Easter Gala Parade. The shuttles ran from Central Deborah Gold Mine to the Cenotaph at Charing Cross and from North Bendigo to Chapel Street. Trams 918 and 808 ran the shuttles, carrying people in a purely transit role. Once the Gala Parade had finished the 20-minute service resumed with trams 44, 84 and 17, No. 808 even joined in to run one trip in tandem.

Easter Monday saw us revert to a 30-minute service with trams 21 and 918 taking good care of our passengers. When the long weekend finished (along with the end of the Victorian school holidays), our staff all breathed a tired sigh of relief!

Bendigo's restaurant tram

Bendigo's restaurant tram *Ninesevensix* is on track for a bright future as local restaurant, The Exchange, takes over its operations.

With a reputation for fantastic customer service, quality food and progressive thinking, we are really looking forward to working with The Exchange to provide an experience that the citizens of Bendigo can be really proud of.

Head chefs Peter Howell and Adrian Hensley are a formidably creative and talented duo who will present patrons with a variety of fresh and innovative dishes that highlight regionally-sourced seasonal ingredients, paired with local wines.

From start to finish, the *Ninesevensix* experience encapsulates the very essence of Bendigo, presenting our heritage and culture, food and wine, and even the talents of local artisans such as Bendigo Pottery who have hand made all the dinner sets. A local men's shed has been engaged to make cheese boards and chopping blocks especially for the service.

To book a seat aboard *Ninesevensix* or to discuss a private function, please contact The Exchange on (03) 5444 2060. Bookings for regular Saturday evening *Ninesevensix* services can also be made online at www.exchange-bendigo.com.au; enquiries can be sent to enquiries@exchange-bendigo.com.au.

The Schaller Tram – No. 880

No. 880 emerged from the paint shop in March wearing a striking new livery and with an internal fit-out unlike any we have seen before. Drawing from the art and culture of Bendigo, The Schaller Tram is the creation of the Art Series Hotel group, who were to officially open the Schaller Studio, Bendigo's latest boutique accommodation, in early May. Included in No. 880's internal fit-out are stools, a painter's workbench, lounge chairs, antique suitcases, a day bed and an original Mark Schaller painting on the ceiling, which has led to the tram being nicknamed the Sistine Tram. 'Oohs' and 'Aahs' have been heard since it entered traffic and it will certainly add to Bendigo's reputation as a regional art Mecca.

Depot and workshop projects

Finishing touches have been applied to **No. 5** by our volunteer team, ably led by Mick McGowan. It has been transferred to the Gasworks depot and will be used for specials and when opportunities arise. Recent efforts by Bill, Lloyd, Richard and several others have demolished one end of **No. 7** and made it ready for the



Interior of tram No. 880 – the 'Sistine Tram'
Bendigo Tramways

replacement of some structural bearers. New ones in steel have been recommended. **No. 17**, our toastrack car, has moved through the workshop where it was jacked up to allow work to be done on its braking system. It was back in service just in time for Easter. Smaller diameter solid wheels and double helical gears have significantly reduced the running noise of this tram, which competed against our audio commentary.

No. 84 has also received attention to reduce noise and creaking that formerly drowned out the commentary.

Works for the Sydney Tramway Museum's former Melbourne car **Y1 611** are progressing and nearing completion. The car is currently ready for painting. Former Sydney car **R1 2050** has arrived for refurbishing as a dining/club/restaurant car for a Sydney developer. Work on this car is likely to be undertaken over six months. Its body was stripped of parts, then sandblasted and primed.

Works and repairs

Recently the track spread in Caledonia Street, with the result that relaying was undertaken until 16 May. This meant that our Talking Tram service could not operate beyond stop No. 5 at Tyson's Reef. The Bendigo Joss House Temple was reached by a 10-minute walk from the Tyson's Reef stop. A brief tour of our depot was included as part of the ticket price whilst the trackwork was in progress.

Tram No. 25 seems to have had more than its share of accidents in recent years. A truck recently collided with the rear of No. 25 as it turned into the Central Deborah Gold Mine terminus. During Easter 2010 a car struck the front cab of No. 25 when it was executing the same left-hand turn. No. 25 is currently undergoing repairs in our workshop.

Staff developments

We are pleased to announce that Leon Waddington and Steve Sullivan have passed their tram driver exams. We also welcome Belinda who is working in our gift shop, and farewell Christine and John have made a fantastic contribution to our operations. We thank them for their dedication during their time at Bendigo Tramways.

Tram No. 7's deconstructed front end.
Bendigo Tramways



FERNY GROVE

BRISBANE TRAMWAY MUSEUM SOCIETY

PO Box 94, Ferny Hills, Queensland 4055

www.brisbanetramwaymuseum.org

From Peter Hyde

On 20 March, a small group of members assembled at Ferny Grove to mark the 50th anniversary of the entry into traffic of Phoenix car 554 – the last tram to be built for Brisbane, and the last ‘conventional’ tram constructed in Australia.

A 1960s Transport Day was held to mark the 45th anniversary of the closure of the Brisbane tram system. The Australian Railway Historical Society (Qld) arranged two 2000-class rail motor trips from the city to Ferny Grove and the Queensland Omnibus & Coach Society provided transport from the station to the Museum with two of the tram-replacement Panther buses. Fortunately the event had to be held a week early, as it rained on 13 April.

On 1 April, FM 400 was successfully raised off its bogies using the repaired jacks supplied by the Sydney Tramway Museum. As an ominous sign of the age and health profile of volunteers, one of the ‘handle winders’ of the jacks suffered a heart attack that same evening.



The 50th anniversary of the day when the last tram built for Brisbane entered traffic was celebrated with a birthday cake for Phoenix car 554 on 20 March.



Thursday, 24 April saw a trolleybus move under its own power for the first time in Australia since 2003. TB 34 was towed out of the trolleybus shed and placed outside the main workshop by the Scammell breakdown truck. Being then handy to 600 volts DC, leads were attached to the booms and the bus was reversed into the workshop where it will undergo restoration.

When the breeze outside proved too strong for the candles, the dozen or so Museum members present moved inside – but cautiously aware of the association between fire and phoenix.

The Scammell breakdown truck is moving trolleybus 34 from the trolleybus shed to the workshop where No. 34 will undergo restoration.

Cameron Struble



Getting ready to lift FM 400 in the workshop in preparation for restoration of bogies and underfloor equipment.

All photos by Peter Hyde except where credited.

Surrounded by the enemy – Phoenix car 554 is pictured with Leyland Panther buses at the 45th anniversary of the tramway closure commemoration.





A tram on the Gold Coast Highway, looking towards the north, with T E Peters Drive on the left and Victoria Avenue to the right. The monorail beam crossing the scene has had no use since November 2013.

Richard Youl



Trams L 103, VR 41 and W4 670 await the day's passengers at Haddon on the Melbourne Tramcar Preservation Association's Open Day on 23 March.

Anthony Smith