

TROLLEY WIRE

No. 335

NOVEMBER 2013

Print Post Approved 100004350



\$9.90*



ISSN 01551264



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TROLLEY WIRE

AUSTRALIA'S TRAMWAY MUSEUM
MAGAZINE

NOVEMBER 2013

No. 335 Vol. 55 No. 4 - ISSN 0155-1264

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Published by the South Pacific Electric Railway
Co-operative Society Limited,
PO Box 103, Sutherland, NSW 1499
Phone: (02) 9542 3646 Fax: (02) 9545 3390

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*Cover price \$9.90 (incl. GST)
Subscription Rates (for four issues per year) to expire
in December.

Australia	\$A36.00
New Zealand/Asia.....	\$A45.00
Elsewhere	\$A50.00

All correspondence in relation to *TROLLEY WIRE* and
other publishing and sales matters should be forwarded
to PO Box 103, Sutherland, NSW 1499.

The opinions expressed in this publication are those of
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Printed by CanPrint Communications Pty Limited -
Canberra
Tel: (02) 6295 4422 Fax: (02) 6295 4473



The Sydney Tramway Museum's overhead crew completed the erection of overhead above the TAFE crossover on 21 October. This enabled testing before it was brought into use for Sutherland Council's Breakfast Torque service six days later.

Martin Pinches

Late News

Gold Coast

After a long voyage from Germany via East Africa the heavy lift ship *Rubina* carrying the next three trams for the Gold Coast arrived off Queensland's Sunshine Coast on 28 October. It docked at Fisherman's Wharf, Port of Brisbane, the next day. The first of the three trams was delivered to Southport in the early hours of 2 November.

Melbourne

Two of Melbourne's new E class trams entered service on route 96 (East Brunswick-St Kilda Beach) from Southbank Depot on 4 November.

Front Cover:

Coupled sets of O class trams at Milson's Point climbing and descending the ramps which brought the tracks to a convenient height for access to the platforms.

John Alfred, Mitchell Library, State Library of NSW

ACROSS THE BRIDGE – OR NOT?

The saga of trams on the Sydney Harbour Bridge

By Dale Budd

Introduction to Part Two

The first part of this article, published in the previous issue of *Trolley Wire*, reported the very public arguments of 1929 and 1930 about whether trams would cross the bridge. The Metropolitan Transport Trust wanted trams to run to Wynyard; the Railway Commissioners were opposed, believing trains should not be subject to competition from other forms of public transport on the bridge. In February 1931 State Cabinet decided in favour of trams. It seemed the argument was over – but it wasn't.

The railways fight back: “public safety gravely threatened”

It quickly became evident that the Railway Commissioners were not going to take the decision lying down. Their position was summarised in a report in the *Brisbane Courier* which said that “the railway authorities view with alarm the decision to run trams on the bridge”. Less than a month after the decision of 2 February, they put a submission to the government raising a number of new issues, and the subsequent consideration of these lasted for the rest of 1931. Unlike the previous argument, this one was carried on behind closed doors, with virtually no newspaper coverage, and no involvement of local councils.

In the new submission, made on 26 February 1931, the most important new issue was safety. “Public safety is gravely threatened by the proposal”, it said. “The elements of danger are so grave that it is felt that no deliberative body responsible for public safety codes and in full possession of all the facts would sanction the service.”

Before dealing in detail with the issues raised, it will be helpful to report the immediate sequence of events which followed the receipt of the submission.

On 2 March 1931 the Minister decided that the views of the Director of Public Works and the Commissioner of Road Transport should be obtained and the matter referred to the State Transport (Co-ordination) Board, when constituted, for investigation and report. References to ‘The Minister’ during 1931 would have been to Mr Davidson, Secretary for Public Works; there was no Minister for Transport at that time.

On 20 March the Director of Public Works provided a brief note attaching a report from Dr Bradfield which responded to the matters raised by the Railway Commissioners.

Mr Maddocks, Metropolitan Transport Trust Commissioner, provided a report on 25 March which similarly reviewed the issues and answered them.

The issues raised in the Commissioners’ submission, and responses to them

The Railway Commissioners’ submission of 26 February 1931 raised safety issues under six headings:

- (1) *The tyre and flange profile.* “To give a reasonably safe wheel and rail condition for the trams to operate across the bridge and through the half mile of tunnel to Wynyard station, the tram tyres should be replaced by new ones of railway profile and the tracks should be laid to railway standards excepting for superelevation. This would entail relaying miles of tram track on the north side of the harbour. If the tyres be not changed, the rails from North Sydney, across the bridge and into Wynyard station must be laid to tramway standards; they will be quite useless for railway service later and will have to be changed before trains can be run over the track. Under the operating conditions that will obtain, this latter arrangement involves risks of derailment that must be regarded as very serious by those familiar with the possibilities of such accident on structures like the Harbour Bridge or in tunnels.” The submission went on to say that in the most recent period the frequency of derailments of trams was 84 times that of electric railway cars.

Dr Bradfield’s comment on this was: “I desire to state that the latest standard tramway track, 80 lb. rails on open ballasted track approaches and on timber transoms on the main arch and steel approach spans can be laid flat (i.e., without the cant of 1 in 20 as



K cars ran across the bridge until they disappeared in the late 1940s from all but the Neutral Bay line. Showing the effects of a war time lack of maintenance, a pair of Ks runs onto the bridge approach from Blue Street, probably in 1947.

Norm Boxall

required for railway track) on sleepers and transoms, thus obviating entirely the objections raised to tramway tyres running on permanent way laid for railway operation, and no alteration to existing tramway tracks would be required; 100 lb. rails may be used on the bridge.”

Mr Maddocks made similar remarks, and said the following in addition: “I am advised by the Trust’s engineers ... that so far as open ballast construction in tangent track is concerned, the derailment risk, at least over the year mentioned, has been practically negligible and that tracks on the Sydney Harbour Bridge and approaches consist of tangent track with the exception of one very flat curve of 20 chains radius. Even in the face of these figures it is proposed to take special steps by limitation of speed and otherwise to guard against derailment risk. Upon the question of derailment generally it may be stated that there are many instances in other tramway systems where trams cross bridges or proceed through tunnels. So far as the Sydney system is concerned there is a viaduct on the Bellevue Hill line and trams pass over the Gladesville, Iron Cove and Suspension Bridges.

The exit towards Castlereagh Street, Central Station, may also be mentioned, and in none of these cases is a derailment known to have occurred.”

In relation to the matter of tyre profile, the Commissioners had claimed, quite incorrectly, that when trams were moved over railway lines, a routine occurrence in Sydney, they were fitted with railway profile wheels. The Transport Trust put the matter straight, setting out the correct position which was that trams were moved on their own wheels at low speed. This erroneous claim by the Railway Commissioners did nothing to enhance their credibility.

- (2) *Fire risk, and alarm to passengers due to fuses blowing or circuit breakers operating.*
- (3) *Dead man control (not applying brakes).*
- (4) *Absence of emergency lighting from battery, and battery operated tail and marker lights.*
- (5) *Absence of automatic train stops.*
- (6) *Seating and door arrangements.*

The Commissioners did not expand on these points, saying only that “for the overcoming of the objections

associated with items (2) and (6) new car bodies would be required; while items (3), (4) and (5) could be satisfactorily met by considerable expenditure”.

These points were readily answered by Bradfield and the Trust. Bradfield was dismissive of the suggestion that dead man controls were needed. “If, when the Railway Department had control of tram operation throughout the city streets, such a safeguard was not installed, it seems beside the question to now class it as a special risk on the bridge where the trams will be running on private right-of-way.”

In regard to the question of lighting, Bradfield responded: “The half mile of tunnel on the south side will be lighted with electric lights spaced less than 30 feet apart. The intensity of lighting will be better than the city streets, and if tail and marker lights were not deemed necessary by the Railway Commissioners when operating the trams in the city streets (in many places not well lighted) they cannot be deemed necessary when operating in the excellently lighted tunnels and Wynyard Square railway station. They could be installed if found necessary.” (Bradfield could well have pointed out that trams ran without incident on many sections of line which were much darker at night than city streets: examples could have included the line to Balmoral or the ascent on the northern side of The Spit.)

In response to the claim about passengers being alarmed by fuses blowing or circuit breakers operating, the Trust’s response was that “the blowing of circuit breakers and fuses may alarm passengers to a slight degree but as the functioning of these portions of the electrical equipment is a daily occurrence, it is considered that the risk of unnerving passengers would be no more serious than at present.”

Dr Bradfield summed up his response to the claimed safety issues by bringing all his authority as chief engineer of the bridge to bear. “As the designer of the Bridge and the only person au fait with every aspect of the Bridge and Approaches, I certainly do not think the operation of tram cars across the Bridge and through the tunnels to Wynyard Station is unsafe.”

Moving on from safety issues, the Commissioners stated that “so far as operation is concerned, conditions must be very unfavourable. The whole line and Wynyard station have been laid out for railway requirements with long high speed trains, and hence must be unsatisfactory from a tramway traffic manager’s point of view, for the capacity under the restrictions will be poor compared with the usual street tramway conditions.” The submission then went on to say how difficult and expensive the necessary structural alterations at Wynyard would be. “The cost to satisfy properly all reasonable requirements to operate the proposed service safely and satisfactorily will be great, and if met can only provide facilities that must be temporary and inferior to the railway service.” These issues, of supposed operating difficulties and of cost, were ignored in the responses from Bradfield and the Trust. The claimed operating issues were of course a furphy, with the bridge and tunnel providing an uninterrupted run for trams not seen anywhere else in Sydney.

One statement by the Commissioners was not disputed: that signalling would have to be installed in the tunnel. This was indeed put in place.

Another issue raised by the Railway Commissioners was the disruption that would be caused when the two tramway tracks were eventually reclaimed for use by trains. “At some date in the not distant future, when



O and R1 cars at Milson's Point in a morning peak hour, seen from Greenway flats.

Hugh Ballment

railway business demands the capacity of four tracks, there will be a period for the relaying of the tracks used for trams and for the alteration of all electrical features on account of the difference of current used by trams and trains and for serious structural changes at Wynyard station. During this time it will not be possible for the railway to carry the combined load of both the railway and tramway as then existent."

Bradfield's response was that "it is problematic when the four tracks will be required for railway purposes ... Before the railway traffic reaches saturation point, the Authority controlling transport should make the necessary arrangements to alter the tramway permanent way on the eastern tracks to suit railway operation. This could be done in about two weeks under proper organization. During this period of transition, such passengers as formerly travelled by tram and cannot be suitably fed to the railways can be accommodated by the trackless trolley or motor bus services doubtless then in operation, on the roadway of the Bridge, or, if not in operation, they can be arranged as a temporary expedient."

The Commissioners had one other claim, that railway operating costs would not be reduced as a result of trams crossing the bridge. Like their other arguments, this was disputed by both Bradfield and the Transport Trust.

Bradfield concluded his response to the Commissioners' submission by saying "in my opinion, a perfectly safe tram service can be operated across the Bridge, notwithstanding the objections raised. In view of all the circumstances as they at present exist,

in my opinion, the trams would operate on the Bridge for at least twelve years".

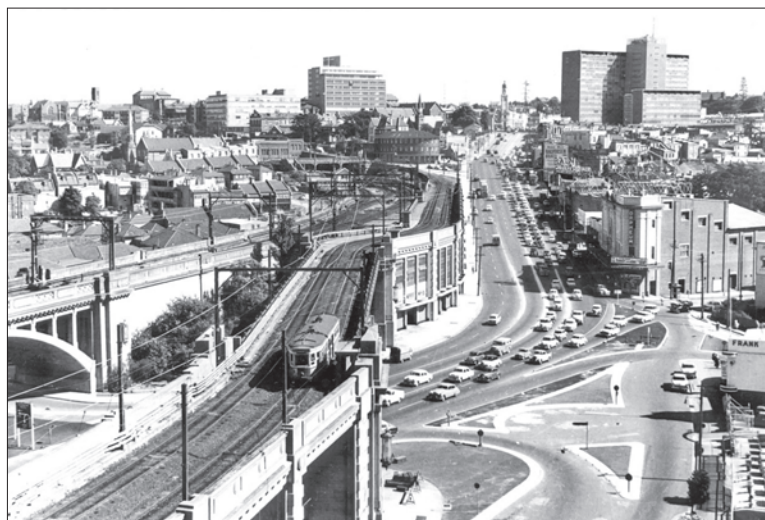
Sgd. J. J. C. Bradfield,
Chief Engineer,
Sydney Harbour Bridge,
16/3/31.

More from the Commissioners and the Transport Board

On 4 July in response to further representations by the Railway Commissioners, the nature of which is not known, they were informed that it was the Minister's intention to refer their representations to the Transport Board, when appointed, for investigation and report, but it was not thought that the Board would be likely to recommend any variation of Cabinet's decision of 2 February 1931.

However that is just what happened. The newly-formed State Transport (Co-ordination) Board provided a four-paragraph submission on 24 September 1931, opposing the trams. It said that the Board had ascertained "that in connection with the train service which will be adopted between Central Station and Wynyard Station, it will be necessary to run such service across the Bridge to North Sydney Station, which will provide more than sufficient trains to deal with the combined rail and tram passengers and consequently to run a tram service across the Bridge would add a quite unnecessary amount to working costs".

They were of the opinion that "all work in connection with the provision of facilities for working trams



An R car nears Milson's Point in the last few months of tram operation across the bridge. At top right is the MLC building which dominated the North Sydney skyline when it was completed in 1957. The Pacific Highway beside the bridge approach can be compared with the former Junction Street, shown on page 9 of the August issue.
Jim Powe



O car 952 approaches Milson's Point on a run to Balmoral Beach in the early 1950s. Crossovers here and at Argyle Street were provided in December 1934; this one at Milson's Point was used as the terminus for some school trips from the north shore.

Ken McCarthy collection

across the Bridge should be immediately suspended and that when the Sydney Harbour Bridge is opened the surplus trains should be used for the conveyance of tram passengers between North Sydney and Wynyard stations."

The Board's report was submitted to the Minister, who on 3 October minuted the papers as follows: "Reasons given not sufficient to warrant question being re-opened – no objection to Board furnishing a comprehensive report."

So the Board submitted a second and much longer report on 16 October. It said that "there being no facilities to permit of trains terminating at the high level platforms [at Wynyard] all trains running from the main suburban stations (Ashfield, Parramatta, Homebush, etc.,) must necessarily pass through Wynyard station, and cross the Bridge to North Sydney station". Not less than 28 trains would run from Wynyard to North Sydney between 5.0 pm and 6.0 pm, of which only 13 were required for traffic to the North Shore line, the remainder being surplus

trains. "It is thus demonstrated that the trains which must of necessity be run, can, without difficulty, deal with the passenger traffic, and that trams are not required."

It may be commented that the railways' position had a remarkable lack of consistency. In December 1930 it had been argued that all four rail tracks would be needed when the bridge opened. Now it was stated that many of the trains running across the bridge on just two tracks were surplus to requirements and thus offered excess capacity.

The submission went on to say that travellers living in the vicinity of Chatswood and St. Leonards would prefer to make the journey to Wynyard by train, because the train trip would be quicker and the fares would be lower. They gave journey time and fare comparisons in support of these statements.

On the topic of 'Convenience' the submission had this to say. "If all trams from Chatswood, Willoughby, Northbridge, etc. terminate at North Sydney station, it

may be assumed that some comment will be offered concerning the change necessary to train. The layout at North Sydney station provides for inwards trams discharging passengers in the street immediately adjoining the station and they may enter the station either from street level, or by subway from the footpath."

"There will be no more difficulty experienced and no more time should be taken in transferring from tram to train and vice versa than is now the case from tram to boat and vice versa."

These statements overlooked one of the key arguments of the past 30 months, that tram passengers were entitled to reach the city without a change of vehicle. However a point of interest is that the pedestrian subway at North Sydney, beneath Blue Street, was indeed built; it would have been well advanced or completed by the time of this submission. Since extended at its northern end to reach a shopping mall, and incorporating shops on either side of the subway itself, it remains the only tangible legacy of the railways' plan to make North Sydney a transport interchange.

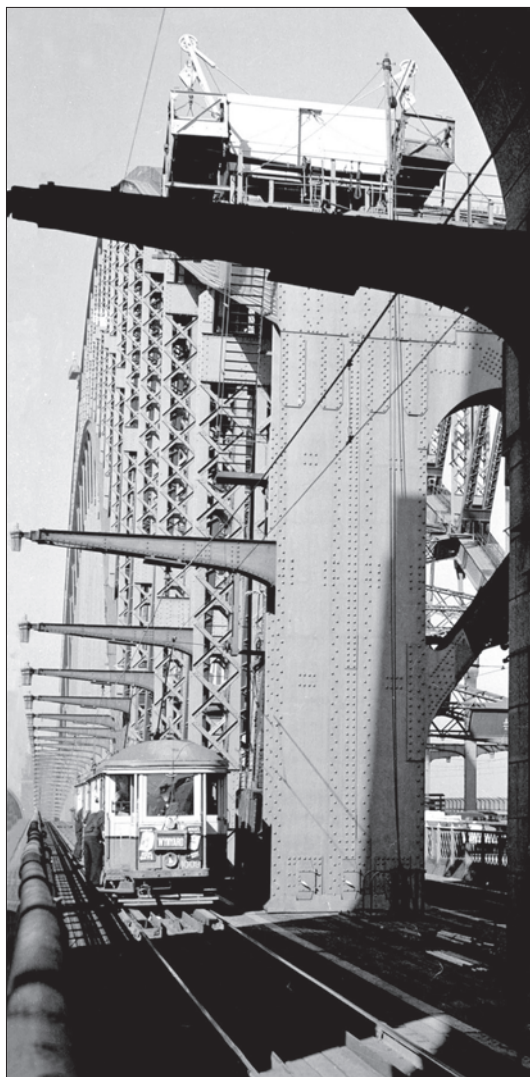
Finally the Board drew attention to the cost of laying the tracks from North Sydney to Wynyard, together with overhead wiring, signalling and "trestles and decking necessary for track elevation" at Wynyard, which would amount in total to £59,000; together with an annual operating cost for the trams of £54,296. All of this could be saved, because the trains could handle all the passengers.

Dr Bradfield's final words

On 5 November the Minister decided that after the Board's report had been reviewed by Dr Bradfield it should be referred to Cabinet.

On 23 November the Acting Director of Public Works, Mr R Vowell, submitted Dr Bradfield's report, with a brief covering report of his own.

Dr Bradfield's short paper stated that most of the cost in providing for trams to cross the bridge had already been incurred. He then introduced a new aspect into the discussion by stating that in the rush hours the average interval between trains on the bridge would be 4 minutes 17 seconds, as against a tram every minute. During the ordinary hours of the day the comparative service intervals would be ten minutes and two minutes. "Hence, to make the tram passengers change at North Sydney to the trains would involve delay to some of them as well as the inconvenience of change to all."



Dwarfed by the massive structure of the bridge, a pair of O cars heads across the main span towards Wynyard.

Jim Powe

The paper then gave comparative figures for operating costs. "The cost per tram mile on the North Sydney system is 20.41 pence, whilst the cost per electric train mile is in the vicinity of 100 pence, or nearly as 1 to 5, and the same distance from North Sydney to Wynyard has to be run by tram or train. As the same basic fare by tram and second-class train passenger is to be charged from North Sydney and as



Looking south from Pylon Lookout in about 1957: trams on the bridge, a train, and for the sharp-eyed, a tram in Lower Fort Street on the Millers Point line.

Jim Powe

there are no season tickets by tram, the service by tram should return the greater profit.” (These figures overlooked the much higher carrying capacity of a train.)

Mr Vowell’s paper disputed the Board’s journey time comparisons. He said that the Board’s contention that people would prefer to travel by train rather than tram along the Chatswood and St Leonards routes “is, I submit, based on wrong premises. It would appear that the Transport Board’s sole consideration is the traveller who lives adjacent to a railway station, or at the outside, within a radius of half a mile therefrom”.

He summed up the argument for trams running across the bridge in a single if lengthy paragraph. “The two main considerations so far as I can judge which influenced Cabinet in its decision that trams might cross the Bridge as well as trains, were firstly, that the Bridge should fully meet the anticipations of the taxpayers by giving the maximum convenience and obviating the necessity for changing mode of

conveyance, and secondly, that the trams should not be put to any disadvantages which might arise at some time in the future from bus or other competition. If tram passengers are compelled to change into trains, they will be in no better position than they are today without the Bridge, and it would seem imperative until such time as the whole of the City and Suburban Electrical System originally contemplated has been brought to completion that in the interests of public convenience trams should be allowed to run over the Bridge.”

Finally, the Board’s argument that £59,000 could be saved if trams did not cross the bridge was demolished. “In this connection I would invite attention to Dr Bradfield’s report to the effect that work costing in the vicinity of £50,000 will, to a great extent, now be valueless if the trams do not traverse the Bridge, so that on these figures by the expenditure of a small amount of £9,000, the convenience of the public would be satisfactorily met, and the Bridge put to its full use.”



On a wet Sydney day the bridge is almost lost in misty rain as a pair of O cars descends the southern approach. Argyle Street crossover is visible behind the second tram. In a couple of minutes the passengers will disembark in dry surroundings at Wynyard.

Norm Chinn, collection of Bill Denham

The final decision

As noted previously, all of this report-writing occurred out of the public gaze. Only one newspaper story came close to uncovering the arguments behind the scenes. On 28 September 1931, in an item which seemed to confuse the attitudes of the Metropolitan Transport Trust and the State Transport (Co-ordination) Board, the *Herald* reported that “Cabinet Ministers will also probably be asked by the Transport Board to reconsider the tramway question. They are not anxious to reopen a matter which they regarded as settled when it was decided that tramway traffic should use the bridge. It is believed however that the Transport Trust will ask the Cabinet to give further consideration to the question.” This report effectively contradicted one in the same newspaper two days earlier, which said that the Premier and Cabinet Ministers “do not propose to reopen the question of trams passing over the Harbour Bridge”.

The Minute for Cabinet on the issue, over the signature of J. T. Lang, Colonial Treasurer was dated

10 December 1931. It summarised all the submissions and reports prepared during 1931 and attached copies of them – a voluminous set of papers.

The outcome was that Cabinet reaffirmed its February decision, that trams should cross the bridge. Following repeated representations from local councils, buses first crossed the bridge in August 1937.

On 8 February 1932 the Government determined on a reallocation of the cost of the bridge, and it decided that a toll would be charged for the crossing. The *Herald* reported that “the Railway Commissioners will not be debited with two-thirds of the cost, as originally suggested, but will be compelled to apply a definite charge in respect of every passenger carried over the bridge”. If this decision had been made three years earlier, one of the Commissioners’ main arguments against trams and buses crossing the bridge would have evaporated.



With its destination sign already set for the next trip, to Victoria Avenue, an R class car rolls towards the tunnel portal at Argyle Street.

Ian Brady

***Gentle Annie* makes the news**

Former ballast tram 42s had been transferred to the railways in 1926, but it seems that it returned to tramway use for a period early in 1932. On 12 January of that year, in a report on progress on the city railway, the *Herald* stated:

The bridge tunnels are almost ready for traffic. Two sets of lines are being laid temporarily for trams The overhead wires in the bridge tunnels are now being set in place by means of a converted tram truck, popularly known to the workmen as “Gentle Annie.” This energetic lady is making good progress with the work.

A diversion which did not happen

Widening of Junction Street to form part of the northern bridge approach was difficult while the tram



In the last week of operation, O cars 971 and 1400 load passengers at Wynyard in the evening peak hour. On railway platform 3 at right, the indicator shows the next train as all to Redfern then Burwood and all to Hornsby.

Howard Clark



Heading for Wynyard on 27 June 1958, in the last morning peak hour of operation, a coupled set of O class trams crosses the northern road approach to the bridge. The trams are casting their shadow on the railway viaduct in the background.

Ian Brady

line to the Milson's Point terminus at Glen Street remained in use. It was proposed to close this line early to allow this work to proceed. On 18 January 1932 the *Herald* reported:

The Commissioner for Road Transport (Mr. Maddocks) speaking with regard to the proposed cessation and diversion of the Milson's Point tram service to McMahon's Point before the opening of the bridge, said that it was essential that the alterations in the levels at Junction Street, North Sydney should be made to complete the main north road from the approaches. Residents on the North Shore would not be inconvenienced. Those at Milson's Point could catch the ferry, and tram passengers from the Spit, Balmoral, Taronga Park, Mosman and Northbridge would have very little further to travel to McMahon's Point, to which those tram services would be diverted. Mr Wedderburn, of the Sydney Ferries, said that his company could easily adjust its

services. Boats would be diverted from Milson's Point to McMahon's Point, and a reduced service would be run temporarily to Milson's Point.

But in the event this closure and diversion did not take place. Trams continued to run to Glen Street until the day the line across the bridge opened, 20 March 1932. In a later newspaper item in June, it was said that moving the tram lines in Junction Street and Mount Street had been impractical until after the trams had been diverted on to the bridge. Traffic on half of the width of the new road, which at 76 feet was wide enough for eight lanes, did not cause inconvenience.

The outcome

After three years of torrid argument, what happened when trams crossed the bridge?

The concerns about safety proved, predictably, to be unfounded. Trams ran across the bridge without serious incident for 26 years.



The morning peak hour is in full swing as R1 2073 approaches the north-eastern pylon. Double-deck buses share the load while passengers on the train at right are enjoying standing in the open doorways.

Jim Powe



On the last day of service, 28 June 1958, a tram crosses the main span paced by a train on the western tracks.

Ian Brady.



The last trams to run on the bridge were four U class ballast cars which were used in track dismantling after closure. With the southbound track already lifted, 93u poses near North Sydney Station in July 1958.
Sydney Tramway Museum

Moreover the trams played a major part in moving people across the bridge. In its first year of operation the bridge recorded 29 million crossings, made up as shown in the following table.

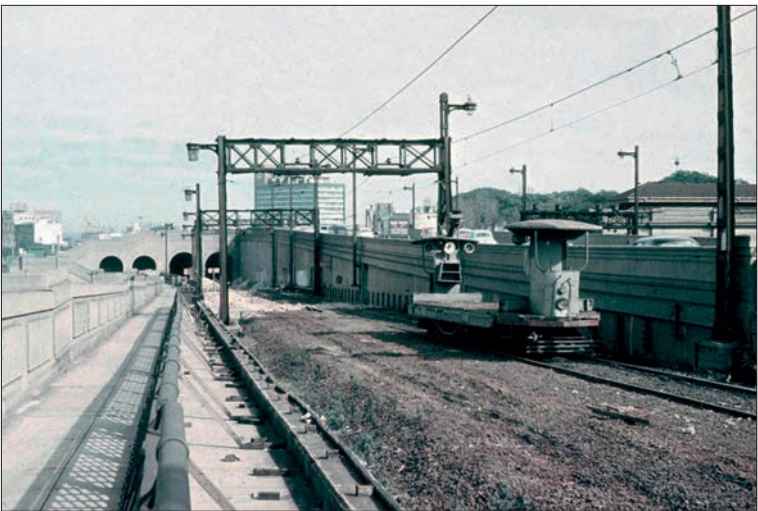
Passenger Journeys	Revenue
Rail..... 13,000,000	£172,000
Tram..... 7,500,000	£109,000
Motors and other vehicles7,000,000	£145,000
Pedestrians.....1,500,000	----
Totals.....29,000,000	£426,000

The table shows that the railways were right to be concerned that the trams would compete for revenue! The number of tramcar crossings of the bridge in its first 12 months totalled 364,000 or almost 1,000 per day. It is of interest that the number of people crossing

the bridge by public transport exceeded those crossing by motor car every year until 1959; not coincidentally the year after trams had ceased to run across the bridge.

Acknowledgments

The author extends his grateful thanks to Vic Solomons and Ross Willson for the provision of information which made this article possible. The National Library's *Trove* facility was invaluable in enabling a search of newspaper records. Thanks also to Howard Clark and Martin Pinches for the provision of photos, and to Mal Rowe for his assistance in providing Ian Brady's photos. Finally, thanks to Randall Wilson for reviewing the text.



On 30 July 1958, 93u stands on the southern approach during track dismantling. The southbound track has gone, and the tram is close to the end of the remaining track on the northbound line.
Robert Merchant

A POSTCARD FROM ITALY

By Guido Boreani

The city of Biella is an important industrial centre in Piemonte, in the north-west of Italy. Biella lies in the foothills of the Alps, and the abundance of cheap water power made possible the early establishment of industry: in the 18th century the first woollen spinning and weaving mills were built, making Biella the most important centre in Italy for the wool industry.

About 15 kilometres north of the city, in the village of Oropa high up in the hills, a very large shrine was erected in the first half of the 16th century dedicated to the worship of one of the many Black Ladies that are venerated in Italy. The abundance of thermal springs in the area led to the establishment of several spas in the second half of the 19th century.

The growing movement of people to the shrine and the spas made necessary some form of transportation from Biella. A first project for a narrow gauge steam

tramway was studied in 1894 by the Belgian Company which already owned local railways around the city. This came to nothing, but in 1902 a project for an electric tramway was developed. It took some years to raise the necessary money but in 1909 a company was founded: *Società Anonima Biella-Oropa per Trazione Elettrica (SABOTE)*. Construction took two years and the line was opened in July 1911. It was 14.25 km long and climbed 770 metres, from an elevation of 410 metres at Biella to 1180 metres at Oropa. It was the highest tramway in Italy.

To reach such a high altitude the line was winding, with 25 metre minimum radius curves and a grade as steep as 7%. The gauge was 950 mm, unusual for tramways in Italy but the same as Biella's local railways. The trolley wire voltage was 850 V. Rolling stock consisted of seven four-wheel motor cars, built in Belgium with AEG/Thomson-Houston electric



A view of Biella, seen from Bottalino in about 1930.

equipment (numbered 1 to 7), four semi-open trailers for summer services (20-23), nine freight cars and a special funeral trailer: there were many who wished to be buried in the shrine or in the nearby graveyard.

Traffic kept steadily growing on the tramway, probably the most scenic in Italy: once it left the outskirts of Biella the line ran through woods of beeches and pines, or traversed meadows with magnificent views of the surrounding mountains and down to the distant plain.

In 1922 SABOTE took over from the Belgian company the railway to Mongrando, in the flat part of the city, and electrified it. For this line a further seven motor cars were brought from Belgium (numbered 10-16) with electric equipment from TIBB (Italian Brown Boveri). These trams were identical to the earlier ones, except for the platforms which were roomier. Three years later a new tramway was opened to Sandigliano, again in the flats, extended the following year to Borriana, for a length of 8.5 km. Another three motor (17-19) and five trailer cars (30-34) were delivered in the same year by Officine Magliola at Santhià. A further six trailers (35-40) were built in 1926, again by Magliola.

In 1927/28 it was decided to update the Oropa line. The track had heavier rails substituted, the wooden poles were replaced with steel, and the trolley wire was replaced with new, heavier wire. The line voltage was raised from 850 V to 2400 V, the same as adopted by *Ferrovie Elettriche Biellesi* which replaced the Belgian Company on the local railways and electrified them in the same period. SABOTE and FEB had common management.

A change was made at the Oropa end of the line, the original terminal at the side of the shrine being replaced by a covered one beneath it. For the renovated line, eight bogie trams (numbered 30-37) were built by Carminati e Toselli in Milano and TIBB. They were powered by four 100 hp motors and were equipped with regenerative braking to relieve the air brakes on the long downgrade run from Oropa. On the upgrade run they could haul two trailers. Of these 16 (41-56) were built, identical to series 20-23 of 1911, but with two bogies instead of a rigid truck.

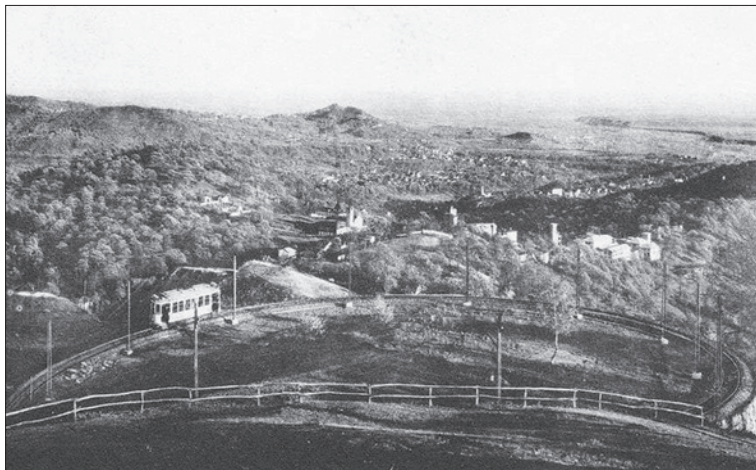
In following years the traffic always kept growing, with maximum peaks in the war years. In 1945 the Biella-Oropa line transported a little less than 2 million passengers! A postwar decline in traffic led to abandonment of the Borriana and Mongrando lines in 1951, but the Oropa line kept going, always showing a profit. However in 1954 SABOTE and FEB were sold to a large bus company. This was unwilling to invest money to renovate the plant or buy new trams. In addition the single track in Biella and other places where the road was narrow was a hindrance to the growing rubber-tyred traffic. The tramway was closed on 29 March 1958.

The closure of such a scenic tramway was the cause of a good deal of regret. In the late 1990s a group of enthusiasts bought an old Locarno (formerly Rheintalische Strassenbahn) tramcar, number 5, from the Domodossola-Locarno (Switzerland) Railway. They refurbished it, painted it cream and light green like the original trams, and placed it on a short stretch of track near the old terminal in Oropa.



Passengers board the tram at Biella station in the early 1930s.

A tram rounds a curve along the line with a panoramic view over the Girone quarry. Curves on the line had a minimum radius of 25 metres.



A new bogie motor tram with two trailers in tow climbs the line to Oropa. Another tram, a single truck car, can be seen higher up the mountain. The grade was as steep as 7%.

The terminal station at Oropa was originally located in the grounds of the Sanctuary. It was later replaced by a covered terminus beneath the shrine.



AN ELECTRIC TRAM MOTOR IN SYDNEY

From *The Sydney Morning Herald*, Saturday 2 June 1888

A SUCCESSFUL TRIAL

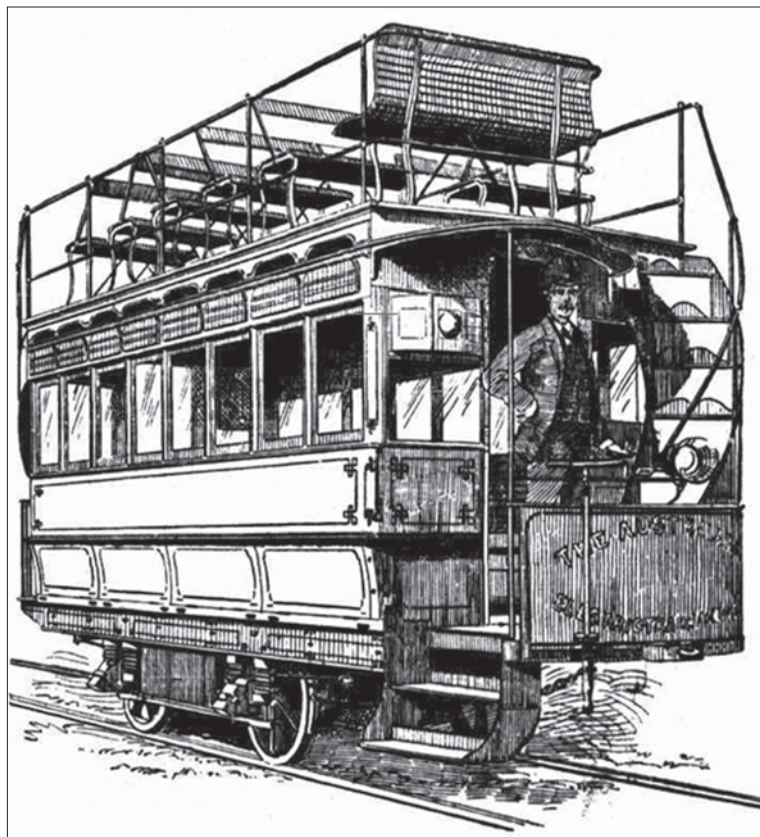
A very successful trial of an electric tram motor was made yesterday afternoon [*Friday, 1 June 1888*] on the tram line between Sydney and Botany. The system of which the capabilities were demonstrated is that patented by M. Julien, the right of using which in Australia and Now Zealand has been purchased by Mr. E. Pritchard, who is well known in connection with the construction of the main trunk sewer to Bondi, as well as in relation to railway works.

The trial was witnessed by between 200 and 300 gentlemen, who were conveyed to and from Botany by a special tram. Amongst the spectators were Mr. W. Clarke, Minister of Justice; Mr. Cowdery, Engineer for Existing Lines; Mr. E. C. Cracknell, Superintendent of Telegraphs, and a very large number of members of both branches of the Legislature. The vehicle used was one specially constructed at the establishment of Elwell-Parker, the electrical engineers, in

Wolverhampton, England, and it was built in accordance with the principle laid down by the inventor of the system exhibited.

The vehicle resembled in appearance an unusually large omnibus, and reminded those who have visited Adelaide of the tramcars used in that city. The car – which is a car and motor combined – was of a larger pattern than those employed at Rio Janeiro, New York, Philadelphia, and Brussels, in all of which cities the Julien system is in operation. In those cities the cars used seat 35 persons, whereas that shown yesterday seats 50 persons – 26 on the upper deck (which is uncovered), and 24 inside.

Undue haste had been shown in the construction of the car, and the consequence was that it did not present that finished appearance looked for in regard to new vehicles, and some defects had arisen in course of



The weekly newspaper, The Australian Town and Country Journal of 16 June 1888 published this view of the Julien accumulator tramcar trialled in Sydney.

R.I. Merchant collection

construction which contributed to make the trial a very severe one. One fault which was very noticeable was the unnecessarily substantial character of the car, which was much stronger and much heavier than was absolutely necessary. The car was said to be heavier comparatively than those now used in connection with steam traction. It weighs when empty 5 tons, and when full from $8\frac{1}{4}$ to 9 tons.

The motive-power is stored in lockers, situated underneath the seats, and access is gained to these by hinged panels over the wheels. The motor consists of 8 trays of accumulators, each tray holding 15 cells. One charging of the car is sufficient for 80 miles or 7 hours actual running, and a similar time is occupied in storing a fresh supply of electricity. The storage of electricity is accomplished in a shed in which are employed a 10 h.-p. boiler and engine and one of the Elwell-Parker dynamos. To take out the exhausted cells and substitute newly charged ones occupies only about five minutes. The electric tram-motor seen yesterday is designated a 20-h.p. motor. When in perfect working order – and that was not claimed to have been the case yesterday – It is capable of running at a rate of about 15 miles an hour. The maximum reached yesterday was about 10 miles per hour. The car is capable of running up a gradient of 1 in 10, but it is not considered desirable to run it on a steeper gradient than 1 in 15.

The car was at Botany taken several spins (sic) by the electrical engineer, Mr. Bullimore, who pointed out to the passengers various peculiarities in construction, and showed that he had an intimate acquaintance not only with the electrical but with all the other systems of tramways; so much so that he was able to point out the various respects in which other systems failed to come up to the requirements of a perfect tramway service. A strong case was made out in favour of the Julien system, on the ground that it could be applied to almost any description of car, and especially those in use on the Sydney tramways, that it would put an end to shrieking whistles, abolish all smoke and smut, and enable the car to which it was applied to travel almost noiselessly.

After several spins had been taken with the car at Botany it was duly freighted, and sped off to the city on the Government tramline. This route is said to afford the most severe test that could possibly be applied to any tram conveyance, and those of the citizens who remember incidents which frequently happened in connection with the establishment of the tram system between the city and Botany will not be inclined to deny that that line affords more than one severe test. The gradient from Liverpool-street to Belmore Park is 1 in 18, and is said to be the steepest on the whole of the Sydney tramways. The Barrack-hill at Paddington is generally regarded as one of the

most difficult for a tram to surmount, but that is only 1 in 22. In running from the terminus at Botany to King-street in Sydney, the electric motor occupied 35 minutes, and the journey was not only a novel but a very pleasant one.

A noteworthy improvement that would be effected by the general adoption of some such car as that used yesterday would be in respect to the seating of the passengers. In the cars now in use passengers who may sit *vis-à-vis* are almost of necessity brought so close to each other as to produce anything but a pleasant sensation. In the vehicle used yesterday the seats are placed longitudinally, and a sufficient space intervenes to allow of a conductor passing along the centre of the car without incommoding the passengers.

The question of the cost of working was discussed, but no definite information was forthcoming upon this point, beyond the fact that in England it had been found to be equal to about 6d. per tram mile. Manual labour is used in connection with the recharging of the cells, and to the English estimate of 6d. per tram mile would have to be added the difference in the value of labour as between England and New South Wales.

There were only two weaknesses noticed at yesterday's trial, and these would have escaped observation had it not been for the presence of some gentlemen whose special training in electrical science had led them to look for a perfect electrical machine. Both of these weaknesses, it was pointed out, are capable of improvement. One was the large amount of care seemingly required to always ensure a speedy application of the brake, and the other was a slight grating noise, resembling the escape of steam, and at the same time suggestive of the sound caused by the application of a brake to a heavy vehicle descending a steep incline, the first fault is susceptible of improvement, so that the car can be brought to a stand within its own length, and the second can be remedied by the substitution of an electrical brake for the ordinary chain brake now in use.

Whilst the car was under examination at Botany refreshments were partaken of. A little later Mr. O. R. Dibbs, M.L.A., referred to the enterprise shown by Mr. Pritchard, and the gratification which the visitors had experienced at inspecting the vehicle. He felt convinced that electricity was the motor of the future. He was sure that the visitors thanked Mr. Pritchard for the entertainment he had given them. At the call of Mr. Dibbs three cheers were given for Mr. Pritchard. The compliment was duly acknowledged.

FROM DRAB TO CREAM AND GREEN

REPAINTING SYDNEY'S TRAMS IN THE 1930S

By Martin Pinches

Introduction

Sydney Tramway Museum's L/P 154 and O/P 1089 were recently repainted in the olive, fawn and grey livery that was the standard prior to the mid-1930s. This, together with the loan of the Powerhouse Museum's O 805, also in the olive, fawn and grey livery, has kindled interest in the history of how, why and when virtually the whole fleet of Sydney's trams were repainted from that livery into the new livery of cream and green in a relatively short time. In addition, questions asked about the so-called 'experimental' livery applied to some O class trams at the commencement of the repainting program have created sufficient interest to delve into the archives for answers.

With much assistance from Vic Solomons, who was able to supply copies of some of the correspondence from the period together with reference to the Tramcar Record Cards, has enabled this article to be completed. Ian Saxon was also able to supply some copies of the Randwick Workshops Paintshop record summaries for the period. Tony Cody was also of assistance with his scanning of all the surviving Record Cards from Randwick Workshops that were perused to assist with the compilation of this article.

Adoption of cream and green as the livery for Sydney's trams

The construction and delivery of the new R class trams from October 1933 introduced a new livery to Sydney's trams. Before then, the trams were painted in olive, fawn and grey, commonly referred to as the 'drab' colour scheme, even in official circles.

A meeting was held on 24 October 1933 between the Commissioner for Road Transport and Tramways, Mr S. Maddocks, and the heads of branches. This meeting was convened in response to the Commissioner's request for an estimate of the cost of repainting all the other classes of trams, then in public service into the new livery colours of cream and green. (In official documents at this time the terms Cream and Green were invariably capitalised, but for readability this article will refer to cream and green.)

In his report of 23 October 1933, Mr H.B. Edwards, Engineer for Workshops and Rolling Stock, had

informed the Commissioner that the extra cost would be around £22,000 and that it would take approximately five years to repaint the 1500 trams currently in service. Notes of the 24 October meeting reveal the discussion that ensued. The Commissioner was not satisfied with the time frame of five years and wished to know how much extra it would cost if the repainting program were halved to 2½ years. Mr Edwards advised that the cost of the shorter program would be £43,000. The Commissioner questioned why the cost was almost double that of the five-year program. He also expressed the view that with the new R type tramcars entering traffic in the new livery, he wished to abandon the 'drab' colours that had been applied until that time to the older classes of trams. "The comparison with the new cars was there in the street all day".

In the event the Commissioner provided an additional £10,000 per annum to enable the repainting program to proceed. This was done on the basis that the funds should be used to repaint as many trams as possible in the shortest possible time. In implementing the program the workshops should consider the minimum number of paint coats necessary to do the job well, and whether attention to the interiors of trams could be deferred until the next painting cycle. The Commissioner required Mr Edwards to guarantee that every 2½ years a new coat of paint would be applied to each tram. His view was that this "should make them look nice to run about the streets".

Subsequent correspondence shows that on 29 June 1934 an extra amount of only £6,700 per annum was approved for the repainting program. Some three years later Mr Edwards wrote a memorandum dated 30 July 1937 in which he stated that the actual additional expenditure in the repainting of the tram fleet was on average only £4,111 higher over the previous three years than the costs incurred in the year ending 31 July 1934. Obviously substantial savings had been made by the Randwick Workshops paintshop or the original estimates had been incorrect.

The repainting program begins

Approval to commence the repainting program was obtained at the end of June 1934 with the extra staff

required for the Randwick Workshops paintshop commencing work at the end of July that year. In early August, 23 trams that were already in the workshops for overhaul or repainting became the last trams to be painted in the 'drab' livery. The sixth of August 1934 was the final day that the olive, fawn and grey livery was applied to any tram, the new livery being used exclusively from the next day.

The original plan discussed in October 1933 had envisaged the repainting of 1586 trams into the cream and green colour scheme. The aggregate figure comprised trams of the following classes:

- 198 E class
- 2 H class
- 47 J class
- 107 K class
- 153 L/P class in Sydney and 98 in Newcastle
- 2 M class
- 95 N class
- 626 O and O/P class
- 258 P class

Subsequently the 47 J class trams and all the E class cars (except 10 at North Sydney) were removed from the program as they were being withdrawn from service as the new R class trams were being delivered. The original figure also included the 98 L/P class trams at Newcastle but these too were removed from the program at an early stage. It appeared that Novocastrians would have to be satisfied with the 'drab' livery.

By April 1937 the number of trams that had been painted plus the few still to be completed had been reduced to a total of 1201. This total comprised:

- 10 E class (at North Sydney)
- 57 K class (50 of the class had been placed in store at Leichhardt and would only be painted if required for service)
- 153 L/P class
- 2 M class
- 95 N class
- 626 O and O/P class
- 258 P class

From correspondence held by State Archives it appears that the O and P class cars were the primary focus of the repainting program as both were in widespread use throughout the main Sydney system. Tramcar Record Cards held in the archives of the Sydney Tramway Museum unfortunately do not show details of the mid-1930s repaints as the Record Cards together with many of the older records from Randwick Workshops from this period were destroyed during World War II when paper was required for the war effort. Thus it is difficult to obtain precise details for

the repainting of O and P cars. For some reason though, the Record Cards for L/P class cars, together with the cards for some of the other classes, were not destroyed. Using these cards it is apparent that the repainting of L/P class of trams did not commence in earnest until during 1936, whilst the remaining K class cars in service were, in general, among the last to be painted.

P cars 1635 and 1707 had been painted with BALM and Dulux enamel respectively prior to the commencement of the repainting program to test the durability of the two makes of paint. These two cars were specifically excluded from the repainting until such times as the tests could be evaluated, as indicated in an update of progress of the repainting program by Mr Edwards in a memorandum dated 16 March 1937. P 1635 was eventually repainted during September 1938 but no record has been located for the repainting of 1707.

The so-called 'experimental' livery applied to the first O class repaints

It is difficult know exactly how the cream and green livery was applied to the first O class repaints as very few photographs were taken during the short time these trams were in service. Scrutiny of these photographs suggests that only the fawn and grey paintwork on the sides of the trams was repainted into green and cream respectively. Dark (olive) green was retained on the vertical beading and sides of the centre compartments, on the lower half verticals on the open sections, and on the side number panels.

The decision to retain the olive green that had been made at the beginning of the repainting of the first O cars, may have been motivated by the desire to expedite the repainting of the cars. Alternatively, retention of olive green may have been because it avoided the need to repaint the side numbers on trams – a time consuming task. Either way, by the end of October 1934 it appears that the livery of cream and the use of both shades of green on the first 49 repainted trams was not considered satisfactory by management.

Correspondence shows that estimates were obtained at the end of October 1934 to alter the painting of these cars to 'eight pillars to enamel cream, aprons and bulkheads to enamel cream and light green with black line and the writing of the number on the apron'. The estimate indicated that the cost would be based on 18½ hours labour per car, or a total of 833 hours at a cost of £147 for the entire 49 cars. No provision was made in the estimate for painting the waist lines of trams, i.e. the interface between their cream and green colours. But this was overturned by the Commissioner who directed in a memorandum dated 5 November 1934,

conveyed to Mr Edwards, that the black line be 'carried right around the car'. It also appears that Randwick Workshops proposed that the short beading on the gutter rail above the driver's cabs would be retained in olive green, and that black would not be applied to the gutter rail. However the Commissioner made it clear that he wished the painting of these parts to be standardised. Painting of these areas was costed at six shillings per car, bringing the total cost to £161.7.0 for the repainting of the 49 cars.

The altered livery was first applied to O 958, based at Ultimo Depot, apparently prior to 5 November 1934. In a further memorandum Mr Edwards stated that the rest of the 49 cars were to be brought to Randwick 'as early as possible and modified in accordance with sample car No. 958'. In fact all the cars were completed by 19 November 1934, a very quick turnaround. Progress cards from the paintshop indicate that the total cost of the modifications to the paintwork was £175.15.1 including materials. The other 48 trams whose paint schemes were modified were Nos. 809, 811, 828, 830, 834, 870, 873, 885, 909, 912, 913, 949, 953, 960, 966, 980, 996, 1010, 1034, 1067, 1068, 1071, 1074, 1077, 1085, 1088, 1147, 1160, 1174, 1176, 1178, 1180, 1182, 1213, 1233, 1236, 1395, 1398, 1405, 1408, 1412, 1418, 1426, 1444, 1447, 1455, 1473 and 1475.

It should be recorded that the experimental livery applied to O cars was reinstated on O 1111 when it was repainted in preservation. After being donated to the Sydney Tramway Museum the car was delivered to the old site at Loftus in January 1959. Although it had not been one of the trams painted in the experimental livery, the late Norman Chinn gained approval from other members in the early 1960s to recreate the experimental livery of 1934 as the car required a repaint. Norm proceeded to paint the tram in cream and two shades of green – light and dark – when it was returned to operating condition in September 1964 prior to the official opening of the Museum in March 1965. O 1111 remained in this livery until after the move in 1988 to the new site when it was repainted in the standard cream and green livery.

Repainting of the N and K class cars

In a memorandum dated 20 August 1935 Mr Edwards requested 'Please arrange for the painting of all N type cars to be put in hand concurrently with O, P and L/P types at present being dealt with. Preference is to be given to the 36 N type cars at Ultimo Depot with the cars to be brought to Randwick for attention at the rate of one per week.' Following the request, between three and seven N cars were painted each month in the cream and green livery until March 1937, with No. 635 being the final N car on the main system to receive the new livery in February of that year. However N 619

and N 622 at Rockdale remained in the old livery and were never repainted into cream and green even after being returned to the main city system in April 1939 and re-entering service at Ultimo Depot.

Repainting of the cars at North Sydney, Manly, Rockdale and Enfield

It appears that the trams outside the city area were to be the 'poor cousins' in regard to the repainting program. It was reported on 15 March 1937 that of the 62 O class cars at North Sydney Depot only seven had been painted in the new livery of cream and green up to that date. Two of the five sets of E cars at North Sydney (including numbers 529-530 now in the Sydney Tramway Museum's collection) had been repainted prior to March 1937, whilst the remaining three sets were repainted between March 1936 and June 1938.

The position at Manly was almost as bad with only six out of the allocation of 25 O cars having been painted cream and green. At Enfield, all but three of the depot's allocation of 26 O cars had been painted, but only after representations from Ashfield Municipal Council in 1935 requesting more modern trams or trolleybuses for the district!

Whilst no L/P or N class cars had been repainted at Rockdale prior to April 1937, concerns had been expressed over the extremely poor condition of the paintwork on most of the Rockdale fleet. The fact that the trams were operating close to the beachfront at Brighton-le-Sands with exposure to the salt air was raised as contributing to the poor condition of the paintwork.

The first Rockdale L/P car to be repainted into the cream and green livery was No. 154, this having been completed on 16 August 1937. The rest of the Rockdale fleet was repainted over the next few months with No. 237 being the final car to receive the new livery during April 1938.

Repainting of service stock

The repainting of service stock including both the breakdown and scrubber cars was undertaken only when the cars were at the workshops for overhaul or repair. Breakdown car 59s, formerly C 13, was the first to be repainted in the new livery in September 1934. By March 1937, 11 of the 12 Sydney breakdown cars had been repainted, leaving only 25s remaining in the old livery. This car was not repainted until June 1938.

Scrubber cars did not fare as well with a memorandum being sent on 11 March 1937 by the Engineer for Way and Works Manager advising of his concerns about

the condition of these cars. He stated 'At the present time the scrubber cars are so dilapidated in external appearance that their condition is little better than that of the old steam cars at Kogarah'. He added 'it is recommended that approval be obtained for the painting of these vehicles when the reconditioning of the mechanism and other parts is being carried out at Randwick'.

Approval for this request was given by the Deputy Commissioner on 2 April 1937. The cost of repainting these scrubber cars was noted as £39 each.

The first of the scrubber cars sent to Randwick in 1937 was 134s (now in the Sydney Tramway Museum's collection). It was followed by the others until 112s was finally painted in 1939. From photographic evidence it does not appear that 132s and 136s were ever repainted in the cream and green livery as photos exist of these cars in very faded 'drab' colours in the late 1940s and early 1950s.

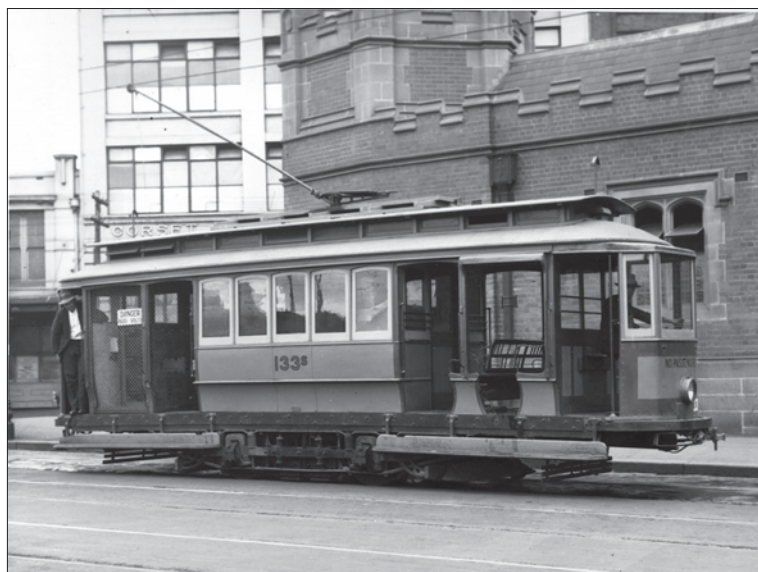
Conclusion

The original proposal that the entire the tram fleet be repainted in the cream and green livery within 2½ years was, by and large, adhered to. The exceptions were a relatively small numbers of trams from non-city depots where repainting was not completed until after that time period. It is also to be remembered that there were seven trams including service stock units that did not receive the cream and green livery during the repainting program. They were the two N cars 619 and 622 mentioned earlier; the driver training tram

127s at Dowling Street Depot; prison car 948; and scrubber cars 132s, 133s and 136s. Scrubber car 133s, based at Enfield Depot eventually received the cream and green livery following its return to the main system after the closure of the Enfield lines in 1948. The painting of the car was completed at Randwick in August 1949. It was the last car to be repainted in the new livery some 15 years after the start of the program.

Unfortunately part of the original plan – that the fleet was to be painted again after the original painting schedule was completed – did not occur. This was mainly due to the outbreak of World War II in 1939 and the loss of the manpower at the workshops that led to only essential repairs being undertaken to the tram fleet.

After the cessation of hostilities in 1945 most of Sydney's trams were badly in need of painting. Most were very dirty and in very poor mechanical condition as only the bare minimum of work had been undertaken in the previous five years. This led to many complaints from the public and in the press about the overall condition of the trams. However the measures that were put in place to overcome these deficiencies would form the basis of a further article.



Scrubber car 133s in Lee Street near Railway Square early in 1949. 133s had been based at Enfield Depot and returned to the main system in August 1948 after the Enfield system closed. It was sent to Randwick Workshops in 1949, where its repainting was completed in August. It was the last tram to be repainted from drab to cream and green.

Martin Pinches collection

HERE AND THERE

AUSTRALIAN AND OVERSEAS NEWS

Tram developments in four states

Melbourne

On 6 July 2009 the Victorian Government called for expressions of interest for the construction of 50 new trams. The government stipulated that the trams would be low floor to comply with the Disability Discrimination Act; that the trams would be expected to be in service by 2012; and that 40% of the total value of the contract would comprise Australian-sourced products or services.

A press release was issued on 16 October 2009 which shortlisted Alstom and Bombardier, and invited the companies to tender for the contract. The press release noted that the government had declared the contract to be a strategic project because of its high level of Australian industry participation and its potential to create 150 jobs in the state.

On 29 September 2010 the government announced that Bombardier was the successful tenderer for a \$303 million contract to supply and maintain 50 Flexity Swift low-floor trams for Melbourne, with the

contract including an option to buy a further 100 vehicles. The trams would be built at Bombardier's Dandenong factory with the propulsion systems and bogies coming from Bombardier's German factories in Mannheim and Siegen respectively. In 2010 it was expected that the last of the 50 new trams would enter service in 2017. They would be the first trams built in Australia in 12 years, and would be the first Melbourne trams to be made locally since the completion of the B2 class order in 1994.

The new E class trams are 33 metres long and 2.65 metres wide; they comprise three articulated units and have four bogies. They will be low-floor in design and be air-conditioned. Passenger capacity will be 210, with provision for automatic audio-visual announcements. A mock-up consisting of two units, the centre and one end section, was constructed for design input and was unveiled on 24 August 2011. It was later displayed at the 2011 Royal Melbourne Show. Pictures of the mock-up appeared in the

Melbourne's new E class trams undergo acceptance testing before entering public service. E 6002 is on a test run in Bourke Street on 9 October 2013.

Mal Rowe



H type 351 returns to Glengowrie depot from Glenelg after a morning heritage run on 21 July. It is crossing to the down line before passing over Sturt Creek, and will then turn into the depot.

Bill Drury



November/December 2011 issue of *Trolley Wire*. The end section of the mock-up has recently been modified to incorporate a simulator for training drivers which has been installed at Yarra Trams' Preston Workshops.

A delay in delivery of seven months was announced in August 2012, with Bombardier stating that design complexity had slowed down construction. At that time the company expected that the new E class cars would be operating from July 2013, with the last being delivered in 2018.

The first E class tram, No. 6001, arrived by road at Preston Workshops early on the morning of 28 June 2013, and was publicly presented on 1 July. Testing started in mid-July and continued until early November. On 4 November, cars 6001 and 6002 commenced running on the East Brunswick to St Kilda Beach route.

Adelaide

An H type tram ran in passenger service on 4 August 2013, the first such occasion since the summer of 2009-10 when No. 367 ran a heritage service between Glenelg and Morphettville.

Refurbished H type tram No. 351 commenced operating a heritage service along the full length of the line from Glenelg to the Entertainment Centre, Hindmarsh, for an initial one-month trial. The trial involved two return trips on Sundays, leaving Glenelg at 11.00am and 1.00pm and the Entertainment Centre, Hindmarsh, at 12 noon and 2.00pm.

No Adelaide Metro ticketing system is installed on 351. Instead, passengers gave the conductor a gold coin donation and received a special postcard featuring H 351, and an old-style State Transport Authority paper ticket. The driver wore a peaked cap and the conductor carried an old type bag and a ticket punch.

The tram leaves each terminus immediately after a service car, the aim being that the regular tram picks up the majority of the Sunday commuters. Publicity in the media, including the previous week's *Sunday Mail*, resulted in about 30 intending passengers behind left behind on the first trip from Glenelg due to a full load. A total of over 400 passengers were carried on the two trips. Upon completion of the trial period at the end of August 2013, the tram was again withdrawn pending a decision on the introduction of a regular heritage tram service.

The other remaining H type tram at Glengowrie Depot, H 367, was sent to Bluebird Rail at Islington on 7 August for refurbishment.

Sydney

Last year the NSW Government ordered six vehicles from Spanish manufacturer Construcciones y Auxiliar de Ferrocarriles (CAF), with the lease of another four, in preparation for the opening of the inner west extension from Lilyfield to Dulwich Hill. Services on this section are expected to begin in mid-2014.

The first of the new tram fleet, a leased second-hand Urbos 2 vehicle from Velez-Malaga, Spain, arrived by



The first tram from Spain in George Street, about to back into Hay Street where it will be unloaded. The picture was taken early in the morning of 4 September. Within days the tram had been restickered into a white and red colour scheme.

Newspix/Bill Hearne

ship at Port Kembla. It was loaded onto a trailer for the journey to Sydney, which commenced on the evening of 3 September 2013.

The tram travelled up Mount Ousley to Picton Road, thence to the Hume Freeway, M7, M4, Homebush Bay Drive, Victoria Road, over the Gladesville and Anzac bridges and into George Street, where it arrived at 2:00am. It reversed into Hay Street where the unloading ramp had been set up.

Once on rails and the ramp removed, Variotram 2107 pushed the new arrival to the depot.

On 11 October the government announced that it had placed a contract to buy a further six new trams from CAF at a cost of \$19 million. It was stated that the cost of the latest order was comparable to maintaining the existing ageing vehicles. The current fleet of seven

Australian-built Variotrams will be retired and put up for sale.

The first of the six new cars will arrive in Sydney in early 2015.

Late news: two derailments 20 minutes apart on the night of 7 October, near the stops at Wentworth Park and Rozelle Bay, resulted in the suspension of all light rail operations and the introduction of a temporary replacement bus service. A month later full services had not resumed and investigation of the cause of the derailments was continuing. Further information will be given in the next issue of *Trolley Wire*.

Gold Coast

The *Palabora* arrived at Fisherman Island No. 1 berth in Brisbane on 9 September with first two of the



A Gold Coast tram has arrived at Southport from Brisbane. It is being backed from Wardoo Street into Queen Street where it will connect to the unloading ramp.

Richard Youl

Gold Coast's 14 new light rail vehicles aboard. The seven-section, 42-metre Bombardier Flexity2 trams were unloaded onto special 20-axle road trailers the following day. The first tram arrived at Queen Street, Southport around 12:30am on 12 September, and took about three hours to be rolled onto the track.

The first new blue-and-yellow tram was launched at a ceremony at the depot on 20 September. It was run into the yard where a marquee sheltered invited state and civic dignitaries who were able to inspect the tram. It was announced that the new service will have the name G:Link.

The first night-testing of the tram took place on 30 September. The tram left the depot shortly before 9:00pm and made its way along Queen and Nerang Streets, stopping at each intersection and station. The first test run was made at walking pace and with a police escort. The first daylight testing took place on 10 October.

The Gold Coast light rail project is valued at \$1.2 billion, and trams are expected to commence running on the 13km line by June 2014.

Review

The Bendigo & Eaglehawk Tram Lines

A DVD from Roger Greenwood

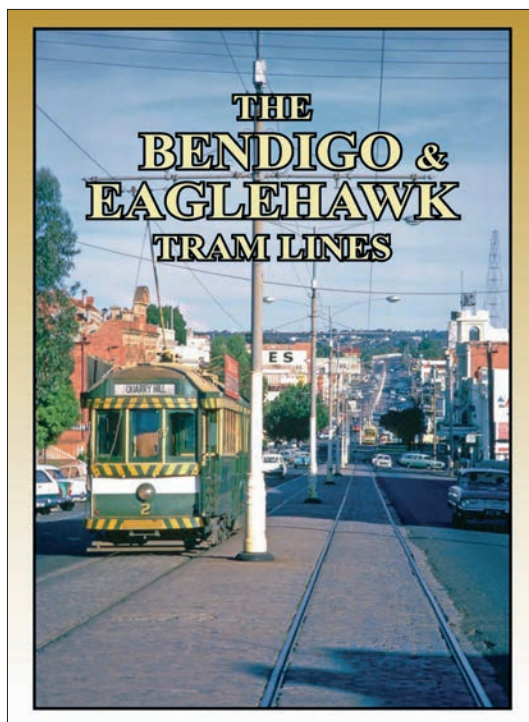
Available from retailers of transport-related material, tramway museum bookshops, and from Roger Greenwood efftech@bigpond.com by mail order. RRP \$39.95.

The Bendigo Tramways are justifiably famous – both for their history and their somewhat miraculous survival into their current form as one of the world's best heritage tramway systems.

In his latest DVD, Roger Greenwood has drawn together the results of many hours of careful research, obvious local knowledge of Bendigo and a remarkable collection of drawings, photographs and movies to illustrate the history of the tramways of the City of Bendigo and the Borough of Eaglehawk.

The DVD comes with an annotated map, based on a Broadbents map of Bendigo in the tramway era, which enables viewers to better understand what they are seeing.

Roger has resisted the temptation to take the easy path of simply filling the DVD with current footage of the heritage operation. Instead, he has used contemporary sources to assemble an impressive movie that shows the history of the Bendigo Tramways from the early battery trams through steam trams to



the closure of the SEC system in 1972. He concludes briefly with the good news about ongoing operations.

Roger has certainly found some great images – both still and moving. While some were familiar to me, many were not and Roger picks out details in many images that should satisfy the hard core enthusiast without boring the viewer with a more general interest in history, or just a taste for nostalgia.

Some may think that there is a little too much 'off-topic' footage, but I think that makes it a much more attractive product for the wider audience. Roger frequently tells a 'side bar' story that gives context and sets the trams in their place as a core part of the local community. Both local residents and those like me who travelled to Bendigo for a tram ride so many times in the final SEC years will have our memories of the experience of riding the Bendigo trams rekindled.

Roger's careful research points out all sorts of associations that are not common knowledge – like the connection to the man who ran the Doncaster and Box Hill tramway and vignettes of local industry and people in Bendigo. He even describes the route of a planned extension never built.

One feature of this production is the inclusion of movie scenes from other Victorian tramways – especially in the 1950s. These could be thought of as ‘scraps from the cutting room floor’ from Roger’s earlier work, but they have the effect of setting the story of the Bendigo trams in context, and that is a worthy role in any historical work. Look out for movies of Melbourne, including long gone lines and trams, as well as Bendigo’s sister systems in Geelong and Ballarat. Hard core tram fans won’t be disappointed with some of the scenes that slip into the narrative!

Although this is primarily a movie illustrating the history of the Bendigo and Eaglehawk trams, it also serves a wider audience including those looking for material to evoke memories of the 1950s and 60s and those who have a wider interest in the history of Bendigo and Eaglehawk. The section of the movie describing the events of the mid 1950s is particularly well illustrated and broad in its coverage.

The latter part of the movie includes tours of all routes, with coverage of most of the system. Selected sequences from different times are put together in geographical order and interspersed with stories and descriptions appropriate to the location. It’s far from a boring end-to-end view of the lines, but rather a review or discovery of the scenes and experiences of a tram journey, from North Bendigo to Golden Square, and from Quarry Hill to Eaglehawk (and back).

Current drivers on the Bendigo Tramways may be reduced to tears when they see how light the motor traffic was in the SEC days!

In summary, this is an excellent DVD that includes good quality footage of a past era and with enough variety to be attractive to a wide audience. I expect it to be a hot seller, appealing both to fans and to the general public who, thanks to the Bendigo Trust, can still enjoy a ride on a Bendigo tram.

— Mal Rowe

LOFTUS

SOUTH PACIFIC ELECTRIC RAILWAY CO-OP SOCIETY

PO Box 103, Sutherland, NSW 1499

www.sydneytramwaymuseum.com.au

From various contributors

New Loftus Junction shed

As reported in the August issue of *Trolley Wire*, the four 36-metre rails for the new shed were welded near Depot Junction where power is available. The first pair was towed up the hill by 99u to where the No. 3 forklift took over to get them into the shed. The ‘four foot’ of the eastern track was concreted on 9 August. The side strip between the eastern track and the side wall was concreted in two pours on 14 and 28 August. Both purchased and donated surplus concrete was used in these jobs.

David Canini was on site on 16 and 17 August to slightly lower the dirt floor on the western side of the new shed, excavate the two parallel trenches under each rail position and to extend a trench for stormwater pipes, a 50mm water pipe and conduits. These were laid and the trench was backfilled.

The second pair of 36-metre rails were moved to the new shed on 24 August, with tractor and forklift power. The rails have since been aligned, gauged, leveled and packed. Mesh has been laid between the rails, and square hollow steel to form the track grooves

has been clipped to the rails, which have been partly locked in place and await concreting.

Consideration is being given to how to get the maximum benefit from the shed. It is noted that there are two buses, two tower wagons, the Matador recovery vehicle and a fourth forklift as well as a number of non-operational trams occupying covered track space in the top shed and main building.

Cars in off-site storage in Sydney such as 11W and PR1 1573, and Y1 611 at Bendigo will all need to be moved in coming months, and the issue of the return of Berlin 5133 and Milan Peter Witt 1692 from Hawthorn has again been raised.

Trams

On 7 September, P 1729 was removed from the display hall and entered the workshop in place of C 37. The body has been painted externally, and the paint crew is preparing P 1497 for a repaint.

Erecting wire over the crossover on 21 October using our Bedford tower wagon and overhead line car 99u.
Martin Pinches



The making and fitting of new footboards to 1729 continues. Frank Cuddy has almost completed the work on the PC5 auto acceleration unit and is now working on the motor cut-out box and the coupler isolating drum switches. Sydney and Adelaide Tomlinson couplers are different and have been directly compared to work out what modifications will be necessary to fit them to 1729 and 1573.

Adelaide H car 358 is still in the workshop receiving attention. The door mechanisms, life guards and the air brake system have received attention. A defective parking brake actuator has been taken to Pacific Rail for attention. Two roof ventilators removed in Adelaide when the pantograph was fitted have been replaced, as have torn door rubbers. New wood is being fitted in the side framing to replace rotted material.

Work has continued on Melbourne grip car 322. New timber has been spliced into the four main roof support posts, and new seat ends have been made as well as the two roof bulkheads and new clerestory framing.

Commissioning the new Pitt Street crossover

A memorable day for the Museum was 23 October 2013, when the new crossover on the replacement eastern track north of Pitt Street was placed in service. This gives approximately 330 metres of double track from Railway Square points to Pitt Street crossover points, enhancing our operational capabilities.

Brisbane Phoenix car 548 tested the new overhead work on 21 October. No problems were experienced.

Martin Pinches



This was achieved with the assistance of a number of our members who put in many hours ensuring that the work was completed by the projected date. The team of trackwork people had to complete the total removal of the old track north of Pitt Street and lay replacement track in its place. The new track then had to be concreted and to this end donations were called for, resulting in more than \$3,500 being raised, mainly from traffic staff. This allowed the purchase of around 15 cubic metres of concrete. We also benefited from some deliveries of excess concrete from our supplier, Concrete.

With the concreting of the track completed, attention turned to the overhead. As the Museum's stocks of left hand frog pans were exhausted, two used Melbourne pans were sourced from our friends at Haddon. These were refurbished and returned to almost new condition.

Monday 21 October was selected as the day for our overhead team to install the frog pans and overhead at the crossover. After the installation and final adjustments were completed, R1 1979 and Brisbane 548 were used in mid-afternoon to test operation over the new crossover in both directions with no problems being encountered.

On Wednesday 23 October, a normal operating day, it was decided to place the new track and crossover into normal service. Track scrubber 134s was used to clean the tracks, with R1 1979 and C 29 later using the crossover with no difficulties. Melbourne Z2 111 and San Francisco PCC 1014 then worked through the new

installation on test, without any overhead problems occurring.

On Sunday 27 October a ten minute service was operated for Sutherland Council from 8:00am until 1:00pm, carrying passengers attending the Breakfast Torque event at Loftus Oval, with two trams, R1 1979 and R 1740, passing on the double track in Tramway Avenue.

It is an example of what our volunteers can achieve in replicating another example of what was normal on the original Sydney tramway system – tram operation on double track in a street environment.

In other trackwork, the edge strip on the side of the western track at the Railway Square waiting shed has been concreted and CSO workers have dug a trench from the former Sydney Municipal Council green electrical distribution box near the waiting shed towards the track. Conduits will be laid and will connect to those previously laid under the double track which go to the brick distribution box on the highway side bank.

Training for rail safety investigators

On 10 October 2013 a number of graduate and trainee investigators from the Office of the National Rail Safety Regulator (ONRSR) attended a training exercise at the Museum.

The training day was split into two parts with the morning session looking at the trackwork around the museum. The Track Condition and Components



Graduate and trainee investigators from the Office of the National Rail Safety Regulator have a training session on 10 October with John Gorman, Technical Head of Engineering, on the 'pioneer' timber sleepers Sutherland line.

Ian Saxon

Weed spraying on the National Park line using scrubber car 134s and weedkiller tank sprayer 146s on 29 October.

Martin Pinches



session was conducted by John Gorman (Technical Head of Civil Engineering - ONRSR), who took the group on a tour of the Sutherland and Royal National Park lines. This tour covered the 'pioneer' track (with timber sleepers), concrete-sleepered track and concrete-encased track work.

The afternoon session looked at the rolling stock components of the various trams in the fleet. The rolling stock components (bogie and tramcar construction, wheel profile and interface) session was conducted by Grant Holliday (Technical Head of Rolling Stock - ONRSR).

Those attending from the Museum were Bill Parkinson (Workshop Manager) and Ian Saxon (Rail Safety Manager). A most enjoyable and instructive day was had by all.

Menangle Field Day

A contingent of Loftus representatives attended the Oil, Steam and Kerosene Day held by the Campbelltown Steam and Machinery Museum on 12 and 13 October. The aim was to promote the Tramway Museum and our upcoming 1950s day.

On the Saturday, the Museum's Bedford tower truck was parked next to Dennis O'Brien's (circa late 1950s) dual tone Vauxhall. Sunday was a busier day with more family groups attending, and a car display with vehicles from the 1920s to the 1970s.

Many thanks for the combined efforts of Chris Olsen, Craig Parkinson, David Critchley, Dennis O'Brien, Meg O'Brien and Katie Strancar who made the visit to Menangle possible. Meg and Katie with

their outstanding period costumes won many admiring comments and glances.

General news

The Museum's fire sprinkler contractor has renewed the fire sprinkler inlet booster connection. This is the first time work has been needed on the booster since its installation many years ago.

In the YMCA building CSO bricklayers are bricking up three of the four window openings on the second floor. Temporary solid core doors have been fitted to the fire door openings between the building and the display hall for security, as money for the fire doors is not presently available. They will be needed before the YMCA building can be legally occupied.

The track on the Sutherland and Royal National Park lines was sprayed for weeds on 29 October. Scrubber car 134s pushed or towed our weedkiller tank trailer 146s during the spraying operation. It is believed to be the first time the scrubber car has been on the National Park line.

Chris Olsen prepared tower wagon No.3 for display at the annual Eastern Creek motor vehicle display.

Craig Parkinson purchased for \$2,500 a replacement engine for our Matador recovery vehicle, together with gear boxes, differentials, winch, axles and wheel hubs from a Matador being scrapped. As a winch alone recently sold for nearly \$10,000 in the UK, this was a real bargain. Craig has been cleaning and preparing the engine for transplanting into our Matador, due to the unavailability of replacement pistons for the original engine.

FERNY GROVE

BRISBANE TRAMWAY MUSEUM SOCIETY

PO Box 94, Ferny Hills, Queensland 4055

www.brisbanetramwaymuseum.org

From Peter Hyde



The multipurpose outdoor under-cover structure.

John Lambert



The new undercover area being used for an outdoor lunch room by our TRAMS group in late October.

Peter Hyde

The restoration of horse car No. 41 continues. Peter Hyde



Construction of the undercover multipurpose outdoor structure was completed in time for the Annual General Meeting of the Museum held on Saturday 28 September. It was put to its first use, for serving morning tea and refreshments to the unusually large number of attendees. The crowd was not drawn by the formalities of the day but rather by the guest speaker from Bombardier Transportation who gave a detailed presentation on the new trams for the Gold Coast.

In the workshops, activity continues to be focused on the restoration of replica horse car No. 41 and on

Dreadnought No. 136 which has had the first stages of its rather unusual one-man colour scheme applied.

Major drainage works have been carried out alongside Depot No. 1 where water seepage has become a problem in the last two very wet summers. By way of contrast, fire preparation has also been a priority with major clearing having been undertaken along the bushland side of the museum. The City Council has assisted by restoring the firebreaks outside the museum fence.



Repainting Dreadnought No. 136 into its one-man livery has commenced. Peter Hyde

BENDIGO

BENDIGO TRAMWAYS

1 Tramways Avenue, Bendigo, Victoria 3550

www.bendigotramways.com

From Bendigo Tramways

Tourism services

The Victorian Spring school holidays are now over and our visitation held steady despite some staffing challenges. The weather was quite good for most of the holidays, which helped to bring people out and about.

In the week following the school holidays, we participated in Victorian Seniors' Week by offering 50% off the cost of vintage 'talking' tram tours, and depot and workshop tours. The discount was very much appreciated by the seniors and a good turn-out was the result.

We also recently hosted the Grand Final winners of the Bendigo Football-Netball League, Golden Square Football Club, when they popped in after their victory celebrations and asked for a lift back into town. We couldn't refuse their smiling faces!

We have purchased two new LED screens that have been installed in the workshop. The screens show depot workshop activities as well as tram histories and other interesting archive material.

Workshop news

The workshop teams have been undertaking major clean-ups of their areas and re-arranging storage and equipment placement to facilitate smoother works for

the next projects. Shadow boards and other storage methods will ensure that tools and equipment are returned to their designated spots and any missing tools are quickly identified.

A review of the Risk Register has also commenced. We thank Dan Rutherford for transferring all the identified risks onto the new register. The review will include assessing each identified risk against the risk matrix to arrive at a rating. Each risk will then have controls implemented to bring it down to an acceptable level.

Our restaurant tram 976 recently had a defective compressor which made it impossible for the tram to run its usual dinner service. In consultation with Winebank, which provides the catering on 976, we decided to tow the tram to Charing Cross and have it remain there for the duration of the dinner. The passengers commented that it was "the smoothest tram ride they'd ever had".

Work designated as Phase 2 has continued on City Circle W8 class 957. The underframe components are in place and weld testing has been carried out with a final pass. Mike Campbell and his engineering team have done well in what has been an exacting task, and the need to comply with regulations has kept them on their toes. Costings for Phases 3 and 4 (roof, cabs and



The Golden Square Football Team, Premiers for 2013, in front of Y1 610 in its new La Trobe University livery. The team hitched a ride from the Central Deborah Gold Mine terminus back to town.

Bendigo Tramways

Tram 918 (previously 34) in the depot yard in its new Jimmy Possum advertising livery.

Bendigo Tramways



floor) are being finalised and we hope that work will commence soon.

Sydney Tramway Museum's Melbourne Y1 tram 611 is progressing well. After removing and cleaning the seat frames, we have a couple of eager beavers scraping back the paintwork while Les Woodfield is working on the windows and other stained components. It is starting to look good, and our Sydney compatriots are very happy with the progress. We hope to have it ready for its trek north to its new home at Loftus in February-March next year.

Tram 610 received a clean-up recently, including touching up parts of the exterior. New sign-writing has been applied by its sponsor, La Trobe University, with striking black and red as key colours.

Hume and Iser, long-time sponsors of tram No. 808 have also decided to continue their sponsorship for another three years, so this tram will also soon receive a fresh coat of paint and new signs.

Did you know that Bendigo is home base for the innovative décor and home wares business, Jimmy Possum? The proudly Bendigo company has decided to sponsor a tram (No. 918, previously numbered 34) which took to the tracks in their signature colours of black and orange on 25 October. Not only did Jimmy Possum use their creative flare on the exterior of the tram, but showed off their interior design and upholstery skills by refurbishing the inside of the tram as well. The finished product is beautiful, with the fabric being reminiscent of that used in the London Underground patterns and designs from the 1920s to 1940s. This tram is certain to be a hit with customers. With its plush interior it is bound to be a popular party tram.

The launch of the tram coincides with the opening of a new exhibition at the Bendigo Art Gallery called *Modern Love*, which presents a selection of some of the world's most influential fashion designers from the past 40 years. Jimmy Possum recently moved its Bendigo shop to the same street as the art gallery.



Our Santa Tram with Santa and friend at Central Deborah Gold Mine. Bendigo Advertiser

The firm is hoping that gallery patrons will also visit their store.

Events to diarise

8 December: Vintage 'Talking' Tram Tour 41st Anniversary

Join us as we celebrate the 100th birthday of trams 5 and 17. Our finest heritage trams will be on the tracks throughout the day. A volunteer team headed by Mick McGowan will be refurbishing No. 5 for its centenary. It will get an external re-paint in its traditional SEC livery. For more information about the day go to www.bendigotramways.com.

10-24 December: Santa Tram

Santa is coming to Bendigo and will be hiding at a secret location. Luckily the Santa Tram will be able to take you to him! Lots of singing and ringing of bells is

guaranteed, so ear muffs may be necessary for the crew. Ticket sales open from 4 November. For more details go to www.bendigotramways.com.

Staff

A retirement party was held on 1 August to celebrate Trevor Lamb's achievements at the Bendigo Trust over the past 27 years. A fantastic time was had by all, and many happy memories were shared. Trevor had a great career with the Trust, including many hundreds of trips at the sharp end of our talking tram tours. Trevor has more recently been Visitor Services Manager at the Trust, and served for several years on its board.

WHITEMAN PARK

PERTH ELECTRIC TRAMWAY SOCIETY (INC)

PO Box 257, Mount Lawley, Western Australia 6929

www.pets.org.au

From Michael Stukely

Annual General Meeting

The Society's thirty-second Annual General Meeting was held in the members' room at the Car barn on Sunday afternoon, 28 July. The following office bearers were elected: President, Michael Stukely; Vice-President, Allan Kelly; Secretary, Robert Pearce; Treasurer, Tony Kelly; Councillors, Garry Barker and Darren Ward. Ric Edwards and David Brown have subsequently been co-opted to Council, and Ric was appointed Membership Secretary.

A highlight from the reports was that our Traffic Revenue was well above last year's total, continuing the upward trend from 2011. Ticketed passenger numbers (19,848) were correspondingly higher than in 2011-2012 (18,322). In the 12 months to 31 March our six available trams ran a total of 10,968 km on 238 running days (the 2011-2012 total was 10,228.8 km on 230 running days). The mainstays of the tram fleet were SW2 426 (3,235.2 km), W2 441 (2,736 km) and W2 329 (2,088 km), with significant running also by W7 1017 (1,632 km). W4 674 (734.4 km) was used as an emergency/backup car, and there was again occasional

running in most months by FMT 29 (542.4 km). W2 393 is available only for emergency use due to its worn wheels, and in 2013, SW2 426 has been sidelined for the same reason.

A special certificate was presented to Mrs Barbara Secker in recognition of the outstanding contribution made to the Society in many areas by her late husband, David, who passed away in March. This now starts a new tradition, with an annual member's award – named the David Secker Award, in David's honour – to be presented from 2014 "For meritorious service above and beyond the normal contribution made by the membership".

After the meeting, members assembled at the entrance to the Pit Road in front of the Engineering Shed. Here, Noel Blackmore was taken completely by surprise when he was called forward and invited to unveil the new name of the Engineering Shed, attached above the front doors – the Noel Blackmore Tram Service Centre. Since he joined the Society in 1985,

Noel and Win Blackmore (centre) with Michael Stukely (left) and Lindsay Richardson, in company with Perth E 66 standing on the pit in the newly-named Noel Blackmore Tram Service Centre on 28 July. Graham Lees



and since the commencement of tram operations at Whiteman Park, Noel has been our Electrical and Mechanical Engineering Supervisor (and now Advisor). His unique set of specialist skills, knowledge, contacts and wealth of experience in these engineering fields has been of enormous benefit to the Society.

Traffic operations and service cars

Patronage in the July school holidays was very good, but wet weather in August, and unexpectedly also in

September, resulted in both being relatively quiet months.

W7 1017 was the main service car in June and July, with W2 329 seeing the heaviest use in August. W2 441 was also in service regularly, and Fremantle 29 ran occasionally, including on three days in July. After being in recess since late 2012, our Car barn tours on the fourth Sunday of the month re-started in September for the spring season, and will again be conducted regularly in autumn, after a break over the summer.

Perth B 15 has some time in the sun after being towed outside the Lindsay Richardson Car barn on 2 October for further work, with Colin Spooner (left), Nick Tsiaglis, Bryan Adcock and Fraser Douglas, while Ric Francis inspects the rear cab.

Graham Lees





The refrigerator in the members' room has had a dramatic face-lift: Graham Lees has added paintings of Perth E 67 and an impression of a tram on the planned Perth MAX light rail system, and Fraser Douglas completed a general repaint and cleanup.

Graham Lees

Tram restoration

Good progress has again been achieved by Bryan Adcock and his team with the body restoration work on Perth B class single-truck car 15, for future static display by the South Perth Historical Society. John Davies has fixed the malthoid covering to the floors in both cabs, and applied rubber treaded covers to the external steps. He has also stained and varnished the controller-handle timbers to give an excellent finish. Jack Kendall and Michael Mason-Coe have continued installing the reversible saloon seats. Modification of

the controller covers to fit the frames was carried out by Bryan and Jack, and the controller and handbrake were installed in the east end cab. Bryan has also fitted the concertina gates to the four cab entry points. Finishing touches are being applied, including the painting of body trim areas by Fraser Douglas, and the leather conductor's bell cords were installed in the saloon by Bryan and Michael.

General

Our Wednesday team members continue their excellent work in maintaining the trams, led by Electrical Engineering Adviser, Noel Blackmore; Mechanical Adviser, Bryan Liversidge; and Wednesday Electrical and Mechanical Supervisors, Colin Spooner and John Azzaro respectively. The bodies of the service cars have received much-needed attention from Frank Edwards, John Davies and Graham Bedells with assistance from Jack Kendall.

Track maintenance also continues. A defective rail joint near Horse Swamp was cut out and replaced with a small section of rail on 15 June, resulting in a greatly improved ride. A 13-metre panel of track east of the Triangle was removed, thus severing the former Lord Street Branch from our operational track. The branch was last used in 2004, and the majority of its sleepers

Melbourne W7 1023 is lowered by the two cranes onto PETS tracks at the Car barn on 18 June.

Graham Lees



Melbourne SW6 891 on the low-loader on Workshops Road on 17 June after its arrival at Whiteman Park from Bendigo.

Graham Lees



have now deteriorated very badly. A load of road-base was placed on the end of the operational track, which is used for the turning of trams via the Triangle. In July, two points-timbers were replaced at the Loop North points, along with the installation of more steel sleepers. Trevor Dennhardt and Lindsay Richardson were assisted on the track team by John Azzaro, Bryan Liversidge, Nick Tsiaglis, Laurie Ahearn, Roy Winslow, Jack Kendall, Graham Lees, Jordon Blain and Michael Stukely. By the end of June, a total of 1302 steel sleepers had been installed on the main line.

Signage warning of the live overhead wires has been installed at the tramway road crossings by Whiteman Park management. Repair work has been done on the overhead at the Triangle, and elsewhere as required, by the overhead team led by Noel Blackmore. The

refurbished ex-Kalgoorlie bracket-arm was installed on the steel pole on the pit road between the Carbarn fan and the eastern doors of the Noel Blackmore Tram Service Centre.

The motor vehicles team led by Pat Ward have carried out repairs to the all-important bucket tractor, and Pat has acquired a windscreen assembly for installation on this vehicle.

On 7 August, we hosted Adelaide-based senior staff of the new National Rail Safety Regulator, together with the WA Regulator, on a visit to our tramway, and had the opportunity to discuss issues of concern with them, prior to a meeting organised for them with all WA rail operators.

The track team at work at the Loop South points on 20 July: Lindsay Richardson (standing, centre) waits to check the track gauge before rail fastening is carried out, as Jack Kendall and Trevor Dennhardt (centre) prepare a timber sleeper for re-spiking, and Graham Lees (left), and Nick Tsiaglis and Jordon Blain (right), insert a replacement steel sleeper.

Michael Stukely



ST KILDA

AUSTRALIAN ELECTRIC TRANSPORT MUSEUM (SA) INC

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www.trammuseumadelaide.com.au

From Colin Seymour and Kym Smith

New depot

Newly fabricated trolley troughing was erected above Road 4 on 2 August. Our friends from North East Demolitions organised a scissor lift and provided staff to operate it in conjunction with AETM members. Their expertise and labour input proved very valuable as the troughing was quite heavy to handle.

The overhead wire was strung along the new troughing on 11 October allowing operating cars to use Road 4 from 13 October. In the short term, regular traffic cars F1 264 and W7 1013 are being housed on this road.

Distinctive trams from three states were in traffic at St Kilda on Sunday 20 October 2013 – Adelaide F1 264, Sydney R1 1971 and Melbourne W7 1013 – all going to the Beach!

John Radcliffe



Troughing being erected over Road 4. Car 381 has been transferred from the Bodyshop to the Workshop end of Road 5.

Chris Summers

Ian Seymour watches troughing being erected over Road 4 in the new depot on 2 August.

Chris Summers



Bib and Bub trams 14 & 15

Bib and Bub trams 14 and 15 have returned to the Bodyshop and work has recommenced on their restoration after a gap of a few years when it was necessary for labour to be diverted to work on the new depot.

Work is proceeding with car 15's crossbench seats, which are mostly installed.

Bruce Lock and Charlie Rodgers have reinstalled lifeguards on the inner ends of the cars and developed a special emergency stop facility between the two permanently-coupled cars. The emergency facility, which is linked to the lifeguard rigging, instantly cuts off power and applies the air brakes should someone become jammed or fall between the two cars during their operation. To enable the emergency facility to function, both trams have had GE emergency valves installed on them. These were standard on Adelaide D, E, F, F1 and H cars.

Kym Smith shows Public Transport Services Chief Engineer, Brian Green, the controls of F1 264 on 11 August. The visit provided evidence of the good working relationship between the AETM and Public Transport Services.

John Radcliffe



Interworking with Public Transport Services

Over the past few months the Museum has been able to work with the Engineering & Maintenance section of Public Transport Services (PTS) to the benefit of both organisations.

We provided technical advice and assistance to PTS in connection with the return to service of H type car 351, and are currently helping with the refurbishment of the second such car, No. 367, by providing advertising racks, controller handles, paint samples and livery advice.

PTS has assisted the Museum by providing 100 second hand sleepers for use on our line. The organisation also continues to make available its

scissor lift truck for use on overhead projects as required. After a recent visit to St Kilda, Chief Engineer, Brian Green presented the Museum with a framed copy of the advertising signs used to advertise the trial heritage running of H type 351.

Chrysler Club visit

The Museum hosted the Chrysler Club on 18 August 2013, with the Club using the visit to pose a number of cars alongside various trams. The photos will be used in the course of compiling the Club's 2014 calendar. W2 294, a product of Holden's Motor Body Builders, was brought out especially to pose with some of the club members' cars, it being another product of the once significant Adelaide vehicle manufacturing industry.

Chrysler Club members' vehicles on display in front of drop-centre tram 264 at the museum on 18 August 2013.

Kym Smith



Two locally-built vehicles on display: a Chrysler Club member's car, and W2 294, which was manufactured by Holden's Motor Body Builders.

Kym Smith

HADDON

MELBOURNE TRAMCAR PRESERVATION ASSOCIATION
 324 Sago Hill Road, Haddon, Victoria 3351 www.mtpa.com.au

From Kym Smith

Passenger operations

The MTPA had a very successful and busy September, with its regular scheduled Open Day bolstered by visits on subsequent weekends by the Classic Motorcycle Club of Victoria and the combined groups of the Kerang Car Club and the Vintage and Classic Car Club, Ballarat. Passenger numbers on

19 trips totalled 237, eclipsing the past two years' statistics in a single day!

Tram restoration

Work has continued on the refurbishment of SW5 849 with work concentrating on the repainting of the



Some of the happy visitors to the Open Day on 15 September 2013 pose in front of VR 41 for a group photo. Stephen Tyrrell

Members of the Classic Motorcycle Club of Victoria listening as Anthony Smith (out of picture) provides the history of the MTPA prior to a ride on VR 41 on 21 September 2013. W5 792 can be seen stabled in front of Road 2. Jacqui Smith





Arthur Ireland sanding the saloon window surrounds on SW5 849 in preparation for repainting. Anthony Smith

saloon sliding doors and the drivers doors. The coverage of the Wattle Yellow colour for The MET livery has proven to be troublesome, with up to five coats of paint required to provide adequate depth of colour on some doors. Filling and sanding of the cabin and saloon window surrounds has also commenced in preparation for their repainting.

Scissor-lift truck

The MTPA was pleased to receive the former MMTB and Bendigo scissor-lift overhead truck as part of an arrangement with Bendigo Tramways and

the Department of Transport; Bendigo Tramways receiving a more recent model truck that was surplus to Yarra Trams needs and in turn making the Hino truck available to the MTPA. An assessment is now being carried out on the truck to determine the viability of maintaining it in road-registered condition.

Track and overhead

With the completion of the trackwork on the north-west and south-west curves, attention is being given to undertaking some track repairs on the Carbarn fan, and to making adjustments to the existing overhead



The Hino scissor-lift truck shortly after its arrival from Bendigo. Anthony Smith

over the curves to allow limited operations to commence. The long-term plan is to replace all of the existing spans in this location and to install standard Melbourne overhead curves. However this will require additional poles to be installed to enable sufficient support for the curve nets.

Parts storage

Some additional pallet racking has been modified for use within the storage containers to provide a decking and shelving over the top of the bogie storage. In this way the otherwise wasted air space above the bogies can now be utilised, with the bogies able to be rolled out from beneath the decking as required.



Frank Schroeders welding one of the broken rail joints on the Carbarn fan.
Jacqui Smith

After re-welding the joints, a relief cut was made to minimise further fracturing of the rail.

Anthony Smith



Anthony Smith attached spans to the new strain pole for the main line, as part of works to commission the south west curve overhead for limited operations.

Kym Smith



Gear cases on some of the decking and shelving constructed in the bogie storage containers.

Anthony Smith



BALLARAT

BALLARAT TRAMWAY MUSEUM

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From Dave Macartney and Peter Winspur

It is with great sadness that we report that foundation member Father Austin Brehaut passed away on 1 August. He was 78. Many were required to stand at Holy Trinity Church, Sebastopol, on the following Monday morning during the Mass to celebrate Austin's life. Austin's love of trams extended back to his childhood when the Sebastopol tram used to be almost on the nature strip as it passed the family home. As his commitment to the church had prevented Austin from becoming a real 'trammie', Austin was determined to volunteer as a conductor with the BTPS and his first day was on 15 August 1976. Parishes far away meant that he could only work if free during the school holidays when he would come back to spend several days 'on the bag'.

The energy Austin put in to the job right up until his retirement from conducting in 2010 belied the fact that his heart was not as strong as he would have wished and he must have been very disappointed when his doctor would not allow him to give tram driving a go on his retirement in 1999. For the last three years Austin committed to two Saturdays a month as 'depot guide'. A short stay in hospital in May was not reported as serious. Austin put his last day in at the Museum on Saturday 22 June. The next week he returned to hospital.

July and August were not good months for the Museum. Just after the news of the passing of Austin Brehaut, we heard that member Ian Wall was killed in an horrific car accident. A few days later former member Geoff Cargeeg suffered a fatal aneurism. He was only 58. A few years ago he survived an earlier one and had made a good recovery. Geoff was extremely active at the museum from 1972 to 1975. Recently, long-time member, Eric Sibly, apologised for not renewing his membership on time as he had been overseas for three months. On 21 August Eric passed away whilst on another trip. He was 73.

Some 19 members attended a strategic planning and information workshop on 27 July. It was heartening to see a number of new faces. They brought many fresh ideas. Particularly valuable were the suggestions from Adrian Ponton, a long-time member and the inaugural Registrar, Tourist and Heritage Railways. Adrian informed members of how the legislation that established his office will assist and protect the sector.

Discussions focused on the following issues:

- Restoration of the ESCo trams: how might this be done; what standard should be adopted; and which tram should be the first restored?
- Extension of the depot: Members were brought up to date on the detailed plans submitted to Ballarat Council and Heritage Victoria to ensure that further development of the Museum is permitted and accommodated in the Gardens Masterplan.
- Extension of the track: Various proposals have been made over recent years by officers of Council for extending the line at the south end to the edge of Lake Wendouree. Such an extension would enable trams to meet ferries from the lake's eastern end. Discussions have been held with Council as to how this could be achieved.
- How to improve revenue.
- How to increase the number of volunteers.
- How to increase souvenir sales and passenger numbers.
- How to increase the Museum's profile in the local community.

Contributions from those who attended built on the results of a similar meeting held in 2010. Although there were many recurring issues, some of which are difficult to address, it was apparent to those who attended that circumstances change, and new issues and ideas arise every year. The next step will be a special meeting of the Board to group and prioritise the many and varied suggestions so that a start can be made on progressing as many of them as possible.

Ballarat Council has determined to redesign the area around Depot Junction in an attempt to reduce falls by cyclists. As at the end of August there have been three proposals. One relocates the roadway and two involve redesigning the track layout. Currently, a draft plan to build a passing loop with the access track to the depot leaving this, is being considered by the heritage section of Council.

Over the first weekend of October the long-held wish to have all 13 operable trams available for service at the one time, moved several steps closer. No. 13, fresh from a repaint and the fitting of new leaf springs,

No. 13 re-entered service on Sunday 5 October 2013 after a full repaint. Peter Winspur



returned to service. No. 671 was reunited with its trucks and is now in the process of final testing leading up to the 'Springfest' weekend in early November. The trucks had been sent away for remedial work by United Group in nearby Gregory Street. We were fortunate to have the work carried out free of charge, for which we thank the company. The trucks are now in standard gloss black, as the gold paint previously applied had not weathered well.

Two overhead poles near Depot Junction that had developed a significant lean in recent years were

replaced on 7 August. Powercor carried out the work, with museum volunteers helping to relocate the various bracket arms and associated wire-work.

Correction

A correction needs to be made to the report from Ballarat in the August issue. The office of the Registrar of Tourist and Heritage Railways, Adrian Ponton, has been located in Public Transport Victoria since April 2012; it was previously in the Department of Transport.



No. 671, on test after its major bogie re-build, waits for No. 27 to pass. Peter Winspur



Melbourne D1 class 3505 has been dressed for the airline Emirates in an advertising livery incorporating a Lisbon Brill bogie tram. It is seen in Swanston Street on 18 October 2013.

Mal Rowe



A Gold Coast tram on a test run in Queen Street, Southport on 10 October 2013. The tram is waiting for a 'T' light at the entrance to the Southport State Primary School car park before proceeding.

Richard Youl