TROLLEY WIRE

No. 363
NOVEMBER 2020

Print Post Approved 100004350

$9.90*

ISSN 0155-1264

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TROLLEY WIRE

AUSTRALIA'S TRAMWAY MUSEUM MAGAZINE

NOVEMBER 2020

No. 363 Vol. 61 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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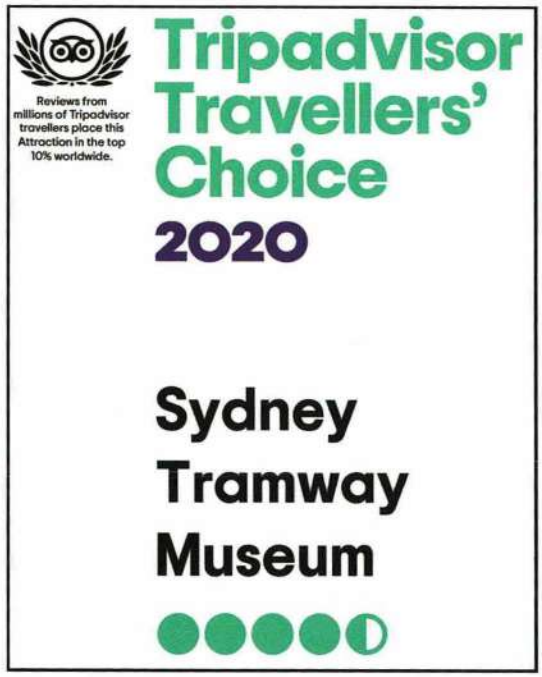
*Cover price $9.90 (incl. GST)
Subscription rates (for four issues per year) to expire in December.

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.

Layout by The Little Website Company Pty Ltd
Tel: 0407 673 103 www.tlwsc.com.au

Printed by Printgraphics, Mount Waverley
Tel: (03) 9562 9600 Fax: (03) 9562 6700



Tripadvsor Inc. is an American online travel company that operates a website and mobile app with user-generated content.

Tripadvisor emailed the Sydney Tramway Museum and said:
"Congrats, you're a 2020 Traveler' Choice Winner. Each year we comb through reviews, ratings, and saves from travelers everywhere, and use that info to award the very best. You are part of an exclusive group, and we want to help you celebrate (and promote) this major achievement. You're in the top 10% of attractions worldwide."

Our museum is listed as a specialty museum with 65 reviews and has 74 photos taken at Loftus.

The Museum's Board congratulates the Traffic and Works staff for their efforts in helping the museum achieve this award. Well done everyone!

Front Cover:
Melbourne Citadis 3034 on 20 September 2020 inbound on Route 109 Whitehorse Road, Deepdene approaching Burke Road. Paul Nicholson

Deutsche Straßenbahnen nach Adelaide
German trams in Adelaide

(The colourful history of the Flexity Classic trams)

William Adams

It may seem somewhat interesting to record in these pages the history of a tram type that has only been in service for 15 years at the time of writing but the significance of the Flexity Classic trams to Adelaide tramway development cannot be understated. It could also be argued that the 2007 trial of one of these trams around the Melbourne network helped influence the decision to purchase the E class trams (based on the Flexity Swift platform). The origins of these trams, the story of their delivery, the trials and tribulations of their entry to service and their presence at multiple line openings means that the history of these trams are well worth recording for posterity.

By the end of the 1990s, the rapidly ageing fleet of the famous H type trams was becoming a major concern for TransAdelaide. Maintenance and the sourcing of spare components was becoming increasingly difficult, while changing legislative requirements regarding disabled access to public transport meant that the continued operation of this famous group of trams would become increasingly problematic. It wasn't until 2003 when a $56million program to thoroughly rebuild and upgrade the Glenelg line was announced. As part of the upgrade, a new fleet of 9 new articulated trams was to be purchased to finally allow for the retirement of the H type trams. Other elements of the Glenelg line renewal would include:

- Raised platform stops to permit same level boarding to the new tram fleet.
- Concrete sleepers replacing timber sleepers on the reserve track section.
- Upgraded power supply with new feeder cables installed.
- Changes to the facilities at Glengowrie Depot to cater for the needs of the new fleet.

As the new trams would have their electrical equipment mounted on the roof instead of under the floor, elevated work platforms were designed and installed in the depot.

After evaluating the international rolling stock supply market, the Bombardier Flexity Classic (Model NGT8 Type S) was selected with a contract awarded in October 2004. These new cars featured a low floor across 70% of the vehicle allowing for wheelchair access, while the floors were raised at each end of the tram to accommodate the powered trucks. In addition, air conditioning and electronic destination displays were also provided, all a first for the Adelaide tramway operation. The Bombardier Flexity Classic series of trams had been designed for use on traditional street tramway operations compared to more modern light rail installations, with the NGT8 Type S cars seeing service in Dortmund, Frankfurt and Kassel in Germany as well as Norrköping and Stockholm in Sweden. The initial batch of 60 cars (eventually growing to 75 cars) delivered to Frankfurt from 2003 onwards is of note, as the production of the new Adelaide fleet was essentially 'tacked on' to the Frankfurt order. One feature of the cars delivered in both Germany and Sweden that was to have major ramifications in Adelaide was the narrow body width of 2,400mm/7ft 10 31/64ins which was needed for operation through the narrow streets and city environs present. This was in comparison to the wide boulevards and open reserve track present in Adelaide. As a result, tram stop platforms had to be built to suit the narrow body width while the H type trams remaining in service were modified to work around the new infrastructure.

With 'behind the scenes' work for the aforementioned Glenelg line modernisation already in progress, it was announced in April 2005 that the existing tram service would be extended. Running from the long-established terminus at Victoria Square, the initial plan saw the extension run to Adelaide Railway Station but was soon modified to run slightly further west to the University of South Australia campus at City West. As additional trams were required to work this new extension, the current order of 9 cars was extended to 11. Meanwhile, construction of the Flexity Classic trams for Adelaide was taking place with some of the trams spotted carrying out test runs on the Chemnitz network in the German state of Saxony. Some TransAdelaide staff also travelled to Frankfurt to receive some training on the already delivered Flexity Classic trams in service there. Back in Adelaide, the Glenelg line was closed between June and August 2005 for the upgrading work to take place.

Soon afterwards, the first three trams (101-103) were loaded on the ship for the long sea voyage from Germany to Australia. Unfortunately, this journey was not without incident. While in transit, some of the other cargo onboard broke free and collided with tram 103, causing severe damage. After arriving in Adelaide with 101 and 102 on the 15 November 2005, 103 was transported to the Bombardier Dandenong

plant in Melbourne for accident damage evaluation, arriving there on 19 November 2005. The extent of the damage was such that a replacement tram 103 was constructed and delivered in 2007. The other two trams were delivered intact.

On the night of 22 November 2005 (47 years to the day after street tramway services ceased in Adelaide), tram 101 made contact with Glenelg line metals for the first time with 102 being delivered only a few hours later. Both cars were driven under their own power from the Victoria Square terminus to Glengowrie Depot.

Prior to entering service, multiple tests and trials were required to ensure these new trams were fit for traffic. One of these trials on 20 December 2005 included a passenger load test, filling the tram to 'crush load' capacity. Each participant was weighed prior to boarding the tram before leaving Victoria Square for Glenelg. At each stop, measurements were taken between the loaded tram and the platforms. A few days prior to entering service on 5 January 2006, 101 was used for a fundraiser for the McGuinness McDermott Foundation, running two return trips from Glenelg to the City for a gold coin donation. On 9 January 2006, both 101 and 102 entered passenger service heralding a new era of tramway operation in Adelaide.

Unfortunately, public reaction to the new trams was not entirely positive. After several decades of being accustomed to the well cushioned, reversible seats on the H type trams, criticism was made about the seating on the new trams. In contrast to the well cushioned tip-over seats previously used on the H type cars, the seating on the Flexity cars was significantly firmer as well as being permanently fixed. Despite having the same seating capacity as a single H type tram, the seating capacity of the new trams was also commented upon. By far the most significant criticisms about the new trams regarded the air conditioning system fitted. Since the trams entered service during a typically hot South Australian summer, the design and total capacity of the air conditioning system was immediately of concern, with several air-flow 'hot spots' detected on 20 January which was a 40°C day. The following day, the new trams were removed from service. Although fitted with a higher capacity air conditioning system compared with the Flexity Classic cars already in service in Frankfurt, the ducting ran along the sides of the tram near the floor (as per European practice) instead of the ducting running along the roof as traditionally used in Australia. After work carried out by both Bombardier and TransAdelaide, one of the cars was tested on 26 January. Although these modifications yielded some improvement, further modifications were carried out over the next three years to double the overall air conditioning capacity at a cost of $3.5million.

Despite these early difficulties, deliveries of the Flexity Classic cars continued with the last car of the original order (109) arriving in September 2006. After 77 years, the reign of the H type trams on the Glenelg line had finally come to an end, apart from several cars retained for designated heritage services. Although most of this batch of trams had been offloaded at Outer Harbour, 107 and 109 as well as all future deliveries were instead delivered via Melbourne. The extended order of two trams (110 and 111) were delivered in 2007. Although 110 was immediately dispatched to Adelaide, 111 remained in Melbourne and was noted at Preston Tramway Workshops in April 2007. At the time, various tram designs were being evaluated for potential use on the Melbourne network with a view for a potential new fleet (which would eventually become the E class entering service from 2013). Because of the narrow body width, 111 was not used

Public transport domination in King William Street on 27 July 2018. Almost in line with the adjacent bus, 107 crosses the intersection with Pirie Street before coming to a stop at the tram stop of the same name.
William Adams

Adelaide 111 on a test run in Melbourne. It is at the South eastern end of the crossover in Kings Way to the north west of the West Gate Freeway on 30 April 2007. Kym Smith

in passenger service. After being fitted with testing equipment to measure and monitor the operation of the tram in traffic, covering roughly 400 kilometres around Melbourne in the process. Unfortunately, the spectacle of an Adelaide tram running through the streets of Melbourne would be short lived as one of the truck mounted track brakes was severely damaged curtailing these trials. After this incident, 111 was loaded on to a truck at Preston Workshops and sent to Adelaide (with the track brake placed on the floor inside the tram). One minor difference on 110 and 111 compared to the previously delivered cars was the lack of black lining around the top of the windshield which altered the visual appearance of the two cars. By late February 2008, this minor aesthetic variation was conformed to the standard pattern.

The remains of the damaged 103 would also be delivered to Adelaide in 2007 to become a source of spare parts of the rest of the fleet. A creative use for the undamaged A end module was placed on display as part of the 2007 APEC Transport Minister's Conference held in Adelaide. After the conference, the module was delivered to Glengowrie Depot where it was joined by the damaged modules a few months later.

The highlight of 2007 however was undoubtedly the construction and opening of the Victoria Square to City West tram extension which was the first major addition to the Adelaide tram system since 1944 (when the Erindale line opened). Car 104 became the first tram since 1958 to run north of Victoria Square late at night on the 1st of September. After several weeks

Adelaide 104 arriving at Victoria Square 2 January 2018. The new junction at King William Street and North Terrace was being installed at the time and all trams from Glenelg were turned back over the crossover. Car 102 was stationed on the opposite side of the platform for use as a shelter for the staff operating the manual points all day.
William Adams

Adelaide 115 has arrived from Melbourne and is being unloaded at the Entertainment Centre on 18 June 2018.
Kym Smith

of night-time testing and daylight driver training, the opening day was announced as 14 October 2007. Cars 101 and 102 (along with H type trams 351 and 367) took part in the opening celebrations running as a procession of trams through the middle of the City. The overwhelming success of the new extension however put a major strain on the fleet with the passenger capacity and fleet availability stretched to extremes. By January 2008, it was reported that the Department of Transport, Energy and Infrastructure (DTEI) was even considering adding an extra module to the Flexity cars to increase capacity. However, the need for additional trams became so acute that a tender was issued looking for additional trams that could be obtained at short notice. This eventually led to the acquisition of six second hand Citadis trams from Madrid. Despite the success of the City West extension, the gradient now present on the line approaching King William Street from Adelaide Railway Station showed up another unfortunate weakness with the Flexity fleet. On 15 May 2008, after a day of heavy rain, trams slipped to a stall on the gradient as traditional sanding equipment was not fitted. As a result, the track had to have sand manually applied until the 11 Flexity trams had the sanding equipment modified.

Despite this unfortunate incident, the success of the City West extension motivated the State Government to proceed with an additional tram extension, this time running north west from the CBD to the Adelaide Entertainment Centre in the inner suburb of Hindmarsh. An additional four trams were determined as necessary to operate the new service with Bombardier Transportation receiving an order for additional Flexity Classic trams, to be numbered 112 to 115. Like the previous batch, this order would be attached to another order, this time for Stockholm which had ordered six cars. Because nothing with the Adelaide fleet of Flexity trams happens in a straightforward manner, construction of this batch of four cars was delayed as the Bombardier plant in Bautzen was flooded when the nearby River Spree broke its banks with the plant being inundated by 1.5 metres of water. Originally scheduled for delivery in late 2010, cars 112/113 arrived in 2011 while 114/115 were delivered in 2012. In the meantime, car 110 would become the first car to run under test on the new Adelaide Entertainment Centre extension in February 2010. The same tram would also take part in the opening celebrations of the line the following month.

Since entering service, the fleet of Flexity Classic trams in Adelaide have been modified since entering traffic (aside from the aforementioned air conditioning and sanding system alterations). In July 2006, the small road numbers applied by the manufacturer were replaced with larger red numerals making the cars easier to identify from a distance. The introduction of a new smart card ticket system in Adelaide during 2012 meant the final withdrawal of conductors on the Adelaide tram network. To accommodate the new ticket dispensers, one of the flip-up seats was removed, reducing the seating capacity by one. New, brighter LED marker lights were installed on all 15 trams from December 2015 onwards replacing the original units. By far the most obvious change however was the introduction of exterior 'All Over Advertising' on the tram fleet from October 2007. In another 'first' for the Flexity Classic fleet, car 113 would become the first tram to run (under test) on the new Botanic Gardens extension running along the eastern half of North Terrace on 4 June, 2018.

The King William Street / North Terrace Junction in the background with 113 on the first few metres running east along North Terrace on 4 June 2018. William Adams

After 116 years of continual Government operation under the management of the Municipal Tramways Trust, the State Transport Authority, TransAdelaide and more recently Public Transport Services, the fleet of 15 Flexity Classic trams along with the entire Adelaide tramway network was franchised. Tram operations were taken over by Torrens Connect (a consortium of Torrens Transit, UGL Rail Services, and John Holland) which began operations on 5 July 2020.

Although the 15 Flexity Classic trams in Adelaide had a very rough entry to service and needed multiple modifications to make them suitable for operation in the Australian climate, they have since proven to be reliable and dependable vehicles in traffic. They have been a vital part of the resurgence of the Adelaide tram network during the 21st century. As well as leading the charge for the mass modernisation and expansion of the Adelaide network, their presence has been felt in Melbourne where the ever-growing number of E class trams in traffic can claim, at least part of their origin story, in the surprise visit of an Adelaide interloper.

Many thanks must be extended to Kym Smith for his assistance in the preparation of this article.

Looking east from the North Terrace / Frome Road intersection towards the Botanic Gardens terminus with 113 on a test run on 4 June 2018. William Adams

SPECIFICATIONS:

Builder: Bombardier Transportation, Bautzen (Germany)
Length: 30,040mm / 98' 6 43/64"
Width: 2,400mm / 7' 10 31/64"
Height: 3,500mm / 11' 5 51/64"
Wheel diameter: 600mm / 1' 11 5/8"
Trucks: Bombardier FLEXX Urban 2000
Controllers: Bombardier MITRAC 500 series
Motors: 4x Bombardier MITRAC 105kW / 140hp
Tare: 40.0 tonnes / 39.36 tons
Capacity: 64 seated / 115 standing

SERVICE NOTES:

TA 101 - PTS 101 - TC 101:
22/11/2005 - Arrived ex ship (offloaded Outer Harbour, South Australia). Unloaded at Victoria Square terminus.
20/12/2005 - Load test trial carried out using volunteer passengers.
05/01/2006 - Used by McGuinness McDermott Foundation on a fundraising trip before entry to passenger service.
09/01/2006 - Entered service.
14/10/2007 - Used as part of Victoria Square - City West extension opening celebrations/procession.
07/03/2010 - Used as part of City West - Entertainment Centre extension opening celebrations
01/09/2010 - Transferred to Public Transport Services (PTS).
13/10/2018 - Operated first passenger service to Festival Plaza terminus.
05/07/2020 - Transferred to Torrens Connect (TC).

TA 102 - PTS 102 - TC 102:
22/11/2005 - Arrived ex ship (offloaded Outer Harbour, South Australia). Unloaded at Victoria Square terminus.
28/11/2005 - Noted doing brake tests.
28/12/2005 - Used for a VIP demonstration run from Victoria Square with the Governor of South Australia, State Premier and Transport Minister aboard.
09/01/2006 - Entered service.
14/10/2007 - Used as part of Victoria Square - City West extension opening celebrations/procession.
25/11/2007 - Collision with bus, Jetty Road (Glenelg).
01/09/2010 - Transferred to Public Transport Services (PTS).
05/07/2020 - Transferred to Torrens Connect (TC).

(1st) TA 103:
19/11/2005 - Delivered to Bombardier, Dandenong (Melbourne) for accident damage evaluation.
25/03/2007 - Undamaged 'A end' module transported from Bombardier, Dandenong to Adelaide.
/03/2007 - 'A end' module used for display at APEC Transport Ministers' Conference, Adelaide Convention Centre.
31/03/2007 - 'A end' module delivered to Glengowrie Depot for use as a spare parts source.
21/06/2007 - Damaged 'B end' and centre section modules delivered to Glengowrie Depot for use as spare parts sources.

(2nd) TA 103 - PTS 103 - TC 103:
/06/2007 - Arrived ex ship (offloaded Appleton Dock, Victoria).
15/06/2007 - Delivered to Adelaide. Unloaded at Victoria Square terminus.
19/07/2007 - Noted doing trial runs.
01/08/2007 - Entered service.
01/09/2010 - Transferred to Public Transport Services (PTS).
/09/2010 - Artwork 'In Transit' applied to car.
05/07/2020 - Transferred to Torrens Connect (TC).

TA 104 - PTS 104 - TC 104:
09/01/2006 - Arrived ex ship (offloaded Outer Harbour, South Australia). Unloaded at Victoria Square terminus.
24/04/2006 - Entered service.
01/09/2007 - First tram to use Victoria Square - City West extension (trial run).
01/09/2010 - Transferred to Public Transport Services (PTS).
05/07/2020 - Transferred to Torrens Connect (TC).

TA 105 - PTS 105 - TC 105:
02/04/2006 - Arrived ex ship '*Hual America*' (offloaded Outer Harbour, South Australia). Unloaded at Victoria Square terminus.
18/05/2006 - Entered service.
01/09/2010 - Transferred to Public Transport Services (PTS).
05/07/2020 - Transferred to Torrens Connect (TC).

TA 106 - PTS 106 - TC 106:
06/06/2006 - Unloaded at Victoria Square terminus.
18/07/2006 - Entered service.
01/09/2010 - Transferred to Public Transport Services (PTS).
05/07/2020 - Transferred to Torrens Connect (TC).

TA 107 - PTS 107 - TC 107:
/05/2006 - Arrived ex ship (offloaded Appleton Dock, Victoria).
30/05/2006 - Delivered to Adelaide. Unloaded at Victoria Square terminus.02/07/2006 - Entered service.
07/07/2009 - First tram to use South Road deviation track around South Road tram overpass construction site.
01/09/2010 - Transferred to Public Transport Services (PTS).

05/07/2020 - Transferred to Torrens Connect (TC).

TA 108 - PTS 108 - TC 108:
07/06/2006 - Arrived ex ship '*Hual Paris*' (unloaded Outer Harbour, South Australia). Unloaded Victoria Square terminus.
03/08/2006 - Entered service.
17/06/2009 - Collision with truck, King William Street.
01/09/2010 - Transferred to Public Transport Services (PTS).
05/07/2020 - Transferred to Torrens Connect (TC).

TA 109 - PTS 109 - TC 109:
/09/2006 - Arrived ex ship (offloaded Appleton Dock, Victoria).
29/09/2006 - Delivered to Adelaide. Unloaded Victoria Square terminus.
24/10/2006 - Entered service.
/03/2009 - Decorated for the Centenary of Electric Tram Services in Adelaide.
01/09/2010 - Transferred to Public Transport Services (PTS).
/02/2015 - Decorated and illuminated for Adelaide Fringe Festival.
05/07/2020 - Transferred to Torrens Connect (TC).

TA 110 - PTS 110 - TC 110:
/03/2007 - Arrived ex ship (offloaded Appleton Dock, Victoria).
23/03/2007 - Delivered to Adelaide. Unloaded Victoria Square terminus.
17/04/2007 - Entered service.
22/02/2010 - First tram to use City West - Entertainment Centre extension (trial run).
07/03/2010 - Used as part of City West - Entertainment Centre extension opening celebrations. 01/09/2010 - Transferred to Public Transport Services (PTS).
05/07/2020 - Transferred to Torrens Connect (TC).

TA 111 - PTS 111 - TC 111:
/ /2007 - Arrived ex ship (offloaded Appleton Dock, Victoria).
11/04/2007 - At Preston Workshops, Melbourne. Later tested out of service around the Melbourne network.
06/05/2007 - Departed Melbourne for Adelaide. Loaded at Preston Workshops loading ramp.
08/05/2007 - Delivered to Adelaide. Unloaded Victoria Square terminus.
/08/2007 - Entered service.
06/11/2007 - Derailment (South Terrace siding).
01/09/2010 - Transferred to Public Transport Services (PTS).
05/07/2020 - Transferred to Torrens Connect (TC).

PTS 112 - TC 112:
/03/2011 - Dispatched from Bombardier Transportation (Bautzen, Germany).
04/05/2011 - Arrived ex ship 'Talisman' (offloaded Appleton Dock, Victoria).
09/05/2011 - Delivered to Adelaide. Unloaded at Entertainment Centre terminus.
18/06/2011 - Entered service.
05/07/2020 - Transferred to Torrens Connect (TC).

PTS 113 - TC 113:
14/07/2011 - Arrived ex ship '*Wilhemsen Tampa*' (offloaded Appleton Dock, Victoria).
18/07/2011 - Delivered to Adelaide. Unloaded at Entertainment Centre terminus.
/08/2011 - Entered service.
04/06/2018 - First tram to use King William Street - Botanic Gardens extension (trial run).
05/07/2020 - Transferred to Torrens Connect (TC).

PTS 114 - TC 114:
/05/2012 - Arrived ex ship '*Giovanna Juliano*' (offloaded Appleton Dock, Victoria).

Adelaide 111 on a trial run and Yarra Trams Siemens Combino D2 class 5013 at the north western end of the crossover in Kings Way, Melbourne.
Kym Smith

26/05/2012 - Delivered to Adelaide. Unloaded at Entertainment Centre terminus.
14/06/2012 - Entered service.
13/10/2018 - Operated first passenger service to Botanic Gardens terminus.
05/07/2020 - Transferred to Torrens Connect (TC).

PTS 115 - TC 115:

/06/2012 - Arrived ex ship (offloaded Appleton Dock, Victoria).
18/06/2012 - Delivered to Adelaide. Unloaded at Entertainment Centre terminus.
13/07/2012 - Entered service.
9/08/2012 - Used by COTMA for tour of the system.
05/07/2020 - Transferred to Torrens Connect (TC).

Adelaide 115 being unloaded at the Entertainment Centre on 18 June 2018. Kym Smith

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Originally published in *The B.H.P. Review*, June 1946, pages 4-6.

GROOVED TRAMWAY RAIL ROLLED IN AUSTRALIA

Australian Iron & Steel Ltd. Pioneers New Project

The manufacture of grooved tramway rails in Australia marks another notable milestone in the industrial progress of this country. Several factors have assisted the steel industry in its task of bringing the original project to a successful conclusion. Chief among these has been praiseworthy co-operation by the various transportation bodies and effective co-ordination of the efforts of steel makers, roll designers and rolling mill technicians. The former by their pooling of individual rail requirements and adoption of a standard rail design made the local manufacture of grooved tramway rails an economic proposition, and the latter developed an effective production technique to meet the demand.

On February 26 of this year [1946], the first official rolling of grooved tramway rails to be manufactured in Australia took place at the Kembla works of Australian Iron & Steel Ltd., NSW. The event marked the successful culmination of much planning and preparation by Kembla Works rolling practice authorities. Before the project was started, however, protracted negotiations had been carried out by interested parties.

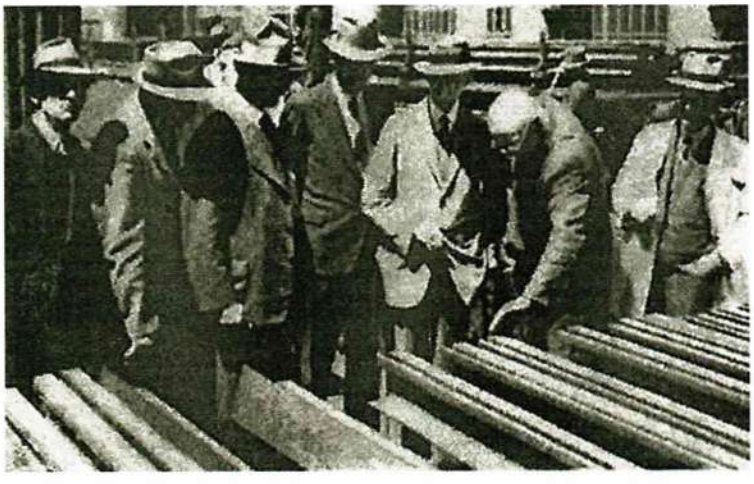
The negotiations were stared a number of years ago, when the Standards Association called a conference of all interested in the rolling of these rails in Australia, the main object being to ensure co-ordination between all the Australian states.

At this conference, it was decided that a grooved rail section, suitable for Australian requirements, should be designed. The outcome was a proposed standard section. Because of a change in views on the project, the rolling of the section was not undertaken, and in the interim, grooved rails were imported from overseas.

The rolling of grooved rails locally was revived, however, when, in the course of its post-war planning, the Melbourne and Metropolitan Tramways Board approached The Broken Hill Proprietary Co. Ltd. to ascertain the prospects of a standard groove rail section being produced in Australia.

Simultaneously, the Adelaide Municipal Tramways joined with the Melbourne authorities in this investigation of the possibilities of an Australian source of supply, and further discussions were held at which Mr. H.H/ Bell (chairman of the Melbourne and Metropolitan Tramways Board) and Sir William Goodman (chief engineer and manager of the Adelaide Municipal Tramways Trust) were present. Finally, the tramways authorities of all stages agreed to accept the 102 lb. grooved rail, which it is thought will ultimately become the standard throughout Australia and will be accepted as such by the Standards Association.

Specifications for rolling this section were laid down, and in March 1945, contract was drawn up for tehe



Members of the official party invited to witness the first rolling of the grooved rails inspect the product.

supply of rails from the Kembla Works of AI&S Ltd. to tramway authorities in Queensland, South Australia, Western Australia, New South Wales, Victoria and Tasmania, and to the Victorian Railways . An order was also placed by the Dunedin (NZ) city council.

Amongst those who witnessed the rolling of the first rails were: Messrs A.S. Hoskins, Manager of the Australian Iron & Steel Ltd.; H.H. Bell, Snr., chairman, Melbourne & Metropolitan Tramways Board; H.H. Bell, Jnr., engineer, Melbourne & Metropolitan Tramways Board; Sir William Goodman, chief engineer and general manager, Adelaide Municipal Council Tramways trust; W.H. Mortlock, production superintendent, Australian Iron & Steel Ltd.; J. Carlisle, inspecting engineer of NSW Rail Inspection Department; and D.M. Frankenberg, of Melbourne Office Sales Division.

Because of the wide variety of sections produced at the Kembla Works during the war years, the preparation and rolling of new sections at the Works' 36 in. rail and structural mill cannot be regarded as a novelty. However he contract for grooved tramway rails called for more than the usual amount of preparation, involving as it did the design and manufacture of a completely new finishing stand fitted with special grooving wheels for rolling the groove in the rail head. The original housings were part of the three-stand rail and billet mill first installed at Margam, South Wales, and later purchased by AIS for installation at Port Kembla; and though well designed for their intended purpose, were unsuited to rolling tramway rails.

Design Problems

The general re-design of the finishing stand, together with the designing of rolls, guides, etc., was carried out by the staff of the bloom and rail mill superintendent. The detailing of the housings, however, was handed to the main drawing officer. An important part of this phase of the undertaking was played by the chief roll designer, Mr John Insley, who, in a broad sense, had little on which to commence work. He had an ingot fixed in size by general plant practice, a section determined, with his consent, by the customer, and four stands of rolls of fixed size and limited strength, by which the ingot had to be formed into a rail in a manner which could be determined only by his personal experience and preference.

The preparation of master templates was the first step in this process. These were submitted to the inspecting authorities, and, after approval, were used as the basis for the whole layout.

These templates were not used for the roll turning, as the finished groove had to be larger, overall, than the finished section desired to be rolled from it to compensate for the shrinkage of the hot rolled bar on cooling. Roll design, then, proceeded from the master template to the calculation of the "hot sizes," and thence groove by groove until the shape which could be made from a square or oblong bloom was reached. The development of these passes is illustrated in Fig. 1.

The successful determination of the progressive changes in the shape of successive grooves can be made by judgment and experience only, nobody having yet succeeded in devising formulae which could make the process an exact science. Moreover, roll design is in many respects peculiar to each individual mill, and invaluable as experience in basic principle is on one mill, roll design cannot be applied wholly to another mill, however successful it may have been on the first.

The 36in. mill consists of three 2-high stands of rolls, with motor-driven live roller tables on both sides of each stand, and two sets of pullovers on each side of the mill, by which the bar is run into and out of the mill, and moved from pass to pass.

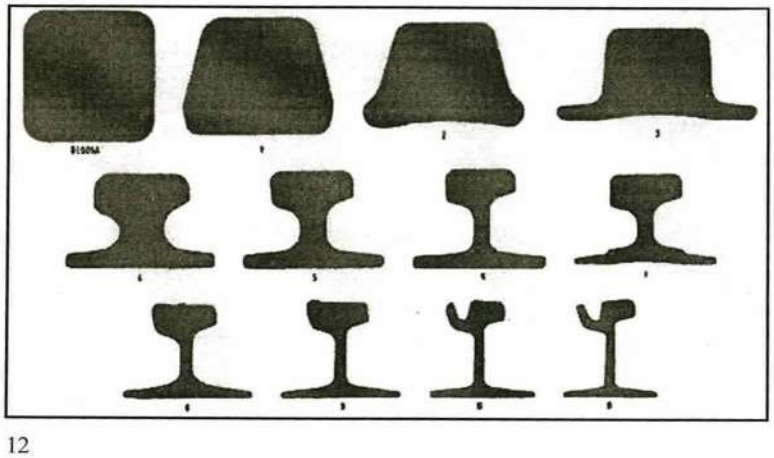


Fig 1. From original bloom to finished rail. Showing rolling sequences as they progressively influence the shaping of the rail.

Kembla Works staff responsible for the design of the housings. Rolls and tackle required for the new grooved rail project.

With these facts in mind, the number of grooves for each stand of rolls was allotted to suit the existing mill floors and transfers, particular attention being directed towards avoiding undue manual labour. This was achieved by disposing the grooves so as to make use of the natural tendency of the bars to fall to one side or the other, or to twist or be amenable to an artificially induced twist, and was particularly important to facilitate rolling. This aspect settled, the grooves were then arranged so that the thrust was absorbed by special collars and not transmitted to the end bearings where wear would result in variations on te finished section.

Mr, L.A. Davison (Kembla Works bloom and rail mill supt.) holds a section of the grooved tramway rail. The design and installation of the new rolling mill housing was under his supervision.

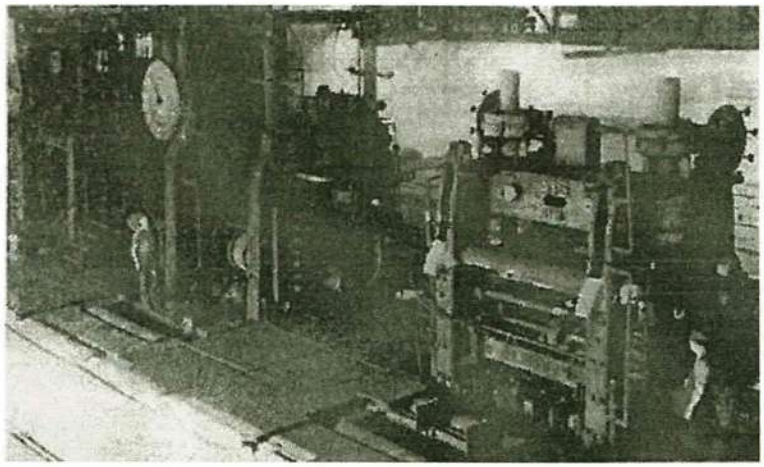
Once the design had been completed, it was possible to make detailed roll drawings, and to place orders on the BHP roll foundry at the Newcastle Steel Works for the supply of the roll blanks rough-machined for turning to the finished size at the Kembla Works. To ensure the bar working easily through the rolls it had to be "steered" in and out of the grooves, and guides for this purpose were designed and ordered as soon as the roll drawings were completed.

Rolls are turned with lathe tools shaped to the profile of the groove, and the numerous tools required were put on order as fast as the working templates for each groove could be completed. All these activities were co-ordinated so that when rolls finally arrived,, turning could proceed without loss of time.

To assist the roller, and ensure that all essential information was readily available, a rolling chart showing the bloom size, groove numbers and position, bar lengths, and roll settings was prepared for display on the mill floor during roll changing and rolling. In addition, an instruction sheet covering the new features and adjustments, and their probable effect, was prepared and circulated, and similarly, drawings showing the correct position for each item of guide equipment was provided to ensure correct and easy assembly.

Housings made in Australia

The new housings were of steel and were cast at the Newcastle Steel Works, the first huge casting being delivered on July 25, 1945, and the second on August 11, 1945. Without delay, the machining was rapidly completed and the mill was assembled for check purposes in the shop, enabling the mill installation



Grooved tramway rails being rolled in the roughing stand of the 36in. at the AI&S Ltd., Kembla Works.

operations of the mill maintenance team to commence on the night shift of September 14, 1945.

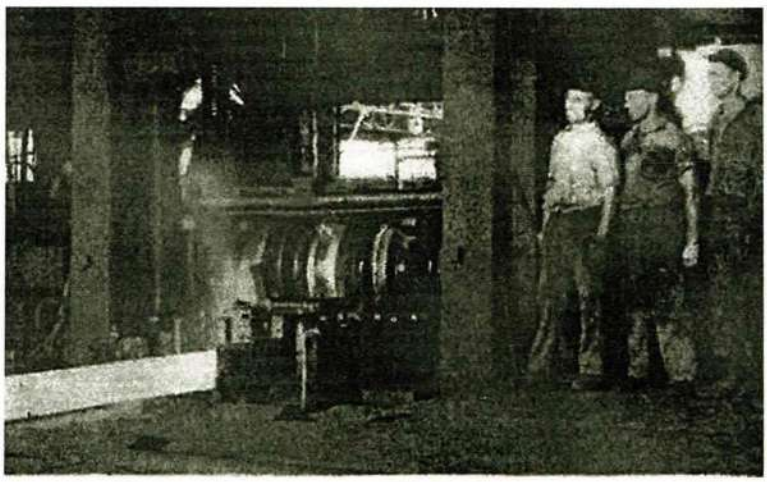
By day shift the old housing had been dismantled and removed, allowing the existing bedplate to be carefully chipped and cleaned to provide a good seating foe the new housings. Each housing was placed in position separately, then lined up, and the tie bolts fitted. Installation of the bedplate bolts and assembly then began, and the mill was ready for operation by night shift on September 16, having taken only 48 hors to assemble.

The completed housings stand 16 ft. high, are 11ft. 6ins. wide and weigh approximately 120 tons. They are of the open top type, rolls being changed through the top of the housing over which a steel cap carrying the screwdown gear is held by four straps wedged tightly in place. The bottom roll is supported on brass bearings at the bottom of the windows; the top roll is held up by the hydraulic pressure against the adjusting screws by bearing-carrying chocks suspended from the steel cross beam which is lifted by four hydraulic rams bolted to the housings. The screwdown screws pass through the crossbeam and bear down on the top roll against the lift of the hydraulic rams through top bearing chocks and bearings of brass with white metal inserts.

The brackets holding the grooving wheels are supported in the centre of each window between the rolls by bolts which can be adjusted to move the brackets in and out of the housings and on tapered wedges which can be operated to raise or lower them. The grooving wheels are not driven, but revolve freely on brass bearings, by the pressure of the rail against them.

Rolling Sequences

In setting up the mill the rolls are brought into contact, the top roll is then raised 1/16 in. and the grooving wheels are positioned against the rolls by means of



The 36in. mill at AI&S Ltd. Kembla Works in which the grooved tramway rails are rolled.

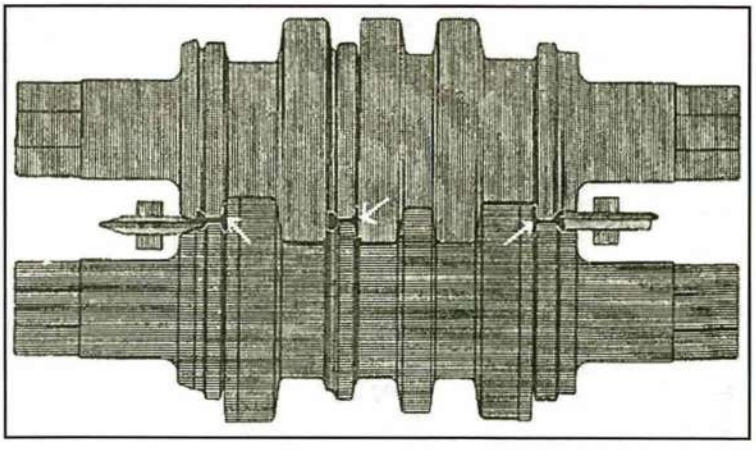


Fig 2. – Some idea of the problems of the roll designers in developing correctly the complementary roll shapes is given by this drawing which shows the rail section (indicated by arrows) between the rolls.

gauges inserted between each wheel and the rolls. Guards and guides must be accurately aligned to enter the bar and deliver it straight from the mill.

The feed for the 36in. mill is a square bloom. 9in. x 9in., which is given five passes in the roughing stand, then three passes in the intermediate stand, and finally three passes in the finishing stand (Fig. 2).

As the rail leaves the mill it is cropped and cut into 45 ft. lengths by a 60 in circular saw, while still hot. The length is cut at the saw must allow for shrinkage on cooling, and an allowance of 8in. to 10in. is made on this account on each length.

To identify each rail, it is stamped with the number of the cast of steel, the ingot number, and the rail letter signifying its position in the ingot, e.g., A-5225 – 23 – D.

Inspection records of each rail rolled, and each heat rolled, are filed and these at times provide valuable data.

Because of the unbalanced shape of the rail and the fact that the head leaves the mill hotter than the flange, the rail will cool in a curve with the head on the inner radius. To prevent this, the rails pass through three small vertical rolls set to produce a camber in the rail in the opposite direction, so that on cooling the rails will be nearly straight.

The rails are left on the cooling beds until they are cold enough to be handled. They are then straightened, machined at both ends square, and true to length, and drilled for fish-bolt and tie-bar holes, according to the customer's requirements.

Published in the *Sydney Morning Herald*, 19 June 1948, page 4.

Leap From Car To Stop Driverless TramCabinet

A tram conductor jumped from a police patrol car on to a moving driverless tram yesterday morning and stopped it. This is the second case in six weeks of a driverless tram being found travelling through the streets. The tram, which had been stolen from Waverley depot, was seen speeding along Anzac Parade.

Police chased it in a patrol car, passed it and alighted, but were unable to jump aboard. They then picked up Conductor Elersley, of Dowling Street depot, and resumed the chase. When the two vehicles were travelling side by side, Elersley jumped from one to the other.

The tram was first seen with a driver at the controls about 2:50 a.m. racing along Green's Road, Paddington, towards Moore Park. Later it was seen near Robertson Road, travelling southwards.

Daceyville police sighted the tram, then without a driver, shortly after 3 a.m. near Boyce Road, Maroubra. Detective Baldwin, of Waverley, is investigating.

The Minister for Transport, Mr. O'Sullivan, said, apparently a man who had a key to unlock the tram removed it during the absence of the watchman.

MELBOURNE W2 CAR 249

Ian Hanson

Despite the hiatus caused by the present pandemic, work resumed in June to complete the refurbishment of 249, a tram which saw some 62 years of service in Melbourne and to some 15 years at the Sydney Tram Museum. The decision was taken in 2019 to have 249 repainted in an early green and cream livery circa 1950. It was withdrawn from service on November 17, 2019. The previous colour scheme applied in 2001 was for a proposed tramway in Canberra and for many years carried the maroon and stone colours as applied to Canberra's first buses in the 1920s. Plans to establish tramways in that city in the 1920s did not eventuate at that time. In recent years though a change of mind in Canberra saw the establishment of a light rail service with a fleet of some 14 trams.

To return 249 to the earlier livery, it required the removal of the windows from the car. All of which had been varnished on the interior and exterior in the 2001 restoration. Some were found to be in poor condition and all were repaired, primed, undercoated and given three of green car colour.

This work is being done by Chris Jacobs, Richard Jones and Ian Hanson. Meanwhile, the exterior head and tail marker lights added in the 1970s were removed by Rod Saunders who ingeniously restored the end aprons, without the need to remake new ones. Bill Parkinson carried out the task of rewiring the light circuit. The exterior of the tram required rubbing back of the old maroon steel panels and removal of the previous emblems. This work being carried out by Vic Solomons, Richard and Ian. Through the expertise from Tony Smith from the Haddon Tramway in Victoria, we were able to obtain some missing items along with a complete new set of gold numbers and MMTB emblems.

The Sydney Tramway Museum's workshop team were able to remake new saloon seat ends as the originals were removed when the tram received upholstered seats in 1961. Interior varnish was touched up where necessary whilst Peter Warr and Michael Hatton attended to rejuvenating the floors. The exterior paintwork is being undertaken by Ian Hanson, Peter Butler and Vic Solomons. Our resident artisan, Joe Spinella applied the gold coach lining along with the MMTB emblems and numbers. Apart from some minor items, the 249 refurbishment was completed on July 18.

249 first entered service in Melbourne on September 10, 1924 and withdrawn in 1986, by which time it had been renumbered 1249 to avoid duplication with the then new Z3 type trams entering service during 1980-83 W2 249 was eventually sold to Mr. Garnet Pearce of Clarendon near Ballarat in complete condition on 10 December 1986. Over time, the Sydney Tramway Museum would eventually acquire the tram in 1996. It was eventually moved from the Clarendon property to the Bendigo Tramway Workshops on 28 February 2001.

After a complete refurbishment there, including restoration of the varnished ceiling, it was transported to Canberra where it actually went on to become the first electric tram to operate in Canberra, if only for a short time on temporary track and overhead wiring. 249 operated in Canberra from 13 to 28 September, 2003.

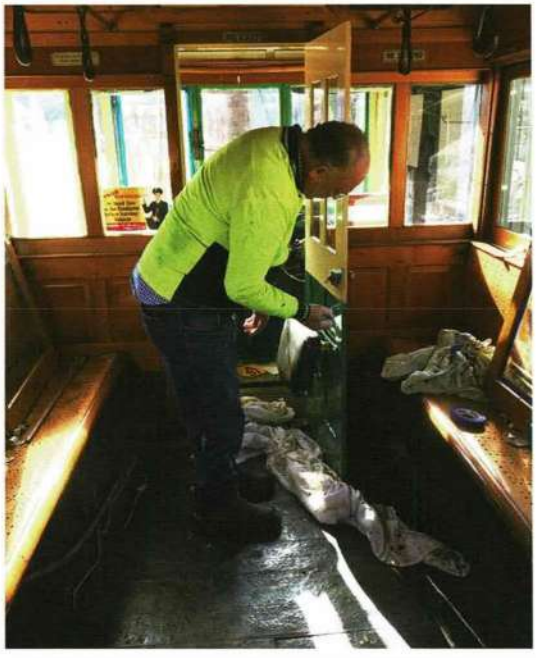
Finally, on 3 December 2005, 249 was delivered to Loftus where it still continues in service.

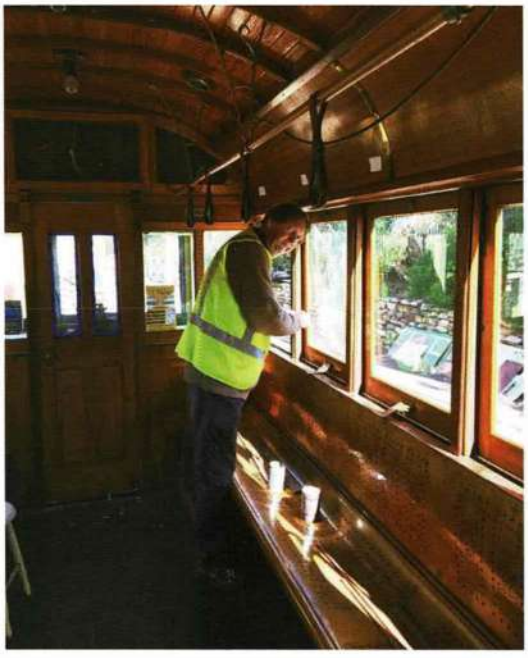
249 in undercoat on 22 January 2020. Ian Hanson

The interior saloon with freshly painted floor. Ian Hanson

Below right:
Peter Warr re-installing the windows in the saloon.
Ian Hanson

Ian Hanson touching up the interior of 249.
Victor Solomons





A very late correction

The May and August 2018 issues of *Trolley Wire* contained an article on the Australian Electric Traction Association's report on Newcastle transport, prepared in 1950.

In that article it was stated, in a photo caption on page 10 of the May 2018 issue, that the report had made no mention of the Glebe tram line or its future.

That statement was incorrect. Section 8 of the AETA report, on bus services, included the following (words in square brackets have been added):

"Glebe. It is proposed that this [bus] service remain as such using vehicles of design A [39 seat single-deckers]. We do not advocate the retention of trams on this route as it serves an area which will not materially expand to any extent. Also the rail could be better utilized for re-railing on other tram routes."

LAUNCESTON TRAM 14

John Binns

The volunteer members at Launceston Annex wish to announce that Launceston single-truck tram 14 is nearing a complete reconstruction which has taken four years.

All existing structure has been stripped of old vanish and paintwork applied during its 110 years of life and also the time at Campbell Town in the midlands of Tasmania where it was used as a farm shed and store room. Thanks to Alan O'Byrne, our painter for his patience.

Bulkheads, seats and windows were removed to create a large area for storage.

All bulkheads and interior timber work to the two driving cabs has been faithfully reinstated by Barry Cole and Graham Wright.

Interior Huon pine side panels were removed, cleaned of paint, varnish and grime from the tram's 110 years of life to reveal the magnificent golden colour of the Huon pine. Damaged panelling has been carefully repaired by John Binns.

Of particular interest is the original craftmanship quality of the sliding blackwood doors to the saloon. The removal of five coats of paint work and grime has revealed the magic of the blackwood and the joinery of 110 years ago.

All repairs to stripped paintwork have been completed, undercoated and finished with original 'livery colours' – white on ceilings, cream to superstructure and Burgundy – by Allan O'Byrne.

All new seats and backs in each dropend have been faithfully constructed by Rob Hodge and John Binns.

Rob Hodge removed all rot in the major structure of the framework and replaced to original condition, both interior and exterior. All repairs were undercoated and top coated to original livery.

All brass work, grab handles, safety bars and brass fittings were manufactured on site and fitted by Barry Cole and Graham Wright.

Sand boxes were manufactured by Kerry Thompson to original pattern and fitted by Barry and Graham.

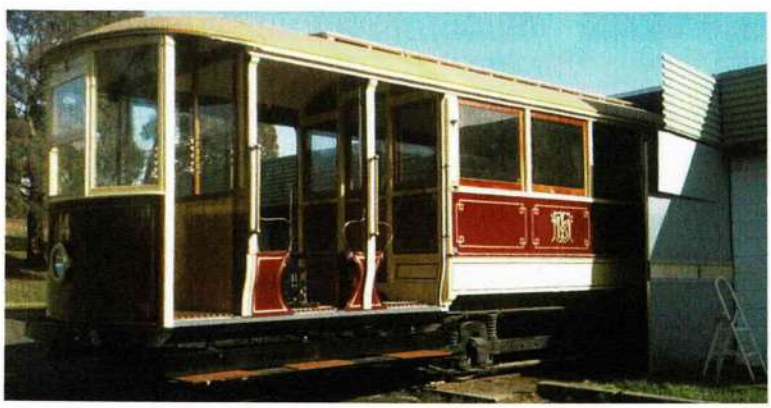
Repairs to the tram roof and reconstruction of the clerestory, repairs to the tram saloon floor and fitting of the floor slats was carried out by Rob Hodge with the assistance of Quentin Manning.

Repairs to the voids created over the life time of the tram have been painstaking repaired by Quentin Manning at each end and undercoated in readiness for the burgundy finishing coat. Quentin is a general hand where required.

All linework to the side panels has been painstakingly carried out by Alan O'Byrne, who has never attempted this before. What an excellent finish to the tram!

We acquired the service of Peter Baker, a professional sign writer and gold leaf specialist. The insignia to both sides of tram 14 is evidence of his profession. Peter will undertake all signs on tram 14. To watch Peter at his work is 'poetry in motion'.

We are now in recess and awaiting components from Victoria. However, transport out of Victoria has been hampered by the current situation with COVID-19



Launceston car 14.
Hugh Ballment

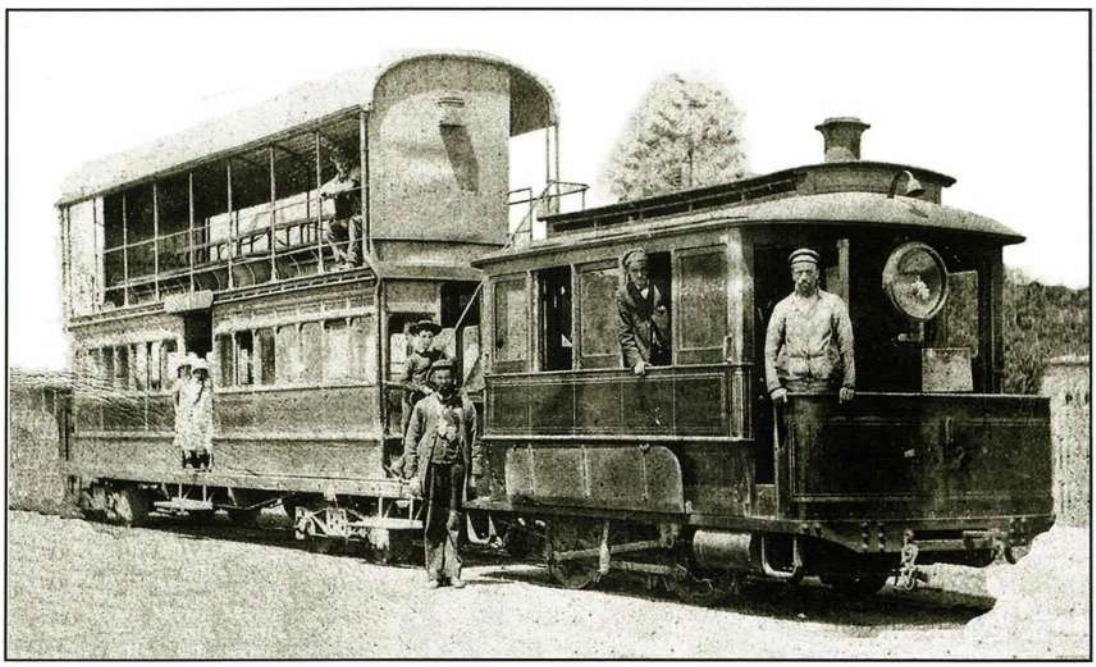
SYDNEY TRAMWAYS ROWAN CAR

Richard Horne

This photograph (from Vic Solomans' collection) shows a Sydney steam tram trailer of a design completely different to any other and one not illustrated in Norm Chinn and Ken McCarthy's New South Wales Tramcar Handbook 1861-1961 Part Two (SPER 1976). So what can it be? Bruce Macdonald and I believe that, with its unique design and no previous illustration or detailed description, it is most probably the passenger car part of the Kitson Rowan car (No.50 in the locomotive fleet) heavily rebuilt as trailer 46 (later (1st) 50), the single D class car. The description of the Rowan car in the Tramcar Handbook was clearly based on the former Glenelg & South Coast Tramway car as converted to a trailer on the Glenelg Railway, and which was used as an illustration. However, Rowan cars came in many forms, some with centre and rear entrance. The G&SCT car body was built by the Scandia Co., of Randers, Denmark, while Brown, Marshalls & Co., of Birmingham, built the Sydney car, each firm having its own quite different design features.

Access to the original Kitson records (at the Tramway Museum Society, Crich, Derbyshire) show that the Sydney car was T 6. T 5 (the G&SCT Rowan car), and T 7 (the first Dunedin steam motor) both left the works in 1879, yet T 6 did not leave until 10 January 1882. Clearly it had spent some three years at the works and the record notes that it had vertical cylinders (described in NSWGT December 1884 report as 'inside') and a 'loco type boiler altered' (contrary to what was shown in the Tramcar Handbook), was fitted with Eames vacuum brake and was built by Brown, Marshalls 'but altered here'. The motor part of the G&SCT car was quite different with a vertical boiler and horizontal cylinders. This part of the Sydney car was in use for shop purposes at Randwick Works by December 1884 and the Tramcar Handbook stated that the car body was rebuilt in 1885 to a short end-loading single deck saloon, which was transferred c1892 to railway service on the Camden and Yass lines. If so, this is hard to reconcile with the photo of the mystery car. The motor in the photo appears to be 12, The '2' is indistinct but it is certainly one of 10 to 19 and is a 0-4-0ST. Of those, 12, 14 and 19 were originally 0-4-2ST, with all converted to 0-4-0ST by 1887. Clearly to fully resolve this mystery, a photograph or diagram needs to be found of the car in railway use.

The mystery Rowan car hauled by steam motor possibly no. 12. V,C, Solomons Colln



A LETTER TO THE EDITOR

CONDUCTOR MEMORIES

Thank you for the recently re-printed article "FARES, PLEASE" in the August 2020 edition of TROLLEY WIRE.

I am, at present, volunteering as a Conductor at Loftus with the Sydney Tramway Museum. A position that not only gives me a great deal of pleasure but reminds me of my employment as a Conductor with the Melbourne and Metropolitan Tramway Board.

Can I share a few (inconsistent and hazy) memories with you?

In April 1965 I arrived, in Melbourne, as an "Assisted Passage" (Ten Pound Tourist) employee of the Melbourne & Metropolitan Tramway Board.

The MMTB were seeking Conductors to work in Melbourne and advertised in the Scottish papers. I was twenty years old when I answered an advertisement in the Edinburgh Evening News. I cannot recall how much the MMTB were willing to pay but the lure of travel (my Father paid the ten quid) and the lack of opportunities in Scotland at that time made applying a very attractive option.

I was successful with my application and after a wait of a few months I winged my way to Australia aboard a BOAC Comet and not, like most "tourists", by boat. The trip on that particular type of plane could, in itself, be the subject of quite a story. I still have the travel paperwork and when I see it again after all these years its amazing to realise how much travel has changed in fifty odd years.

On Sunday the eleventh of April 1965 I arrived in Australia. The plane eventually landed at Essendon Airport and we, I think there was five of us UK MMTB employees on that flight, were picked up and taken to a Bed & Breakfast (B&B) in Moonee Ponds. This was one of the properties owned by the Board to house 'immigrant' MMTB employees.

The accommodation must have been part of the wages 'package' for by the MMTB. I cannot remember ever having to pay the landlady any 'Board'. The house is still there in Moonee Ponds, in Holmes Road over the railway crossing from Puckle Street (what a great name), although I am sure that its days as a B&B are long gone.

It was either the Monday or Tuesday (more likely the latter) that we had to report to Little Collins Street in the CBD to begin our training.

Although we were given instructions on how to get to that place it would have been fairly daunting finding our way from Moonee Ponds by tram and then to Little Collins Street. Something I would have to get used to. We were outfitted in our uniforms and given instructions and induction into the ways and means of the MMTB.

Memories of the actual training are scant, although I do recall it not being long in duration. One thing has always stuck in my mind was never being told (in training) about 'shortages' and how they would be made up. It wasn't long before I would find out.

One of the curious things I recall was the way tickets were issued. I had grown up with trams and buses in Edinburgh where the Conductors issued tickets from a shoulder slung machine in which the Conductor entered the amount by pressing buttons, turning a handle and thereby producing a paper ticket.

The way the MMTB issued tickets, via a wallet holding tickets that were torn off and punched manually, seemed very strange to me and caused, initially, all sorts of grief and fiscal problems. It took a while to learn the tricks of tearing only one ticket at a time. A sharp learning curve.

I was assigned to the Essendon Depot and started there after my training had finished. The 'mates' I had travelled with from the UK were given different depots and were moved to different accommodation. Visiting Melbourne in 2019, the first time in over fifty years, I found that the depot in Mount Alexander Road is still there although not the same as in 1965. A new office and admin building being just one improvement. Likewise, as mentioned earlier, the B&B house in Moonee Ponds is still there. Mealtimes at the Depot were spent watching Grahame Kennedy hosting 'In Melbourne Tonight', on black and white TV.

My memories of conducting on the W2 trams are limited and a little uneven. At the very start there was a trainer riding with me, but that didn't last. I had to 'swim' by myself eventually. I had to hope that I could pick up as much information as I could in what was a very short time.

In the beginning the terminus at Elizabeth Street frightened the life out of me. The evening rush hour at that terminus was brutal. The hardest part was trying to get back onto the tram after changing the trolley pole and then trying to take fares and issue tickets

when you could hardly move because of the crush. No wonder there were shortages.

Remembering the different fare sections and their names was very hard for a twenty-year-old laddie from Edinburgh, Scotland in a very strange and (for a while) alien city. I am sure my 'greenness' stood out to all and that for a short time some of the travelling public got very cheap rides on the lines that I worked. I have to say that I don't recall having any 'Inspector' trouble. Maybe they knew how 'green' I was.

My most vivid memories are of (not sure if the numbers were the same in 1965) the Number 59-City/Essendon Airport. I am sure I must have ridden the Number 57 to West Maribyrnong and the North Coburg, Number 19, but it's the No. 59 that sticks. Maybe it was a more colourful scenery. Who knows?

Winter in Melbourne can be a cold place and it may be thought that someone who grew up in Scotland would be fairly oblivious to the worst of what winter conditions that city could throw up. However, night runs to the Essendon Airport Terminus (I think it was in Mathews Avenue) in a 1965 W2 tram can/could test one's mettle. I was glad that I had brought a couple of good pullovers with me from Scotland.

My complete understanding of 'shortages' came on my first payday. A lightness in my first wage made me well aware that I had better learn the section names and ticketing methods very quickly or I wouldn't be doing much socialising.

There were other 'connies' from the UK living in the B&B and they were of great help in giving me tips on not only ticket issuing but also learning and retaining memory of the sections on the routes covered by the Essendon Depot. Of course, my new mates at the Depot soon put me right as to learning and retaining section names as well. The lightness in my remuneration didn't last long., after all I was (at that time) Scottish.

My time with the MMTB was not long. Australia is a big country and needed me to explore it. I am back as a conductor, but this time I don't have to remember sections and I get plenty of time to sell and punch tickets. Not quite 360 degrees but close. It's shame that 'connies' disappeared in 1998. It's a terrible cliché but hindsight is a wonderful thing. Sydney is discovering that, even with the Covid virus problems the city works pretty well with trams.

I wonder how much it would benefit Melbourne Tourism to have conductors on their City Circle trams. Who knew the city better than the tram crews and cab drivers.

I wrote earlier that I now volunteer as a Conductor at the Sydney Tramway Museum at Loftus, south of Sydney in the Sutherland Shire. I haven't been there long but in that short time I have come to realise I should have volunteered a long time ago. The Museum's W2 tram 249 and has been only out once for a day since I started at Loftus. It is as I remember it now that it has been repainted and expertly maintained by a very professional bunch of volunteers. I and all the other members of our Traffic crew are eagerly awaiting its return in its newly painted original coloured livery.

I love being a conductor again. The Loftus Museum is a living, working place staffed by great knowledgeable people. At this stage it is only operating on Sundays but it won't be too long until Wednesdays start again.

Most importantly I get to ride trams, of all types, classes and pedigrees and meet, greet and interact with really nice people. I have been asked if I want to learn to drive trams. No, I want welcome the public, sell and punch tickets, blow a whistle (that power) and shout "ALL ABOARD". What could be better than that!

Please forgive me if some of my recollections are a bit off. It has been over fifty years after all. I hope this may be of interest to readers of Trolley Wire.

Kind regards,
Roger Dobson,
Conductor No. 2956,
Sydney Tramway Museum.

W2 227 approaching The Flinders Street terminus in Elizabeth Street on 23 October 1965. Noel Simons

HERE AND THERE
AUSTRALIAN AND OVERSEAS NEWS

Adelaide Tram News

On 10 March 2020 the South Australian Transport Minister announced that three companies had joined forces to become the first private operator to run Adelaide's tram network. The companies are Torrens Connect - a joint venture between Torrens Transit (one of Adelaide's bus operators); UGL Rail Services; and John Holland.

The new contract took effect from 1 July 2020 for a period of eight years. Torrens Connect is headed by General Manager Magda Robertson who previously worked for Sydney Trains and as Head of Train Control in Melbourne.

Although Adelaide's bus network was privatised in stages from the mid-1990s, the trams had been in public hands since 1909, first as the Municipal Tramways Trust and later as part of various state government transport departments.

It is interesting to note that just as Yarra Trams adopted the name of the river running through Melbourne, Torrens Connect adopted the name of the river running through Adelaide.

Torrens Connect Flexity tram 114 in Victoria Square on a journey to Glenelg on 1 October 2020. In the background Flexity 108 is at the Victoria Square stop on a journey to Royal Adelaide Hospital.
Damian Hill

Torrens Connect Citadis tram 207 in King William Street South on a journey to Glenelg on 1 October 2020.
Damian Hill

WHITEMAN PARK

PERTH ELECTRIC TRAMWAY SOCIETY (INC)
PO Box 257, Mount Lawley, Western Australia 6929 www.pets.org.au

Michael Stukely

Response to the COVID-19 pandemic

Following the suspension of all PETS public passenger services from 18 March 2020, plans were made to continue limited tram operations over the system.

This has included special tram running for training, maintenance and testing purposes as required, with minimal numbers of personnel present, in compliance with the current official COVID-19 guidelines for Western Australia. Several full trips have been run each week, keeping the service trams, and the tramway, in fully operational condition.

Following crew training and the necessary procedures and restrictions being put in place, in compliance with official guidelines and in consultation with Whiteman Park Management, the first passenger service was run to a near-regular schedule on Monday 12 October using Melbourne SW6 891. This was a pupil-free day for schools at the end of the two-week October holiday period, and with a fine spring day, passenger loadings were good. Cleaning of designated surfaces in the tram (using a 70% isopropyl alcohol spray) was carried out at prescribed intervals, and a passenger limit of a maximum of 30 persons per trip was imposed. Cash fares were collected as usual.

Passenger services provide most of the Society's revenue, and after the almost seven months' full suspension of these services, our financial situation was becoming very difficult. The return to some degree of normality with the resumption of regular public passenger services is most welcome.

Whiteman Park itself has remained open to the public for the full period, with many volunteer groups and commercial operators re-opening on a limited basis as restrictions have been progressively lifted.

Perth B class tram 15 departs for new home

WAGT single-truck B class tram 15, whose body has been fully restored by PETS for static display by the City of South Perth and the City of South Perth Historical Society (Inc.), was loaded for transport to South Perth on Friday 25 September, supervised by Noel Blackmore. It spent the next day at the transport company's yard, before being unloaded in the early hours of Sunday 27 September and placed in its new home, with road closures in place. Its scheduled arrival time for unloading was 6:00am, but when this correspondent arrived at 5:50am, the tram was already inside its new, purpose-built, glass-walled display

WAGT (Perth) B 15 stands outside the Lindsay Richardson Carbarn on Friday 15 September, after receiving a thorough clean by Maree Cowley and Mike Fielder, with preparation sunder way for loading for its transfer to South Perth. It will be moved over the hardstand behind it at right, newly laid by Ray Blackmore, for loading. B 15 is mounted on a 'mock-up' 21E style truck, constructed using ex-railway equipment, on 1067mm gauge (as appropriate for Perth Tramways). Noel Blackmore

After being turned through 90 degrees using two cranes, B 15 is moved from the Lindsay Richardson Carbarn fan to the semi-trailer (out of view behind the tram) for loading on 25 September. The body of Perth E 64 can be seen alongside the carbarn at right.
Noel Blackmore

Tram B 15 on arrival at 4:30am on 27 September in Mill Point Road at Mends Street, South Perth, ready for the crane lifting gear to be fitted.
Lindsay Richardson

Early in the morning of Sunday 27 September, B 15 has been unloaded and permanently positioned in its newly-constructed secure shed in Windsor Park, South Perth. The surrounding fenced area is to be landscaped ready for the opening of the public display on 22 October. Michael Stukely

Newly-overhauled Melbourne No. 15 trucks expected to be placed under W6 998, as seen on 2 September.
Lindsay Richardson

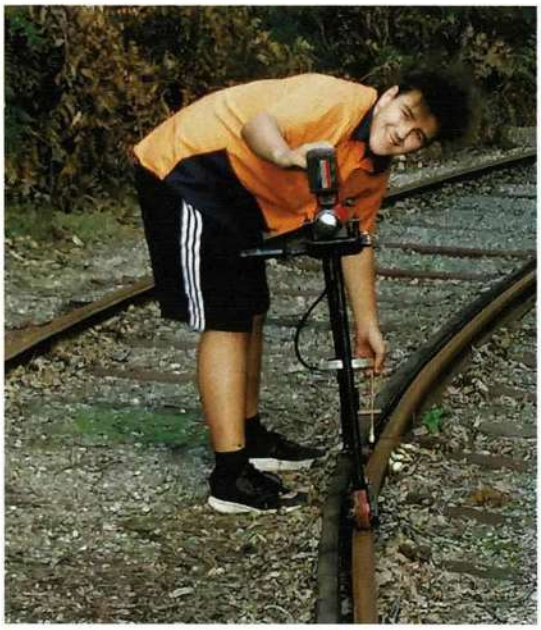
Mike Fielding and Maree Cowley admiring a flowering Bottlebrush on 9 September, which they had planted 12 months ago beside the Oketon Geddes Carbarn fan.
Lindsay Richardson

Terry Young removes the remains of an old timber sleeper for replacement with steel at the Mussel Pool tram stop on 26 September. Michael Stuklely

shed! The whole operation went very smoothly, and the busy Mill Point Road was re-opened to traffic earlier than expected.

B 15 will be on public display, facing Mill Point Road just east of the Mends Street intersection (through which trams once ran, on their way from Como to the Mends Street Jetty terminus). It is directly opposite Melbourne W2 class tram 388, whose front end is clearly visible across the road in the Windsor Hotel.

The restoration and long-term loan of tram 15 was coordinated for PETS by Lindsay Richardson as a special project, over many years, and we thank Lindsay for his tireless work.



Aaron Antulov greasing the track on the Bennett Brook Culvert curve on 26 June. Allan Kelly

Terry Young (left), Trevor Dennhardt and Nick Tsiaglis checking the track gauge during the installation of steel sleepers on Swamp Straight on 8 August. Michael Stukely

Point components for the new Don & Laurie Tyler Carbarn fan being prepared ans assembled inside the carbarn by Brian Rourke on 15 July. David Brown

The arrival of No. 15 at South Perth was covered on 27 September in a Seven television news story, featuring an interview with Lindsay Richardson.

The full story of this project will appear in a future issue of Trolley Wire.

Maintenance of trams and infrastructure

Rolling stock maintenance by our midweek (Wednesday and Thursday) team has continued at a good pace, with service trams having been kept in a fully maintained condition. Work is also continuing on the refurbishment of the No. 15 trucks for Melbourne W6 class 998, which is yet to enter service at Whiteman Park.

Our track maintenance program remains on target. Replacement of deteriorating timber sleepers with steel sleepers has continued, with the main line section

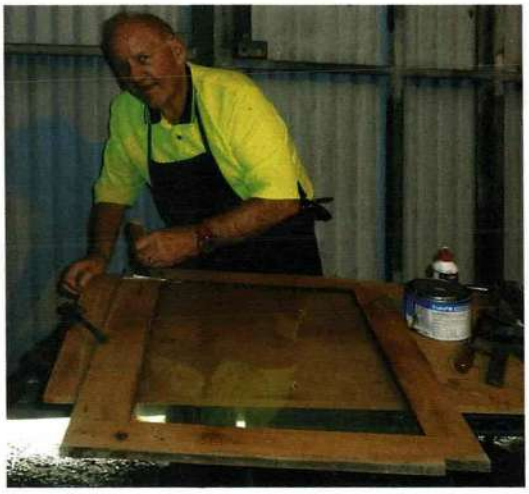
heading west from the Workshops Road level crossing to the Mussel Pool tram stop now completed. On the track workdays 11 July, 8 August, and 12 and 26 September, a total of 25 life-expired timber sleepers were replaced with steel sleepers, with additional packing and adjustments to gauge being carried out as needed by our regular team of workers. Only a small number of timber sleepers, all in sound condition, remain on this section of track.

Ray Blackmore has continued the task of re-gauging and levelling the Road 1/Road 2 points on the Oketon Geddes Carbarn fan, where preparations are under way for concreting the area.

Tram restoration

Some items for the body restoration of WAGT A class 130, including installing the steps on the western end platform, have had to be deferred due to the lack of funds during the COVID-19 pandemic.

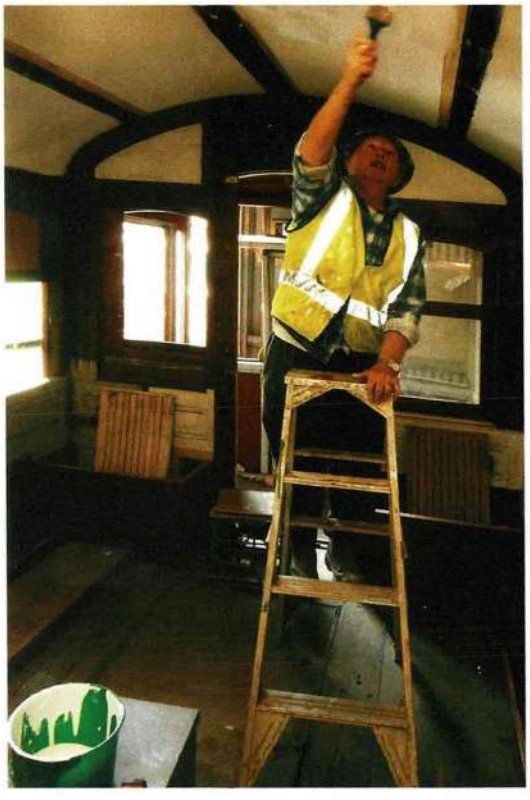
Graham Bedells is making good progress with painting the internal saloon ceiling, while Gavin Casey is sanding and repairing the window frames. John Davies has continued fitting the window trims.



Gavin Casey repairing a window frame on 2 September for return to WGT 130. Lindsay Richardson

Lower Right:
Graham Bedells painting the ceiling of WAGT 130 on 26 August. Lindsay Richardson

Len Pearce and Ray White examining newly–treated armatures on 26 August Lindsay Richardson



ST KILDA

AUSTRALIAN ELECTRIC TRANSPORT MUSEUM (SA) INC
PO Box 213, Salisbury, South Australia 5108 www.trammuseumadelaide.com.au

Colin Seymour

Public closure due to Safety Management System problems

As previously indicated, tram rides have been suspended since 29 June 2019 because of problems relating to the Museum's Safety Management System documentation. Progress is being made to address these issues but because we are an organisation of volunteers, this is a slow process. The AETM had been issued with five Non-Conformances. Two have now been closed off and another is close to being closed off. Much work has been done on the remaining two Non-Conformances and we hope they can be closed off in the next month or so.

In the meantime, with no tram rides, the AETM remains closed due to the likelihood of small visitor numbers following the forced closure of the museum in late March 2020 as a result of COVID-19 restrictions.

Annual General Meeting

This year's AGM was held at the Museum on 29 August 2020 at 4:00pm. It was delayed from the usual late May date due to COVID-19 restrictions. Geoff Grantham has taken on the role of AETM President.

Before the meeting, cars 303, 118 and 186 were shunted outside the Northern Depot to allow sufficient room on Road 9 and the display aisle to allow a COVID-safe layout of seating for the meeting. They were shunted a short distance only outside the depot as tram rides were not allowed under the restrictions referred to above.

After the meeting, Tim Bell again showed old films and Kevin and Marilyn Collins cooked the barbecue.

Track and overhead

Roads 7 and 8 have had some replacement sleepers installed as well as some tie bars.

Seven replacement poles have been installed on the lake section, pending the fitting of bracket arms to support the trolley wire. When this work is complete the original poles will be removed.

Holden's Motor Body Builders plate

Recently we received a request from Len Millar of the Ballarat Tramway Museum on behalf of the Holden Museum for a spare Holden's Motor Body Builders' plate. The builder's plate, when obtained, would be attached to Holder-built W2 tram No. 323 which is preserved at the Holden Museum at Trafalgar, near Morwell, in south-eastern Victoria.

Unfortunately, we did not have a spare, so we removed one from our Holden W2 294 and sent it to Len to arrange for it to be replicated in Victoria for W2 323. A replica was made and the original returned to the AETM and placed back in car 294. Sixty W class trams were built at the then new Holden's Motor Body Builders Plant at Woodville in 1924-25. The cars were later converted to the W2 class.

The following photos by Damian Hill show the three trams shunted out of the Northern Depot to make room for the Annual General Meeting.

C type car 186.

E type car 118.

G type Birney car 303.

LOFTUS
SOUTH PACIFIC ELECTRIC RAILWAY CO-OP SOCIETY
PO Box 103, Sutherland, NSW 1499 www.sydneytramwaymuseum.com.au

From *SPER* News

Museum re-opens

After much planning and consultation, the museum reopened on Sunday 9 August. Our 89 visitors on that day followed our COVID protocols and there were plenty of smiles.

This was our first day of operation since closure on 23 March. Sydney R1 1979 made the first passenger run and Brisbane Phoenix 548 operated the second service. Rain and cold temperatures, with a 'feels like' temperature of 2 degrees at 2:30pm, saw visitor numbers drop sharply during the afternoon, but the hardy stayed until the depot doors closed.

The St George & Sutherland Shire Leader gave us a half page item on page 3 on 19 August, titled 'Trams Help Revive Spirits'. Photos of 1979 and 548 were included.

Visitor numbers have been strong since we reopened. On 27 September we had to run trams in convoy with Sydney R1 1979 and Melbourne Z2 111 doing the honours.

Power line damage due to a tree branch falling during a storm on 10-11 August.
Danny Adamopoulos

The first tram leaves the depot on 9 September 2020.
David Critchley

The first tram of the day departs for the north terminus at Sutherland. Frank Zumbo

The MG sets and door items for San Francisco PCC 1014 arrived at the museum on March 4th, 2020. Richard Jones

One of our youngest members, Sebastian Critchley, took on the work of looking after the kiosk and had no problems with his job. Well done, Sebastian!
David Critchley

Mention should be made of Mousham, our contract cleaner at the museum. He works very hard to sanitise each tram after every trip, and in between cleans surfaces in the display hall, toilets, and every other place there is public contact.

At the time of going to press, the museum is open on Sundays only from 10:00am to 4:30pm. It is hoped to open on Wednesdays again in the near future.

Within days of re-opening, during a storm on 10-11 August a falling tree branch damaged the power supply which feeds the National Park line. A level crossing warning light was damaged at the same time. Service to the Royal National Park has been suspended until repairs are made to both the power supply and the level crossing warning light. New LED equipment is on order and the signal unit will be changed soon late at night with a lane of the road closed by a traffic control contractor.

We thank all those who have been available to assist with traffic operations at the museum since our reopening.

Loading a water tank back into Scrubber car 134s on 12 August.
Martin Pinches

Loading the spare motorised bogie from 2106 for movement to Leusink on 30 September.
Martin Pinches

In another post-COVID development, a meeting was held with a representative of the Department of Corrective Services on 30 September with a view to re-starting the Community Service Order program.

Workshop and maintenance

Sydney Variotram 2107: On 6 August this car was examined by staff from Leusink Engineering of Unanderra who have been commissioned to reprofile the wheels in situ. The car has a special hybrid profile that has tramway thickness flanges below wheel tread level allowing it to run on tramway grooved rail and Melbourne type pointwork. Above tread level the flange is stepped out to allow the back of the wheel to engage raised railway check rails on the L1 Inner West light rail line. This is not compatible with our traditional Sydney pointwork as the step on the flange rides up on our check rails. On 30 September a crane loaded the spare motorised bogie from 2106, together with the bogie stand that came with 2107, for movement to Leusink who will develop a rig to machine the wheels on 2107 in situ over our Road 2 pit.

Sydney R1 class 2001: Sydney post-war corridor car R1 2001 has been outshopped following its repaint into traditional green and cream. Funding for this was obtained last year under the Transport Heritage Grants Program administered by the Royal Australian Historical Society and supported by Transport Heritage NSW. The tram had been in the promotional blue livery for RAAF recruiting, applied to car 1974 in 1952, for almost 20 years.

R1 2001's return to the running fleet will be welcome. Our museum has for the last few years taken part in

Sydney R1 class 2001 is now ready to enter service.
Martin Pinches

The western side of Melbourne cable trailer 589 showing the restored side panels.
David Critchley

The interior of Melbourne cable trailer 589 on 27 September.
David Critchley

the Transport Heritage Grants Program which has seen work undertaken on other important items such as the Railway Square Waiting Shed, Liverpool Street Signal Box and Freight Car 24s. We look forward to being part of the grant program in the future.

Scrubber 134s: The water tanks removed from D scrubber car 134s have been re-installed. Some minor body repairs have been made to side panels and to the south end apron. The affected areas have had their paintwork re-touched to match the generally good finish elsewhere on the car.

Melbourne cable trailer 589: The major rebuild of this car is continuing. The western side has had much of the side panelling replaced and windows refitted. Bulkhead panels and floor slats have also been replaced.

Sydney J class 675: With the COVID-19 situation little work on the repair of this car was undertaken until August when our carpenter returned to finish the timberwork. Tasks have included floor slat installation, refitting of seats and panels, and repairs to the roof and roof bow rail that were badly damaged. The metal fascia had to be removed and repaired before work started on the painting of the floor, front apron, destination box, metal roof fascia and the repaired roof and bow rail.

The traction wiring will be reconnected when 675 is be placed over the pit. The repaired resistance grids will be installed at that time together with the lifeguard and other mechanical components. The correct Sydney coupling bars and cradle are next in line to be fabricated and installed. This is expected to take place during October.

The first of two loads of surplus concrete arrived from Concrite on 19 August. A total of 3 cubic metres was received.
Martin Pinches

Ian Saxon and Mike Giddey work on smoothing the load received. Martin Pinches

Andy Macdonald, Mike Giddey and Ian Saxon working on the track relay concrete on 16 September. Martin Pinches

Track and associated work

Work continues on the relay of the western track in the street from the front gates to the scissors crossover. The two long lengths of Kensington grooved rail were placed into the freshly excavated road bed and welded to the existing former Bondi Junction grooved rail at the front gates. The Kensington rails have been aligned and levelled, gauged and fitted with tie bars.

Overhead

Substantial work has been carried out on the overhead wiring on the Royal National Park line to make it suitable for pantograph operation.

On August 15 and 22 the overhead crew used overhead line car 99u to work on the realignment of the overhead on the National Park line between depot junction and the Princes Highway level crossing. Apart from the issue of pantograph compatibility the contact wire was not in the correct position on the sharp curve and needed to be adjusted for trolley poles also.

Additional pull off spans were installed on the curve using railway style pull off arms and pantograph compatible fittings. This has greatly improved the appearance of the overhead and functionality for both trolley poles and pantographs. An old section insulator was also replaced andis now panto compatible.

The additional pull-off spans using railway style pull off arms over the curve towards the highway level crossing. Scott Curnow

Overhead line car 99u in use on overhead work near the south shed on 19 September. Scott Curnow

John Holland's staff taking preliminary measurements on 26 August prior to starting work on the Royal National Park overhead. Glenn Killham

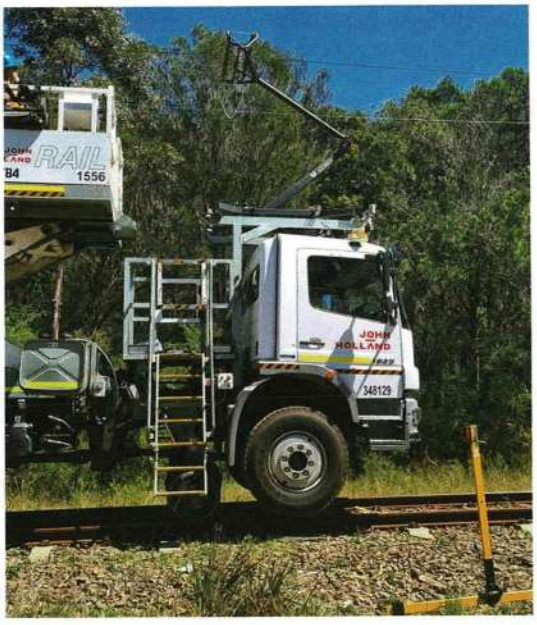
John Holland Rail completed major work along the Royal National Park line on 13. 14 and 15 October.

A team of overhead line workers arrived with two hi-rial elevated work platforms and associated equipment. These machines have a dynamic testing pantograph which measures all aspects of the overhead and determined adjustments to be made.

Since their work, except for one curve near Phantom Crossing, the RNP line is now suitable for pantograph operation. The museum's overhead crew will complete this part of the work in the near future.

John Holland Rail's two hi-rail work platforms at work
Scott Curnow

The overhead team measuring the contact wire and about to install pull-offs fro pantographs
Scott Curnow



John Holland Rail's hi-rail work platform showing the dynamic testing pantograph.
Scott Curnow

Among other site improvements the starter's cabins at the front gate and near the bookshop have been repainted.

The restored PMG telephone box is in the Display Hall.
Scott Curnow

Tramway era street furniture

COVID-19 may have stopped visitors from coming to the museum, but it did not stop restoration progress. A number of members and friends of the museum took projects home to work on. One project that started last year and was completed during the isolation period was carried out by Jim Allingham, a member of the Sydney Model A Ford Club. He did a magnificent job restoring our classic Sydney telephone box. It has now been returned to the museum and will be back on display complete with original telephone equipment. We thank Jim for an inspirational restoration.

HADDON

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

Anthony Smith

Haddon and COVID – 19

Since March, the museum has been unable to reopen as level 3 restrictions were reimposed on the Victorian country regions and Melbourne was placed on level 4 with a total lockdown.

This has meant we can no longer plan to reopen in the short to medium term and as such the museum has been reliant on members' donations and our limited cash reserves to enable essential projects to continue. We can only hope that in the coming months, the infection rate will lower to allow restrictions to be eased. This may then allow us to reopen even if the number of people we can have on site is limited. It would also then be possible for other members to participate in regular work parties. We are still able to report good progress on a number of projects, thanks to the efforts of our three resident members, Jacqui, Daniel and Anthony.

Daniel Edwards scraping old paint and varnish from a saloon wall board from 826. Jacqui Smith

Restoration of W5 792

Work is continuing on the restoration of this tram with the emphasis on refitting the saloon interiors. As part of this process, new floor mounted timbers and 'bump' rubbers for the louvres and saloon side windows were fitted to the window pockets of both saloons.

In July, the four new side wall frames were delivered from our contract joiner. A temporary work area was established in the carbarn to enable these large units to have the stain and clear lacquer applied. At the same time, the new lower skirting and cable duct timbers received the same treatment. We have been able to reuse the seat frame support boards out of tram 826, although they required considerable scraping and sanding to remove the layers of grey paint that was applied in the later years of their use in Melbourne. They have now been restored to a clear grain finish. New seat frame bolts were fabricated and fitted to

New saloon side walls in the process of being prepared for fitting into 792. Anthony Smith

W3 663 stabled on depot fan in the winter sun after being serviced. Anthony Smith

View showing new saloon wall as fitted to 792.
Anthony Smith

Anthony Smith trial fitting a saloon widow sash to a window pocket on W5 792.
Jacqui Smith

these boards at the same time. In early September, all these timbers and panels were fitted into the saloons of 792 and the finished result is most pleasing. Work will now concentrate on finishing the cover ceilings on the tram.

Trackwork

The front tram bay on No.4 road of the carbarn was dug out during early July to remove the old sleepers (or what was left of them). This track was then lifted and levelled after which new tie rods were fitted to gauge. An external contractor was engaged to undertake the formwork and concrete pour, which occurred on Monday 27 July. The next area that requires rehabilitation is a 6-metre long section of track on No. 3 road immediately behind the pit. In early September, the asphalt floor in this area was marked and cut in readiness for excavation.

Overhead

In early September under the guidance of our Chief Engineer and Electrical Superintendent, the pole

mounted isolating switch in front of the lower terminus tram shed was connected to the section insulator. Upon completion of the cabling work, a number of safety tests were performed to ensure correct operation. With the tests successfully completed, the switch unit handle has now been secured in the 'closed' position by means of a special padlock.

Building maintenance and improvements

In late August, an additional entrance/exit door was installed in the rear of the north wall of the lower terminus tram shed along with a number of skylight wall sheets to improve the natural lighting within the building. Due to the height of this building it was decided to fit the skylight sheets into the upper sections of the side wall rather than the roof as it will make their future replacement easier should this be required. With our ageing workforce this was a major consideration. During this period as part of the normal building maintenance schedule, a number of roof skylight sheets were renewed on the workshop and carbarn buildings.

View showing new concrete track on road 4 in the carbarn. Anthony Smith

Anthony Smith connecting cables from the pole mounted isolator switch to the section insulator at the new tram shed. Daniel Edwards

View showing new exit / entry door and skylight sheets in south wall of lower terminus tram shed. Anthony Smith

FERNY GROVE

BRISBANE TRAMWAY MUSEUM SOCIETY
PO Box 94, Ferny Hills, Queensland 4055 www.brisbanetramwaymuseum.org

Peter Hyde

As mentioned in the last issue, the museum opened to the public on Sunday 5 July after operations were suspended since mid-March.

Since re-opening visitor numbers on Sundays have generally been lower than usual. However, three significant events have been staged which generated good attendances.

On Sunday 9 August a gala day was held in conjunction with the Queensland Omnibus and Coach Society to mark the 135th anniversary of the introduction of horse trams in Brisbane and the 40th anniversary of the official opening of the museum at Ferny Grove.

This was followed on Sunday 13 September by a concours conducted by the Vintage Car Club of Queensland who displayed approximately 40 of the members' vehicles.

Ten-Bench 65 arriving at the terminus. James Bradley

The food sales area outside the main workshop with the 'sausage sizzle' on the left, Horse Car 41, the espresso coffee van, and the Valley Signal Cabin. Glen Dyer

Part of the display by the Vintage Car Club of Queensland Peter Hyde

Visitors viewing the restoration work on the Scammell in the Metal Workshop. Glen Dyer

Forecourt of the Metal Workshop and trolley bus display – the tower wagon is outside on display on the right. Glen Dyer

Below right:
The tower wagon on display.
James Bradley

Phoenix 554 and FM 429 in the depot. James Bradley

Finally, the first night operations since April 2019 were held on Monday 28 September - the anniversary of the fire that destroyed Paddington Depot. As the day coincided with the start of Men's Shed Week, conducted tours were provided through the workshops and maintenance areas that are not usually seen by the public. This was so well received by visitors that it will probably become a feature of future night openings.

Dropcentre 341 at the lower terminus. Glen Dyer

Phoenix 554 and Baby Dreadnought 99 at the terminus. James Bradley

The concrete drain laid at the base of the slope above the Machine shop and store building. Peter Hyde

The evening started earlier than usual, at 4pm, which seemed to be favoured by those with children and by older folk. The evening also generated several new membership applications.

While Sunday operations are almost back to normal, weekday visits by schools and social clubs have almost completely dried up. As these usually generated more than half our operating revenue, the financial impact of the COVID pandemic is quite severe and expenditure has had to be cut back to the barest essentials.

Other than the special events just listed, the usual routine pattern of activity has returned to pre-COVID levels with approximately 30 members regularly attending Tuesday workdays.

On 7 October, contractors laid a concrete drain along the base of the slope above the machine shop and the stores building. This has been a troublesome area for drainage ever since the museum was established and we are grateful to the Brisbane City Council which granted the funds to enable the works to be undertaken.

BALLARAT

BALLARAT TRAMWAY MUSEUM

PO Box 632, Ballarat, Victoria 3353 www.btm.org.au

Dave Macartney and Warren Doubleday

COVID-19

Following on from previous reports, the Museum and tram operations were closed to the public from mid-March 2020. At the time of writing (early October), the earliest we could consider opening, based on advice from the Victorian Government, is late November. In the meantime, our workers have been busy undertaking important maintenance tasks both at the depot and in the off-site storage shed. Fortunately, the Stage 4 COVID Melbourne lockdown restrictions are not applicable to our Ballarat based workers but they have meant that our Melbourne resident workers have not been able to assist.

Building tender

Tenders have been called for the design and construction of a new Ballarat Tramway Museum tramcar display area on the south side of the existing depot. Planning permits have been issued by both Heritage Victoria and the City of Ballarat. It is expected that construction will commence early in the new year.

Geelong No. 2

Geelong No. 2 arrived at the depot on 15 September 2020 after having all the necessary electrical and air systems installed by Bendigo Tramways. Initial testing in both Bendigo and Ballarat has shown the tram is performing well on a former Brussels four-wheel truck. Finishing touches are now being made to the tram and the necessary paperwork has been submitted to the Rail Safety Regulator. In order to fit the tram into the depot, Ballarat No. 28 was relocated to Bungaree a few days before the tram arrived. There are now two No. 28s at the Museum. More details in the next issue of Trolley Wire.

Compressor for W4 671

W4 671 had a compressor change over, not a simple job given the size and weight of the unit and the lack of accessibility under the body. Once the transfer was

Car No. 28 being unloaded at Bungaree on 14 September 2020. Alastair Reither

Cleaning tracks in Wendouree Parade on 11 September 2020.
Paul Mong

completed, the old compressor was dismantled and refurbished for future use. The test rig for the purpose was upgraded at the same time.

W3 661

W3 661 was returned from Bendigo following a more detailed assessment of the accident damage. As the cost of restoration is beyond our available resources, it has been placed into storage at Bungaree pending repairs.

Refurbishment of W7 1029

The refurbishment of W7 1029 continues at the Bungaree off-site workshop facility. The roof and drip rails have been repaired with new timber pieces being installed. Painting has commenced. One task in

Car No. 28 is on its way for off-site storage at Bungaree on 14 September 2020.
Alastair Reither

Geelong No. 2 being transported to Ballarat pauses at Maldon so the crew can have morning tea on 15 September 2020.
Alastair Reither

Sim Jenkins works on the roof of 1029 at Bungaree on 21 September 2020.
Alastair Reither

The roof of 1029 showing new timbers that had to be inserted to replace ones that were damaged with holes.
Alastair Reither

particular that is being planned is the re-configuration of the sliding door operation. This involves modifying the air piping so the doors on the Lake side can be operated from either cab. The door motors are being refurbished at the depot along with making up a bench to test the door motors.

Bendigo 1 - Ballarat 37 (2nd)

In the last issue of *Trolley Wire,* the caption for the Wal Jack photograph of Bendigo 1 being worked on in the Ballarat tram depot following its delivery from Bendigo on 5 October 1960 was accidently left out. The tram was exchanged for Ballarat single truckers Nos. 19 and 25 to give a better distribution of tram types between the two cities. The photo shows changes being made to the car's doorway and bulkhead to better suit its operation in Ballarat. The fitting of the dash canopy lights and striping had been commenced in Bendigo but it was left to staff in Ballarat to complete the wiring and fit the metal strip below the driver's windows. When the Ballarat system closed in 1971 it was donated to the Sydney Tramway Museum and is

Bendigo No. 1 being converted to become Ballarat 37 (the second one with that number). It shows the front of the tram undergoing modifications to the drivers' door. It arrived from Bendigo on 5 October 1960.
Wal Jack

the only tramcar to have operated on all four Victorian electric tram systems. In Melbourne it was Hawthorn Tramways Trust No. 13; then MMTB N class No. 119; in Geelong it was No. 35; then Bendigo No. 1; and finally, Ballarat No. 37 - the second car in Ballarat to carry that number.

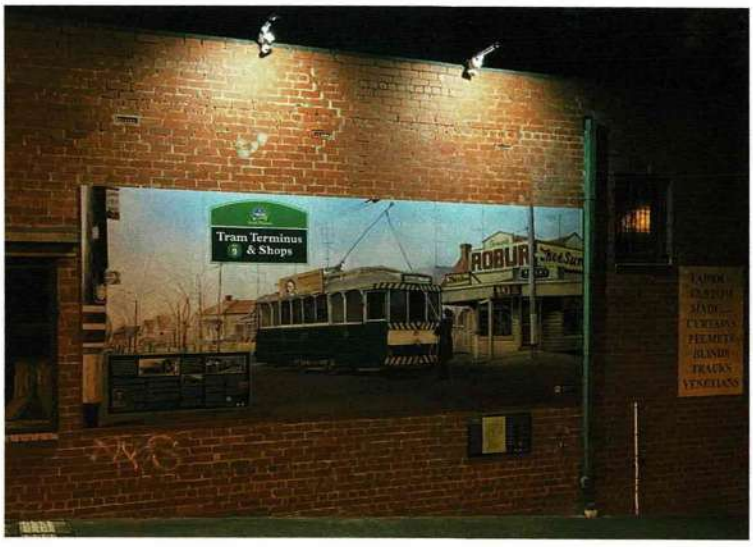
COTMA conference

The planned September 2020 Council of Tramway Museums of Australasia conference was postponed due to COVID-19 and is being replanned for September 2021. Bendigo Tramways have advised that they are no longer able to host the conference during 2021 due to staff issues and that a major project will be under way at that time to expand the depot. Ballarat has taken on the organising of the conference as part of its 50th anniversary celebrations for the closure of the SEC-operated Ballarat tramway system. It is planned to commence the COTMA conference on Wednesday 15 September 2021. All this is subject to COVID-19 travel restrictions. Well known conference and tour organiser Richard Gilbert has taken on the Chair of the small organising group, which has held its first meeting. The COTMA website will be kept up to date as planning continues.

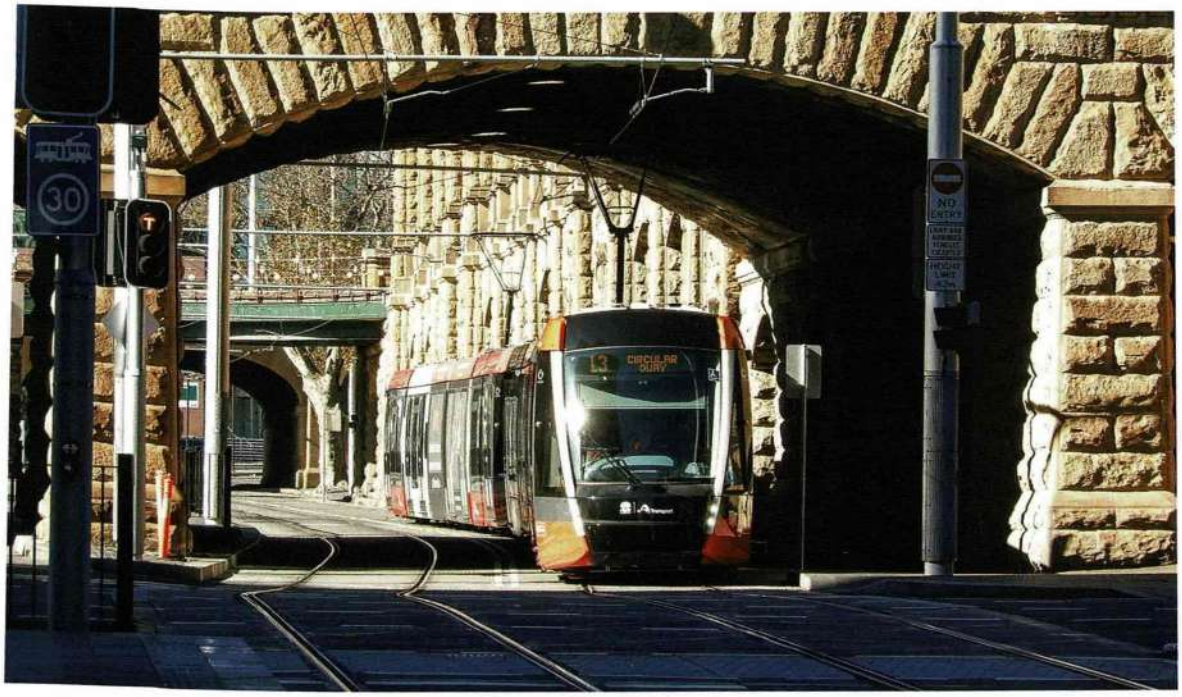
49th anniversary of Ballarat's closure marked – well, in an on-line fashion

This year, it was not possible to mark the anniversary of the closure of the SEC-operated Ballarat system by the operation of a tram on the night of Saturday 19 September. However, using the WhatsApp messenger, we did record the stories for our crew members many of whom are far too young to have any knowledge of the occasion. Stories and photographs leading up to the event were provided over a number of weeks. This is all part of marking the 50th anniversary of the closure. Put it in your diaries for next year.

The last tram had departed from Mt Pleasant terminus 49 years ago on 5 September 1971. Paul Mong



Ghosts of trams past – the mural on one of the Mt Pleasant terminus shops reflect that the location was once a tram terminus. Paul Mong



Sydney LRVs 2221-2222 bound form Kingsford to Circular Quay approach from Eddy Avenue the Haymarket stop in Rawson Place on 20 July 2020. John Cowper

Newcastle tram 2151 at the Newcastle Beach stop on 24 August 2020. It takes the request Please Wear a Face Mask on Public Transport to a new level. The tram is wearing a face mask at both ends. Peter Gambling