MELBOURNE TRAM MUSEUM

The Bellcord

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Front cover

M&MTB X1 class no 468, at the Ordnance Factory, West Maribyrnong, June 1960.

In the background is W2 class no 454.

Negative by Travis Jeffrey, in the collection of the Melbourne Tram Museum.

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Editor: Noelle Jones

In this issue

Life as a conductor during the early years of cable trams in Melbourne was not easy. Noelle Jones outlines the challenging employment conditions and describes the experiences of Matthew Morton, who was a conductor for almost 21 years, from 1897 to 1918.

The Melbourne Tram Museum holds a remarkable example of a wartime destination roll on the Footscray tramway system. This system served a complex of munitions factories that operated 24 hours a day, seven days per week during World War II. Mal Rowe and Russell Jones provide a brief background to these times.

December 2025 is the centenary of the conversion of Swanston Street trams from cable to electric. And even more astonishing, the conversion was completed in just 29 days. The Museum recently acquired two photographs showing this conversion work – interpreted here by Warren Doubleday.

Mal Rowe reports on the 2025 COTMA Conference, held in Brisbane during October. It was the 50th anniversary of this biennial conference for Australasian tramway museums.

Plus the latest news about the Museum and Melbourne's tramways.

Best wishes for the holiday season and enjoy reading!

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Museum news

Chairman's report 2025

The halide lighting mentioned in last year's report has been repaired although in the current financial year. We are considering further lighting improvements in the rear eastern area of the depot.

We have had some monumental attendances the year, some brought about by mentions on the Internet. This produced two scenarios, the first being that our available volunteers had no time to give our trams the TLC that they deserve, and some jobs were not possible because of potential danger to the public. Currently we have 14 straphangers being repaired, with a similar number waiting the next rotation.

We were heavily involved with the devolvement of the Malvern Tramway Museum. Whilst we were cognisant that we only had limited room to accept further items, nevertheless we provided VicTrack with expertise on what everything was worth and importantly where was the appropriate place for future storage. There were a lot of forms going back as far as the beginning of the Prahran & Malvern Tramways Trust and maintenance projects which had been done several times that no longer had any historical significance. Special thanks to Mike Ryan, Warren Doubleday, Rod Atkins and Mal Rowe.

Malvern Tramway Museum, August 2004. This building was used as a recreation hall for tramway employees and later became the Tramway Museum.

The building originally held classrooms for the De La Salle School. Designed by the noted ecclesiastical architect Augustus Andrew Frisch (1866-1933), it was built in 1912. The M&MTB purchased the site in 1929, and the school moved to another site.

Photograph by Mal Rowe.

Our tramcar drawing scanning project is now concluded [as reported in *The Bellcord* No 67]. We transferred the physical drawings and a copy of the scans to the Public Record Office Victoria (PROV) in North Melbourne. Our preparation meant that with less effort they could present them in a manner that all visitors could access. I am very pleased with the results, as it makes all the effort worthwhile. All M&MTB tramcar drawings are now accessible to PROV visitors.

The problem with our north side leaky roof persisted and actually got worse. It was decided to raise the look of the northern side by repainting the paving. Unfortunately our choice of paint was not appropriate, and it will need to be redone. Some ingress of water into the main room caused some damage to carpets and books. This situation has only recently been resolved but it took two months of asking VicTrack.

We plan to change our main room exhibition to one featuring the Melbourne cable system. To produce this will take several months which means that it is expected to be available in early 2026.

Membership was slightly up to 107, however renewals at present stand only at 76: a loss of 30+ members. Some of this can be put down the uncertainty caused by closing the museum in August 2025.

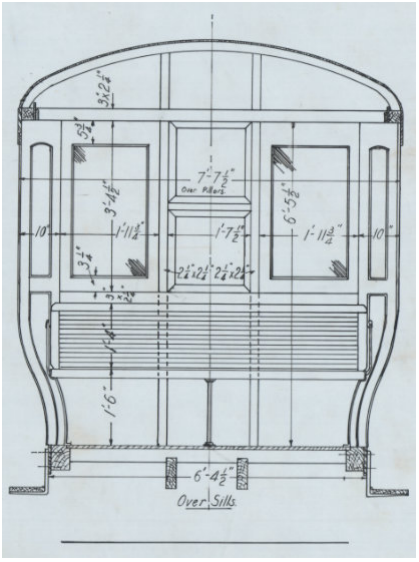
Also, there was a break-in which caused us to look at security as the person also used our premises to gain access to the adjacent premises. It turned out that there were more security issues which were difficult to resolve. The interloper didn't steal too many items, but he left a substantial amount of the collection to clean up. There was damage caused by him breaking into cupboards which had to be replaced.

We also participated in the Victorian Open House Day in July and were successful in achieving one of the highest visitations. For these open days we ask members for a special effort to assist. This year we had about 3,300 visitors, which was the highest on record.

We have had several days where visitor numbers were in the 800-1000 range which is really too many for the capacity of the museum building. Managing crowds such as this saps the strength of the available volunteers.

Warren and our volunteers are promoting us by submitting photos to the Victorian Collection. This spreads the word and provides the viewers with significant photos that otherwise we could not display. We have received good responses to our efforts.

Kevin W. Taig
Chairman, Melbourne Tram Museum



Detail from the general arrangement of Radiax car class T. Original drawing dated 13 December 1937.

From the collection of the Melbourne Tram Museum.

Museum is open again after maintenance shutdown

As we reported in the previous issue of *The Bellcord*, the Museum was closed in August to address urgent maintenance requirements. This was expected to last only one month, but unfortunately the closure had to be extended to address some unexpected building works. These works needed to be completed before we could welcome visitors back to the Museum.

So we were delighted to re-open the Museum on Saturday 22 November, hosting just under 500 visitors for the day.

Many thanks to our members who assisted on our workdays – their help was invaluable to the efforts required for the re-opening of the Museum.

We are currently preparing a forthcoming exhibition on cable trams.

Annual General Meeting

The Museum's Annual General Meeting was held on Saturday 25 October. The annual accounts were presented to the Museum and accepted. Committee Member Alan Scott retired from the committee and was replaced by CK Tang. Many thanks to Alan for his work on the Committee over the last few years.

ABC News visits Melbourne Tram Museum

ABC News recently featured a segment celebrating the 140th anniversary of Melbourne's cable trams and included Geoff Brown at the Melbourne Tram Museum. This segment was broadcast nationally on News Breakfast on 10 November 2025, and repeated later the same day on the ABC evening news.

On Radio ABC 774 Melbourne, Mal Rowe discussed trams with Ali Moore.

Many thanks to Geoff and Mal for representing the Museum.

Melbourne Tram Museum's Geoff Brown describing the operations of cable trams and how they revolutionised transport in our city, in an ABC News item broadcast on 10 November 2025.

Photograph courtesy of ABC News.

Hawthorn History Leaders

In October, our local State Member of Parliament, John Pesutto, hosted a meeting for historical groups active in the Hawthorn area. Rod Atkins represented the Museum at this meeting.

All six historical groups attending shared their experiences, noting that we all face similar challenges, in particular: attracting, recruiting and keeping volunteers; succession planning; and, engagement with the public.

AETA

The Australian Electric Traction Association (AETA) was formed as the Association of Victorian Tramway Enthusiasts (AVTE) in May 1943. Its aim was the promotion of Electric Traction for public transport.

In conjunction with its Conventions, the AETA operated many tours of the tramway systems in Melbourne and cities of Ballarat, Bendigo and Geelong.

AETA was an active publisher, with the Electric Traction magazine, later known as Transit Australia, and many books.

The publishing arm of AETA was maintained by Hugh Ballment. Following his death in November 2024, the few remaining members of the AETA decided to wind up the organisation. As part of this process, the Museum along with other tramway museums, received part of the remaining funds. We thank the AETA for their gift of $4,000.

The Museum holds the first five minute books of the AVTE / AETA. The first meeting records that Peter Duckett was President and Leon Marshall Wood was the Secretary, both well-known tramway names.

M&MTB X2 class no 676 using the Dawson Street, West Brunswick crossover while on an AETA tour, 12 April 1971. This tram can be seen at the Melbourne Tram Museum.

Photograph by George Stevens, from the collection of the Melbourne Tram Museum.

Young Tram Fan/Tram Museum Member shines on Hard Quiz Kids

Lochlan (age 11), a junior member of the Melbourne Tram Museum, did all tram fans proud when he appeared on the ABC's *Hard Quiz Kids* on 15 November (Season 2, Episode 7). Lochlan proudly took home the Big Brass Mug after answering all his tram questions correctly!

Lochlan's love of all things tram was set in motion after he watched *The Lost City of Melbourne* documentary. From there he started researching Melbourne's tram history, as well as studying the tram routes, depots and tram classes.

"I joined the Tram Museum because I really enjoy visiting and experiencing what it would have been like to have ridden on all the retired trams," said Lochlan. "I also like talking to the volunteers at the Museum – everyone is so friendly. When I am old enough I would like to become a volunteer too."

Lochlan's favourites? The Comeng built trams – Classes A, B and Z.

The episode can be viewed on ABC iView.

Lochlan on M&MTB W7 class no 1040 at the Melbourne Tram Museum, July 2025. Photograph by Lochlan's Mum, Victoria.

Introducing CK Tang: our new committee member

I'm originally from Malaysia and have been coming and going from Melbourne since 2009 before deciding to make it my permanent home in 2024. Alongside helping to run my family business, I'm studying for a Bachelor of Business at Monash University.

My interest in trams started about sixteen years ago when I first saw one up close. I was fascinated by how they looked and moved through the city. I often watched tram videos on the schony747 YouTube channel made by Brenden Schonfelder, who later became a good friend.

My favourite tram is B2.2096, which holds many fond memories for me. I was introduced to the Melbourne Tram Museum by my 'Australian Grandmother', Carolyn Cleak, who encouraged me to get involved.

I see myself as an all rounder and enjoy learning new things wherever I can help. It's an honour to serve on the Committee, and I look forward to contributing to the Museum's work in preserving and celebrating Melbourne's tramway heritage.

CK Tang

CK Tang with Ballarat tram no 33. Photograph courtesy of CK Tang.

Around the tracks

Sustainable tram stops

Rail Express recently reported that Yarra Trams has partnered with the Monash Institute of Railway Technology (Monash IRT) and several industry groups (Pact Group, GT Recycling, DKSH Australia and Integrated Recycling) to research, design and develop components for tram stop platforms using recycled plastic components.

Yarra Trams is also aiming to install more level access tram stops, with a goal of 834 accessible stops. Currently only 475 of its 1,665 stops meet the level access requirements. However the high cost and the time required with using traditional materials such as concrete are barriers to upgrading stops. Recycled materials have the potential to offer a feasible solution that will also be more compatible with sustainability objectives.

Brunswick Depot works

An inspection of the depot on 24 November 2025 shows that the 'village' of accommodation huts remains active in the former carpark. The construction of a new two storey substation building between the railway line and Cameron Street is well advanced.

Epsom and Union Road works

During the second half of November, the track near the entrance to the Showgrounds, in Union and Epsom Roads, was reconstructed. This involved the installation of a new platform stop in Union Road and the reinstatement of a shortened Showgrounds parking loop. A temporary crossover was installed at Stop 30, opposite the entrance into Flemington Racecourse and buses ran the remainder of route 57. The Showgrounds parking loop has been reinstated, though shortened.

Union Road looking northward, showing the storage loop and point work, 20 November 2025.

Photograph by Mal Rowe.

Infrastructure Victoria 30 year strategy

In its recently published paper, *Victoria's infrastructure strategy 2025-2055*, Infrastructure Victoria has made a large number of recommendations, to assist in planning for the future.

One of these recommendations is to improve and extend Melbourne's tram network. Infrastructure Victoria proposes eight extensions to commence building before 2030:

- Arden trams:
  - Swanston Street to Kensington
  - Spencer Street to Flemington Bridge
- Fishermans Bend trams:
  - Anzac train station to Fishermans Bend North
  - Southern Cross Station to Fishermans Bend South
- Middle suburbs trams:
  - East Malvern to Hughesdale via Chadstone
  - East Brighton to Moorabbin
  - Melville Road to Batman train station in Coburg
  - Wattle Park to Burwood East.

Another two projects are suggested for consideration from the mid-2030s: an extension from Airport West to Melbourne Airport and a new route from Highpoint to Sunshine.

Infrastructure Victoria also proposes a number of rail and bus projects.

Infrastructure Victoria is an independent statutory body that conducts research and provides advice to the Victorian State Government on infrastructure issues.

It does not oversee or fund infrastructure projects and its recommendations are not binding on Government.

Map of proposed tram extensions (shown as dotted lines).

Courtesy of Infrastructure Victoria.

Life as an MTOC cable tram conductor

The Melbourne Tramway and Omnibus Company (MTOC) was not immune from the economic depression of the 1890s. The land boom of the 1880s had collapsed, banks and other financial institutions failed, unemployment soared and, in the absence of any social benefits, destitution became widespread. The effects of this depression were worsened by a severe drought that lasted over the period 1895-1903.

Although MTOC was able to trade successfully through the depression, this was achieved through a range of measures, including drastic wage cuts. Prior to the depression, the weekly wage for conductors was £2 10s (50 shillings), but after five separate reductions from December 1891 to June 1894 the weekly wage had fallen to 38 shillings – a decrease of 24%.

Nonetheless, jobs with MTOC were keenly sought, despite what would now be considered some rather brutal working conditions. Conductors (and gripmen) also had to cover a number of work-related costs at their own expense, imposing an additional burden on employees.

Both conductors and gripmen had to deposit five pounds with MTOC as a fidelity bond (which accrued 6% interest) plus pay five shillings a year to the Melbourne City Council for a hackney carriage licence.

Until 1901 MTOC did not provide uniforms – just a cap, for which staff had to pay four shillings and sixpence. Conductors had to supply their own blue serge jacket, which resulted in a variety of different styles being worn.

In the 1890s, conductors typically worked up to 60 hours per week, with a day off every two weeks. Staff could request time off – without pay – but there were no paid holidays, no paid sick leave, no overtime, no penalty rates. A worker initiative established a friendly society that provided various benefits – including medical care, sick pay and funeral allowances – to eligible employees who paid a weekly contribution. This was part-funded by MTOC. In 1898 the weekly contribution was 7½ pence – at that time around 58% of conductors and gripmen were members.

Above: MTOC cable tram in Collins Street at Spencer Street, 1890s. The tram has been shunted in readiness for the return trip to Fitzroy. The conductor is standing in the middle, while the gripman is on the left.

Photograph courtesy of Museums Victoria.

MTOC conductor, Oscar Turner, in official MTOC uniform, c1908. Note the pins used for fastening the coloured cardboard that was clipped when registering fares.

Photograph from the collection of the Melbourne Tram Museum.

New starters served a probation period, which could last several weeks, at no pay. During this time they learnt the duties of a conductor, after which they were placed on the extra list, as casual staff.

Promotion from the extra list to permanent staff could only be achieved when vacancies became available – this could take weeks or even months. First class conductors had the pick of the shifts, with second class conductors assigned to the less popular shifts. These unpopular shifts generally involved substantial unpaid 'lay off' time between trips, which could mount up to several hours – greatly extending the lapsed time of the working day, which could be in excess of 16 hours.

In 1898 MTOC had 222 first class conductors, 124 second class conductors and 24 extras. All were paid on a per-trip basis, however second class conductors were given fewer trips and thus earned about 25% less than first class conductors. The per-trip rate was derived by dividing a standard weekly wage by the number of trips expected of a permanent staffer, so the rate would vary depending upon the car shed and route. The same per-trip rate applied to first and second class conductors as well as extras. This pay structure also avoided the need to pay for time lost from traffic interruptions due to accidents, breakdowns or other causes.

Conductors had to report to the car sheds 20 minutes prior to their first trip of the day in order to dust the seats, windows and window ledges of their trailer car. Environmental conditions sometimes required that this duty had to be repeated prior to the half-shift later in the day – Melbourne's streets were very dusty in the summer. Gripmen were responsible for sweeping the platforms and dusting the seats of the dummies. During the day car washers and cleaners thoroughly washed the cable cars not in service.

Extras reported for duty at 5:10am every day, at their assigned car shed. If any permanent staff were unavailable or if additional services were scheduled on that day, such as for sporting matches, extras would be assigned to a service. They would be paid according to the number of trips they did during the day. Sometimes extras could be in attendance each day for several weeks without earning any wages. Nonetheless, they were expected to stay at the car shed throughout the day, except for meal breaks when they could go home (staff generally lived nearby as they would either walk or ride a bicycle to and from work).

At that time, passengers were not issued tickets. When a conductor accepted a fare, he used a bell-punch to clip a hole in a piece of card pinned to his lapels, with different colour cards corresponding to each fare value. The bell-punch would store the clipped piece of card, increase a mechanical counter and register the acceptance of the fare by ringing a bell.

Once fares had been collected, conductors were required to stand on the rear platform of the car, where they were to announce stops, watch over the cable car and its passengers, and be on the alert for any potential passengers who may wish to board the cable car.

If passengers did not hear the bell-punch registering their fare, they were advised to complain to an inspector. The inspector would subsequently arrange for that conductor to be placed under observation by plain-clothes 'spotters', in order to try to catch him in the act of pocketing fares.

Inspectors and spotters were also looking out for other employee misdemeanours. Any transgressions were noted in the man's employment record, together with any penalties imposed. Serious offences could incur fines, suspension or dismissal.

In 1898 after numerous complaints, the State Government conducted a Royal Commission into the grievances of MTOC employees. Several recommendations were made, however changes were slow to be implemented. Wages increased in 1901 by two shillings per week for first class conductors, with a lesser increase for other levels. By 1906 the wage for first class conductors had risen to 49 shillings per week – still one shilling lower than the wage prior to the first of the cuts imposed in 1891.

In January 1908, the maximum working week was reduced to 54 hours following representations made to MTOC by the Chief Secretary of the Victorian State Government, Sir Alexander Peacock (1861-1933) in November 1907.

Working conditions improved with the establishment of the more tolerant municipal tramway trusts and the founding of the Australian Tramways Employees' Association (ATEA) in 1910. In a 1912 ATEA/MOTC agreement, the per-trip payment system was replaced. Weekly hours were reduced to 48 hours, casuals received payment irrespective of whether they were standing by or working shifts, and hours worked in excess of eight hours in a day attracted a penalty rate. Any delays on the road now were paid by MTOC.

MTOC's lease for cable tram operations ended on 30 June 1916, after which the interim Tramway Board took over its operations. This interim Board was replaced in November 1919 by Melbourne & Metropolitan Tramways Board.

Matthew Morton in MTOC conductor's uniform, most likely shortly after the introduction of MTOC uniforms in 1901.

Photograph courtesy of John Morton.

Matthew Morton: MTOC conductor

The son of Irish immigrants, Collingwood-born Matthew Simon Morton was 22 years old when he joined MTOC on 10 March 1897. Prior to that, Morton was a chair maker.

Morton's experiences as a conductor over the period from 1897 to 1918 provide insight on the role of conductors and the conditions in which they worked.

Morton's MTOC employment record notes that he passed his training at the end of March 1897, after which he was assigned to the Carlton car shed as an extra in July 1897. Morton stayed on the extra list for 12 months, being promoted to second class conductor in July 1898. He was promoted to first class conductor in July 1900.

Matthew Morton and his wife Florence, on their wedding day, December 1899.

Photograph courtesy of John Morton.

Over the period 1899 to 1910 Morton kept a work diary, a meticulous record of his time as an MTOC cable car conductor. The diary – now in the possession of his great-grandson John Morton – tabulates the number of trips he took each day. As at that time wages were on a per-trip basis, his diary would enable Morton to monitor the payments he received against his own records.

Also recorded in his diary are brief notes on other events in Morton's life: his marriage to Florence Wadley in December 1899 (when he took three days off work), the births of his children.

The diary records that in May 1901 Morton received the first uniform issued by MTOC, plus a cap. Described in *The Herald* of 30 April 1901, these new uniforms were blue serge, with the coat fitting close around the neck, similar to that of a policeman. The initials MTOC were on each side of the coat collar and on the metal plated buttons on the coat and cap.

Further entries in the diary note that Morton received a new suit each year, with new caps every second or third year.

However Morton was not one of MTOC's more conscientious conductors – he regularly fell foul of the inspectors. His rather colourful (and lengthy) employment record notes that he was cautioned for a wide range of misdemeanours: gossiping, inattention, ignoring the dirty state of his cable tram and insolence. Over 100 cautions were recorded, however during the period 1914 to mid 1917 there were no entries in his record, suggesting that monitoring of employees may have eased during the war years.

The picture painted by his employment record is of an argumentative fellow, with a hot temper, who was viewed as being insufficiently attentive in performing the duties required of a conductor.

Morton argued and fought with passengers as well as other MTOC staff. On four occasions, Morton was cautioned by the MTOC Managing Director, Francis Boardman Clapp (1833-1920). Three of those instances involved being insolent to passengers.

In September 1901 Morton was suspended for three days for fighting with another MTOC conductor – an event also recorded in his work diary. The other conductor was dismissed for his role in the fight. Morton was suspended again in May 1904, this time for just one day, for not stopping for, and being insolent to, passengers wishing to board the cable car.

In September 1898 Morton was fined five shillings for damage to a car caused when shunting at the car shed.

Gossiping was a common offence throughout his tramway career – not just for Morton but also for many other conductors and gripmen. Management viewed that talking with the gripman or passengers was distracting the conductor from collecting fares, watching for passengers and calling the stops.

MTOC cable tram at the end of the Johnston Street, Collingwood line, 1900s. Morton is standing third from the left.

Photograph courtesy of John Morton.

Acknowledgements

The 1898 Royal Commission on Tramway Employees Grievances is an excellent source of information on working conditions at the MTOC.

Many thanks also to the resources of the Melbourne Tram Museum, National Library of Australia (Trove) and Public Record Office Victoria, as well as the assistance of Warren Doubleday, Brian Weedon and John Morton – great-grandson of Matthew Morton.

However in January 1902 Morton was commended for his actions in turning off a runaway pony phaeton (an open, horse-drawn carriage) which was headed for the cable tram as it crossed Brunswick Street. In another incident, in February 1905, Morton went to the aid of an elderly woman passenger on his cable car, who had suffered a stroke – unfortunately the woman passed away.

Events took a turn for the worse in 1918. Morton caused a derailment in January 1918 by dropping a point lever before the tail car passed through. Later that same month he was 'under the influence of drink' when he reported for his afternoon shift. At Flinders Street on 2 March 1918 an inspector found that Morton was 'badly under the influence of drink' – the gripman also reported that Morton did not register all the fares he had received. Other staff reported that on 27 February Morton had received fares without recording them. Morton was fined 15 shillings for 'shorts' (fare shortage) and dismissed.

Morton's wife died just eight months after he lost his job. Her death notice suggests that she had been unwell for some time, so this may have been a factor in Morton's deteriorating behaviour. Their three children were sent to live with relatives and Morton moved to Selby where he built a small house clad in kerosene tins and worked as a labourer, acquiring several properties in Selby, Aura and Narre Warren.

Morton died on 3 October 1930, aged 56, survived by his three children.

Noelle Jones

Destination: Ammunition Fty

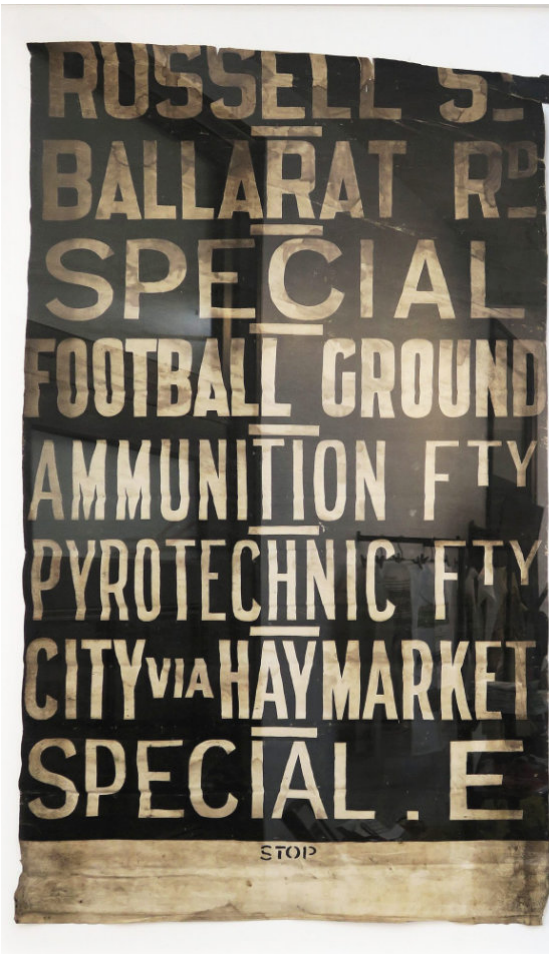
More details of the wartime tramway extensions can be found in *The Bellcord* No 42 of June 2019.

On display in the shop at the Melbourne Tram Museum is a portion of a destination roll used in trams on the isolated Footscray system, operated by the Melbourne & Metropolitan Tramways Board (M&MTB) from 1922 to 1962.

This artefact was donated to the Museum by noted rail enthusiast Bob Wilson and probably dates from the 1940s.

Several munitions factories operated in the Footscray / Maribyrnong area, reflected by the destinations 'PYROTECHNIC FTY' and 'AMMUNITION FTY'.

In late 1941 a branch tramway was built running north along Gordon Street from the Ballarat Road line of the Footscray tramways in order to serve the Ammunition Factory.



Fragment of destination roll, now on display at the Melbourne Tram Museum.

Photograph by Mal Rowe.

In February 1942, during World War II, display of these destinations was banned due to security concerns. Instructions were given that trams going to the various factories should show 'SPECIAL' as a destination supplemented with a letter in the route number box:

- EXPLOSIVES FTY designated by the letter 'A'
- ORDNANCE FTY designated by the letter 'B'
- AMMUNITION FTY designated by the letter 'E'.

However, the Footscray trams were not fitted with route number boxes so 'SPECIAL E' was added to the bottom of the roll for trams going to the Ammunition Factory in Gordon Street.

Munitions factories in Melbourne

Established between 1909 and 1912, the Maribyrnong Explosives Factory was the first Government-owned explosives factory in Australia. It became the centre of a large complex of munitions and explosives manufacturing facilities. During the 1930s programmes for modernising Australia's defensive capabilities and improving the nation's self-sufficiency saw the facility expand. With the outbreak of World War II in 1939 demand for munitions and explosives increased dramatically.

Three products of the Maribyrnong Ordnance Factory at the Fort Gellibrand Firing Range at Williamstown, March 1943. In the foreground is a prototype 25-pounder Short gun, while in the background is a 40mm Bofors anti-aircraft gun with a 2-pounder anti-tank gun on the far left.

Photograph courtesy of the Australian War Memorial.

The Explosives Factory produced a range of different products, primarily as inputs to weapons production at other munitions facilities. These explosive materials included TNT, nitroglycerine, cordite and nitrocellulose, as well as detonation initiators such as lead azide and mercury fulminate.

One of these other facilities was the Ammunition Factory, which produced small-arms ammunition for rifles and machine guns, as well as artillery shells, mortar bombs, aerial bombs and mines, all in vast quantities. Purchased by the Commonwealth Government in 1927, it had originally been built in 1888 by a private firm, the Colonial Ammunition Company. It was the major source of ammunition for Australian troops during World War I. The factory was closed in 1994 and the site redeveloped for housing.

In 1942 the Explosives Factory built a new Pyrotechnics division at the western end of Williamson Road. It produced signal cartridges, rockets, flares and smoke generators. This factory was closed at the end of the war, converted to a migrant hostel in the early 1950s and is now the site of the new Maidstone Tram Depot.

The largest of the munitions establishments in the Footscray area was the Maribyrnong Ordnance Factory, which among other activities produced artillery pieces based on British designs, primarily for the Australian Army, as well as for export to the United Kingdom. The 2-pounder anti-tank guns were also used as the main armament in the Australian experimental AC1 Sentinel tank program, which never saw combat.

The Ordnance Factory also designed the 25-pounder Short gun, specifically to meet the requirements of Australian jungle warfare doctrine – it was the first artillery piece designed and built in Australia. Based on the standard 25-pounder gun, the smaller weapon was designed to be hauled by a jeep. It could be broken down into 14 pieces in less than two minutes, with the intention it could be 'relatively easily' carried by gun crews along mountainous jungle tracks, or dropped in pieces from aircraft by parachute.

Mal Rowe and Russell Jones

M&MTB S class trams nos 157 and 158 turning from Ballarat Road into Gordon Street while running Special E services, 20 April 1945.

Photograph by Wal Jack, in the collection of the Melbourne Tram Museum.

Swanston Street goes electric

A century ago, Swanston Street was converted from cable to electric trams, together with a similar conversion in St Kilda Road. Such a major undertaking required extensive planning, including provision for new tramcars, depots and substations.

Conversion works in Swanston Street commenced on Sunday, 27 December 1925, with most proceeding in a northerly direction towards Lonsdale Street.

This article focuses on parts of the Swanston Street conversion, highlighted by two recently acquired photographs.

The first photograph is by C J Frazer, a commercial photographer working for the Melbourne & Metropolitan Tramways Board (M&MTB). Two sets of cable tram curves can be seen turning east and west into Lonsdale Street as demolition works are well underway. The newly built cable tram track crossing Swanston Street is being wood blocked over the 'H' crossing.

On the north side of Lonsdale Street, new electric track is being connected to the existing electric track at the crossover. Welding of the rail joints is taking place on this new track work. The accompanying diagram illustrates the track layouts before and after the conversion.

The term 'H crossing' refers to tramway junctions where one pair of tram tracks crosses another pair of tracks at right angles, creating a layout of rails that looks like the letter 'H'. They are part of a category of engineering works known as 'special works'.

Conversion works at the intersection of Swanston and Lonsdale Streets, 28 or 29 December 1925.

Photograph by C J Frazer for the M&MTB, in the collection of the Melbourne Tram Museum.

A W class tram is waiting to return to 'Bakers Road' (North Coburg). Beyond the W class tram, the centre poles for the electric overhead can be seen. The section of cable tram track between Queensberry Street and Lonsdale Street was converted during early 1924 using centre poles. The overhead south of Lonsdale Street used span wire construction and was installed prior to track installation. This was usual practice at the time as it enabled the use of electric welding equipment.

A cable tram set waits in Lonsdale Street partially hidden by the building awning on the left. It will soon cross Swanston Street bound for either Collingwood or North Carlton.

The Britannia Hotel has occupied the north-west corner of the intersection since the 1860s with current premises completed in 1920. Further up Swanston Street at 289-299 is the four-storey Barnet Glass building completed in 1909. Mr Barnet Glass sold his successful business to the Dunlop Pneumatic Tyre Company in 1905 and continued to trade at this location until 1939 as the Barnet Glass Rubber Company Limited, manufacturing water-proof clothing.

Cable operations in Swanston Street ceased on the evening of Saturday 26 December 1925. On the following Monday *The Argus* reported that:

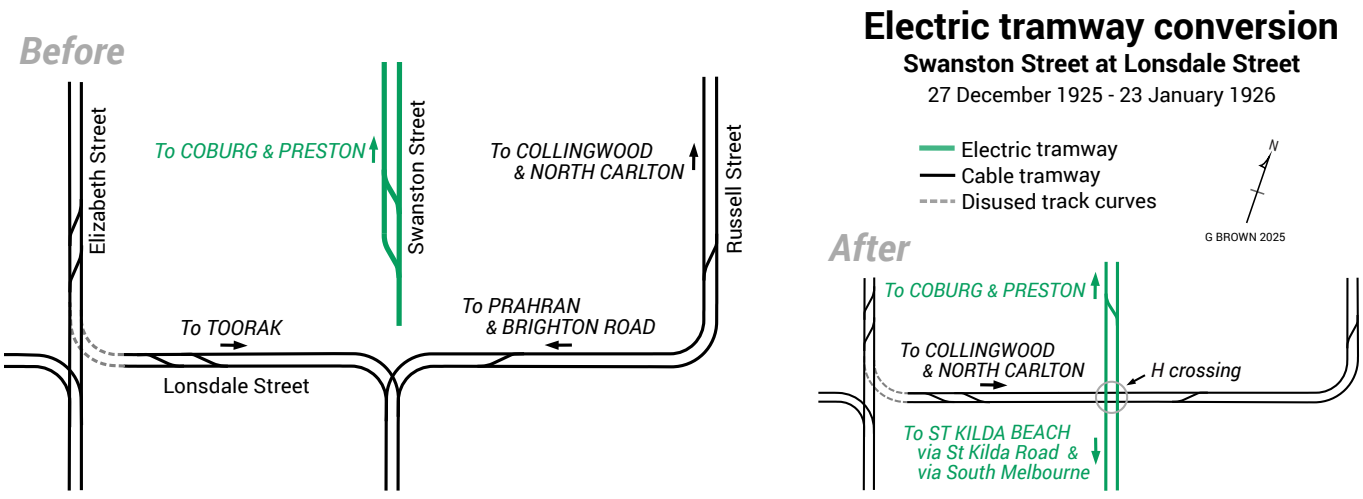
> This morning the crossover at Swanston Street will be completed and the trams from North Carlton will be run down Lonsdale Street and terminate at Elizabeth Street.

The second photograph shows the track laying process in Swanston Street between Collins Street and Flinders Lane. The roll of wire mesh reinforcement formed part of the concrete foundation with wooden sleepers and rails laid on top.

At the left is a large roller from The Foundation Coy. Ltd. This company undertook many of the cable-to-electric tramway conversions in the 1920s. Behind the roller is the large onsite concrete mixer.

Track layout and tram routes in the weeks immediately before and after this conversion work. Note that the St Kilda Beach tram had been replaced by a bus from the State Library due to the Windsor-St Kilda Esplanade line conversion. Route changes were frequent during this period.

Map by Geoff Brown.



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The rails being positioned are railway rails that required a check plate to be bolted to each rail to create a flangeway in the road surface. These check plates with pre-drilled holes can be seen stacked at the right of the track bed.

On the left of the photo is the corner of St Paul's Cathedral and over Flinders Street is the former Princes Bridge Railway Station.

On the right side at Flinders Lane, the Nicholas Building is under construction (mid-1925 to mid-1926) with builders' huts on top of the new verandah.

The Argus of Tuesday, 29 December 1925 contains a photograph taken at about the same location showing a massive crowd of onlookers watching the demolition work. The newspaper reported:

> Remarkable progress is being made by the gangs of workers who are engaged in the conversion of the cable tram tracks in Swanston Street to electric traction. Though the dismantling of the cable tracks was not begun until Sunday morning, the first of the new rails was laid opposite St Paul's Cathedral at about 3 o'clock yesterday afternoon.

The date of our photograph could be either the 30 or 31 December, given the speed of the work that was achieved. The tracks across Princes Bridge were substantially completed and linked to the City Road electric tram line by Monday, 4 January 1926, enabling a trial run.

Electric tram services between Princes Bridge and Lonsdale Street commenced on the afternoon of Sunday, 24 January 1926. This work required the conversion of some 850 metres of track (Princes Bridge to Lonsdale Street), installation of four H crossings for the cable trams (Flinders, Collins, Bourke and Lonsdale Streets) and keeping the cable network going with the absolute minimum of disruption. All done in 29 days.

Warren Doubleday

Laying track in Swanston Street, between Collins Street and Flinders Lane, 30 or 31 December 1925.

Photograph from the collection of the Melbourne Tram Museum.

2025 COTMA conference

The Council of Tramway Museums of Australasia (COTMA) celebrated 50 years at its biennial conference in Brisbane over 10-13 October this year. The conference spanned three venues: Queensland Museum Rail Workshops, Ipswich; Queensland Museum, South Brisbane; and Brisbane Tramway Museum, Ferny Grove.

With 53 registered participants from 14 tramway museum groups, stories were shared, strategies discussed and conservation work admired, both on site and through presentations.

Auckland's Museum of Transport and Technology received an Achievement Award for construction of new dual gauge track. Ballarat Tramway Museum was similarly recognised for the restoration and refurbishment of W7 1029 as a disabled access tram.

The Bill Kingsley award for outstanding achievement was granted to Christchurch's Tramway Historical Society for the Restoration of Christchurch Hills Car No 24.

Richard Gilbert of Ballarat Tramway Museum received the President's award in recognition of his active involvement with COTMA since its inception and his enduring commitment to the Ballarat Tramway Museum.

Melbourne Tram Museum's Rod Atkins was elected President for the next two years. Warren Doubleday continues as a member of the management committee.

The next COTMA conference will be at Ballarat in the second half of 2027.

Mal Rowe

Above: COTMA delegates at the Queensland Museum Rail Workshops, Ipswich, 10 October 2035.

Photograph by Matthew Geier.