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TROLLEY WIRE

AUSTRALIA'S TRAMWAY MUSEUM MAGAZINE

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Perth Electric Tramway Society's Perth E class tram 66 pauses in the natural bushland at Bennett Brook Culvert between showers of rain in August 2016. The curve on which the tram is standing has had major upgrading works carried out in February 2017 (see Whiteman Park news). Terry Albert

Erratum

Whiteman Park news - February 2017:
Page 45, Caption for bottom photo should be:

Running from Mussel Pool to the Village on 6 January, W7 1017 approaches the Bennett Brook stop (near the fenced Dog Park), with the nearby Red Flowering Gum (Corymbia ficifolia) providing a spectacular display.
Michael Stukely

As printed, it has the same caption as the page 44 photo.

Front Cover:
The Brisbane Tramway Museum Society's 'Matchbox' car No. 47 stands at the museum's tram terminus during the traditional night operations to mark the closure of Brisbane's tramways. The date of the commemoration was deferred from 13 April to 19 April to avoid the Easter break. Thomas Wyndham

Originally published in *Electrical Engineer and Merchandiser*, February 15, 1938, pages 338 and 339
Also published in the *Journal of the Institute of Engineers Australia*, July 1938, pages 255-256,
in *Passenger Transport Journal*, 12 August 1938, pages 58-59a.,
and in *Mass Transportation*, January 1939, pages 11 and 12.

Brisbane Street Cars
GO STREAMLINE
For Rider Appeal

Mass Transportation System in Australia Has Built an Experimental Car Which is Streamlined and has Many Modern and Attractive Features

Brisbane, Australia, is a city of a little over 300,000 population. It has a very equitable climate, if somewhat damp. The annual rainfall is about 44 inches on the average. The city is at sea level in one of the most picturesque spots in the country. Living is cheap. It has to be, for more than half of the people of Australia have an annual income of less than $500 [US dollars]. As elsewhere the street car is the vehicle of the masses.

The Brisbane tramway system has for many years enjoyed the reputation of being one of the best operated systems in the antipodes, and recently it has enhanced this reputation by construction of a single experimental car of ultra-modern design and streamlined appearance, as shown in the illustration.

Trucks of the equal-wheel, two-motor type were decided upon in order to overcome the inherent shortcomings of the maximum-traction single-motor type of trucks which have previously been in use. The older cars on the property are of the Peter Witt type with an overall length of 45 ft. 6 in., which was assumed to be the greatest length that could be used. Considerable difficulties were encountered in providing wider entrances on the new car on account of the fact that it was desired to retain a seating capacity for sixty-four persons. Which is the capacity of the older cars. After considering a number of possibilities it was decided to adopt a drop-center (sic), drop-end design which would allow an effective arrangement of the seating and still allow room for the trucks to be located in a suitable position to give the necessary clearance on curves and also permit the use of reasonably low steps.

There are several curves of the street car lines in Brisbane of only 42 ft. radius. This, with the length of the new car necessitated sharply tapered ends and rounded corners in order to give the necessary clearance between cars when passing each other on these curves.

The maximum width of cars is restricted by legislation to 7 ft. 8 in., and the minimum distance between tracks is 4 feet.

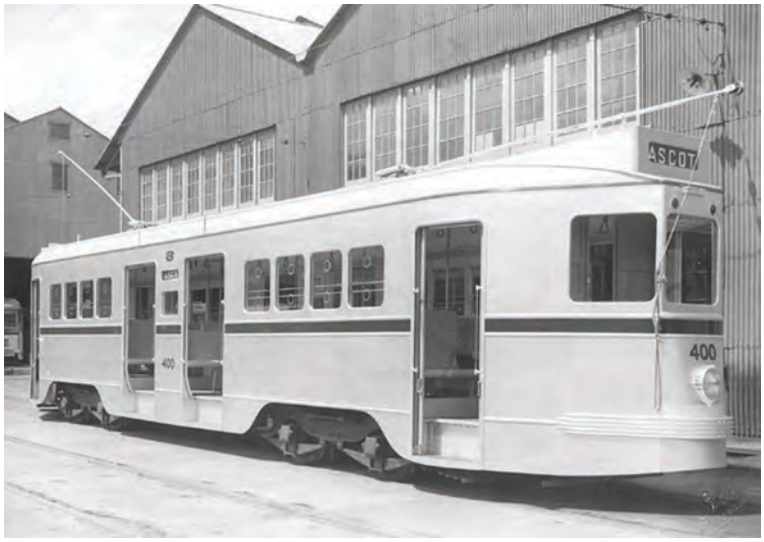
The main dimensions of the new cars are as follows:
Length over bumpers – 49 ft. 0 in.
Width over body – 7 ft. 8 in.
Width over steps – 7 ft. 8 in.
Pivotal centres of trucks – 22 ft. 6 in.
Truck wheel-base – 5 ft. 2 in.
Wheel diameter – 28 in.
Seating capacity – 64.
Carrying capacity – 110.
Height, rail to roof – 10 ft. 1 in.
Width of centre entrances – 3 ft. 6 in.
Height of steps (loaded car) – 12 in., 12¾ in.
Height of internal steps – 7 in.
Weight of car empty – 31,000 lbs.

The side sills are constructed of 3½ in. x 2½ in. x 5/16 in. steel angles, with vertical 2½ in. x 2½ in. x 5/16 in. angle pillars at the doorways and 1½ in. x 1½ in. x 3/16 in. tee pillars between the windows. The cant rail is a 3½ in. x 3½ in. x 5/16 in. angle iron running in one continuous piece completely around the car.

The roof framing is constructed of small steel trusses built up of light angle iron, to which the roof boarding and ceiling are fixed. To give a stiff construction to the roof, there is a space of 6 inches between the roof and the ceiling, in which the internal lights and wiring are placed.

The outside panelling below the waist rail is of 14 S.W.G. mild steel plate, and above the waist rail is of 16 S.W.G. plate. Each upper panel is a single sheet with the four window openings cut out, and the edges then beaten in all round on a steel die or former. The openings around the doorways are finished off with an extruded aluminium alloy moulding. All panels are electric welded to the steel frame, except that the lower edge of the lower panel is riveted to the side sill.

The ceiling and all internal lining of the car is ⅜ in. super hard board. The flooring is ¾ in. Queensland tongue & groove pine bolted to the channel-iron bearers.



The new Brisbane streamlined tramcar. Note the facilities for loading and unloading and the shaped ends to enable cars to pass each other on curves.
Passenger Transport Journal

New streamlined street car in operation on the Brisbane Australia, tramway system.
Mass Transportation

The car is painted externally in aluminium, with a dark blue wide waist band and narrow drip rail round the edge of the roof. Internally it is painted in white "Dulux" on the ceiling and walls, with a light blue internal fascia board. The seats are light grey.

The windows are of ¼ in. plate glass, running in felt guides fixed on the timber false pillars, and operated by a winding gear of the Department's own manufacture. The front window of the motorman's cabin is fixed and is fitted with an automatic windshield wiper. The side windows of the motorman's cabin may be raise and lowered to any position desired. Armourplate glass is used for all windows in the motorman's cabin.

A vertical stainless steel tube stanchion is fitted to each back seat in the car. Straps for standing passengers are provided, fitted with Bakelite hand grips, hanging from a stainless steel horizontal rail. All grab handles are of stainless steel, also the window guard rails. No gutter rail is fitted, but there is an extruded brass drip rail round the lower edge of the roof, also an extruded aluminium water shedder above this. The roof is covered with white lead and painted light grey.

The frame of the car is constructed entirely of standard rolled steel sections, timber being used only for the floor, roof covering, internal false pillars and seat framing. The design of the steel frame involved unusual difficulties on account of the drop-center drop-end feature, combined with the fact that the steps had to be recessed into the frame on account of the maximum width of the car being restricted to 7 ft. 8 in. The steel frame on the first experimental car is riveted and welded together, all the most important and complicated joints being riveted, but it is intended on future cars of the same type to make much greater use of electric welding.

The whole of the body is designed as a single unit, without and separate underframe. There are no partitions inside the car except those immediately behind the motorman's cabin.

The car is equipped with Westinghouse air brakes, the D.H. 16 air compressor and the 10 in. x 12 in. brake cylinder being of aluminium. An emergency handbrake is also fitted. Motorman's valves of the self-lapping type are fitted, also two conductor's emergency air valves near the centre of the car.

The trucks are of the latest Melbourne and Metropolitan Tramways Board's design (type No. 15), and on the trial car were constructed for Brisbane by the Melbourne Tramways. The wheels are 28 in. diameter, and the trucks are supported on long flexible semi-elliptic springs of the motor-car type giving particularly smooth and comfortable riding. Each truck is equipped with two 40-horse power motors (type G.E 247) made by the Australian General Electric Company at its Auburn Works, New South Wales. The car is equipped with lifeguard gear of the automatic trip type.

The headlamps are cast aluminium, fitted with plated parabolic reflectors and bulls-eye glass lenses. The internal lighting consists of two rows of 40-watt inside frosted lamps recessed into the hollow roof, and covered with Holophane bowl fittings in cast aluminium frames. These, combined with the white ceiling, give bright even illumination without glare.

Considerable use has been made of standard extruded metal sections for finishing off the interior of the car.

The floor is covered with grey Malthoid flooring. Exposed edges of the flooring at the steps are finished off with extruded brass nosings. A step width of 8½ in. has been obtained by recessing the steps under the floor. This has been found to give the full effect of a wide step without in any way interfering with passengers' feet during entrance or exit.

In the centre doorways vertical spring roller blinds are fitted, and in the end doorways a new type of spring-controlled roller door developed by the Department is being tested.

Under tests, both empty and fully loaded, this car ran particularly well. There was a complete absence of jolts and jars in the car body, due to the unusually flexible spring of the trucks, and noise was considerably less than on older types of cars. In spite of the use of comparatively thin steel panels, there was no sign of any drumming noise. As a result of the general satisfaction given by this car after six months of actual service, the Council has authorised the construction of twelve more of this type in the tramway workshops, to follow 92 additional cars of the former drop-center type, the last 20 of which are now nearing completion.

Tram traffic in Brisbane continues to increase, and during the year just ended (30th June, 1938) the number of passengers was 20,000,000 greater than five years ago.

A Snippet from *The Sydney Morning Herald*, Thursday 23 June 1898, page 6

THE GEORGE-STREET ELECTRIC TRAMWAY
TO THE EDITOR OF THE HERALD

Sir , - Now that the laying of the new tramway is well under weigh, and before it is too late, it will be well to examine into and see if the new system is going to serve the majority of the people and return to the Government the maximum amount of profit.

So far as the general public are aware we are led to believe that the whole of the cars are to run on to Circular Quay. If such is intended, it clearly shows that the powers that be fail to understand he requirements of the people, and sadly lack that commercial foresight the elements of which are the true essence of success. If Circular Quay is to be the only terminus, then less than half the people will be carried that could be served. Most of the city passenger traffic is at present carried between the Post-office and Redfern station. Below the Post-office the omnibuses run on to the quay almost empty.

To make the city portion of the electric tramway system effective, popular, and reproductive, it should be made complete now that they are about it. Tap the large and increasing traffic at the foot of Erskine-street. Put in at Wynyard-street a branch and into Erskine-street and Circular Quay every alternate car. At present the ferries pour into Erskine-street about 20,000 people a day, over 300 steamers land passengers at this point, and the suburbs served from here are Balmain, Drummoyne, Leichhardt, Pyrmont, Glebe, Annandale, Woolwich, Greenwich, Hunter's Hill, and the whole of Lane Cove, all of which are increasing and daily becoming more popular. The Government hold the land at the foot of Erskine-street in front of the wharves that would do for sidings. The tram running from the two termini could be made very effective and pay well. By adopting the transfer ticket system now in use in Melbourne a person at Erskine-street wishing to go to Circular Quay could get off at George-street and go on to the quay in the down car and vice versa. The whole arrangement could be made simple and effective, and I trust will merit some consideration. If private enterprise controlled the tramways, Erskine-street would be tapped at all cost.

June 21. I am &
THOMAS HENLEY

Originally published in *The Australian Engineer*, 31 January 1925

BRISBANE TRAMWAY'S NEW WORKSHOPS

It was a wise decision on the part of the Brisbane Tramway Trust to select a site for their new repair workshops between River Road and the railway line at the junction with Boomerang Street; there being the certainty that it would be convenient and central for all time no matter how much Brisbane may expand.

The acquisition of such a site was a difficult matter, seeing the huge area that was required; but by providing special foundations in consequence of the reclaimed area, the Tramway trust believes it will be more than recompensed for the outlay in time, trouble and expense.

The building will be wholly constructed of brick, concrete, steel and galvanised iron; it would not be Queensland if it did not employ the latter material. Some day militant labour will demand that human beings work under terra cotta or other heat resisting materials just as they have stipulated for adequate working space per person in their factories.

The upkeep of the new building will be at a minimum, as there will be no timber to be affected by white ant, borer or fire.

The whole of the shops and their adjacent marshalling and working yards have been laid out in accordance with the most modern principles.

Double handling is avoided in all departments for maintenance and repairs. The work may be handled by means of traversers, cranes and trolleys in such a way that the whole or part of any car can be conveyed from one place to another, no matter how remote.

In order to save expenses all portions of the layout affecting the main construction such as roof principles, columns, bays, length of iron sheets, pits, walls, etc., have been standardised.

The roof principles throughout the building are all exactly the same size being generally of 32 feet span, but even where the 50 feet span is necessary by a special arrangement of lattice girdering, it has been possible still to use the same 32 feet principals.

Even such items as windows have been standardised in order that the manufacturers can stamp out the model sections in bulk.

In order to avoid the large expenditure on the installation of the machinery, the constructional steel-work has been arranged not only to carry the necessary portions of the building, but also to carry shafting, counter-shafting, winches, repair scaffolding, etc.

Advantage has been taken of the existing levels to keep every portion of the sewerage, water supply and electrical service exposed for inspection. None of these services has been laid under floors which would have to be broken up for repairs. A complete duplication of the scheme can be made when required, without any dislocation of the existing services.

The Trust and their advisors, considering the mistakes made in similar undertakings, where provision has not been made for the rapid increases in population and the demand for transit accommodation, have made great provision for future facilities.

The repair pits are so arranges that an entire car can be placed in any position and worked at from beneath; the area being served by both a 15-ton and a 5-ton travelling crane.

The first floor used as a car building and wood-working shop, is approached by lifts and stairs from the main shop, where electrical repairs will be executed.

Further space has been reserved for an up-to-date garage to house all the cars, lorries, cranes, etc. Special conveniences are being arranges for the workmen who will be given commodious individual locker accommodation.

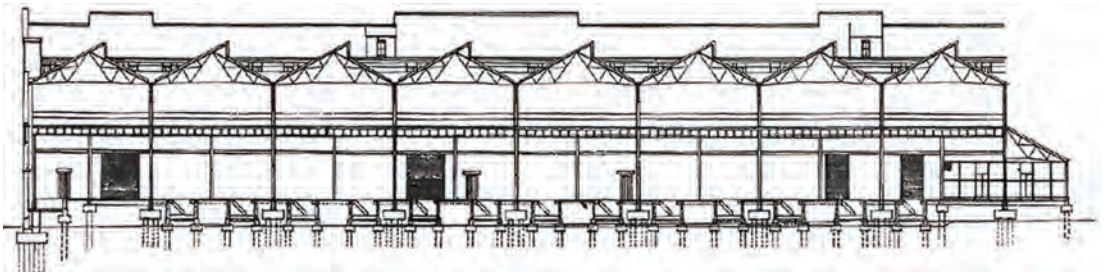
The lavatories and washing accommodation areas are arranges to be convenient to all parts of the works, and both hot and cold water are provided, while a special portion of the building will be set apart for comfortable accommodation during meal-times.

The approximate areas referred to above are:

Marshalling roads	12,800
Paint shop	12,700
Traverser roadway	16,800
Repair pits under cranes	16,892
General repairs	10,529
Smith's shop	5,425
Woodworking	2,480
Electrical work	7,930
Yard	22,500
General stores	3,550

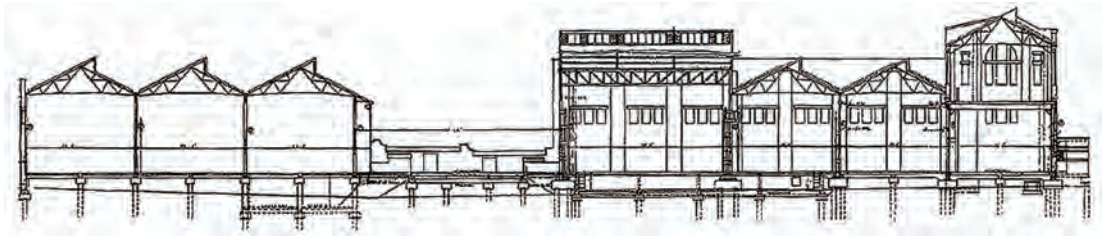
The great brick building should improve the locality in which it is to be placed, notwithstanding its invariable brick façade, for it is a decided improvement on the multifarious collection of ramshackle buildings that generally serve the purpose of tramway sheds, repair shops, etc.; still there is a great deal of monotony in the oft repeated window, the never ending string courses, in spite of the fact that the designers took great pains to eliminate the too common factory-like appearance without entailing disproportionate expense for embellishments.

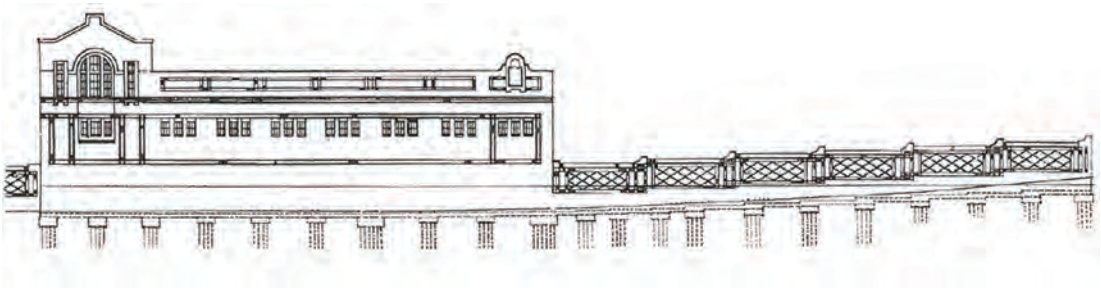
The scheme has been designed by Messrs Hennessy, Hennessy, Keesing and Co., Architects and Consulting Engineers of Brisbane and Sydney, working in association with Mr F.R. Hall, Architect of Brisbane.



Car Repair Workshops (Above)
This section is taken from east to west through the car overhauling shop and shows the standardised Fink type roof trusses, supported on Pratt type girder trusses, the clerestory lights being exposed to the afternoon sun. A traverser picks up the cars from the marshalling roads and transfers them to one of the thirteen tracks running over the inspection pits. It should be noted that the pile foundations are independent of those for the steel stanchions supporting the roof.

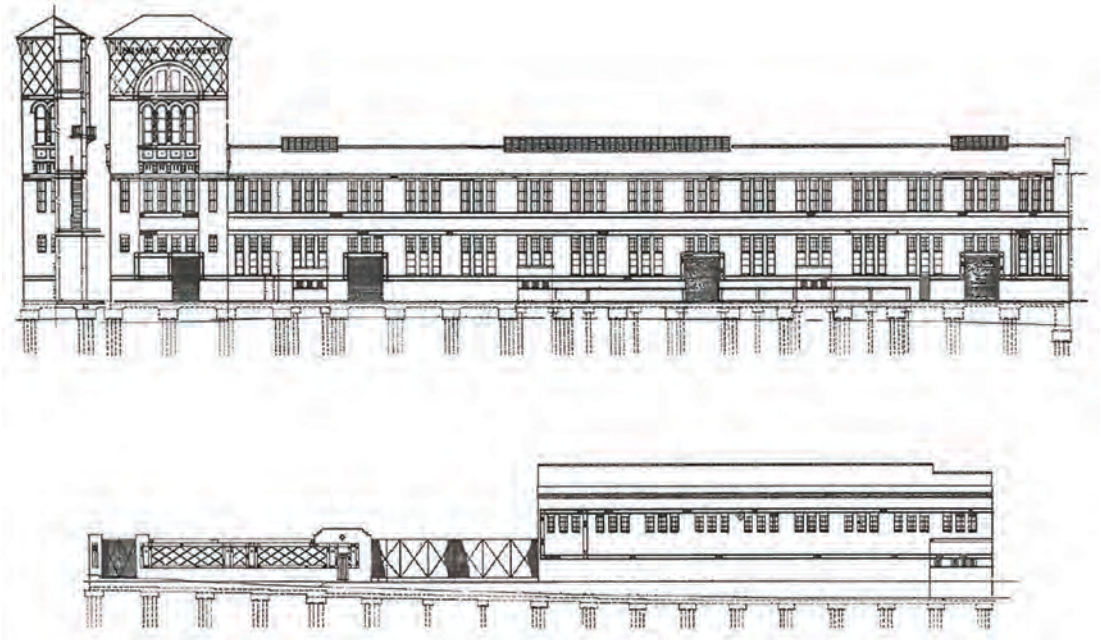
Car Repair Workshop (Below)
This section is shown from north to south through the paint shops on the left over the traverser pit, and then through the car overhauling, truck overhauling, and machine shops, and the main building containing the woodworking and electrical shops on the extreme right or south frontage. Standardised roof trusses of the Fink type of 32 feet span are used throughout, with a semi-clerestory facing the southern sky in which, presumable, ventilating louvres are also placed. Above the car overhauling shops, where there is a span of 50 feet between stanchions, Pratt type trusses are used, carrying, transversely, a further series of the standardised roof trusses at a higher level to leave room for the travelling cranes.





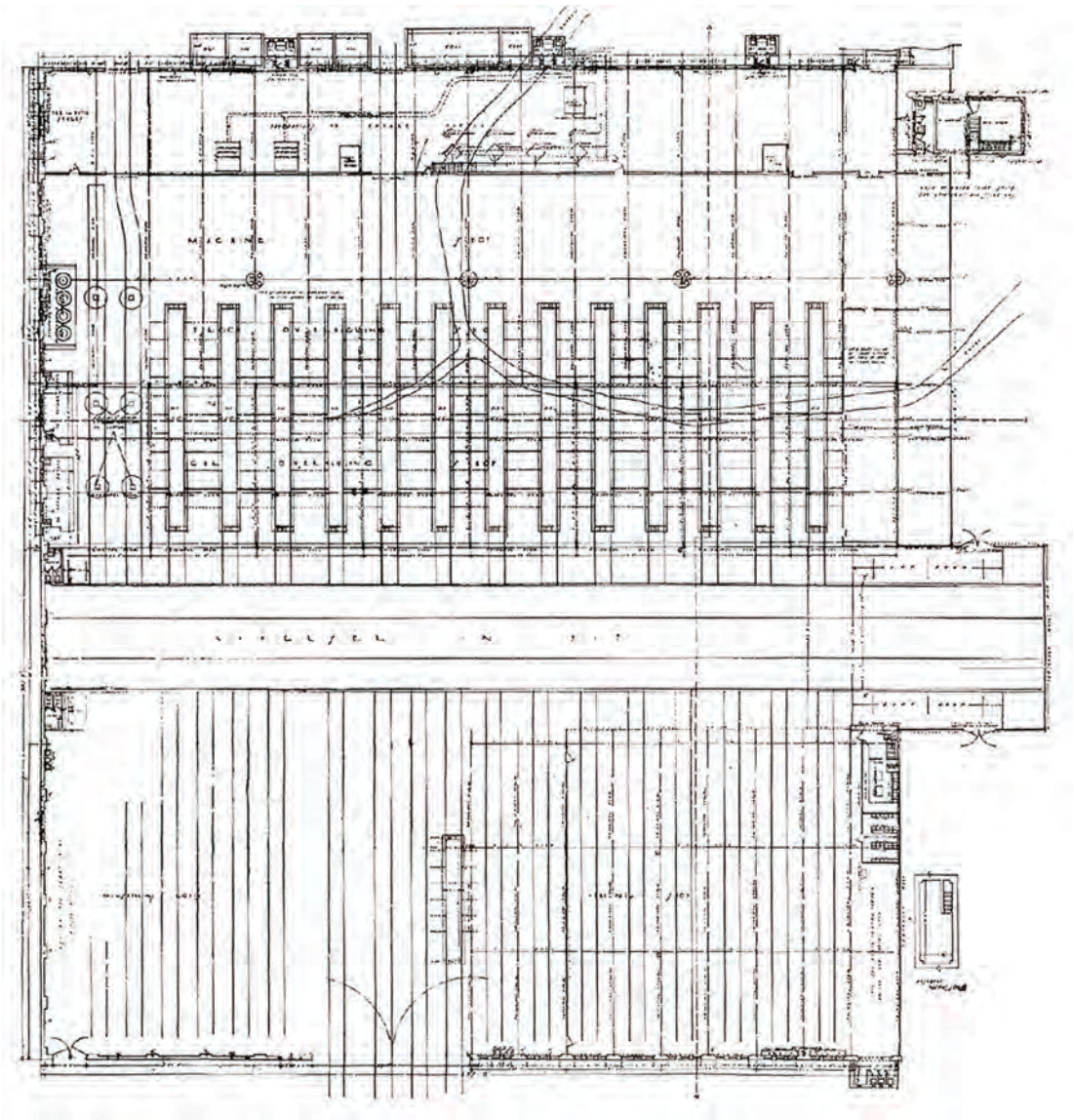
Car Repair Workshops (Above)
East Elevation
As this frontage is backed chiefly by store rooms there was not the necessity for window lighting as in the case of the workshops on the south. The semi-circular arch over the large window would have received more support from small flanking arches; the raised rectangular window heads appear structurally unsound though in the section it will be seen that a good thickness of walling acts as the arch abutments, as may be seen from the exterior view. The long and high parapet serves to screen the roof ridges behind, while in the walls of the marshalling roads to the right, the architect has indulged his fancy for a diaper pattern of brickwork. The resumed area called for pile foundations for these walls as well as for those of the main buildings.

Car Repair Workshops (Below)
South and North Elevation
A plain looking yet unusually well lighted industrial façade has been very neatly set off by the water tower at one corner of the building, which has been designed and placed with some originality. Standardised elements have been used throughout the building and much consideration given to economy. The doorways appear to have been added as an afterthought or so disposed as not to interfere with the regularity of the window openings. Opportunity might have been taken to have so framed these with side pilasters or something to break up the excessively long, horizontal lines that form the string courses. The eccentrically placed opening under the tower is particularly unfortunate. The windows reaching right up to the cornices of both floors give a sullen impression. The roof of the tower, without an appreciable overhang at the eaves or cornice emphasis, looks squat in proportion; it could, with advantage, have been made more distinctive from



the rest of the building. The semi-circular arch with blank spandrel filling, is not very satisfactory; it might have been kept below the diaper patterned work, or better still the diapered work might have been kept above it and the tower heightened; this would have improved its proportions. The diapered work in turn might have been framed by corner pilasters with and adequate cornice. This south or main elevation comprises the car repairing and electrical workshops. The building on the right of the north elevation is the paint shop, while in the centre are the steel framed, wire mesh gates for the entrance tracks, the marshall-roads being enclosed by the wall on the left.

Car Repair Workshops (Below)
Foundation Plan
Marshy ground imperfectly drained by a creek required as extensive piling system for the foundations. The convenience of the site offset the added cost. Much of the floor was elevated above the original ground surface and this facilitated the construction and drainage of the inspection pits. Only in the north-east (lower left hand) corner was there any need for excavation, and even here, although the ground is occupied by unroofed marshalling roads, a slab and girder floor supported on piles, was preferred to selected earth or cinder filling.



Originally published in *The Electrical Review*, Vol 59, No. 1500 page 298, 24 August 1906.

ELECTRIC LIGHTING AND TRAMWAYS AT FREMANTLE, W.A.

On October 30th of last year [1905] the first two sections of the Fremantle Municipal tramways were put into Operation, together with the city lighting sections, the lighting of the city and district being also a municipal undertaking in conjunction with the tramways.

Fremantle proper has a population of about 23,000 and the suburb of East Fremantle, with a population of 4,000, is also included in the undertaking, having furnished one-seventh of the capital.

For the student of municipal ownership and control, Fremantle offers a good example of what may be accomplished in that direction. A number of firms were applying for a concession to build and operate the tramways and lighting system, in fact one company had the concession, but for some unknown reason allowed it to lapse; the city then started to gather information on a municipal scheme of control. At that time cabs were the only means of transit, and these, in common with the gas lighting service, were equally unsatisfactory. A private Act was passed through the State Parliament, which brought into power a board of five members called the Fremantle Municipal Tramways and Electric Lighting board, the members being elected on a separate franchise, as follows: – One each in Fremantle and east Fremantle by freehold property owners, also one each in both municipalities by occupiers of property, making four in number: the mayor of Fremantle is, ex officio, the fifth member. The control of the tramways and lighting is therefore handed to a board constituted solely for their management. This is the first and only municipal tramway in Australia, the others being either State owned, as in New South Wales, or privately owned as in the remainder of the States. Municipal lighting, on the other hand, is quite customary in Australia. The well-known firm of Noyes Bros. secured the contract for the undertaking on a commission basis for which they were to find the capital, design, buy the necessary material, supervise and control the construction on behalf of the Tramway Board. The necessary powers for borrowing up to £100,000 by the municipalities on debenture stock were incorporated in the private Act before mentioned. The work is now successfully completed, although the contract time does not lapse for two more months, and some sections have been working, as already stated, since October last.

The power house is a substantial brick building situated at the South Mole on the edge of the harbour, and alongside the railway. At one end of the building is located a small iron structure in which a battery is housed. The main building is divided into an engine room 87 ft. long x 34 ft. wide and a boiler room 87 ft. long x 45 ft. wide.

In the boiler room are installed four boilers of the same capacity. The boilers are of the Babcock & Wilcock type, each having a heating surface of 1,426 sq. ft., and grate area of 28 sq. ft. They are designed for 160 lb. working pressure, and up to 150° F. superheat. The two feed pumps installed are of the Worthington duplex type, having a steam cylinder 6 in. diameter, water cylinder 3½ in. diameter with 6 in. stroke, and are of the usual standard brass fitted pattern.

A Cutterman water softener having a capacity of 300 gallons per hour, is located in the boiler room. Exhaust steam from the feed pump is utilised in the water softener for precipitating the impurities, soda

Mr. A. Mitchell, Engineer and Manager, Fremantle Municipal Electric Lighting and Tramways.
Electrical Review

Exterior of the Power House.
State Library of WA

ash being used as the reducing agent; this treatment is essential on account of the very hard nature of the local water.

In the flue is located a Green economiser, in two sections of 96 tubes each; the scrapers are electrically driven. The chimney is of brick, 109 ft. 6 in. high and 5 ft. 9 in. inside diameter.

A condenser of the Worthington surface type is installed, with a cooling surface of 1,400 sq. ft.; an air-pump by the same maker, is of the vertical three-throw single-acting type, driven by a 500-volt Westinghouse shunt-wound variable speed motor, and a similar motor operates a centrifugal circulating pump. The piping for the inlet and discharge of the circulating pump is carried in a brick tunnel under the building,

Power Station: generators, switchgear, &c.
State Library of WA

directly to the sea. This latter construction permits of the suction pipes being readily inspected, and also eliminates a long discharge pipe, besides allowing for a handy drain from the boiler room.

In the engine room are installed four generators, two being D.C. machines for the tramways and two A.C. machines for lighting, each direct connected to high speed engines. The D.C. generators are each of 150 KW., giving 550 volts at 430 r.p.m. compound wound; while the A.C. generators are each 150 KW., 2,200 volts, two-phase, 50 cycles, with a speed of 428 r.p.m.; the exciters for the latter are mounted directly on an extension of the main bedplate. The A.C. generators have revolving fields and stationary armatures, and were manufactured by the British Westinghouse Co.

The four engines are of the Belliss & Morcom high speed vertical compound type, taking steam at 150 lb. pressure, with 100° F. superheat, and running with a 24-in. vacuum; they are guaranteed to give 265 B.H.P., with a consumption not exceeding 22 lb. steam per KW. at full load, and 23.4 lb. at half load under the same conditions.

The switchboards are situated at one side of the engine room. The D.C. board consists altogether of five marble panels, arranged as follows: – Two generator panels fitted with circuit-breakers and the usual instruments; one battery panel with a circuit-breaker and differential ammeter and voltmeter, &c.; two feeders on each panel, with the usual meters and switches. The board is also fitted with a main voltmeter, ammeter, and Thomson watt-hour meter.

The A.C. board is entirely separate from the D.C. board, and consists of six panels, also of marble; these include two generator panels, with oil break switches, ammeters, and recording and integrating wattmeters, with the usual ground detector. In front of each panel are pedestals on which are mounted the field switches and handles which control the field resistances. Three of the feeder panels are similar with the exception of Stillwell regulators; each feeder panel is arranged with two single-phase double throw oil break switches and an ammeter in each phase. There are four Stillwell regulators on the board for controlling the same number of single-phase feeder circuits. An arc panel is fitted up for one series A.C. arc circuit with a double-throw oil switch and ammeter; there are also three plug switches for short-circuiting or opening the secondary of the balanced regulating arc transformer, which is located in the basement. Both of the boards were supplied by the British Westinghouse Co.

The battery consists of 265 cells of the German Tudor type; it has a capacity of 295 amperes at the one hour rating and a charging rate of 144 amperes.

A Westinghouse automatic reversible booster set has been installed for charging purposes. The booster is of the differential multipolar type, having a capacity of 150 150 amperes at 150 volts. The exciter furnishes the current for the shunt fields of the booster and carries the main current in its series field winding, while its shunt is separately excited.

The tramways consist of 7 miles of single track lines, built to 3 ft. 6 in. gauge, the latter being the standard for Western Australia.

There are four different routes, with a loop in the central part of the city. The construction is single track throughout, with passing stations suitably placed.

The rails weigh 92 lb. per yard, and are of the grooved girder type, 6½ in. deep, with 6½-in. base; on curves a 95-lb. section has been adopted. The rails and special work were supplied by the Lorain Steel Co.

In the construction of the permanent way on macadamised roads, the street was excavated to a depth of 15 in., and jarrah sleepers (each 6 ft. 6 in. x 9 in. x 4½ in.) were spaced 2 ft. 6 in. apart, resting on a 4 in. bed of hard ballast.

Each rail joint is bonded with two No. 0000 B. & S. Chicago bonds, and every other rail is cross bonded with No. 00 B. & S. tinned cross bonds applied to the rails by the plastic alloy method with bolted heads.

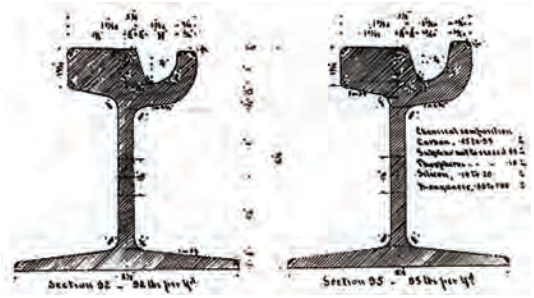
After the rails, sleepers, bonds, &c., had been placed in position and the capstone ballast filled in to a couple of inches above the rails, the whole was rolled by an 18-ton roller, and afterwards packed under the head and guard rails. The top was then sprinkled with tar and covered with 2 in. of tarred ironites (broken slag) and a further layer of tarred screenings, and again rolled with the steam roller. The result has been a remarkably good road, at a minimum cost.

Part of the track was paved with wood blocks, 6 in. deep, resting on a concrete bed 8 in. thick. For putting down the rails it was necessary to chip a groove in the old concrete to allow for a fresh bed. The rails were anchored at every joint to an inverted piece of old tram rail, bolted up and buried in the concrete. On curves and special work the anchors took the form of sleepers of the standard type, buried in the bed with the rail secured to them by screws.

For carrying the overhead work in the central part of the city, about a mile of steel span and anchor poles were put in. These were supplied by the Mannesmann Co. Some of the tramway poles carry wires and arc lamps for the lighting, and where this occurs the poles are slightly larger, with the necessary arms for carrying the cables and lamps.

Laying track in High Street.
State Library of WA

Sections of 92lb and 95lb Lorain Rail.
State Library of WA



The wooden span and anchor poles are of West Australian Jarrah, 29 ft. long, with 10 in. diameter base and 7 in. diameter top, for the span poles, and for the anchor poles 29 ft. long, with 12-in. and 9-in. diameters respectively. An ornamental cast-iron cap is placed on the top, which protects the pole from splitting. Al the poles ae planted a depth of 6 ft., concrete being used with the steel and wooden anchor poles.

The trolley wire is No. 000 B. & S. gauge, circular section, and double throughout.

To protect the P.O. telegraph and telephone wires, guard wires consisting of two No. 10 B. & S. galvanised wires carried about 18 in. above the trolley wire, and separated from each other by about 2 ft., are fixed. These are insulated from ground by small button insulators being interposed between main guard wires and the poles.

The tramway feeders are four in number, and are carried underground from the power house to the car-shed, where they are brought up the poles and carried to their various feeding points by aerial cables.

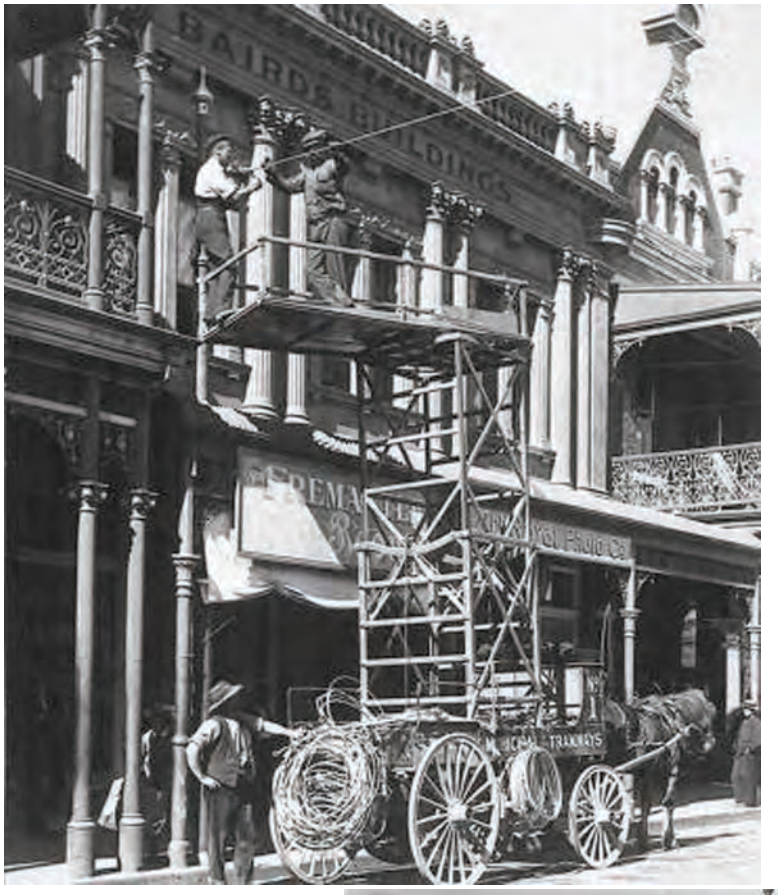
The car-shed is a substantial two story brick building; the ground floor is used for the storage of cars, five tracks being provided, also for rooms for motormen and conductors, a store, receiving office and machine shop. The first floor contains the board's, manager's, and general offices.

The rolling stock consists of 14 Brill combination type cars, each seating 36 passengers; these differ from the standard California type, inasmuch as a partition between the motorman's platform and the open compartment is placed so there is no passenger seat on the motorman's platform. The cars are mounted on trucks with a 6 ft. 6 in. wheel base.

Each car is equippe4d with two motors and controllers, also the Newell magnetic brakes, all being supplied by the British Westinghouse Co. These cars are without doubt the finest in Australia, as the design is extremely suitable for the climate. The weather, even in the winter, is not cold, and in the summer the cars should be as open as possible, though protection from the dust is required.

A sprinkler car of the standard Brill pattern, with double-head sprinklers at both ends, and with a capacity of 2,500 gallons, is provided.

The lighting system was designed to supply private and public lighting and power for the general public use, harbour trust, railway department, and private supply.

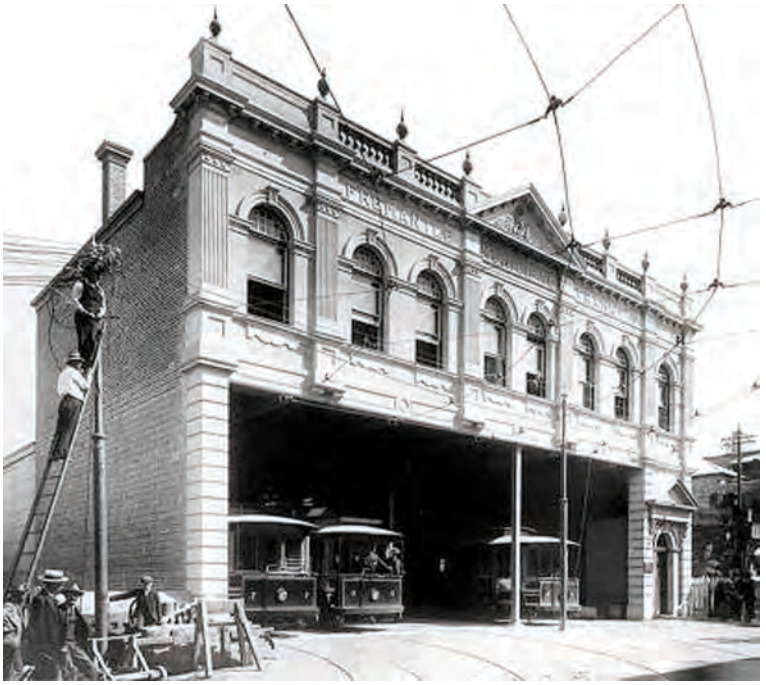


Erecting span wire in High Street.
Fremantle History Centre

The High Street car shed under construction.
Fremantle City Library

The public lighting consists of 10 2.000-nom. C.P. Westinghouse A.C. series arc lamps for the main business streets, controlled from the power house by a transformer regulator. There are also 100 and 50 C.P. A.C. Nernst lamps run in parallel on a 220-volt L.T. circuit. Which latter is fed from the main 2,200-volt

The substantial two-story brick car shed with five tracks for the storage of cars on the ground floor. Fremantle City Library



The car-shed, and tunnel through which cables pass to power station.
Fremantle History Centre

H.T. circuits from the power house. The latter circuits feed both the L.T. public and private feeders, through large transformers located in the various city sections. From each one of these transformers separate 220-volt L.T. mains radiate; the public supply mains will be controlled from the power house by a master switch which will open or close electrically operated switches at each transformer, for the above mentioned public supply mains. Although the system is a two-phase one, the lighting is all single-phase.

The power supply is either 220 volts two or single-phase, for motors not exceeding 5 H.P.; the supply for the harbour Trust will e three-phase, cranes, hoists and capstans being used. The current will be delivered by two-phase H.T. mains to the transformers, and there reduced to 110 volts three-phase by the Scott method of connection.

The lighting for the Trust will, however, be carried out on the 220-volt single-phase scheme.

Fremantle Municipal Tramways No. 5 is a single-truck, drop-end, open California combination car built in 1905 by the J.G. Brill Co. and is typical of the first 14 cars.
Electrical Review

High Street, Fremantle, showing the car-shed on the right.
State Library of WA

Fremantle Municipal Tramways car No. 11.
Fremantle City Library

The rate of charges for light varies from 7d. to 4½d. per unit, according to the amount used per month, and for power similar prices per unit, for about half the consumption specified for lighting. A discount of 1d. per unit is allowed, and meter rent are charged.

The fares on the tramways are 3d. from any part of the city to the termini of any line; on what is called the city loop, from the Town Hall on High Street, and the City markets on South Terrace, to termini in business parts of the city, 1d. Transfers are issued at all connecting lines.

Originally published in *Street Railway Journal* Vol. 25 No. 19, 6 May 1905, pages 844-845.

CALIFORNIA TYPE OF CAR FOR FREMANTLE

The J.G. Brill Company is shipping fourteen of its California cars to the Fremantle Municipal Tramways, Australia. The California car is an ideal type for service at Fremantle, where, for a large part of the year, the temperature varies greatly during the day. Thus, in the heat of midday, the passengers may sit in the open sections of the cars and enjoy the refreshing sea breezes, having the bulkheads as a protection from the strong drafts, while later in the afternoon, when it becomes cooler, or in the evening, the closed compartment affords shelter for those who prefer more complete protection.

Fremantle, of about 15,000 inhabitants, with its wonderfully arranges artificial harbour, capable of receiving all steamers that pass through the Suez Canal, and being touched regularly by several of the large mail lines; its large and substantial prison buildings, formerly convict barracks; its smelting factory, where gold from Coolgardie, Kalgoorlie and Boulder is worked into bullion; its great warehouses, comfortable and ornamental hotels, and numerous churches and schools, is one of the most interesting in all Australia. Holding, as it does, the key to Western Australia, and commanding an extensive floating as well as settled population, Fremantle is steadily and consistently growing.

The closed compartments of the cars to be used in this city is 11 ft. 6 ins. over the end panels, and is attractively finished in cherry, stained mahogany and highly polished. The ceilings are of decorated bird's-eye maple. The cars are 28 ft. 4 ins. over the crown pieces and 8 ft. 5 ins. from the end panels of closed compartment over the crown pieces. The width over the sills is 7 ft. 9½ ins. in the closed compartment and 6 ft. 11¾ ins. in the open compartment. The width over the posts is 8 ft. 4 ins. in the closed and 7 ft. 10 ins. in the open sections. The sweep of the posts is 3¼ ins.in the closed and 5 ins. in the open compartments.

The side sills are 4¼ ins. x 5 ins., and the end sills, 5¾ ins. x 5 ins. The corner posts are 3⅝ ins. thick, and the side posts, 2¼ ins. thick. Thirty-four passengers may be comfortably seated.

The long dropped platforms are supported without strain to the body by a pair of angle irons, with the upper flange under the sills of the body, and offset and prolonged to carry the platform, a cantilever arrangement, which adds greatly to the strength of the car. This is a special feature of this builder which has had much to do with the success of this type of car, making it very strong and capable of carrying large loads without strain to the upper structure. It will be noticed that the seating arrangement provides for considerably more passengers than a standard closed car with longitudinal seats of same length over crown pieces. Curtains are provided for the open compartments. The spring cane seats in the closed compartment are placed transversely, and two of the slat seats in the open sections have reversible backs. The cars are mounted on No. 21-E trucks with 6-ft. 6-in. wheel bases and 33-in. wheels. Among the Brill specialties included in the furnishings are angle-iron bumpers, radial draw-bars, "Dedenda" gongs, ratchet brake handles and sand boxes.

The interior of Fremantle Municipal Tramways No. 1
Street Railway Journal

Fremantle Municipal Tramways Brill-built California car No. 1.
Street Railway Journal

Extract originally published in the *Handbook of South Australia*, pages 201-203,
published by authority of the (South Australian) Government in connection with the visit of
The British Association for the Advancement of Science, Australian Meeting, 1914

ADELAIDE TRAMWAYS

It was in 1876 that the first Tramways Act relating to Adelaide became law, and the urgent need for means of transit resulted in a steady growth of horse tramways operated by several companies. In 1906 the Government agreed to purchase all the tramways for the sum of £284,000, and passed an Act to authorise the Government to purchase certain tramways and for the creation of a Municipal Tramways trust to construct and work tramways and for other purposes, under which provision was made for all the said tramways to be vested in the Municipal Tramways Trust. In 1912 the Government passed an Act to add the Corporation of the City of Port Adelaide to the local authorities interested in the Trust.

The System

The system adopted was the overhead trolley system, the power being conveyed from the power station at Port Adelaide by overhead cables at a pressure of 11,000 volts to the terminal house at North Adelaide, at which point it is conveyed underground to No. 1 converter station at Torrensville, and provision is made for extensions to the Government Workshops at Islington.

Car Depot

The main car depot, accommodation block and administrative building , workshops, paint store, general store, emergency house, permanent way depot, &c., are concentrated on one site covering an area of nine acres about one mile from the centre of the city on the outer boundary of the park lands with an entrance from Hackney Road. On account of the administrative building being situated as above, a great saving in time has resulted, by the concentration of departments and officers in one place. In addition to the usual fire-hose equipments, the whole of the buildings in the main car depot are equipped with the Grinnell automatic sprinkler, and chemical fire extinguishers, and every possible device for saving labour has been adopted. In close proximity are the necessary offices for the ordinary running work, such as marshals' room, inspectors' and examiners' room, motormen and conductors' room, traffic staff lavatory, clubroom, machine room, running-store, running-staff messroom, &c., and everything is done to provide for the comfort of the men.

Workshop and Stores

At the rear of the car depot are the workshops, which consist of a paint shop, car-building shop, electrical shop, machine shop, truck shop, and smithy, all of which are provided with the most up-to-date machinery. In close proximity are the general stores, and some distance away the oil and paint store, this latter being absolutely fireproof. Within the depot grounds there are two five-room cottages for the use of the depot master and the overhead foreman in order that they may be always available; an emergency house with provision for the storage of two-horse tower wagons with stalls for the necessary horses, and a garage for the motor tower wagons.

The Employees

One of the most interesting features of the undertaking is the Adelaide Electric Tramways Club, which, by resolutions of the men themselves, has been made compulsory for all permanent men in the service to join who have attained the age of 19 years. The funds of the club consist of – (1) General fund; (2) Sick, accident, and funeral fund.

The subscription id 3d. per member per fortnight to the general fund, and 6d. per member per fortnight to the sick, accident, and funeral fund, and each of these subscriptions is subsidised £1 for £1 by the Trust. The sick, accident, and funeral fund is strictly earmarked for the purposes indicated by its title; and the general fund is applied to the general benefit of the members. The clubroom has been provided and furnished by the Trust, the furniture, including three billiard-tables, piano, card-tables, reading-tables, &c., the principle, broadly, being that the Trust provides the furniture, the charges thereon and the cost of maintenance being borne by the club. In addition to the clubroom, the general fund is utilised for subsidising where necessary a large number of subsidiary recreation clubs, a rifle club, which has the use of a miniature rifle range on the premises; a house and social committee, which attends to social entertainments; a quoit club, which has the use of a quoit ground on the premises; and a library, which is housed in the clubroom.

HISTORICAL SNIPPETS

From *The Sydney Morning Herald*,
Thursday 2 January 1890, page 6.

THE TRAMWAY TRAFFIC.
The Tramway Department was taxed to its utmost yesterday to cope with the holiday traffic. From an early hour in the morning trams loaded with holiday makers came from the various suburbs into the city, and all day there was a constant string of tramcars leaving the terminus at Bent-street for various holiday resorts, as well as the usual trams for the suburbs. The tramway traffic was not so heavy as on last New Year's Day, but this year there were more railway excursions, which took a good many of the passengers out of the city. It is impossible to give any estimate of the number of persons who travelled on the various lines yesterday, but it is said that the returns will amount to over £1000. Up to 12 o'clock nine special trams left for the Association Ground, where the Highland Gathering took place, and alter noon and before 4 o'clock four more specials conveyed passengers to the sports. There were the usual trams to Newtown. Leichhardt, and the other suburbs, as well as Specials which were put on to cope with the traffic. Three special three-car trams went to Botany, and trams run to Bondi and Coogee about every 10 minutes; altogether 50 trams conveyed people to Bondi, and 75 to Coogee. There were 50 car-loads of people taken to the races and back, in addition to three special trams to the racecourse. Everything passed off successfully, and there were no accidents. The benefit of starting all trams from Bent-street is felt on a holiday: the trams can be despatched with greater facility, and as an instance yesterday 50 trams were sent out of the yard in half an hour. On returning to Sydney the cars are not now kept standing in Phillip-street, but are immediately shunted into the yard.

From *The Sydney Morning Herald*,
Friday 3 January 1890, page 5.

In reference to the complaints which have been made of the overcrowding of trams on holidays, it has been pointed out that the experience of this colony in that respect simply corresponds with that of other parts of the world. To provide fully for the very great increase in traffic which invariably takes place at the holiday season would involve very heavy expenditure in obtaining an exceptionally large number of cars, as it is generally found that the whole of the people who have been holiday-making at the numerous holiday resorts with which Sydney and its harbour abound, desire to return home at about the same time. The Railway Commissioners have not disregarded the every-day requirements of the public, but since their accession to office have effected very great improvements, some months back complaints were rife as to the unsatisfactory condition in which the motors were, but now, we learn, all the engines are in working order. The total number of motors belonging to the department is 88, and of these all but seven were in use on New Year's Day. Not only have the motors been put in proper order, but the rolling-stock has been materially increased.

From *The Sydney Morning Herald*,
Monday 6 January 1890, page 7.

CONDITION OFTHE TRAM MOTORS.
TO THE EDITOR OF THE HERALD

Sir. -I think the lime has arrived for me to refute some of the serious reflections which have from time to time been cast upon me, the latest in your journal being the paragraph of yesterday, which states that, "some months back complaints were rife as to the unsatisfactory condition in which the motors were, but now, we learn, all the engines are in working order. The total number of motors belonging to the department is 88, and of these all but seven were in use on New Year's Day." If the whole 88 had been available tor use there would be nothing to crow about. During the past two and a half years the Traffic Department has been fully supplied with power at all times. When I took charge of the tramways in October, 1886, there were 96 motors, 45 of which were in steam daily, and the most of them wanted repair. There were 38 motors and 25 boilers standing idle waiting to be repaired. 13 more were in the shops undergoing repair, and 12 new ones were on order, these last have not yet been supplied, neither do 1 require them. In April last I left 74 engines in first-class working order" and could ere this have had the whole 88 ready, as 1 had no less than 74 in use on the 26th December, 1888 and 71 on the 28th January last. The Plattsburgh line has been equipped with 8 motors and 13 cars out of the Sydney stock. and I have remodelled the Randwick shops, and while this has been going on, more traffic than ever has been carried, and a lot of ballasting work done in the Centennial Park about which nothing is said, and yet the working expenses have fallen. The total average monthly cost of working loco. branch in 1885 being £10,199, and in 1888 it was £9657. I might say that as to cars on the 26th December. 1888, all we had were in use - 116. I beg to ask you to publish this as a matter of fair play.

Jan. 3

I am &c.
THOS MIDELTON.
[NSWR&T Locomotive Engineer]

HERE AND THERE
AUSTRALIAN AND OVERSEAS NEWS

Adelaide News

Three additional Citadis trams have been purchased for the North Terrace East and Festival Plaza tram line extensions. Like the current 2007 French-built Citadis trams (Nos 201-206), they are from Madrid's transport body, MINTRA, and were unused following the cancellation of a proposed line in Madrid. The previous six Citadis trams were purchased in 2009.

Boston, USA

Massachusetts Bay Transportation Authority plans to overhaul its fleet of PCC streetcars. The US $7·9m overhaul and aims to extend the life of the vehicles, which have been in service since the mid-1940s.

The work is expected to take two years and will include fitting new traction equipment, brakes and power supply systems. A further US $1·1m will be spent on studies for the future of the Mattapan – Ashmont High Speed Line, which is served by the PCC streetcars. The 4·2 km route with eight stops carries 4 600 passengers a day.

'These historic vehicles are among the very last of many thousands that operated in major cities across the United States, and are beloved by many residents in the communities they serve', said MBTA Acting General Manager Brian Shortsleeve.

MBTA has 10 PCC streetcars, of which seven are in revenue service. Because of their age, replacement parts must be custom-made by at MBTA's Everett workshops. Parts have also been obtained from museums.

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

Dave Macartney and Warren Doubleday

Operations

The annual operation of horse tram No. 1 took place on 22 January. With fine weather prevailing and a maximum temperature of 27 degrees, good patronage was guaranteed, with some 502 passengers being carried on No. 1 and its electric companion No. 26, the latter running on the southern end of the line. Cuthberts939 was parked in the loop, providing a lunch room for the crews and a marketing opportunity to see the inside of the tram. Tickets and souvenirs were sold from a small marquee tent placed opposite the horse tram terminus.

The Begonia Festival weekend in mid-March also managed to attract the best of the weather at the end of an extended burst of summer. Passenger numbers reflected this, with over 8200 carried for the three days. The operation, now so familiar to crews, went off without a hitch, with the trams, the motorists and the travelling public all on their best behaviour.

Functions tram Cuthberts939 continues to attract interest, with five charters booked for April 2017 alone. This will bring the number of times the tram has been hired to almost 30 since its launch in early April last year. To provide some relief for the existing crew, a second team is being assembled and trained in the intricacies of operating the tram.

Restoration and maintenance projects

At the depot, work on No. 18 continues slowly, with most of the refurbished components returned and ready for the final assembly. The wheels have had their axle journals metal sprayed, thereby addressing the problem of uneven wear over many years of tramway service.

On 22 January passengers queue to board the horse tram with their tickets being checked. Warren Doubleday

The various parts of No. 18's trucks are laid out for it to be re-assembled pending receipt of re-metalled axle bearings. Warren Doubleday

ESCo. No. 12 is receiving some attention to the painting and varnishing of the body now that the bulk of the structural work is in place. Summer car No. 26 will soon receive a roof repaint, with No. 671 to follow.

Solar power – a success story

As readers may remember, the Museum installed a solar panel system on the depot roof in late 2014, thereby becoming the first solar-powered tramway in Australia. Following the installation of the panels we have become a net generator of electricity. We estimate we are currently saving about $3000 a year on our electricity costs – a big reduction on our previous bill of $5000

No. 33 arrives at Depot Junction on 12 March, with No. 671 following. Alan Bradley

BENDIGO

BENDIGO TRAMWAYS

1 Tramways Avenue, Bendigo, Victoria 3550 www.bendigotramways.com

Dan Rutherfurd

Easter in Bendigo

As many readers of Trolley Wire would be aware, Easter is the biggest weekend of our year. Tourist numbers spike because of the massive Easter festival that spans all four days. The festival's highlights include the Torchlight Parade on Saturday night and the Gala Parade on Sunday morning.

Over the Easter long weekend, we ran thirteen services, three of which were shuttle services. These ran from the Central Deborah Gold Mine to Charing Cross, and from the Joss House to Chapel Street, the latter being a temporary stop used only for Gala Parade shuttles.

Launceston No. 14

This tram is currently on its way to Tasmania for engineering work, after which it will return to Bendigo for electrical and mechanical fit-out. No. 14 is to operate at the Sydney Tramway Museum when its restoration has been completed.

Bendigo No. 7

Work has begun on restoration of No. 7 with repairs to the sub-frame and refurbishment of various individual components. We plan to have the tram in operating condition by November this year.

Melbourne City Circle cars Nos. 981 and 983

Upgrade of car 981 from a W6 to a W8 is nearing completion, with the official handover likely to occur in May. No. 981 will then join other W8s on Melbourne's City Circle service.

Work is progressing smoothly on car 983 with fit-out of the driver's cabs close to completion. Installation of the tram's pneumatic and electrical systems is also under way.

Easter statistics
14 to 17 April 2017

	Passengers carried	Kilometres travelled
Good Friday	247	165.4
Easter Saturday	386	195.4
Easter Sunday	608*	166.7
Easter Monday	410	184.6
Total	1651	712.1

* Includes Gala Parade shuttle services

Trams used:
19, 44, 45, 84, 302, 369, 610, 880

Bendigo Tramways staff and families in the city's Easter Torchlight Parade.
Bendigo Tramways

BYLANDS

TRAMWAY MUSEUM SOCIETY OF VICTORIA
38 Piccadilly Crescent, Keysborough, Victoria 3173 www.tramwaymuseum.org.au

From Graham Jordan and *Running Journal*

Undercover storage for our collection

The move of W3 667 to undercover storage, after seven years out in the open, occurred on 7 April. In the weeks preceding the move, a clearway was created behind the caretaker's house to enable a truck and cranes to gain access the Exhibition Shed. The opportunity was also taken to relocate the former MMTB Austral Otis grinder No. 1, which has spent the last 39 years on the remnants of the old railway siding to the north of the main yard.

The contractor, L. Arthur Pty Ltd, provided two Franna cranes and a suitable truck for a starting time of 8.00am at Bylands. The grinder was the first vehicle moved, but not without some difficulty due to its restricted location. It was safely in the Exhibition Shed just a few hours later, where it was reunited with the grinding head unit that had been moved there over 10 years ago.

After lunch it was the turn of the W3. The bogies and axles were chained up and the cranes made light work of lifting it onto the truck. After arriving at the Exhibition Shed, the remains of the protective tarp over the car were removed. To our surprise the tram is still in reasonable condition despite its ordeal exposed

W3 667 being lifted for transport to the Exhibition shed.
Michael Fedor

W3 667 being unloaded at the Exhibition shed.
Michael Fedor

to the elements. The paint around the lower panels and around the cabs is faded, as well as some paint flaking on the timberwork around the cab fascias. The upper body and saloon windows are still very good and not faded, and the roof seems OK. There are no visible signs of any water leaks, and internally all it needs is a good dust and clean.

The last task for the day was to relocate the former Batman Avenue signal cabin, which was placed next to the main line in 2011. It has been moved further north and away from the track, and is now protected from the direct winds by No. 2 tram shed. Apart from Z1 tram No. 5, there are no longer any Society-owned vehicles in open storage.

Heathcote–Wallan Rail Trail

In February 2016, the Victorian Government announced funding of $120,000 towards a feasibility study to investigate a possible southward extension of the existing McIvor Rail Trail. The trail runs between Heathcote and North Bendigo, along the former rail corridor. The study is being undertaken in conjunction with the City of Greater Bendigo, Mitchell Shire, Friends of the McIvor Rail Trail and Bicycle Victoria.

The plan is to establish a rail trail between Wallan and Heathcote that could be for community activities as well as by walkers and bike and horse riders. It was initially envisaged that most of the former rail reservation would be rehabilitated, except for several structural obstacles such as the Pyalong trestle. However, it was subsequently discovered that large tracts of the former line and reservation between Heathcote and Heathcote Junction have been sold off over the last 45 or more years to private interests including bodies such as our own society.

In 2005, the Board discussed an earlier proposal to establish a rail trail through our Bylands property. The Board concluded at the time that the proposal was not feasible because of safety, security and accreditation concerns. These same concerns still apply today.

The Society Secretary has conveyed our concerns about the proposed rail trail to Mitchell Shire Council, including during a visit by the Council's staff and its consultants to Bylands. To our surprise, neither was aware that there is still rail track on the reserve at Bylands, this being the only remaining evidence of the former line from Heathcote Junction to North Bendigo. We also advised the Shire and the consultants that we intend to give up our lease on the former railway reservation north from McKerchers Road. Further, we informed them that if a rail trail were to be established to the south of Kilmore, it could only come as far as the museum since some of the land south of our property is also in private hands.

The consultants and the Shire staff have confirmed that our concerns for our property and assets are justified, and if a rail trail eventuated, it would more likely follow the existing highway easement between McKerchers Road and Arkells Lane rather than the former railway alignment through Bylands. It is expected the study will be completed by mid-year, with the report and recommendations being made available by the end of 2017.

Around the Museum

Our Marketing Manager, William Fedor, has commenced fitting out part of the large rear portion of the Visitor Entrance Centre formerly used by the Kilmore Men's Shed. To date, a small internal dividing

Grinder No 1 is lifted from its stored location of 39 years.
Michael Fedor

The Grinder dangles from the crane as it passes the Caretaker's house.
Graham Jordan

wall has been erected, with more improvements planned as time and availability permits.

In early January our tractor Fergie was put to work moving or relocating rails and castings from behind the house and toilet block. These materials caused access difficulties for heavy vehicles. A new rail dump has been created further north in the paddock adjacent to the cable tram shed.

Later the same month a start was made recovering our rails stored on the reservation just north of McKerchers Road. This task was made just that bit more interesting as one of the local landholders had erected an unauthorised roadside electric fence across the right of way at the old level crossing site. The rails are being towed by Fergie across to our side of the crossing and up the formation. Unfortunately, this task has been a little drawn out, as a result of prevailing weather and fire conditions and also safety, due to the need for a flagman required for traffic control.

Keeping our trams and exhibits clean and presentable is a major priority, and one that take a lot of time and effort for little or no reward. It is not uncommon to see someone with a brush, broom or duster giving a little attention to detail in between our normal operations and escorting visitors around the site.

Repairs are under way to the caretaker's house to replace or repair some doors and window frames which have deteriorated due to age. One must remember this is the old Bylands stationmaster's house (No. 899), and has been on site since around the 1890s. Built to VR standards, there were thousands of these around the state. Many still exist, in many cases now privately owned and still in their original locations. Regardless of how long since a line closed, you can still find an old VR Department Residence looking out over its former charge!

W3 667 and Grinder No 1 safely stored undercover for the first time in many years.
Graham Jordan

FERNY GROVE

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

Peter Hyde

For this issue our report is in photographic form. As the anniversary of the tramway closure in Brisbane on 13 April occurred on the Thursday before Easter, the traditional commemorative night operations were deferred to Wednesday 19 April. As part of the evening's events, Trolleybus No. 1, the Scammell recovery vehicle and the partially restored tower wagon were positioned together. This was possibly the first time they had ever been in close proximity; certainly it was the first occasion in at least 50 years.

Work on the roof of Dreadnought 136 has entered the final stages. Here, Ian Ross finishes the installation of the destination box. Peter Hyde

Left:
Cosmetic restoration of the rail bender has commenced. Here, Don Wilshire, Ian Brandt and Jim Silk are cleaning away the detritus of 48 years of open storage. Peter Hyde

On Saturday 18 March long-serving member Wayne Chaseling and Fiona Little were married in a ceremony held in the upper picnic area at the museum. Guests were conveyed from the gate in drop-centre car No. 341, and the bride's family arrived in 10-bench car No. 65. The bridal party, traditionally late, followed in combination No. 47. The return trip from the ceremony to the front of the museum was also by tram, where more photos were taken before departure for the reception. Peter Hyde

The depot is open and trams 554, 429 and 99 are being prepared for night traffic operations to mark the closure of Brisbane's tramways.
Thomas Wyndham

Work on the restoration of the tool trailer continues. Although still not complete, it was put to use as a coffee cart during the night operations. Peter Hyde

The Scammell recovery vehicle and trolleybus No. 1 during the night operations on 19 April.
Thomas Wyndham

Baby Dreadnought 99 awaits its turn at the terminus during the traditional night operations to mark the closure of Brisbane's tramways. Thomas Wyndham

Night lighting illuminates Dropcentre 341 in the depot yard on 19 April. Thomas Wyndham

The partially restored tower wagon, the Scammell recovery vehicle and trolleybus No. 1 were positioned together – possibly the first time they have been viewable in close proximity. Peter Hyde

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

Anthony Smith

Restoration of W5 792

Steady progress is being made in the restoration of this tram.

During January, our regular restoration team comprising Anthony Smith and Frank Schroeders installed the two saloon floors in this car as well as a temporary floor in the drop-centre section. The reason for not fitting the permanent floor in the drop-centre is to enable the installation of electrical and brake equipment at a later time. When this equipment is in place, the permanent floor will be fitted.

With the flooring – both permanent and temporary – now in place, work has begun on scraping back the old varnish on the upper bulkhead areas along with removal of the badly deteriorated ply panel inserts. These panels will be replaced with new material at a later date.

In February, whilst preparing the drop-centre timber quarters for the fitting of the exterior panels it was discovered that three of these frames had several wrongly-sized pillars and cross members fitted during the tram's construction at Preston Workshops in the mid-1930s. Unfortunately, these defects were not noticed by our restoration team at the time they were refitted to 792 last year. The faults have since been rectified and the parts reinstalled.

Refurbished drop-centre quarter panels being fitted to 792.
Jacqui Smith

Lower Left:
Anthony Smith and Frank Schroeders fitting a temporary clamp to one of the new drop-centre bulkhead panels on 792.
Daniel Edwards

Anthony Smith priming the bolster of 792's No. 2 end saloon. Daniel Edwards

Anthony Smith primes one of the drop-centre bulkhead and new cross bracing on 792.
Jacqui Smith

Anthony Smith and Frank Schroeders fitting the new drop-centre panel cover strips to 792.
Jacqui Smith

Replacement sheet metal panels for the drop-centre and driver's bulkheads have been obtained as well as new cover strips for the drop-centre quarters. Fortunately, we have been able to reuse the original quarter panels as they were in remarkably good condition in contrast to the rest of the original panel work. These panels were then stripped back and have since been primed and fitted, together with the new cover strips. All four new drop-centre bulkhead panels have also been fitted. As well, both front bumpers have been straightened and grit blasted. After painting, they were refitted to the car.

Two replacement crown planks have been obtained from the Bendigo Tramways as the originals are beyond further use. They are currently being prepared for fitting along with the new cabin flooring. Work is now concentrating on fitting the new driver's bulkhead panels.

Arthur Ireland removing old varnish from the drop-centre bulkhead of 792.
Anthony Smith

Overhead

Alterations have been made to the span wire network in the depot fan area to improve the alignment of the 3 to 4 road frog pan which has been causing trolley pole tracking problems of late. The opportunity was also taken to conduct minor grinding work on this frog pan to remove grooving. Initial testing with a number of trams has so far indicated a successful outcome.

Trackwork

During March, four rail joints on the main line lead into the north-west curve that were showing signs of movement were dug out for examination. It was decided to remove the loose and corroded bolts along with the fish plates and to plate and weld these joints instead. The cleaning, preparation and welding was undertaken by Kym Smith on one of his regular visits from Adelaide. Kym also attended to a minor crack in the south-west curve check rail in the same manner.

Kym Smith excavating a rail joint for repair.
Jacqui Smith

LOFTUS

SOUTH PACIFIC ELECTRIC RAILWAY CO-OP SOCIETY

PO Box 103, Sutherland, NSW 1499 www.sydneytramwaymuseum.com.au

From *SPER News*

Vintage Tramway Festival

The 26 February 2017 Sydney Vintage Tramway Festival will go down as one of the most amazing days in the Museum's history! It was our biggest day since February 2011 when we marked the 50th anniversary of the final closure of Sydney's original tramway system.

For much of the morning there was a queue of visitors waiting to come in the gate, sometimes stretching up Pitt Street almost to the rear entrance. None of us expected to see so many people arrive. Everyone involved in the day deserves thanks for meeting the challenges we faced and contributing to a really excellent outcome; just $14 shy of $17,000.

For the first time, publicity for the event mainly centred around one platform: the electronic media and Facebook in particular. It proved a winner for us. With only the small expenditure of $200, we were able to reach a larger, more targeted audience than with traditional methods. Indeed our targeted reach with electronic media would not have been possible, nor affordable, with traditional media. Much of the credit for this goes to Mitchell Skillcorn, who drove the use of paid promotion on Facebook. We have used Facebook in the past for 'unpaid' promotion and this has been successful, but not ever to this scale.

In addition, the festival saw a generation shift among visitors. The crowd was not the 'die-hard enthusiast' (although they were there) or the nostalgic grandparents with their grandchildren. On 26 February we saw not only young families and new enthusiasts but, highly pleasing, a strong multicultural turnout including Indians, Indonesians, Chinese and Malays. Less noticeable were the Europeans, particularly eastern Europeans and backpackers. All of these represent the new Sydney population we need to foster and turn into repeat visitors.

The crowd awaiting entry to the Museum on 26 February quickly extended up Pitt Street, at times almost to our top gate.
Greg Davis

P 1497 has just returned from the Royal National Park and disgorges its passengers at 9:46am. Robert Merchant

Two minutes later, at 9:50am, F 393, already with a good load, moves off to the Display Hall stop to load more passengers and await departure time before heading north.
Robert Merchant

Visitors from the NSW Model 'A' Ford Club were a 1929 Roadster and a 1937 Tudor Deluxe Sedan.
Robert Merchant

A crowd surrounds the second hand book stall in the Display Hall on 26 February.
Robert Merchant

The day was not without its problems and we were caught almost unawares by the large number of visitors. All members working on the day faced a strain as trams filled up with passengers even as they pulled up from their last trip. We ran two trams on almost every trip, but had we had the resources even three trams on every trip may not have been able to carry all the passengers offered! Again, thanks to Hayden Holmes and all the traffic crews who persevered under exceptional passenger loads. They operated our trams with safety, respect and good humour, and it was appreciated by our visitors.

The crew at the main gate did a mammoth job, with a team of just five members collecting the bulk of more than $13,000 in entry fees. Some continued all day without a break as they couldn't leave their posts.

Other members did exceptional duty in the Museum's bookshop and kiosk, while a handy $600 was made from the sale of second hand books in the Display Hall.

Once again, the Engadine Rover Crew were on hand with the traditional Scout sausage sizzle. Over 500 sausages were ordered for the day and every one was cooked and sold, together with a thousand slices of bread and a few kilos of onions. Their queue was twenty minutes long in the middle of the day. Many thanks again to the crew for their assistance.

Finally, there was one vehicle missing on the day. Our magnificently restored double deck bus 2619 was to have made its public debut, but a persistent mechanical fault kept it idle. The bus will have wait for the next event for its debut.

Back to Brisbane Day

We were fortunate to have good weather and a good crew for the 9 April 2017 Back to Brisbane Day special event, but nobody could predict what the patronage for the day would be. Just in case, a special timetable was planned to cope with whatever eventuated. This was designed to utilise the three Brisbane cars, 180, 295 and 548 operating in turn on a half hourly frequency between the Army crossing, the Museum and The Royal National Park, with a tram departing the Display Hall stop every 15 minutes. The Board granted special approval for 295 to operate on the Royal National Park line for this occasion, which was well received.

As it turned out, visitor numbers were slightly higher than normal and the amended timetable proved to be very popular both with visitors and our traffic staff. Revenue for the day was just above $2100.

No doubt our attendance was affected by the Royal Easter Show and the Maitland Steam Festival as rival attractions on the day.

Thanks are extended to the traffic crew for keeping the trams running to timetable, and to those who ran the bookshop and kiosk and the second hand book stand. In the kiosk, we had a customer who only had $2 in cash and had to pay for $10 worth of ice creams and drinks by eftpos, an example of the cashless society!

For some reason, the traffic crews referred to OIC

The South Metropolitan Joey Fun Day was held at the Museum on 26 March 2017. Scott Curnow

All the Joey Scouts attending received a badge created by the Region Commissioner Joey Scout and features the Museum's LP class tram 154. David Critchley

Richard Jones as 'Clem' Jones, possibly because at the end of the day he shut down the trams!

Overhead

Our Overhead Supervisor, Glenn Killham attended an audit by ONSRR on 30 November. An outcome of the audit was that the regulator does not wish us to use Melbourne-style ears on our overhead; they formed the view that this type of ear is can contribute to overhead accidents. Glenn was requested to do an audit of our overhead to determine how many of these ears are in use and formulate an action plan for their removal. As a result we can report that we only have two of these ears in use presently. Plastic plugs have been sourced which can be inserted into the 'wrong' end of the Melbourne ear clamp screws, thus preventing them from being accessed from the 'wrong' side; approval for their use is awaited.

We have been able to use 99u for overhead work as the tower is complete. The modifications to the tower are complete except for the second access ladder on the rear of tower. Sign offs by our chief engineer and ONSRR are awaited.

The remaining pole butts from the old poles on the Royal National Park line were cut off at ground level on 16 November, leaving only one pole to be removed.

A supply of overhead fittings from Melbourne has been sourced and a quote has been received. They will be very useful for future works and completing pull offs on the Royal National Park line. These fitting are $15 each (we need 100) and their use is dependent on approval from the regulator as mentioned above.

Six prototype pull-off arms for the Royal National Park Line have been completed and are ready to be installed when fittings are received.

Brisbane cars Phoenix 548, Dropcentre 295 and Centre-Aisle 180 await the start of operations at Railway Square on 9 April. Scott Curnow

Concreting the track in front of the Waratah Loop waiting shed was completed on 4 February.
Martin Pinches

The second Army level crossing has been boxed up ready for concreting.
Danny Adamopoulos

The bullnose guttering in front of the waiting shed at Waratah Loop has been completed.
Danny Adamopoulos

The bracket arm on pole 337 on the Sutherland line was smashed by a fallen tree on Wednesday 8 March. It was replaced the same day with minimum disruption to tram services.

Track and associated work

The February issue of Trolley Wire referred to the new waiting shed constructed by Transport for NSW at our North Terminus as being a replica of the Parriwi Road,

A wedding party poses for photographs beside R 1740 on the Royal National Park line on 5 April 2017. Scott Curnow

Mosman waiting shed on the line to The Spit. The new structure is actually a copy of our ex-Miranda waiting shed and is significantly different from the Mosman one.

The replica sprinkler car has been sitting on the western track at the North Terminus for several years and was hindering access to the worksite. On 14 January the new points and the track grooves of the eastern track were cleaned and hosed out. Bill Parkinson coupled overhead line car 99u to the sprinkler car and towed it downhill clear of the new points. Using the wandering lead, 99u propelled the sprinkler car through the turnout onto the eastern track to the end of the concrete. This was the first movement of trams on that track. While 99u was there its tower platform was used to clear overhanging tree branches down Army hill and to carry the off-cuts to a pile in the terminus area awaiting mulching.

Frank Cuddy works on the electric light circuits in freight car 24s. Danny Adamopoulos

Two pallets of bullnose bricks were transported north on ballast motor 42s, and brickies' sand and bags of white cement were purchased to allow a start on laying the bullnose brick kerb in front of the waiting shed.

Some trams have already visited the new rebuilt terminus as our driver trainers familiarise themselves with the trams on the new track in preparation for driver training to commence.

With the roller door of our No.3 substation open for the first time in years, the forklift moved one of the ex-Kogarah oil switch cabinets out into the yard. Transport for NSW will have a contractor shot blast the unit for painting and future placement in the former railway substation, as part of a display of the ex-Kogarah trolleybus substation equipment.

Workshop and maintenance

The platform of the No.3 tower wagon has been placed back on the tower of the truck following raising of the platform railings to meet the regulator's requirements.

A contractor has renewed the polycarbonate (Alsynite) panels on the roof of the workshop, cleared the gutters and attached compliant anchor points for safety harnesses for people working on the roof in future.

The old roof sheets had been on the building since 1988 and were life expired. They had become very thin and dark and required the workshop lights to be on constantly. The new sheeting has made the workshop and lunch room very much brighter and will help save on our electricity bill.

Some deteriorated shelving in 24s has been replaced while the brake rigging has been dismantled for

The new air tank for 24s has been painted and is ready to be installed. A new tank was required as the old tank had non-compliant rivetted concave ends.
Danny Adamopoulos

cleaning and painting. A new air tank has been purchased and painted to replace the one on the car which has non-compliant concave ends and riveted construction. Preparation of controllers, breakers, switches and resistance grids for the car is progressing, and a floor-mounted GE air compressor and 6-inch brake cylinder have been overhauled.

Moves to extend north

Multiple meeting have been held with Sutherland Council in regard to getting track laid as part of their Rawson Avenue works. We have progressed to design with their stage 2 section and we will work with them to lay our track with their road works. If all goes to plan we should be able to lay 100 metres of track as far as the Cronulla railway line overbridge.

We will have to work in with the Council's construction timetable and we will have a limited window to do the work. This will require funding to achieve such a rapid build, so donations will be very welcome.

ST KILDA

AUSTRALIAN ELECTRIC TRANSPORT MUSEUM (SA) INC

PO Box 213, Salisbury, South Australia 5108 www.trammuseumadelaide.com.au

Colin Seymour

Car 381

The Museum received a Community Museums Program Grant of $8,000 from History SA to enable the wheels of H1 car No. 381 to be re-profiled. The grant covered lifting the tram's body and transport of the bogies to Genesee & Wyoming Australia's engineering workshop at Dry Creek where re-profiling took place.

No. 381 was lifted on 15 February and placed temporarily on H type bogies while the re-profiling was under way. The bogies were delivered to GWA on 2 March and returned on 10 March.

Bib & Bub 14-15

Work is progressing on the new inner end cabins, for which the basic framework has been assembled on both cars. New apron sheet metal has also been fitted. Minor modifications will be needed on the roof of car 15 to create a perfect fit with the new cabin.

Main tram shed

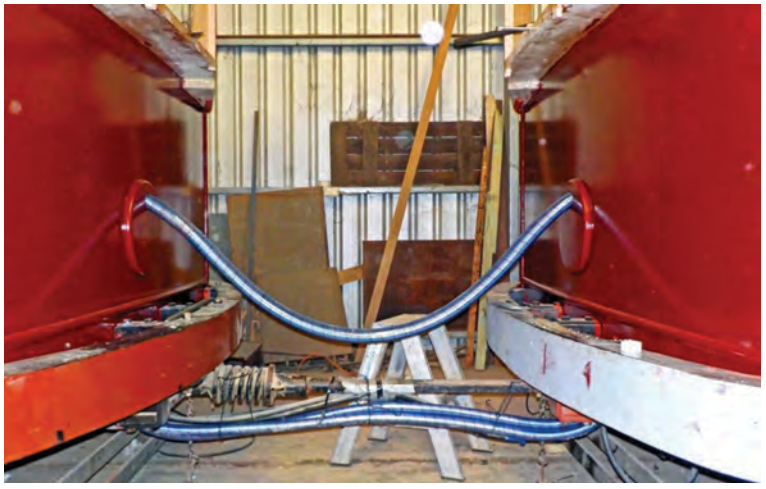
The final concrete pour in our new main shed occurred in mid-March when concrete was laid between the Road 6 rails and the southern wall near the pit area. This completes the construction of the new shed which began in 2011. There are still some minor finishing activities to be undertaken, but nothing major remains. Well done to all who have contributed in some way to this important museum project, which will assist the secure storage of our fleet.

AETM archives

Colin Seymour has been working to establish an overall picture of our holdings. The Museum has an excellent archives room, but little progress has been made in storing and cataloguing the collection in recent years. As well, a number of items have been stored in an ad hoc manner and there are also many

Lifting car 381's body from the bogies on Road 9. Kym Smith is with the tractor.
William Adams

Car 381's bogies being loaded on 2 March for transport to Genesee & Wyoming Australia's engineering workshop at Dry Creek. Kym Smith



The new apron panel has been fitted to car 14 at left, and connecting cables are now in place on the inner cabs of cars 14-15 on 30 March. Note the connecting cable through the former headlight sections as was the case with Bib & Bub sets.
William Adams

Ian Seymour assists Julie Olsen, wife of then Premier John Olsen, with driving A Type No. 1 on 7 March 1999. The occasion marked 90 years since No. 1 inaugurated electric tram services in Adelaide on 9 March 1909. Neville Smith

additional items in the adjoining library room that have not yet been categorised. On a more positive note, a summary document has been prepared of the items stored on each shelf of our 22 shelving units. William Adams and Damian Hill are also scanning archives items such as timetables.

Vale - Ian Seymour

Former President, Trustee and long-time committee person, Ian Seymour passed away in January 2017 aged 56 after a period of ill health.

Ian joined the Museum in 1979 and very quickly became active in both operations and tram maintenance and restoration. Ian was on the Committee from 1982 to 2014, mostly as General Manager. He was also a Trustee. Ian was President from 2009 to 2014.

Ian played a significant part in the development of the Museum during the 1980s, 1990s and 2000s, being involved in nearly all projects during that time. The wheel lathe and other heavy machinery were all arranged by Ian who was a fitter and turner by trade. Ian played a key part in other infrastructure developments including the Bodyshop, Tram Storage (Crock) Shed, the Northern Depot and, more recently, the replacement Workshop and Main Depot.

Ian was also involved in maintaining the Museum's tram fleet and played an important part in the restoration of trams 264, 186, 42, 360, 118 and 14-15. In recognition of his efforts on the mechanical reconstruction of drop-centre car 264, Ian was given the job of driving the tram when it was launched on 28 September 1986.

In addition to the AETM, Ian held key positions with related rail preservation groups - COTMA (Council of Tramway Museums of Australasia), ATHRA (Association of Tourist & Heritage Railways of Australia) and Heritage Rail SA. Ian was the Chair of COTMA from 2012 to 2014.

Without Ian's contribution over many years, the Museum would not be what it is today.

Although he stepped down from all roles in the Museum in 2014 many members have kept in contact with Ian either through contact at the local shops or at model railway activities.

A number of members attended a Memorial Gathering held for Ian on Sunday, 12 February at the Midway Tavern, Elizabeth Downs.

Vale - Trevor Triplow

Trevor Triplow passed away on 28 January 2017 aged 78. Trevor married Wendy at the Museum on 22 March 1986, the service being conducted on tram 111.

Trevor was Secretary of the AETM from 1987 to 1991. He played a significant part in developing the original interpretive display in the Entrance Gallery in 1988 and 1989. He was also a museum conductor during this period.

Trevor assisted Brian Andrews to produce City & Glenelg, the extensive history of the Glenelg tram line in the MTT years which was published in 2014.

A number of members attended Trevor's funeral at Centennial Park on 2 February 2017.

WHITEMAN PARK

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

Michael Stukely

Traffic operations and service cars

Unusually mild weather conditions in Perth through much of summer and early autumn resulted in good public attendance and patronage levels on the trams.

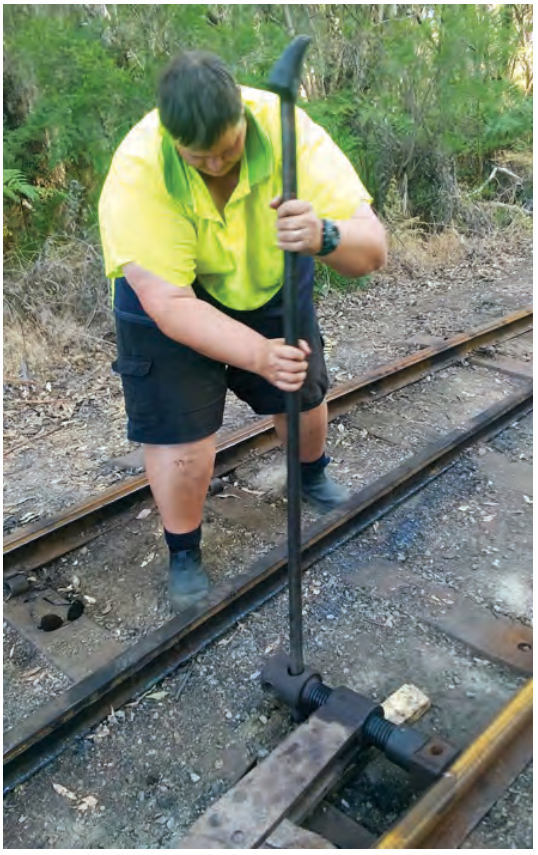
During the summer school holiday period trams operated as usual on seven days per week. In February, rare and extremely heavy rainfall with flooding led to fewer days being lost due to high fire danger than usually occurs in February and March. Melbourne W7 1017 saw the most service, with W2 329 and Perth E 66 also in regular use. Our regular traffic crews continue to maintain our tram services every weekend and public holiday, plus all Tuesdays and Fridays outside school holidays.

This year's Easter tram service was crewed almost exclusively by some of our Sydney-based members: Hayden Holmes, Kate Strancar, Fay McCabe and William McCabe. They were joined by Shane Parsons, who also ran some impromptu Carbarn tours. To provide variety for crews and passengers, four cars were operated — Fremantle 29, Perth E 66, Melbourne W2 329 and W7 1017. Two of these cars were running at most times, with an approximate

Perth E 66 in August 2016 on Camel Curve at the north end of the Village Mall, after leaving the Village Junction Terminus.
Terry Albert

Fay McCabe (left) and Kate Strancar, the first all-female tram crew at PETS, William McCabe and Hayden Holmes pause at the passing loop with Perth E 66 and Fremantle 29 on Easter Sunday, 16 April.
Michael Stukely

Looking through the Bennett Brook Culvert Curve towards the Triangle on 3 February, with the three lengths of checkrail fully dismantled for re-setting.
Michael Stukely



Allan Kelly operates the Jim Crow to re-profile a rail on the Culvert Curve on 6 February.
Michael Mason-Coe

15-minute frequency and crossing at the loop. Trams changed over at the Carbarn on each trip. With fine weather throughout the period, passenger loadings were consistently strong, and justified the two-car service. It is especially noteworthy that that Fay and Kate teamed up to form PETS' first all-female crew.

General

The Wednesday team continue their dedicated and essential work in servicing the trams, our tramway infrastructure and motor vehicles, with extra time also being given by some on Thursdays on a regular basis. Priority refurbishment work on Melbourne SW6 891 has continued in preparation for its recommissioning for regular service at Whiteman Park.

The conversion of W7 1023 to a works car, to be designated 1023W, continues. Further trials have been carried out recently using the car for overhead line maintenance on the Carbarn fan and at the Triangle, with excellent results. At present the car has to be towed to the work site, but when its refurbishment is completed it will be able to operate under its own power.

Wool packs for the axle boxes of our operational trams have been made by Christine Walker and donated to the Society.

Track upgrades

Two substantial track upgrading projects have recently been completed.

Tram services were suspended in early February while major work was undertaken at Bennett Brook Culvert Curve. This involved the complete dismantling of the existing three lengths of check-rail, trimming back the foot of these rails with the oxy torch to allow their tighter setting, and re-setting them with PETS spacer blocks. This was followed by the installation of an additional length of check-rail into the straight section of track at the western (Carbarn) end of the curve. Eighteen steel sleepers were installed, with 16 of them on the check rail (11 of which replaced the older type of steel sleepers that were unsuitable for use with

Noel Blackmore operating the rail drill to drill the hole for a bolt to secure the new check rail on the west end of the Culvert Curve on 13 February, with Nick Tsiaglis (left) and Lindsay Richardson assisting.
Michael Stukely

check rails). Work was completed and the track tested successfully with E 66 and W7 1017 on 15 February, and services resumed on 17 February.

All three legs of Stockmans Triangle were used regularly in earlier days of PETS. With changed service patterns, the east-to-north curve and the west-to-east curve are now only used to turn trams, and so are passed over just once per week, on average. Although no changes to the east-to-north curve have been made for some time, we recently found the track gauge required adjustment at the road access crossing, and it has long been planned to install steel sleepers there (as has been done with all other similar crossings). In just eight hours on Saturday 18 March, a team of three – Nick Tsiaglis, Jordon Blain, and Michael Stukely – excavated the highly compacted road crossing with the Kango electric jack hammer; installed four steel sleepers at an even spacing; re-

Looking west from the Triangle end of the Culvert Curve on 13 February, with the original three lengths of check rail reinstalled using PETS spacer blocks throughout. Work continues in the distance.
Michael Stukely

W7 1017 runs back through the west end of the upgraded curve after a successful test run on 15 February, with Nick Tsiaglis standing above the Bennett Brook Culvert at right.
Michael Stukely

Jordon Blain (left) and Nick Tsiaglis after completing the resleepering and gauge correction work on the road access crossing on the Triangle east-to-north curve on 18 March. Michael Stukely

gauged the track; packed the sleepers; and reinstated the road surface for safe use.

A barbecue and an award

A very enjoyable members' barbecue was held at Mussel Pool on Easter Sunday, 16 April, with about 60 members, family and friends attending. The opportunity was taken, belatedly, to present an important award: the 2016 David Secker Memorial Award to Hayden Holmes. This award is normally presented at the Annual General Meeting to a Society member who has shown meritorious service above and beyond the normal contribution made by the membership. Based in Sydney, Hayden has headed over to Perth almost every year for many years to work as a PETS traffic crew member during the intensive traffic periods at Easter and October. During these times, he often serves as a motorman, conductor or instructor. While here, he also helps with other Society activities, such as making sure the track is greased. Hayden's dedication, and his reliable service to the Society over an extended period, make him a deserving recipient of this award.

Hayden Holmes is presented with the 2016 David Secker Memorial Award by PETS President, Allan Kelly, at the Easter barbecue on 16 April. Michael Stukely

The scene at Mussel Pool early in the evening of Sunday 16 April as members and friends arrive for the barbecue, with Fremantle 29 and Perth E 66 at the tram stop. Michael Stukely

VALLEY HEIGHTS

STEAM TRAM AND RAILWAY PRESERVATION SOCIETY
PO Box 571, Springwood, NSW 2777

Peter Stock

State Heritage listing for steam tram

The steam tram collection now enjoys listing on the NSW Heritage Register after the Minister for Heritage, Mark Speakman, signed off the documentation on 23 September 2016. The items on the register include steam tram motor 103A, trailer car 93B and trailer car 72B. The double-deck car was not included as it is a replica and not an original item.

The process had taken a considerable amount of thought and effort. Cordial negotiations were led by Treasurer Bruce Irwin since March 2015, when the original application was submitted. Various clarifications were provided during the intervening period. In addition, supporting submissions were sought from other interested organisations through advertising by the heritage assessors. An on-site inspection of the collection was also undertaken by the assessors.

Listing on the Heritage Register will ensure the future preservation of the steam tram regardless of whether the Steam Tram and Railway Preservation (Co-Op) Society Limited (STARPS) remains in existence as its custodian.

Funding for our louvre van

The Society was pleased to attend a Sector Development workshop on 19 November that was hosted by Transport Heritage NSW. Treasurer Bruce Irwin was on hand to receive notification that grant assistance would be provided for the restoration of the body timbers on LV 1478, our four-wheel louvre van. Work commenced on the van soon afterwards.

Diesel driving instruction and competencies

For several years STARPS had been trying to obtain a rail tractor. One of these small locomotives was seen as ideal motive power for use on total fire ban days and for shunting at short notice. Ultimately, X206 was transferred to Valley Heights for general use. Whilst the locomotive does not belong to us, we expect it will become available for occasional operational use with the Valley Heights mixed train consist, under our accreditation documentation and operating rules.

The two wrapped birthday locos outside the shed on 27 November 2016.

Peter Stock and Bruce Irwin with Keith Ward cutting the 125th birthday cake.

All photos are by Peter Stock.

STARPS and the Valley Heights Locomotive Depot Heritage Museum each nominated four candidates for practical driver training and skill assessment, all of whom were passed as competent.

An unusual birthday bash

Last year marked the 125th birthday of our motor 103A. It was also the 100th birthday of VHLDHM locomotive 5461. Our Publicity and Event Manager Keith Ward, in his inimitable style, had both items gift-wrapped. Birthday cakes – one for each engine – were obtained, and advance publicity was put in place.

The birthday chosen, 27 November, was overcast with a breeze later in the day. Both locos were wrapped in birthday paper, a no mean feat with the breeze! Keith did have his concerns as the paper began to separate from its allotted gift.

At 2 o'clock the official cake cutting took place. Well-known and respected heritage railway conservator Dick Butcher did the honours cutting 5461's cake whilst Bruce Irwin and Peter Stock did likewise with 103A's. Dick related to the audience his recollections of his heritage railway preservation experiences over the years. Bruce then spoke of STARPS' origins and paid tribute to the foresight of Bruce MacDonald in obtaining 103A in the early 1950s. Bruce also touched on the necessity to expose and encourage youngsters to embrace heritage, emphasising the necessity to ensure we 'pass the baton' on to them so they may continue those good works of preservation.

The Valley Heights Mixed

Whilst STARPS is primarily concerned with the preservation and operation of the street steam tram, certain railway lines in NSW were operated as tramways. The most remembered of these ran from Yass Junction to Yass Town. The tramways were operated with small steam locomotives, a driver and a guard/conductor who issued point to point tickets from a tramway-style ticket book. These tramways often conveyed goods vehicles in addition to a passenger car.

Prior to the Parramatta Park fire, STARPS operated a representative of these country 'side of the road' tramways, using 0-4-0 loco 1022, a four-wheel goods truck and the KA car. The KA car was destroyed in the fire, whilst 1022 was salvaged for rebuilding; the four-wheel wagon was not affected as it was stored outside the shed. In the years since the fire, STARPS has had a continuing desire to eventually revive the country tramway concept.

During 2016 the dream became a reality when the 0-6-0 locomotive *Stepho*, the four-wheel wagon and the LFA end-platform car operated during our open days on the fourth Sunday of the month.

Unfortunately, certain operating problems with *Stepho* began to manifest themselves last year and the decision was made to undertake maintenance work. This included replacement of boiler tubes and the unexpected total replacement of the steam pipe due to eroded mountings. A completely new steam pipe with its artisan welding was fabricated to replace the

worn out one. When the work was completed and a new boiler certificate was issued, the Valley Heights Mixed resumed its fourth Sunday operations.

A curious discovery was made during the re-tubing work. An ancient spanner was found to be firmly encrusted onto the belly of the boiler. It was surmised that it has been there since *Stepho's* days at the Portland Cement Works! Unfortunately, because of its size, the spanner could not be removed through one of the tube holes. It was therefore necessary to lift the dome to retrieve the unusual relic.

Our January holidays

The period between Christmas and the first week in February is, by custom, devoted to general and preventive maintenance tasks on our rolling stock.

The work programmed was largely devoted to re-tubing *Stepho's* boiler and completing the re-tubing of 103A. In between re-tubing, both boilers were prepared for their annual inspections then put back together again. This annual chore must be done. It is a hot and labour intensive job comprising removal of the ash pans and fire grates, cleaning out fire and smoke boxes, removing boiler inspection plugs, washing out the boiler, etc. Both boilers were passed as satisfactory. Whilst the inspection was made the opportunity was taken to do associated minor maintenance.

The maintenance period this year also saw a bogie from 93B removed for replacing the wheel and axle set with reconditioned items. At the same time the opportunity was taken for a thorough inspection of all brake and suspension components.

Removing Stepho's *old boiler tubes in July 2016. The new steam pipe is on the ground, soon to be fitted.*

LV van 1478, with the side removed.

Works commenced on dismantling one side of the LV van. Our contract carriage builder and STARPS Maintenance Manager Craig Connelly have prepared a program of restoration work. One side of the van has been dismantled and the metal brackets and other ferrous parts have been cleaned and painted. Timber for one sole-bar and cant rail has been purchased. Several louvered doors are on site, having been manufactured before the grant was approved.

Meanwhile, work is progressing on the double-deck car and locomotives 1022 and 1308 as time permits.

Other activities

Looking back over the past months the Society has enjoyed a program of activities designed to attract people to our second and fourth Sunday operating

Holding up the teddies in the LFA car.

days. Apart from a new range of static historical exhibitions the operational side involves community activities.

The first, in February, was the Trams, Trains and T model Ford promotion that was held throughout the Blue Mountains area, involving many local groups. During February, the Valley Heights Depot hosted a two-day event. This involved steam tram operations, Morse code demonstrations, a mock schoolroom for children, a concert band, a competition for the best 1920s clothes plus visiting vintage/heritage cars and trucks from the decade dubbed 'the roaring twenties'. A similar activity took place last year.

This event was followed by what has become an annual tradition: the Teddy Bears Day Out, another great family day organised by Keith Ward, our enthusiastic Publicity and Events Manager.

Santa made his regular visits early in December. Santa always arrives by steam tram, having left the reindeers on agistment somewhere up the track. Santa was welcomed by over 100 adoring fans. After talking with the children (and parents/grandparents), he took up residence on the Santa throne in the roundhouse where there were many family photos taken of children with the great man.

The tram has picked up Santa and is returning to the platform. Keith Ward is the conductor.

A five tram line-up at the Australian Electric Transport Museum, St Kilda on the last Sunday of the January school holidays, with cars 360, 1013, 365, 282 and 186 in traffic. William Adams

The Steam Tram and Railway Preservation Society's 0-6-6 steam locomotive Stepho replicates a typical country 'side of the road' tramway with four-wheel open S wagon and LFA class end-platform car. The most remembered of these ran from Yass Junction to Yass Town. Peter Stock