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TROLLEY WIRE

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A life-expired tramway pole is replaced outside the Army Depot on the Sydney Tramway Museum's Sutherland line on 27 June 2016.
Danny Adamopoulos

Front Cover:
Bendigo Tramways car Anzac 45 waits outside the depot on Back Creek Bridge for its passengers to return from the depot shop on 25 April 2016. Earlier 45 had brought participants to the Anzac Day service and entered service when the street was cleared around 1:00pm. Greg Travers

Originally published in *The Tramway and Railway World*, 14 September 1905, pages 255-261.

CHRISTCHURCH ELECTRIC TRAMAYS

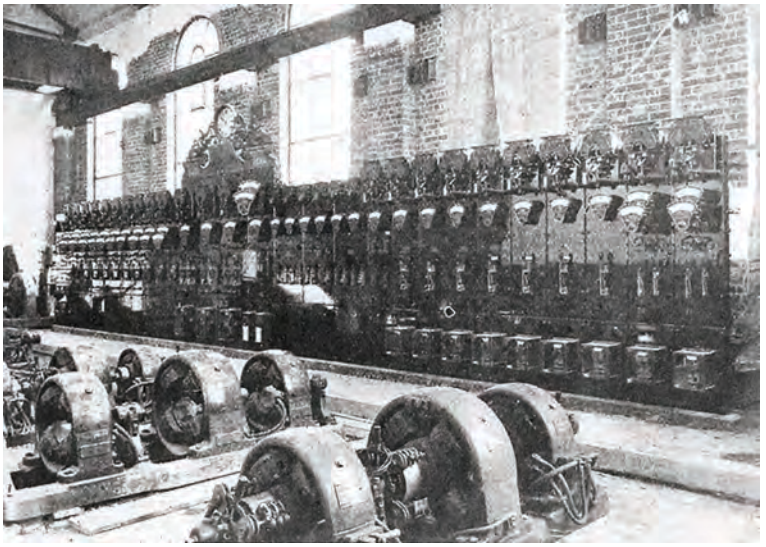
THE FIRST MUNICIPAL INSTALLATION OF ELECTRIC TRACTION IN NEW ZEALAND

BY JAMES DRUMMOND

Christchurch, the principal centre of the wealthy province of Canterbury, in New Zealand, was not always prosperous. Many years ago, when wool and mutton brought low prices on the English market, Christchurch trudged along with the burden of hard times on its back and the hope for the future in its heart. It has since reaped the reward of its faith in its own resources, and the installation of an electric tramway system, which was opened with ceremonies on June 5 last [1905] is numbered among its notable achievements.

The city comprises about 60,000 inhabitants, but the tramway district extends over several smaller boroughs, and takes in a large portion of three road districts, so that the new system covers a wide area, and will serve a comparatively large population. The city, which is naturally the centre of the system, is about seven mils from the sea, communication being supplied with the port of Lyttelton by means of a railway which, like the railroads of the colony, is owned by the Government. There are two sea-side resorts; one, Sumner, is within eight miles, and the other, New Brighton, within six miles, and both of these, as well as many beautiful suburban areas, are included in the tramway district. When the whole system has been completed there will be 29 miles 33 chains of single track, and 2 miles 31 chains of double track, the latter being within the city belts.

For about thirty years the district was served with steam or horse trams, which were owned by a company. When the company's concessions fell in, the municipality decided to take over the system and improve it, with the result that electricity was introduced, and Christchurch now possesses as good a system as can be built anywhere, besides being the most up-to-date one in Australasia. The district is admirably suited for electric traction. The main streets are one chain wide, and there is an entire absence of



The large switchboard in the Christchurch power station.
Christchurch Tramway Board

heavy gradients. The bicycle traffic in Christchurch is probably larger than any other city of the same size in the world; but it is thought that the new tramway system, when it is in thorough working order, will have a material effect on the use of bicycles.

It took Christchurch a long time to build and control its own tramways. A tempting offer was made to it by the British Electric Traction Company, of London. After discussing the subject very thoroughly, it rejected the company's offer, and appointed a Tramway Board, which is elected by popular vote. The Act of Parliament that constitutes the Board gives it authority to raise a sum of £250,000 in the first instance, and another sum of £100,000, after the first loan is spent. The Board lost

no time in getting the necessary consent of the voters to the raising of the first loan, and after it had purchased the old tramway company's property for £23,910, it set to work to construct its system, the first section of which it opened on the date mentioned.

The contract for the construction of the system was let to a Christchurch firm, the New Zealand Electrical Construction Company, which was the successful competitor out of 49 tenderers. The price was £249,876, and the company has the honour of being enterprising enough to undertake the biggest contract ever let in the colony. The company was organised by Mr. T.E. Taylor, M.H.R., who, after inspecting large numbers of electric traction installations in Europe, came to the conclusion that the capital and enterprise of New Zealand ought to be able to carry out all tramway construction needed in the colony. Mr. G. Bowron, a well-known citizen of Christchurch, is president, Mr. J.L. Scott, a member of the iron-foundry firm of Scott Brothers, which has undertaken large contracts throughout the colony, is superintendent, and Mr. Taylor is in charge of the company's commercial interests as secretary and treasurer.

The powerhouse

A rapid and far-reaching change is taking place in connection with power-house construction, and Christchurch has reaped the advantage gained by the large numbers of installations made a few years ago in America and the United Kingdom. The power-house in Falsgrave Street should be as satisfactory to the citizens as to the Board, the engineer, the contractors and the General Electric Company, of America, which supplied the turbines and the electrical appliances.

Steam turbines must be placed in the front ranks of the most notable features of the installation. Their presence in the power-house places Christchurch in the proud position of having the only complete turbine-driven power-station in the Southern hemisphere. Lately the Government of Victoria has installed two small steam turbines for lighting purposes, and the Railway Commissioners of New South Wales have installed a turbine in their power-station in Sydney, but they do not affect the premier position occupied by Christchurch.

The Board called for tenders for both reciprocating engines and steam turbines. By accepting tenders for the latter it has reduced the cost of the building of the power-station by over £2,000, due to the small space required by the turbines; and it is hoped there will also be a large reduction in the operating expenses and the charges for attendance and in other directions.

There are two 500-KW vertical two-stage Curtis turbines, which run at 1,000 revolutions per minute. Each is direct-connected to a four-pole continuous-current dynamo, which yields a current of 833 amperes at a pressure of 600 volts. The turbines are of the type as those built in England by the British Thomson-Houston Company at Rugby.

The switchboard is the largest in New Zealand, and measures 47 ft. in length, with a depth of 6 ft. it is made of black marble, in panels, with a sub-base of similar material.

The boiler-room contains three Babcock and Wilcox boilers, each capable of evaporating 6,000 lbs. of water each hour, and of working at a pressure of 150 lbs. to the square inch. Combined with them are superheaters. The waste gases from the boilers are passed through a green's economiser, which heats the feed water before it enters the boilers.

Mechanical stokers of the chain-grate type are placed under each boiler. By this means economy in labour is secured, perfect combustion is guaranteed, and cheaper grades of coal may be used.

The Christchurch power house in Falsgrave Street with the large cooling tower beside it.

Tramway and Railway World

Overhead work in Colombo Street, showing the overhead wires, poles and tower wagon.
Auckland Libraries

The coal-bunkers have a capacity of 400 tons, and are filled direct from the railway trucks, which are hauled up an incline way by an electric winch, This allows a minimum of handling of the coal; and when the bunkers have to be filled it is necessary merely to haul up the trucks, open the truck doors, and shoot the coal into the bunkers. Sidings have been provided at the railway for conveniently handling the full and empty trucks. A thirty-five horse-power compound engine, direct-connected to a dynamo, has been installed for supplying light to the power-house, car-shed, and offices.

Outside the power-house there is the cooling-tower, in the form of an iron cylinder 35 ft. high and about 25 ft. in diameter.

The lay-out of the power-station has been the subject of a great deal of consideration. Large and well-lighted cable tunnels have been provided, so that no part of the network of cables that has to be dealt with will be will be concealed or inaccessible.

The chimney-stack, which is 149 ft. high, is the second tallest in Christchurch, the destructor's chimney beating it by one foot. It rests on a solid concrete foundation, 32 ft. square and 14 ft. deep. It has a clear internal diameter, inside the fire-brick lining, of 8 ft., and is built of brick, the base being of panel design.

Overhead construction

The overhead line is divided into half-mile sections, in accordance with the Board of Trade regulations, with section insulators and switches, so that any half-mile can be isolated without interfering with any other part of the line. The trolley wire is made of hard-drawn circular copper wire. It has been erected so as to have a maximum working strain up to 15,000 lb. and a breaking strain up to 70,000 lb. to the square inch. No joints have been allowed in the trolley wire except in splicing ears, and there is not more than one joint between each pair of section insulators. In the original specifications, guard wires were provided for the trolley or feeder wires there telegraph or telephone wires pass over them. After the contract had been let, however, the Board agreed with the Public Works Department to have the guard wires done away with, and instead special arrangements were made for insulating all telephone and telegraph wires where they pass over either the trolley wire or the feeder cables. There is double insulation throughout the system for all steel poles, and single insulation for the wooden pole construction.

Permanent way

The standard gauge, 4 ft. 8½ in., has been adopted. It is not out of place to illustrate the work done on the permanent way by showing the quantities of materials used. They are as follows:

Sleepers	78,000
Bonds	25,300
Excavations	85,400 cubic yards
Broken metal	84,500 cubic yards
Filling at the Estuary Embankment	42,000 cubic yards
92 lb. girder rails	4,300 tons
95 lb. girder rails	477 tons
"T" rails	355 tons
Fish-plates	241 tons
Fish-bolts	74 tons

Besides these quantities, there are 106 points and 117 crossings, and many other adjuncts.

In the manufacture of the rails the best hematite ore has been used.

The old tramway system distinctly divided the city into different tram sections, which were not in touch with one another. To remedy that defect, and to supply a quick and reasonable service, the Board considered that it would be necessary to have it double track in the centre of the system, and to arrange the tracks so that all radiating single lines, in existence and proposed, may connect and permit of cars running on different sections by interchange.

Car-shed

The car-shed covers an area of 170 ft. by 170 ft. Of this, 170 ft. by 130 ft. is devoted to the use of the cars exclusively. The whole surface covered by the shed has been excavated to a depth of several feet, forming examination pits. The shed can receive fifty cars, which is a much larger number than the Board will be called upon to deal with in the shed at present. In view of the future development of Christchurch, however, provision has been made for extending the shed so that it may double its present capacity at a comparatively small expense. Ample provision has been made for dealing with possible outbreaks of fire. Hydrants with hose and nozzles have been provided in different places round the building. A tank, which stands at an elevation of 30 ft., has a reserve store of 2,000 gallons of water. It is connected with the fire mains, and is kept filled by an automatic arrangement connected to an electrically-driven pump. The water supply is obtained from a 3in. artesian well, and the water flows into a large supply sump under the tank. The Board will have a fire brigade of its own, and some of the employees will be drilled in the use of the appliances.

The repair shop is on the right of the car-shed, and is part of the same building. The plant includes a hydraulic wheel press, 12 in., 6 in, and 4 in. lathes, a radial drill, a large vertical drill and a small drill, a shaping machine, and blacksmith's forges. The armature room and wood-working shop contain a Lipe winding lathe, a band saw, a wood lathe, and a drying oven for field coils, armatures, and other parts of the electrical equipment that require to be dried by heat. The machines are driven by an electric motor, and a complete overhead travelling gantry has been installed, which communicates with the repair shop pits at both ends, so that heavy parts of cars may be handles with perfect ease.

On the right side of the main entrance there is the secretary's department, with inquiry offices and receiving rooms. The latter are entered from the car-shed, and the conductors will not be required to use the main entrance when paying in their cash and tickets. The Board-room is on the left of the main entrance, and then come the offices of the engineer's and traffic superintendent's departments. At the southern end of the building there are reading and dressing rooms for the motormen and conductors. The offices are lighted with electric light, generated at the Board's on station, and are also piped for gas in case of an emergency. A complete telephone system has been installed throughout the buildings, and also an inter-communication system between the offices, the machine and repair shops, and the stables.

Rolling stock

The cars are as well-equipped internally as they are handsome and attractive externally. They were specially designed by the Board's staff and the world of electrical appliances and accessories seems to have been searched for ideas that will facilitate travel and add to the comfort and convenience of passengers.

They are the only cars in Australasia provided with front fenders or lifeguards in addition to the wheel-guards. The Board has taken the precaution of fitting

The car shed and offices of the Christchurch Tramway Board.
Tramway and Railway World

John Stephenson-built No.1 is fitted with the original American style fenders. Christchurch was the only Australasian system to use fenders of this type.
Alexander Turnbull Library

the cars in this respect on account of the extraordinary number of bicycles in Christchurch.

The wheel-guards consist of a set of steel mesh, and they are carried in front of the cars, four inches above the rails, when the cars are fully loaded. They are operated by means of a swinging gate, or a series of bars under the platform of the cars. Provision is made for preventing the guards from being unnecessarily damaged by falling on a macadam road of ordinary surface, and arrangement is made for restoring the guards quickly to their former raised position after they have been operated upon.

The fenders consist of a net of flat steel ribbon mesh about 5 ft. wide, and project about 3 ft. in front of the cars. When the cars are running the front edges of the fenders will be carried three inches from the rails. They are operated by a trigger on the platform of the car, which can be released instantaneously by a slight pressure from the motorman's foot. If the motorman becomes perplexed at the time of an accident and fails to drop the fender in time, the wheel-guard will act automatically and prevent a body or an obstacle from falling under the car's wheels. Both the wheel-guards and the fenders were manufactured by the Consolidated Fender Company of America.

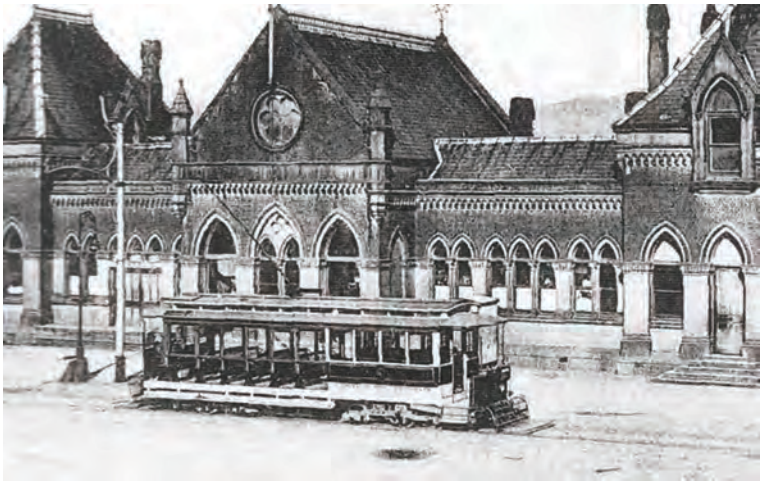
Each car is controlled by air brakes, which are worked at 80 lb. pressure. The air pressure is supplied by a direct-connected motor-driven air compressor. The motor is controlled by an automatic air-pump governor. All the cars are supplied with electric heaters. These are provided with switches, by means of which three intensities of heat may be obtained by simply turning a handle attached.

The system of electric bells is very convenient, buttons being placed on the panels along the sides close to where passengers will sit. In front, a gong announcing a car's approach is operated by the foot pressure of the motorman. Special ventilators are arranged along the lantern roofs, and as all the ventilators are on hinges, they may be opened or shut at will.

The rolling stock comprises seven steam locomotives, twenty-seven electric cars, and forty-two "trailers." The latter are the old cars taken over from the Christchurch tramway Company, and they will be used to trail on behind the electric cars on occasions when that course is considered necessary. Most of the electric cars have been made by the John Stephenson Company of New York. There are ten of the four-wheel open-end closed body type, with several rows of seats out in the open at each end, and longitudinal seats in the enclosed portion. There are also ten of the bogie combination closed-end type; three of the four-wheel box vestibule type; three of the bogie double-deck type; one box vestibule type, 30 ft. long, with a baggage compartment for the convenience of commercial travellers and others who carry much luggage about with them, and for carrying packages to the suburban townships; and one four-wheel electrically-driven water sprinkler.

Messrs. Boon and Company, of Christchurch, have built five of the cars included in the first type, and experts state that the workmanship done in Christchurch is quite equal to that displayed in the American cars. The local cars, besides having their fittings mad o karri and other beautiful native woods, make a rather better appearance inside. The adoption of the Kilburn wicker seats, which are both neat and comfortable, add to the appearance of these cars.

In all the cars the side-posts, sills, corner-posts, and all the upright construction is of ash, and the flooring is heart of yellow pine or read deal. Floor mats, consisting of strips of hardwood screwed to the floor and tapered at the door ends, have been placed in the closed portions, and cross strips of hardwood, screwed to the floor and tapered at the sides, have been installed between the reversible seats. On all the windows there are curtains or blinds, which are made of pantasote, or brown tapestry, mounted on spring rollers with automatic fixtures. In the open ends there are cross end curtains, which run along the full width, and may be used for the purpose of protecting passengers from the inclemency of the weather. Wooden movable barriers



A Stephenson-built combination car at the railway station in 1905. John Bettle collection

and collapsible gates are provided for adjustment on each side of each car, in order to prevent passengers from boarding the car or alighting on the wrong side. Each car has two signal bells, and electric head lights as well as a destination box.

The outside colours are white and pale green, the main and end panels receiving a coat of the latter colour. In the main panels the city's coat-of-arms has been painted, with the words "Christchurch Tramway Board" surrounding it. The four-wheeled rolling stock is equipped with 25 horse-power motors, and the bogie stock with 40 horse-power motors.

Each destination box is supplied with a calico lettered-screen, attached to rollers, which is electrically illuminated at night, and in the boxes are displayed red, green, black, and white signal colours, for the information of motormen and conductors on other lines. The Board is experimenting with the Harrison automatic electric signal, which has many advantages, and has been adopted by some of the English tramway systems.

The sprinkler may be used for watering those portions of the road that are outside of the permanent way. It carries 2,500 gallons of water, and the tanks are provided with plates in the interior to prevent the surging of the water. Butterfly valves have been arranged at each corner, so as to allow of the track and the road-way being sprinkled for 6 ft. on each side, using the force of gravity only. For sprinkling a surface that extends beyond that limit, a pump power motor is provided. Besides that, a set of nozzles can be placed on the sprinkler, and these nozzles can be used for cleaning the grooves in the girder rails.

A special trailer, which will be constructed out of two of the Christchurch Tramway Company's old cars, has been designed by the Board's staff. It will be a very large car, the length being 43 ft. It will be mounted on bogie trucks, and will be fitted with electric lights, air-brakes, collapsible gates, etc. As it will be a double-decker, a re-arrangement of the top will be necessary, and there will be boarding with a woven-wire protector running around the top and down the stair-way approaches.

All the cars have been mounted on the Peckham Truck Company's trucks. The wheels were made by Baker and Company of Rotherham, and are steel tyred. In selecting this type of wheels rather than the cast chilled steel type, the Board had in mind the large number of curves in the system, and the speed at which the cars will be required to travel outside the limits of the city. Cast chilled wheels have been adopted in Wellington, Dunedin, Auckland, and other large centres in New Zealand.

The Tramway Board

A word should be said about the Christchurch Tramway Board, which has carried out the work of establishing the new system with commendable expedition. When the citizens decided to take the tramways into their own hands, they recognised that they would have to select men with business ability and public experience. The result is that they have a Board composed entirely of men of action. There is not one member who has not taken a part in moulding the city's destiny. The experience of some of them extends over many years, and covers important public movements. Mr. W. Reece, the first chairman, who has been associated with the movement throughout, has been mayor for several years, and took a prominent part in affairs when New Zealand sent contingents to the South African War, and has been engages for many years in municipal movements in Christchurch, While he was congratulated on the honour

Trams about to leave for Papanui on a rehearsal of the opening day procession in Christchurch, in the evening of 2 June 1905.
National Library New Zealand

of being the first chairman, the city was congratulated on having secured the services of an earnest and capable administrator as the head of the new local body. The other members of the present Board, also, have good records of services given to the public. They are: Messrs, G.G. Stead (deputy chairman), A.W. Beaven, A.B. Morgan, F. Waymouth, H. Pearce, G. Scott, C.M. Gray (the present mayor), and J.J. Dougall. The Hon. H.F. Wigram, M.L.C. was the first deputy-chairman, but he resigned his seat to go on a visit to the "Old Country."

The staff

The system has been designed by the Board's engineer, Mr. F. Hubert Chamberlain, and he has superintended the whole construction. He is an American, and although a young man, has had a wide experience in his profession. He served his apprenticeship with the Daft Manufacturing Company, which was one of the first companies in America to start the building of generators and motors for both lighting and tramway work. Mr. Chamberlain joined the firm in 1885, and remained with it for several years. He subsequently had a great deal of experience in tramway work in Washington. The president of the metropolitan line placed Mr. Chamberlain, as station superintendent, in charge of the United States Electric Lighting Station in Washington. He held that position for about a year, and he was then made general superintendent of the company as well, so that he had charge of both the power-station and all the outside work. Most of which is connected with an extensive conduit system for power and light. He was afterwards engaged by the metropolitan Railway Company, of the same city, as operating electrical engineer on the tramway conduit system, which extends over thirty-eight miles of single

Mrs W. Reece, wife of the chairman of the Tramway Board, starts the first car to officially open the Christchurch electric tramway system, June 6, 1905.
Auckland Libraries

The opening day procession arriving at Papanui, with decorated double-deck tram 24 leading.
Tramway Historical Society

track. Later on, he went to Australia and superintended the construction of a three-phase power-house and substation apparatus in Sydney.

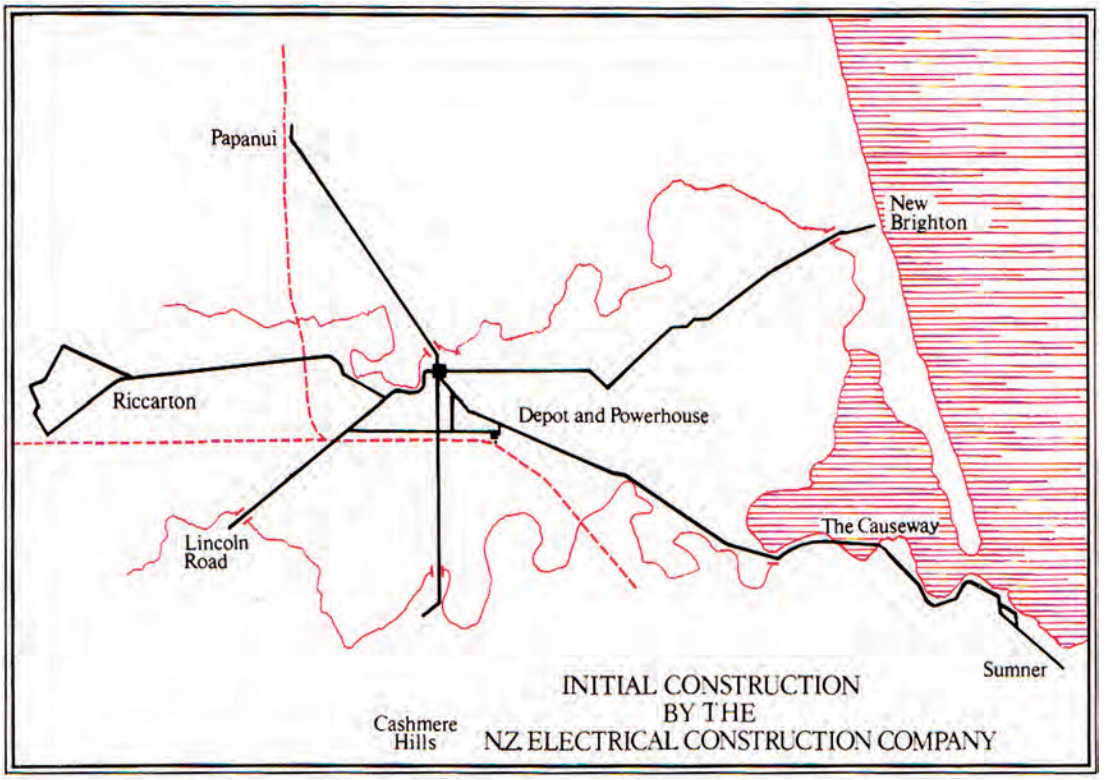
Mr. F. Thompson, the Board's secretary, is a Canterbury man. He was selected from a large number of applicants, and he has already justified the Board's choice.

Mr. L. Birks, the Construction company's electrical engineer, was educated in Adelaide, graduating at the University there as B.Sc. He completed his training in engineering at the University College, London. He has occupied the position of Assistant Professor of Engineering at the Heriot Watt College, Edinburgh, and assistant electrical engineer to the New South Wales Railway Commissioners, having superintended the installation of the new power-house and high-tension distributing system for the Sydney electric tramways. He also supervised he installation of the Christchurch City Council's electrical plant at the destructor. While in England he was employed by Messrs. Easton, Anderson and Golden, of Erith, and by Callender's Cable and Construction Company.

Mr. Scott Symington, who has been the Board's chief draughtsman, is an Englishman, but he went to Australia as a young man. He served his apprenticeship at the Mort's Dock Engineering Company's works at Sydney, and after a wide experience he came to Christchurch as chief draughtsman to the Tramways Board and when he had done all here was to do in that department, the Board made him chief inspector of its various works. He is now Mr. Chamberlain's assistant.

Mr. C. Cowdery was brought over from Sydney by the Board for the purpose of surveying the routes, and he pegged out the complete system. After that, he was engaged by the Construction Company as managing engineer for the erection of the car-shed and track work. He served under the firm of Messrs. Tito, Brassey, and Betts, railway contractors, and earned an experience in both England and the Australian colonies.

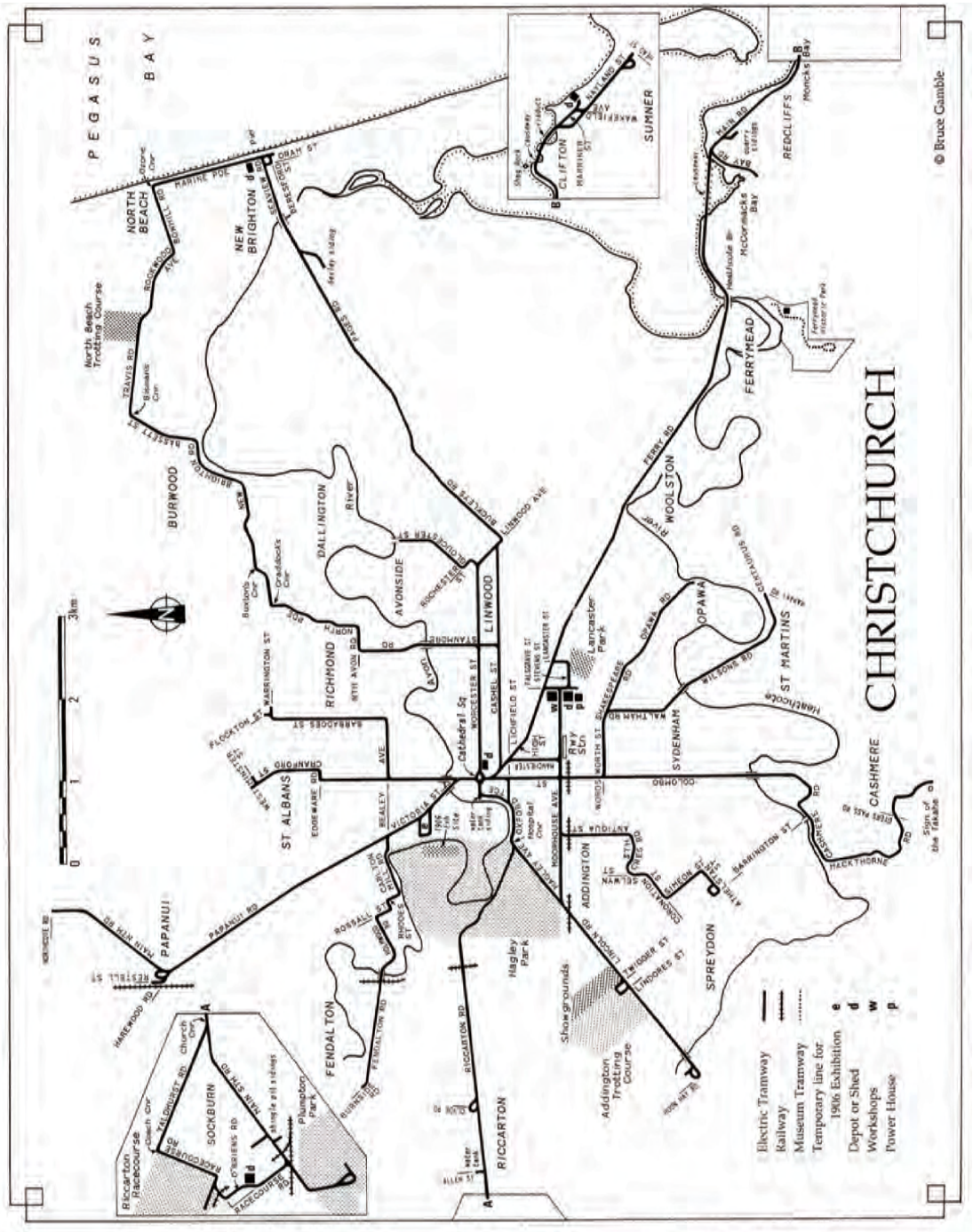
Workmen engaged in track construction works in Moorhouse Avenue.
Auckland Libraries



Map courtesy of the Tramway Historical Society

Mr. J.R. Templin is the representative of the General Electric Company, of Schenectady, United States, which has supplied the whole of the electrical plant.

The opening day procession arriving at Papanui, with decorated double-deck tram 24 leading.
Tramway Historical Society



This map shows the Christchurch tramways at their maximum extent. The map was drawn by Bruce Gamble and appears in the Grantham House Publishing publications *End of the Penny Section* (p. 250) and *Around Christchurch by Tram in the 20th Century* (p. 48). It is reproduced courtesy of Graham Stewart.

Originally published in *Street Railway Journal*, Vol. 14 No. 9, September 1898, pages 528-530.

TRAMWAY SYSTEM OF BRISBANE, AUSTRALIA

By S. Herbert Brown

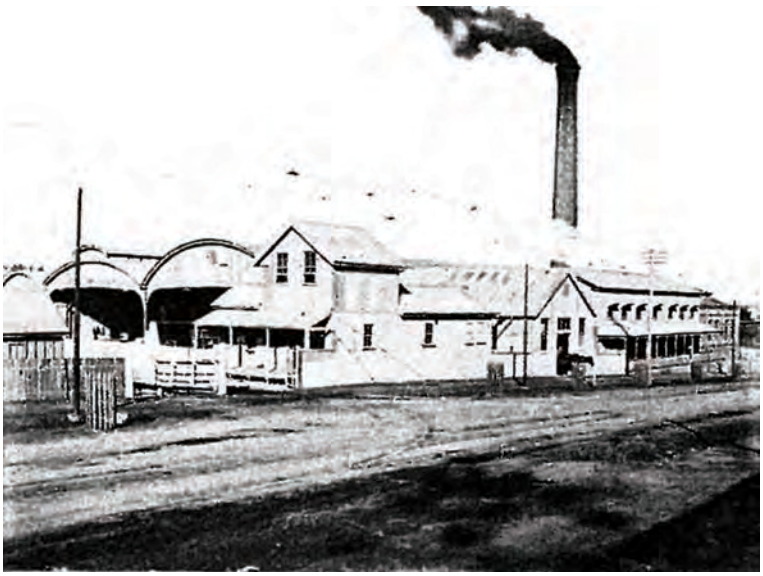
Brisbane, the capital city of Queensland, is situated on the Brisbane River and about twenty miles from its mouth. It lies in latitude 27 deg. 28 min. south. Its climate conditions are semi-tropical, the average maximum and minimum temperature being 77° and 55° [F]. It is divided into two parts, North and South, which are connected by a bridge over the Brisbane River. The population of the city, including suburbs, is 100,000. The old horse system which had been in existence for thirteen [years] .and operated fifteen miles of single track was neither a financial success or popular with the public. Owing to length of line and many gradients, horse cars were not inductive to successful operation, and with suburbs scattered, and many at considerable distance from existing tram cars, travelling to and from the city was slow and irksome.

The company was the first in Australia to supersede horse by electric traction, and at present has the largest electric road in the country. The promoters are English capitalists interested in similar systems in other countries. In acquiring the rights of the old company they had, by consent of the City Council and several divisional Boards and a special Act of Parliament, the right to adopt electricity as a motive power. The franchise is for twenty-five years, at the expiration of which the city has the option of purchase of the system.

Since its inauguration the increase of traffic has been doubled, and its general success augers well for the future. The adoption of electric traction followed by the increased speed, cleanliness of cars and the marked improvement in appearance and manners of employees had a marked effect on public approval, and the terms in which the system is spoken of by visitors has attracted the attention of Australian tramway men and its progress and success is watched with interest. The reader who remembers the conservatism displayed towards electric trams in the United States a few years back can readily understand the feelings with which many regarded the adoption of electric trams in Brisbane.

J.S. Badger, formerly of the General Electric Company, of Schenectady, N.Y., was the constructing engineer, and to his large experience has been due, in great measure, the success with which the construction work was carried on. Mr Badger is now chief engineer and manager of the company.

There are now 25½ miles of electrically equipped tramway lines in operation. The seven suburbs which the cars traverse are New Farm, Breakfast Creek, Ithaca, Bulimba and Exhibition on the north side, and Logan Road and West End on the south side.



The Brisbane Tramway's power house with the tram depot behind.
Street Railway Journal

Standard single truck saloon tram No. 98, one of six cars built from pairs of six-window horse cars.
Street Railway Journal

The New Farm and Breakfast Creek routes starting from the north side connect with the Logan Road and West End lines respectively on the south side. The distance from New Farm to Logan Road is 5½ miles and from Breakfast Creek to West End is 3½ miles. The Ithaca line, consisting of 4 miles and 2½ chains of single track, starts at the corner of Queen and George Streets and passing through George and Roma Streets branches here for Ithaca via Caxton Street or Red Hill and makes the loop return via by the above named streets to the terminus. This is perhaps the most popular line of all, embracing as it does the hills west of the city and giving the public a cool ride and beautiful views of the city and surrounding country. The Bulimba and Exhibition routes terminate at Brunswick Street and passengers are transferred to New Farm and Breakfast Creek cars. When the work of wood-paving is completed permitting ordinary traffic and more new cars to be built it is intended to alternate the Ithaca cars with these two routes.

Several other extensions are projected, but the present lines will be completely equipped first and the system thoroughly organised. The extension to Hamilton has been decided favourably, conditioned upon permission being granted for further extension to Queensland Turf Club race-course, and if the Hamilton Divisional Board desire it there will probably be little trouble in obtaining the necessary construction order.

Another extension which has been approved and which only awaits the same mark of consent is from Exhibition to Brisbane Hospital. Arrangements are also pending with the Ithaca Council for an extension of an existing line along Latrobe Terrace, and the company will complete this providing the council agrees to maintain the road. The directors contend that the provisions of the act under which the company is compelled to maintain the roadway between tracks and 9 ins. each side was intended for application to old horse car system and not to the existing scheme.

Standard single truck 9-bench open tram No 62.
Street Railway Journal

Standard single truck California combination tram No. 5.
Street Railway Journal

The headway of cars varies from six to twelve minutes except in Queen Street, through which all lines traverse, and here the headway is about two minutes. The speed varies from six to ten miles per hour in the city to fifteen miles per hour in the suburbs.

The system of fares is as follows: Passengers are carried from city to terminus of line for threepence [or six cents US] if paid at one time, otherwise a penny [or two cents US] is required for each section, the average length of section being three-quarters of a mile. No transfers are given and the tickets are punched denoting the number of the section paid for, and must be shown when demanded by conductor.

The general office, power station and car house are located at Countess Street on grounds leased from the Government railway and adjoins their yards. The office is a plain wood building while the car house and other buildings are built of iron pillars with sheet iron roofs and sides. The car house at Countess Street is the largest and will house forty cars. A section at Logan Road holds eighteen. In both pits extend the whole length of shed and are lighted with electric light. In the repair shop, which on account of distance from manufacturers will form an important feature of works, the latest machinery will be installed and all repair work will be done by the company.

The power station, which is located centrally to all lines, is a one story brick building with ample cellar capacity. It measures 92 ft. x 129 ft. and is divided into engine and boiler rooms. The condensers and all supply and exhaust pipes are in the cellar and are easily accessible. The dimensions of the engine room are 82 ft. x 70 ft. and of the boiler room 78 ft. x 59 ft.

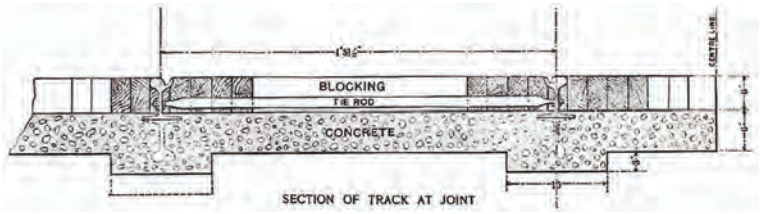
The engine room is well lighted and ventilated; three overhead cranes, each of four tons capacity, run the entire length of the room. It contains at present three 450 h.p. cross-compound condensing engines manufactured by Robey & Sons, Lincoln, England, and sufficient room has been allowed for another unit in view of further extensions. The dimensions of the engine cylinders are 18 ins. and 30 ins. x 40 ins. stroke. They make 86 r.p.m. at a pressure of 150 lbs. and both cylinders are steam jacketed. The Richardson-Rowland patent trip valve gear is employed. The fly wheels are 17 ft. in diameter and weigh twenty-six tons. The rims are 37 ins. broad and over them run leather belts to the generators.

The electrical equipment consists of three general Electric multipolar railway generators of 400 h.p each. The switchboard is situated at one end of room, and is placed on a raised platform at a conspicuous position. It is of slate, covered with black lacquer and contains three generators, three feed and one main generator panel. The instruments are the General Electric Company standard type.

The boiler room is 18 ft. lower than that of the engine room and contains 1200 h.p. of Babcock & Wilcox boilers in three batteries of two boilers each. The working pressure of boilers is 150 lbs. Additional space is reserved for three more batteries. The chimney is 140 ft. high, with a 7-ft. flue. Two duplex Worthington feed pumps 8 ins. x 5¼ ins. x 10 ins. stroke are installed.

Water is obtained from the city mains and nine iron tanks with a capacity of 18,000 gallons are placed just back of boiler room. All feed water is passed through a Railton & Campbell filter. Coal is delivered from railway trucks into bunkers immediately back of boiler room.

The water tower for cooling condensing water is a wooden tower 17 ft. x 17 ft. and 31 ft. high. It



Cross section of track at a joint.
Street Railway Journal

contains rows of wooden slats placed 2 ins. apart in two tiers. Under these are four fans worked by a 25 h.p. motor. The hot water pumped to the top of tower passes through a distributing trough and is allowed to percolate between the rows of slats, and after being further cooled by fans passes into the reservoir below.

The rolling stock is mounted on thirty-eight Peckham "extra-strong" cantilever trucks and three Brill trucks, all supplied with general Electric 800 motors. The car bodies which have been built in the company's shops present an exceedingly handsome appearance. They are of three types – the open, the combination open and closed, and closed cars. The latter were made by splicing two 16 ft. cars, and are expected to give several years' service. The other types in length measure 29 ft. 29 ft., and are made from Queensland woods, principally spotted gum, mottled and yellow pine, yellow wood and cedar. The climate of Brisbane, which corresponds somewhat to that of southern California, makes a combination car the most serviceable. The illustrations show these three types of cars. A street sprinkler and metal and tool car are under course of construction.

The track is of a substantial character, laid with ordinary 6-in. grooved girder rails, weighing 81, 77 and 55 lbs. per yard. The lighter rails are only used on suburban lines and are the best of the old rails, while in the city and all extensions the 81-lb. rails are used. The gauge is 4 ft. 8½ ins. The rails are spiked to iron bark ties 9 ft. x 4 ins. x 8½ ins., spaced 2 ft. 6 ins. apart, centre to centre, with angle fishplates, 2 ft. x 4 ins. x ¾ in. Tie bars are used every 10 ft.

The method of track construction where the streets are wood blocked is shown on this page. Ties are used, the rails resting on a concrete foundation, and under the ends of adjoining rails a 3-ft. length of inverted rail is bolted, making a very firm joint. There are several curves of 40-ft. radius, and with a 7-ft. wheel base it was not long before both flanges and treads were much worn, and to mitigate the trouble a looser gauge was allowed with a guard rail bolted to the outside of the rail. The bonding consists of two No. 0000 bonds 2 ft. 6 ins. in length, of the Chicago type, and the track is cross-connected every fifth rail.

Span wire construction is adopted throughout. The poles used in North Brisbane are of steel, furnished by Morris, Tasker & Co., while in South Brisbane and all suburbs iron-bark poles are used. All are set in concrete comprised of five parts ashes and three sand and one cement. For the trolley a double wire of No. 0 gauge and No. 4 solid steel for span wire is used.

The overhead line material is supplied by the General Electric Company, and a double insulation is used throughout.

Laying street track on a concrete base.
Street Railway Journal

EPILOGUE – SAYONARA NATIONAL PARK OLD SITE

Howard Clark

Introduction

On the evening of Friday 23 October 2015 clearly there were two meetings being held in the vicinity of Sydney Tramway Museum at Loftus.

One was the regular Board meeting held at the Museum, which concluded at around 10:15pm that evening, when Board members dispersed to their abodes with no hint of the imminent disaster already underway nearby. The other meeting clearly was a meeting of a more sinister kind across the Princes Highway at the old Museum site in the Royal National Park which must have concluded shortly thereafter. The persons who had gathered there were no doubt motivated by malicious and wanton destruction. The perpetrators no doubt remained on the premises just long enough to ensure the seat of the fires within the building had taken hold. A hasty retreat surely followed to hidden safety to watch the flames rise in Guy Fawkes fashion and light up the night sky for kilometres.

Passing Police noted the fire shortly before 11.00 pm and local residents living on the western side of the highway and railway, including member David Critchley, soon became aware of the intensity of the fire and he notified Board members before most had reached their homes. Our infrastructure manager, Danny Adamopoulos, beat a retreat from Queens Park for a 50 minute return trip to meet up with the fire fighters on the scene.

The Fire fighters were hampered by nearby hydrants that had been shut down and needed to call upon the local bush fire brigade tanker to assist with supplying water whist they ran hoses more than 200 metres to the Loftus oval to connect to a mains pressure water supply. Due to the intense heat by this time there was little the firefighters could do to save anything of the building or its contents. Instead they focussed on dowsing the flames and containing the fire so as not to create a bush fire within the surrounding parkland. This they very successfully achieved. The risk of flare up remained and fire crews were stationed on site for another couple of days, although due to hazards arson investigators and forensic police were unable to conclude investigations until sometime afterwards.

Finally, the National Parks and Wildlife Service as the owners of the building, had been given the green light by insurers to let a contract to a local demolition company for clearing loose iron and debris and commence demolition and clearance of the site. We can be grateful to NP&WS for ensuring the museum had access to the site and co-operation from the demolition team to allow for identification and salvage of relevant recoverable items from the site. There is a certain irony over the loss of this 'reserve' collection of trams and buses which had been kept there in passive storage for potential future restoration in the event of any catastrophe with our main collection vehicles.

C 12's Peckham truck with the remains of Melbourne SW2 432 in front of it and R 1941 in the background. Howard Clark

The aftermath

Following the fire NSW National Parks & Wildlife Service (NPWS) gave formal written notice of the termination of licence to use the premises.

Under the terms of the licence, 'if the whole or part of the Licence Area is destroyed or damaged so as to render the Licence Area substantially unfit for occupation and use by the Licensee, the Licensor or Licensee is at liberty to terminate this Licence by fourteen days' notice to the other party.' Such notice was duly given by the NPWS. Given that the site resembled a bomb site with corrugated iron and twisted structural steel partially obscuring the remnants of seven tram cars, four buses and a bus chassis the notice was both understandable and acceptable to STM.

Further, the NPWS considered that 'the replacement of another shed for storing trams in the park at Loftus is not being considered by NPWS due to the isolated location of the building and vandalism'. The site itself was fenced off with temporary fencing, which failed to deter intruders, and illegal rubbish dumpers.

NPWS indicated that it would assist STM in removal of historic items from the site. The police investigation which followed took some months before the site could be released to NPWS, who in turn needed to finalise clean up approval with insurers of the building.

In early May 2016, NPWS advised STM that an earthmoving contractor had been appointed to clear the site and provided contact details.

The clean-up

Finally on Tuesday 24 May, STM was invited to meet on site the next day at 3:00pm, with the advice to ensure we were visible to the excavator operator. Danny Adamopoulos and Howard Clark attended on the day. Although less than a full day had elapsed since the start of operations, corrugated iron and structural steel had already been gathered up and placed in one of the two huge scrap bins or pushed to one side along with the rails from the vacant 1 road.

Charlie, the obliging operator requested us to identify items of significance which we wanted set aside. He

The controller from SW2 432 hangs from the wreckage.
Danny Adamopoulos

The apron of K 1295 with the track brake wheel and air brake valve attached, and in the foreground the air gauge filled with melted glass, 25 May 2016.
Howard Clark

C class 12's Peckham Type 11 Metropolitan truck with the remains of K 1295 in front of it, 25 May 2016. Howard Clark

explained that to him all rusty steel was treated as scrap unless identified otherwise. Works done for STM in recovery and removal were subject to a direct charge to STM by the excavator/demolition company.

The remains of the buses were inspected by Danny and given that one had been crushed by falling debris, and remnant molten aluminium was apparent and even some wheels had become misshapen, Danny agreed with Charlie that he would proceed to clear this road before returning to the two remaining centre roads with tram debris on them.

The Peckham Metropolitan and Brill trucks from C 12 and K 1295 were given high priority for recovery and to achieve this Charlie had to lift remnants of the drivers' cabin off SW2 432 from tangled steel brake rigging, etc., from C 12. There was little remaining of 432, except for the heavy steel underframe.

By Friday the underframe of 432 had been chopped up by the 'steel jaws' of the excavator and despatched to the scrap bin along with the remains of the buses. The motored No. 1 trucks were collected and removed to a holding area, leaving the steel fragments of R car side panels exposed, complete with fresh graffiti over one rusted panel. Rain interfered with the safe working of the excavator and an early finish was decided upon.

Saturday saw Danny return with a number of CSO workers and our yellow truck. Their task was to unbolt rail joint fishplates to allow for recovery of rail in shorter lengths and use oxy equipment to cut other recoverable items such as headlight castings and couplers from framing steel.

All the time Charlie was moving efficiently through the rubble nearby with the excavator. Meanwhile Howard focussed on the area in and around the C and K car remains now that the trucks had been put to one side away from the scrap piles awaiting the bin. Some large chunks of charcoal C car underframe, the gongs and couplers, lifeguard gear and numerous small components were retrieved by sifting through the sodden and ashen ground.

Unfortunately there was no time to work at the pace of a true archaeologist, so undoubtedly numerous other small items will remain unrecovered, waiting for vegetation to conceal them forever.

A few small fragments of molten green glass from the clerestory windows of 12 were located, suggesting that this glass must have a higher melting point than other glass which, except for some white molten glass on the face of the air gauge from the K car, was not discernible.

The remains of R 1819 at the head of road 2 in front of 432 were tackled next by the excavator. Seeing the remains of three burnt out R car body shells was a stark reminder of the dark days way back in May and June 1959 when up to four R cars were being burnt most days on the Randwick workshops scrapheap. Sump oil from the nearby bus depot was used as the fire accelerant back then, but we have no advice as to the nature of the accelerants used at National Park, other than learning there was more than one seat of the fire.

The excavator jaws were manoeuvred to pick up the body shell and crunch into the steel work in a shaking and swinging motion similar to the actions of wild creatures attacking their prey, until a juicy morsel snapped off and was quickly despatched to the scrap bin. Soon just the underframe components of 1819 remained and the bolsters from the car were torn loose

The green scrap bin is full and not much remains, with just two bogies left to be rescued.
Howard Clark

and set aside to meet Danny's request. The un-motored Melbourne No. 1 trucks under the car were retrieved and set aside.

Amazingly, the front apron of N 710 was still clinging to part of the body. The number 710 remained visible through the charred paintwork, not dissimilar to remnant paint from an earlier colour scheme on a dreadnought car which remained visible after the Paddington depot fire in Brisbane more than 50 years before.

By Monday all evidence of the car was gone, and a quick attack on the remaining two R cars by Tuesday morning completed the scene with just the rails and bogies to be removed to north terminus in pairs in one of the large scrap bins. Each pair was loaded by the excavator and subsequently unloaded in tilt mode, sliding to the ground with a crash, but demonstrating that the wheels still turned. The Peckham and Brill trucks were dealt with in similar fashion, along with some recovered metal tie rod elements and other brake gear from C 12 loaded on top of the truck.

All up, eight Melbourne No. 1 trucks were recovered, along with two Sydney un-motored R car trucks. A quantity of 80lb rail was delivered by semi-trailer on Wednesday 1 June bringing to a close the long history of STM activity at National Park.

After a clean-up of illegal rubbish the old depot site now appears ready for regeneration as parkland. Perhaps one day, pressures to utilise the park and trails may rekindle a multi-facet public use of the old site again.

The remains of N 710 with the car number still visible on the apron. Howard Clark

A step, plough type life guard, and resistance grids from C 12.
Danny Adamopoulos

R 1819 being broken up. R 1917 is beside it, and will be next for scrapping. Howard Clark

The Peckham truck with various salvaged items on top, and the salvaged bogies at the museum's northern terminus yard.
Howard Clark

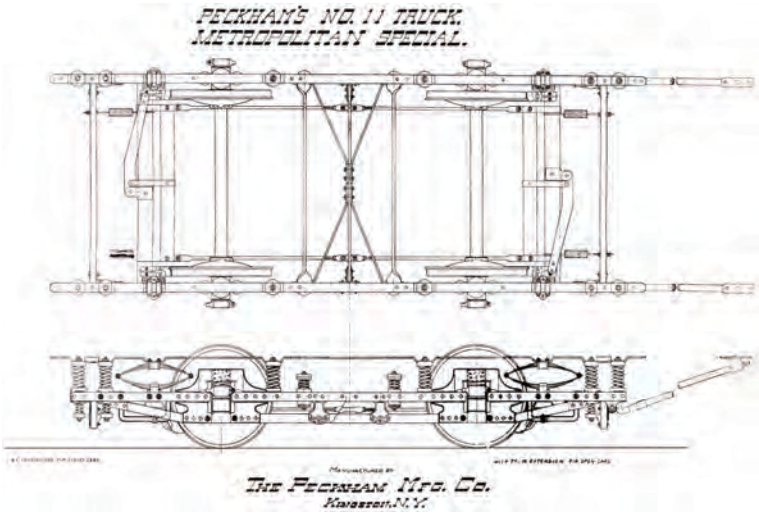


Diagram of Peckham's No. 11 Truck, Metropolitan Special.
Peckham Mfg Co.
Kingston, N.Y.

HERE AND THERE

AUSTRALIAN AND OVERSEAS NEWS

Adelaide tram news

On 5 July South Australian Premier, Jay Weatherill, announced a one-kilometre tram line extension east along North Terrace from King William Street. The state government will contribute $50 million to the project and the Adelaide City Council $5 million.

Three stops will service universities and cultural institutions along the route as well as the old Royal Adelaide Hospital site, which is marked for future development after the new Royal Adelaide Hospital opens early in 2017 in the city's west. The extension will be the first stage in a planned route to Norwood

Flexity trams 113 and 106 and Citadis tram 203, seen at Glengowrie Depot on 31 May 2016, may soon be travelling along North Terrace East.
Colin Seymour

R 1995 returned to Rozelle Depot on 6 July after its restoration at Bendigo. The depot, to be known as The Tramsheds, is being transformed into a series of markets, delis, cafes and specialty food stores near the Jubilee Park Light Rail Station.
Craig Parkinson

in the eastern suburbs and a possible city loop around the CBD.

The line will pass some of North Terrace's most prominent institutions, including the State Library, South Australian Museum, Art Gallery, Anzac Centenary Memorial Walk, University of Adelaide, University of South Australia and the Botanic Gardens as well as the redeveloped Royal Adelaide Hospital site.

Construction is expected to commence in late 2016.

Gold Coast light rail – patronage growing and stage two contract let

The Gold Coast light rail system has been declared a greater success than ever anticipated, as new figures show more than 14 million people have ridden 'the G' in the past two years. The $1.2 billion system is hitting its second anniversary more popular than ever, with operators celebrating increasing patronage.

Since launching on 20 July 2014, the average number of trips each day rose from 18,200 during its first year to 20,973 during its second for a total of 14 million trips over two years. In March this year, the 13km route had its best month, with an average of around 22,560 people using it each day.

Transport Minister Stirling Hinchliffe said the system had increased the overall use of public transport on the coast and had transformed the city. "Light rail has become the backbone of the public transport network on the coast, has provided a new way to experience the city and has driven massive patronage growth across the city," he said. "After only two years the light rail is carrying the equivalent of the city's population each and every month which is a fantastic achievement."

The tram system has also cut the number of cars driving through some of the city's busiest streets. Gold Coast City Council traffic data shows cars on the Gold Coast Highway through Surfers Paradise dropped by more than 500 a day between 2011, when construction began, and 2015.

GoldLinQ chairman John Witheriff said he was not surprised it had taken cars off the city's roads. "It is so pleasing to see the trams remain fresh, clean and almost as they were when they first launched just two years ago," he said.

Meanwhile CPB Contractors has been awarded the $420 million contract for stage two with the deadline of the Gold Coast 2018 Commonwealth Games. Documents for the project were finalised between the GoldLinQ consortium and the state government on 28 April, since when CPB Contractors have been working on the approvals process.

The project will link the state's heavy rail network to Gold Coast light rail, which will improve connectivity around the region between buses, heavy rail and light rail. It will also join five of the competition venues of the Commonwealth Games.

Mr Hinchliffe called stage 2 of the project "critical" for the Commonwealth Games and said that the government was determined to see it built. Stage 2 will give a boost to the construction industry and is expected to support up to 1,000 new jobs.

The coming months will see the relocation of underground services, and earthworks will also be under way, along with the construction of bridges for the 7.3km extension. Stage 2 includes new light rail stations at Helensvale, Parkwood, and Parkwood East and 14,000 extra park-n-ride car parks at Parkwood

Inaugurating Canberra's light rail project on 12 July are (from left to right) Deputy Chief Minister Simon Corbell, Minister for Transport and Municipal Services Meegan Fitzharris, Chief Minister Andrew Barr and Minister for Justice and Consumer Affairs Shane Rattenbury.

Rohan Thomson
Fairfax Media

and Helensvale stations.

Construction is expected to be completed by mid-2017, with testing due to be carried out later in the year. Funding for the project includes $55 million from the City of Gold Coast Council, $95 million from the Australian Government and $270 million from the state government.

The extension will allow 1.5 million spectators, 16,000 volunteers and workers and 6,500 team officials and athletes to get to and from the Commonwealth Games. It is also expected to deliver significant economic benefits for the region.

Finally, planning has begun for a third stage of the system, extending it to Gold Coast Airport and Coolangatta.

- From reports in the Gold Coast Bulletin by Andrew Potts, and on the Internet by Sally McPherson

Construction begins on ACT light rail

The first sod has been turned on Canberra's light rail project, termed Canberra Metro by the ACT Government.

Ministers dug the first hole at the Mitchell depot site, near the corner of Flemington Road and Sandford Street, on 12 July 2016. Major track works and landscaping will begin in late 2016 and completion is planned for 2018.

The $70-million depot will be the heart of the 12 kilometre Civic to Gungahlin line, housing the operating centre and maintaining the trams.

Transport Minister Meegan Fitzharris called the beginning of works an exciting milestone. "Certainly people will see the depot here start to come out of the ground, but we will start to see more major work later in the year," Ms Fitzharris said. "We are really pleased today to see the construction under way. People will see it every day as they drive past and we will see new jobs start to be created because we have a new industry in Canberra."

Glenn Stockton from Canberra Metro said at the ceremony that 70 local jobs had been created to date.

It is expected that plans for a second stage for the system will be announced before election for the ACT Legislative Assembly scheduled for15 October 2016.

From a report in the *Canberra Times*
by Clare Sibthorpe

DVD review
The City of Ballarat – Trams, Gardens and Gold

Roger Greenwood has now completed a trilogy of video presentations of the Provincial Tramways of Victoria. His latest production covers the tramways and tramcars of Ballarat, but goes beyond that to set them in the historical context of the quintessential gold rush city.

Just as he did with his Bendigo DVD, Roger has set out to produce a DVD that will appeal to a wide audience that will include Ballarat locals and visitors with an interest in the city. However he has not neglected tram fans and historians, with a strong central theme of the tramways and fascinating and informative detail of some rather technical aspects.

It is illustrated with some familiar and many rare images of the system and with an extensive collection of movies that date from the 1930s to the 1970s.

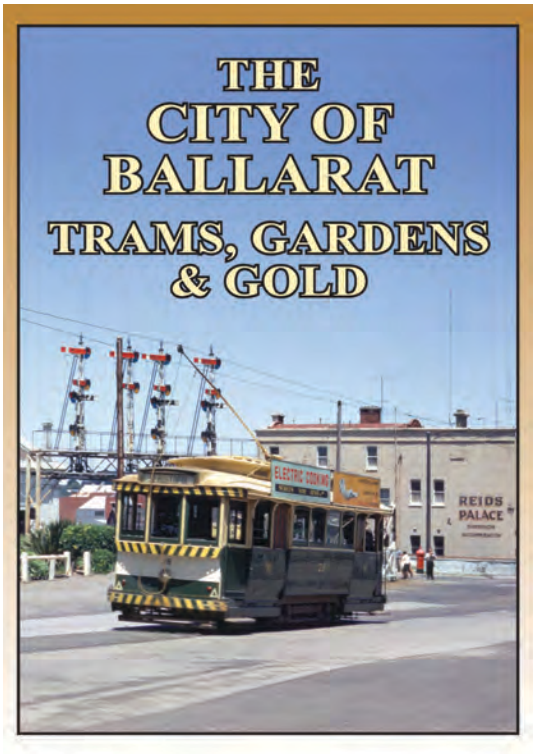
The DVD basically takes an historical time line view, starting with the early and rapid development of Ballarat up to the 'industrial phase' of the gold rush and then focussing in on the transport needs of a much larger city. Many of the images of this section will be highly valued by those who know and wonder about the old buildings of Ballarat that still remain.

The horse tramways are covered with some fine high resolution pictures and, by panning and zooming, a sense of presence is produced. Early movies include pictures of a 'Sebastopol' cross bench car in action and Ballarat street scenes strangely devoid of motor vehicles. Many of the scenes show practices (like 'swinging the pole' in the middle of a major highway) that seem unbelievable in today's society where safety considerations are much more prominent in our minds. The video explains why the Sebastopol line swung from a roadside reservation on one side to the other side for no apparent reason. I'll leave that for viewers to find out for themselves.

Highly useful features for the enthusiast market include a clear explanation of the Forest City safe-working system, illustrated with movie examples. There is also rare footage of the Ballarat scrubber car out and about during daylight hours. We see the detail of some everyday maintenance jobs like flushing points and greasing a crossing. The gradual development of the SEC 'war paint' is also covered comprehensively.

Several major events in Ballarat where the trams provided special support are covered, including the 1956 Olympic Games, a visit by the Queen Mother and the early Begonia Festivals. It is nice to know that the Ballarat Trams continue to be a key to transport for the ongoing Begonia festivals. The video even goes into a bit of water-born transport history, covering various forms of boating on Lake Wendouree from paddle boats to rowing skulls and the ingenious locally designed weed cutter developed just in time for the Olympic Games.

Later the DVD gives a comprehensive set of trips along all lines, but instead of the usual long series of shots from the front window the trips are assembled from a wide range of sources with different trams on different days and dates. It works well and gives a good sense of how the system operated. The team digitising the source material have done an excellent job of extracting useable images from mostly 8mm movie footage of varied quality.



A few trams are examined in detail – including a good summary of a couple of examples of former Melbourne cars, both single truck and maximum traction types. The maximum traction cars covered include both Ballarat cars that carried the number '37', and should prove of interest to those who have restored the second Ballarat No. 37 at the Sydney Tramway Museum.

Finally, a few bonus sections wrap up a real value for money product. This is where we see the scrubber car at work, the rather odd Jelbart roller doing its thing and some very early enthusiast tours.

Criticisms? Not many. A few dates and one description will be questioned by pedants like me and it would have been nice to have the horse tram routes shown on the otherwise excellent map.

Like all of Roger Greenwood's productions, this comes highly recommended. The main program runs for 100 minutes and there are another 12 minutes of 'bonus scenes'.

"The recommended retail price is $39.95. Available by post anywhere in Australia for $45. 75. For a copy of the order form email efftech@bigpond.com.

- Mal Rowe

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

From *SPER News*

All Victorian Trams Day postponed, new date set

Exceptional weather across the Sydney region caused postponement of the All Victoria Trams event scheduled for 5 June. This decision was not made lightly and was based on the following considerations:

- Heavy rainfall overnight across Newcastle, Sydney and the Illawarra, continuing on the morning of 5 June with Bureau of Meteorology forecasts for deteriorating conditions during the day.
- General road flooding in the Sydney and Illawarra districts with appeals by the State Emergency Services for people to remain at home that day.
- Closure of our Royal National Park line due to a pole coming down and a tree down across the overhead on Saturday afternoon, 4 June.
- Road flooding on the Princes Highway at Loftus Oval, and at Alford's Point Road, Menai.
- The museum and local area was without mains power between 5:30pm and 12:30am the previous night, 4 June.
- A tree came down on the 11kV power line across the highway from the museum.

Therefore, with the safety of the public, our members, and the trams in mind, the decision to cancel was taken at 6:00am on the morning of Sunday, 5 June. Not all of the traffic staff rostered for the day were able to be informed of the cancellation, so they reported for duty.

Consequently Dick Jones, Mike Ward, Matthew Geier, Don Campbell, Peter Warr and Les Coghill braved the

Ballarat 12 being taken on a trial run on 29 June.
Martin Pinches

Floodwaters from Loftus oval affected our Princes Highway level crossing on 5 June.
Channel Seven

The pole blown down over the Royal National Park line on 4 June. Danny Adamopoulos

Small's Poles erecting the replacement pole on the Royal National Park line on 27 June. Danny Adamopoulos

elements and opened the museum, even though there was no power until 10:00am and they were unable to operate trams.

Although only the display hall was open, they had Victorian member Kevin Taig and one other Victorian, a visitor from Canberra and one local visitor. The museum remained open until 1:30pm.

The museum has never missed opening on an advertised Sunday and that record is still intact!

The event is now to be held on 18 September.
It is expected that all trafficable Victorian trams will be in service including Melbourne W2 249, Y1 611 and Z2 111; Bendigo Birney 11, Ballarat 37 and Ballarat 12 (not carrying passengers). Melbourne cable dummy 322 will be on display in Cross Street.

Ballarat 37 will be relaunched at around 11:00am by Ian Hanson, who has long been a champion of this car, leading the repainting and lobbying for its restoration in its centenary year.

Overhead problems

Around 1:40pm on Saturday 4 June, during the heavy storm reported above, pole 117 on the Royal National Park line was impacted by the high winds and a falling tree nearby.

The museum was notified by phone by Royal National Park rangers from the operations centre. An inspection discovered pole 117 lying across the track with the trolley wire under strain and still attached.

Operations on the line were suspended pending replacement of the downed pole. All the overhead fittings were removed from the pole and were taken back to the museum. With the use of a chainsaw the pole was cut into four pieces and removed from the track. The tree was also cut back to allow clear access along the side of the track walkway and access road. After the side arm bracket was removed the wire lifted back up into the air but not enough for safe operation.

As a result of the wild weather the supply of poles in Sydney was quickly consumed, forcing us to wait two weeks for replacements. Small's Poles were organised to replace the fallen National Park pole, two others in close proximity, and one south of the Army Crossing on the Sutherland line. All the poles were in place by 10:30am on 27 June.

The required overhead repairs were carried out on 2 July, and at 5.00pm the line was certified for normal traffic operations to resume. Chris Olsen lent the team

Trackwork progress at the northern terminus Waratah Loop on 9 July. Martin Pinches

The concreting of the track up Army Hill is progressing well despite the wet weather. Ballast motor 42u is standing on the south side of the army depot level crossing on 16 July.
Martin Pinches

his overhead line equipment and ladder so they could reach some of the older former railway poles. These poles are further from the centreline of the track and can be difficult to reach from our overhead line car 99u. A damaged ear on a fifth pole was also repaired.

Eventful inspection trip with Ballarat 12

After the overhead repairs were completed on the Royal National Park line on 2 July, an inspection trip had to be run to check the line as fit for operations the next day.

Ballarat 12 was used as there was a need to run a test trip with the car. After passing Temptation Creek and around the curve before the bike crossing, it was found that a tree had fallen onto the track. Luckily a number of members were on board and after some time managed to clear the offending branches from the track. More of the offending tree was removed during the following week.

Track and associated work

Work is in progress in the workshop on making a new connecting box for the Waratah Loop south points. On Army Hill the formwork is being progressively relocated uphill as concreting of the track progresses. Recent wet weather has slowed the work but the team hopes to get back on track for an October completion date.

Community service personnel have dug various trenches for drains, water pipes and for electrical conduits near the old concrete crossing at the top of the hill. Some negative bonds have been placed from the running rails to inspection pits between the rails for future connection to a negative feeder for Army Hill. The feeder is required due to the high resistance of the silicon steel rails that have been (re)used.

Our fencing contractor has started work upgrading the Pitt Street boundary fence and gate from the old 1.8 metre high cyclone mesh fence to the new Palisade post fence, built to railway specifications and raising the fence height to 2.4 metres.

Overhead line car 99u at work on the Royal National Park line on 2 July. An ear damaged when the nearby pole fell is being repaired by Danny and Craig.
Matthew Geier

The Museum's display stand at the Transport Heritage Expo at Sydney Terminal over the holiday weekend 11-13 June included a photographic display and video screenings.
Robert Merchant

Electrical

A number of LED lamps have been installed around the site for evaluation. Although the initial price is rather high it is hoped that a combination of longer life and lower power usage will justify this. Priority is being given to lights that are heavily used such as security and display lights.

The reconditioning of a larger geared motor for the traverser is continuing as time permits. This motor was donated some time ago but requires some work. This will not increase the traverser speed but will give it a reserve of power for moving the larger cars in our collection.

Workshop and maintenance

Sydney C 37 is receiving the installation of further small parts. Wiring for the lighting has commenced and plumbing of this car will be carried out soon.

Sorting the miscellaneous artefacts recovered from the old site, as recounted elsewhere in this issue, has commenced, together with scrapping those which are beyond reclamation. Surprisingly a lot of items seem to have survived the fire and can be reclaimed for future use.

Steel has been profile cut for the assembly of a pair of bridging devices that will be installed at both ends of the workshop extension. These units will operate automatically when the roller doors are raised or lowered to swing an insulated section of trolley wire mounted to a short section of troughing into place when the door is raised or clear when the door is lowered. This will end the present practice of having to coast under the doors.

Outside activities

Once again we took part in the Transport Heritage Expo at Sydney Terminal Station on the 11 to 13 June long weekend. Our location was on the concourse, just outside platforms 2-3.

In addition to a photographic display and video screenings, the R1 class cabin mock-up became a favourite for parents to take a photo of their kids. Our uniform caps were lent to delighted youngsters – and mums and dads – to wear when having their photo taken.

BALLARAT

BALLARAT TRAMWAY MUSEUM

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

Dave Macartney and Warren Doubleday

Recent special events included a visit by the Hawthorn Tramways Trust Centenary Group on 24 April, with 286 passenger journeys on Nos. 26, 27, 33, 38 and 40. On Ballarat Heritage Weekend, 7 and 8 May, horse tram No. 1 was taken down to the corner of Sturt and Lydiard Streets and placed on display on the median. Its presence generated a great amount of interest. Transport was by tilt tray truck, with the tram being returned to the depot on the Saturday night for secure storage. The annual Tram Showcase took place on Sunday 29 May, with 101 passengers riding on Nos. 14, 26, 38 and 40.

Also on the traffic front, Cuthberts 939, our new function tram has been quite busy, with six bookings by the end of June, further bookings for July and more enquiries coming in. The operation of the tram is far more complex than any of our others. Set up and close down for a function each requires an hour or more. Unlike the other trams, a driver cannot show up at the last minute, and leave the car at the end of the day for someone else to put away.

The Museum's Horse tram of 1887 vintage, sits on the median strip at Sturt and Lydiard streets on Saturday 7 May 2016 during the Ballarat Heritage Festival with an information tent alongside. Paul Mong

Heritage Festival display board featuring the Museum and an associated heritage movie was on show at the Mining Exchange building – Saturday 7 May 2016. Paul Mong

The depot fan resleepering of Nos. 2 to 5 roads was undertaken between 23 and 25 May. In all, around 100 new sleepers were installed. A large quantity of crushed rock was spread as well. Roads 6 and 7 will be similarly treated when the warmer weather arrives. Once the track upgrade is completed the whole lot can be sealed to rail head height, thus giving a much more presentable appearance to visitors. This work is part of the Museum's landscaping project at the depot. To assist with the job, we arranged for the Castlemaine and Maldon Railway excavator and staff to assist our volunteer weekday workforce. The arrangement worked well and it was a good team effort, despite the cold and rain setting in on the afternoon of the last day.

The 2016 Tram showcase day on Sunday 29 May 2016, saw three trams meet at Gardens Loop. Tram 26 is showing its lead light windows. Tram 14 is the tram alongside No. 40.
Peter Waugh

Inserting new sleepers into No. 4 road on 25 May 2016 using the Castlemaine and Maldon Railway's track machine.
Warren Doubleday

The new three road curve on 4 June after completion and ballasting – using new Ri57A rail (or 57kg/m tram profile rail). Warren Doubleday

New skylights have finally been installed within the shed over 7 road, bringing much needed light to this gloomy part of the building. It is now possible to see what you are tripping over!

As part of the installation of the fire detection system, we have connected the system to Sectrol Ballarat, a local company which provides security monitoring services. The opportunity has been taken to upgrade our security system which includes a number of external cameras and an improved tag entry system to monitor events such as the depot being unlocked.

New kerb and channel has been installed by the Council in Wendouree Parade alongside the track on the final run down to St. Aidans Drive. New drainage pipes into the lake have been installed in three locations, including replacement of the notorious spoon drain. Heavy rains during the first week of

New kerb and channel and associated drainage was installed during late June alongside the track at the St Aidans Drive end of the tramway, seen here on 27 July. This area has been subject to flooding for many years due to poor drainage and the construction of an adjacent footpath. Warren Doubleday

July saw a marked improvement in run-off in this area, which has been well known for flooding since SEC days. There is now concrete channel on the lake side for the entire length of the line, all of which has appeared since the SEC closure. While the journey is not as rural in nature as it once was, there is not as much dust or mud to be cleaned out of the cars at the end of the day.

BYLANDS

TRAMWAY MUSEUM SOCIETY OF VICTORIA

38 Piccadilly Crescent, Keysborough, Victoria 3173 www.tramwaymuseum.org.au

From *Running Journal*

Around the museum

A major effort continues into cleaning up our trams, both internally and externally. Many hours of work have seen excellent results on H 373 and W4 673, which are stored in No. 1 shed. The broken internal saloon bulkhead window in W2 646 has been replaced with a spare sheet of glass from W2 248. Other tasks include the cleaning the rail head on the depot fan and removal of thistles.

For some time, the front doors of No. 1 tram shed have not been able to be opened because of movement of the supporting pillars. Repairs undertaken recently now allow the shed's eastern door that serves Nos. 1 and 2 roads to be opened. This will enable public access to the building; it will also improve ventilation throughout the shed.

Our Marketing Manager, William Fedor has continued repainting the interior of the Visitors Entrance Centre, with changes including improvements to displays and application of our new 'corporate' colour scheme. A variety of new sales items has been added to our stock, and these have already generated much needed additional income. Corey Robertson has repaired the wall-mounted reverse cycle heater/cooler unit, much to the delight of counter staff.

Several organised work days have seen more changes around the site. These days are held regularly and are advertised on our Facebook page that is linked to our

After nearly six years the northern end doors of No. 1 tram shed can now be opened.
Michael Fedor

website. The old cable tram trailer truck frame that had been left on the Bus Shed fan, has been relocated to the pit track. As well, several trees have been trimmed including one near the Visitors Entrance Centre. This will improve the safety of vehicle access along the old carpark driveway.

Society administration

After a little over 12 months, the Secretary's task of sorting out the saga of the Society's affairs of recent years is nearing completion. Although we are still to locate a number of missing files, documents and financial records from several recent past years, the general picture of the Society's overall position is now much better defined. Also, most of the archived records prior to 2009, previously identified as missing, have now been located, as has some unexplained missing archive material.

Recently, Board Member John Walker was hospitalised with a medical condition, which has reduced his ability to staff the Visitors Entrance Centre in recent months, something we had come to rely on. We hope that John returns to better health in the near future. In the meantime, we are appealing for help to staff the museum if we are to maintain our advertised operations.

The recent cold snap has been accompanied by above average rainfall, causing flooding at the museum. Corey Robertson

Some of the new display area in the Visitors Entrance Centre.
William Fedor

WHITEMAN PARK

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

Michael Stukely

New Carbarn project

Following the completion of the steel framework for the new three-road Carbarn (see Trolley Wire May 2016), a great deal was achieved by the builders, Northwest Shedmasters, in May and June with the installation of:

- Colorbond steel roofing with full width lighting strips
- Eight industrial roof ventilators
- Full-length gutter on the southern side
- Colorbond steel sheeting on all walls, and including insulation on the inside of the western wall, and
- Three personnel doors – two standard size, with one on each of the northern and southern walls, as well as a larger-size door at the west end of the southern wall.

Their final job will be the installation of the three roller-doors at the eastern end for track access from the main line. Project Manager Lindsay Richardson reports that planning is well advanced for the installation of track for the three roads as well as the progressive concreting of the floor.

The eastern facade of the completed structure of the new Carbarn, awaiting the installation of the three roller-doors, on 15 June. The front of the Lindsay Richardson Carbarn can be seen at the far left.
Lindsay Richardson

W2 329 has passed Red Dam as it climbs the gradient from Stockmans Triangle to the Village with a happy load of school holiday passengers on Wednesday 13 July. Intensive sleeper replacement is under way in this section, with steel sleepers laid out beside the track ready to be installed.
Michael Stukely

Ric Cheeseman welds steel tie-rods to the rail for gauge correction, on the points leading from Road 4 to Road 3 in the Carbarn fan, on 11 May.
Lindsay Richardson

Ballarat 31

As reported in the February issue of Trolley Wire, the badly-worn wheel sets from single-truck tram Ballarat 31 were sent out for testing and re-profiling late in 2015. This work was arranged by Lakmal Wijesuriya, through his professional engineering contacts, and we are delighted to acknowledge the following three companies for the generous full donation of their services: Metlabs (Australia) Pty Ltd of Welshpool for testing the wheels for cracks; CME Boilermaking Services Pty Ltd of Midvale for welding the wheel cracks; and Gemco Rail Pty Ltd of Forrestfield for the machining of the wheels to correct profile. The wheel sets were returned to our Carbarn and unloaded on 27 April.

Traffic operations and service cars

Our trams were very well patronised over the Easter holiday break, and in the first week of the April school holidays. W2 441 was again the main service car in March and April, with Perth E 66 and Fremantle 29 also being used. W2 329 was also in service in May, and at this time 441 was taken out of regular service pending the replacement of worn wheels.

General

Refurbishment works by the Wednesday team have continued on Melbourne cars SW6 891 and W6 998 as well as Adelaide H 371.

Brian Liversidge (left) assists John Azzaro to unload from our Mercedes Benz truck the second of the re-profiled wheel sets for Ballarat 31 on 27 April, after machining was completed by Gemco Rail. The cherry-picker mounted on the tray of the truck is at right. Lindsay Richardson

Roy Daley stacking grooved rail in the lower hardstand area using the Hiab crane attached to the Mercedes Benz truck on 16 March. Lindsay Richardson

The intensive program of replacing deteriorating timber sleepers on the main line with steel sleepers has moved in 2016 to the section north from Stockmans Triangle towards the Village. This work is being done mainly on the monthly Saturday track maintenance days, with additional input on Wednesdays when possible. A major project on 22-23 April saw the replacement of 11 sleepers to the north of Red Dam, with extensive lifting and packing also carried out. Work on the subsequent track days focused on the wet area south of that point, passing Red Dam (while vehicle access was still possible on dry soil). Nine sleepers were replaced through the culvert area on 14 May with further lifting and packing. An excellent effort by six members on 25 June resulted in another 17 sleepers being replaced further south. We thank Whiteman Park Engineer, Simon Mead, who arranged for the track at Horse Swamp cattle grid to be lifted to improve the clearance for tram life-guards when passing above the grid. The 200 new Mark II steel sleepers donated by Brookfield Rail, which are compatible with fitting checkrails at the correct spacing on our curves, have been sent out for drilling of the extra hole necessary for installing the rail-securing clips.

Good progress was made with adjustments to the overhead on the Stockmans Triangle west-to-north curve on a special Thursday workday, 28 April. Preparation of bracket-arms and fittings is in progress for the planned installation of another four steel traction poles that will replace deteriorating wooden poles on the main line.

Our Clerk of Works, Kim Freind, has made excellent progress with upgrading and maintaining the records of our rolling stock servicing. Maintenance of our

After departing Mussel Pool for the Village on 13 July, W2 329 has just passed the Bennett Brook North road crossing and enters the curve.

Michael Stukely

service trams by the Wednesday team continues as a major ongoing task.

Turning to motor vehicles, testing of the cherry-picker mounted on the Mercedes-Benz truck has started. New stabilisers will be fitted to the rear end of the truck. Repairs have been carried out to leaks in our mobile crane's hydraulic system and it is again operational.

Members again attended the Society's display stand at the Australian Model Railway Association's annual Exhibition at the Claremont Showgrounds, over the long weekend of 4-6 June. Good levels of sales were achieved, and tram painter Graham Lees' 'live' painting (made at the exhibition stand), featuring WAGT I class 63 (the unique Hedley-Doyle Stepless Car), was sold at auction for PETS.

ST KILDA

AUSTRALIAN ELECTRIC TRANSPORT MUSEUM (SA) INC

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

Colin Seymour

Executive Committee

The Annual General Meeting was held on Saturday 28 May 2016, with the following members elected:

President – Chris Andrews
Vice President – Damian Hill
Secretary – Mark Jordan
Treasurer – Julie Lench
General Manager – Ron Jenkins
Rolling Stock Manager – William Adams
Site & Safety Manager – Jack Pennack
Track & Overhead Manager – Kym Smith
Trustee – Ron Jenkins

As part of the occasion, a number of trams were operated at night for members, including Bib and Bub trams 14 and 15, as well as H 378 - the Grand Lady Restaurant Car, and H 365.

Replacement main shed

Further concreting was undertaken during June, which completed the last section of track. As on several previous occasions, North East Demolitions assisted with this work. Two floor pours are all that remain to finish the concrete flooring in the shed. Lighting and further shelving will then be installed to complete the project.

With trams out of the Main Depot for the AGM on Saturday 28 May 2016, the depth of the new pit on Road 6 and the wide aisles of the new shed can clearly be seen. Damian Hill

'Bib & Bub' set 15 - 14, Restaurant tram H 378 and H 365 on the Main Depot fan for member rides at the AGM on Saturday 28 May 2016.
Damian Hill

Reverse view showing H 365, Restaurant tram H 378 and 'Bib & Bub' car 14 on the Main Depot fan on Saturday 28 May 2016. Damian Hill

John Morphett at the controls of H 379 – the last tram to leave Hackney Depot (for City Depot) on 13 November 1958. John Radcliffe

A types 14 and 15

Work continues as funds are available. Recent work has involved preparation work for new bulkhead mirrors, and preparations for the covering of the roof on tram 14.

Compressors and tram maintenance

Jack Pennack, Michael Crabb and Geoff Moore have been testing and overhauling compressors to ensure we have a number of serviceable spare items on hand. Several CP27 and DH16 and 20 compressors have been inspected, with some being found to be serviceable and others being marked for use as spare parts. Mike and Geoff have also continued to maintain our tram fleet to keep it available for traffic.

Overhead repairs

A storm on 9 May 2016 resulted in a tree falling on the overhead between the main depot fan frog and the section insulator that had been installed on pole F as part of our replacement shed works. The incident damaged a span wire and the section insulator. However, as the section insulator was no longer required, a straight section of wire was installed in its place the following Saturday. A new span wire was also installed to replace the damaged one.

Trackwork

Two track days have been held so far this winter, with 17 sleepers being replaced along the tree reserve by the small team of regulars who undertake this work.

Vale – John Morphett

Long-time AETM member John Morphett passed away in April 2016 after a long illness.

John was born in 1943 as the elder son of Hurtle and Joan Morphett. The Morphett family is one of the pioneer families of South Australia, arriving with first group of settlers in 1836. Through his mother, John was the grandson of Sir William Goodman – the long-term General Manager and Chief Engineer of the Municipal Tramways Trust in Adelaide.

John Morphett on C 186 at the Museum on 23 October 2011. Richard Horne

Because of his family background, John developed a strong interest in the history of South Australia and, in particular, its public transport. He enjoyed driving around the country, well away from the main roads, and this led to him having a good knowledge of the former South Australian Railways network and other rail systems in Australia. It also enabled him to locate old tram bodies in the years that followed the closure of Adelaide's tram system in 1958. This detailed knowledge of the state put him in good stead to recommend locations for payphones in his work with Telecom and subsequently Telstra.

John joined the AETM in 1960. He was involved in tram operations at St. Kilda as a conductor since operations commenced in 1974. John had an encyclopaedic knowledge of the Adelaide tram system, and in recent years he assisted with archive work at St. Kilda where his in depth knowledge was greatly appreciated. At the time of his death, he was a Trustee of the Museum. He had also been actively involved in the South Australian Divisions of the Australian Electric Traction Association and the Australian Railway Historical Society over many years.

HADDON

MELBOURNE TRAMCAR PRESERVATION ASSOCIATION

324 Sago Hill Road, Haddon, Victoria 3351 www.mtpa.com.au

Anthony Smith

Restoration of W5 792

The restoration of this tram continues but progress has been somewhat slower than we would like due to the need to divert manpower to other urgent projects such as track maintenance.

During May the body was lifted using body jacks and beams to enable the motorised No. 15 trucks to be changed and the last remaining underfloor item of equipment, the DH16 air compressor, to be removed.

No. 792 is currently mounted on unmotored No. 1 trucks, which will enable the tram to be towed outside for steam cleaning of the underfloor framework prior to painting. The No. 15 trucks from this car are currently stored pending overhaul in the truck shop.

Recently we took delivery of new side fascia and roof boards for rebuilding the vent roof section of 792. These have been stored in our shipping container until

View of W5 792 on the pillar jacks awaiting the placement of the dolly trucks.
Anthony Smith

required. At the same time four rebuilt drop-centre quarter panel frames were removed from store. These frames were acquired from Yarra Trams some time ago and had been stored in the old kiln dried rack at the Preston Workshops for many decades. Work has now commenced on replacing the old quarter panels on 792, with the two former side destination boxes removed. The remaining sections of flooring in both saloons are also in the process of being removed.

Electrical and trackwork

During April, members Frank Schroeders, Daniel Edwards and Anthony Smith and our local machine operator dug out a 15-metre section of No. 5 road in the carbarn to enable sleeper replacement to take place.

Anthony Smith trial fitting one of the replacement drop-centre quarter frames. Jacqui Smith

After contaminated track filling and the remains of the old sleepers were removed, the road base was cleaned and back-filled with new blue metal. New treated pine sleepers were installed together with several tie rods after which the track panel was lifted, levelled and packed. The work of packing these sleepers was made easier by using our new electric packing jack hammer.

It was a solid day's work for all involved because of the need to complete the work in the same day so that all trams remain under cover. Repairs have also been carried out on the main line/4 road points due to movement and cracking in the concrete base. In early June the area in and around these points was excavated by our local contractor to enable underpinning work to take place. The job required a considerable amount of drilling and spade work, after which a concrete pour took place. At the same time, Frank Schroeders carried out welding repairs to the rail joints and new cross bonds were installed.

In other developments during April, two level crossing light units were removed from store, overhauled and fitted to the north side pole at the driveway crossing. The new units replaced unserviceable units at the same location. The light units on the south side pole were cleaned and serviced at the same time.

During tram operations in early June the substation circuit breaker alarm system developed a fault which resulted in the status indicator lights giving an incorrect overload indication for the main line breaker although the system was operating normally. After tracing the respective circuits, John Wither identified a problem with the relay dropping resistors; repairs were carried out with successful results. It is interesting to note that this is the first time since we commenced electrical operations in 1987 that the substation equipment has developed any type of fault.

No. 5 road after sleeper renewal prior to backfilling
Anthony Smith

Overhead work

On 19 June Kym Smith adjusted the alignment of the overhead frog pan at No. 4/No. 3 road to overcome the trolley pole tracking problems that were occurring there. The opportunity was also taken to carry out final adjustments to the trolley wire on the North West curve. Work commenced recently on the rebuild of the South West curve overhead, with new support and pull-off spans being fabricated and placed at the base of their respective poles.

Daniel Edwards and Frank Schroeders lift and level road 5 in the carbarn after sleeper renewal. Anthony Smith

Frank Schroeders and Anthony Smith changing over the crossing light unit. Jacqui Smith

Isuzu cherry picker repairs

Frank Schroeders has cut out a rusted section of the floor pan on the passenger side and welded in a new steel replacement. A number of small rust areas in the cabin were also attended to at the same time. The recovered seats have now returned from the upholsterer and await installation. New rubber floor mating has been obtained and will be fitted once the repainting of the cabin floor is completed.

Daniel Edwards cleans out the trenches around the No. 4 road point work during underpinning work. Jacqui Smith

BENDIGO

BENDIGO TRAMWAYS

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

Dan Rutherfurd and Anita Bagley

Easter 2016

Bendigo Tramways hit the ground running at Easter by operating a 20-minute service. Patronage totalled 951, and the trams ran a total of 503.7km over the four-day weekend.

The trams also enjoyed being a part of the Torchlight Parade, with cars 918, 610, 808 and 45 being near the beginning of the parade. With Light It Up being the theme of the Torchlight Parade, our trams were decorated with Chinese lanterns and twinkling lights. This added colour and a festive touch to the occasion.

Marilyn Monroe – a larger than life visitor

Forever Marilyn, a giant statue of Marilyn Monroe created by American sculptor Seward Johnson was on display in Bendigo's Rosalind Park from 6 February to

Tram 610 decorated for the Easter Torchlight Parade.
Bendigo Tramways

Tram 808 decorated for the Easter Torchlight Parade
Bendigo Tramways

An interesting view of the Marilyn Monroe statue with Bendigo trams Jimmy Possum 918 and ANZAC 45 in the background. Michael Duncan

Staff and friends ready to march in the Easter Torchlight Parade.
Bendigo Tramways

10 July. Measuring 7.9 metres in height and weighing 15 tonnes, this was the first time it has been exhibited outside the USA. The statue complemented the Bendigo Art Gallery Exhibition of the Hollywood icon over the same period.

The exhibit brought crowds to Bendigo and had a positive effect on tram patronage. Every day there were people crowded around the sculpture taking photos. We also introduced a special event tram for the duration of the exhibition called Sentimental Journey on Tram 880. It explored the friendship between Marilyn Monroe and Jazz Legend, Ella Fitzgerald.

Cultural Tourism Awards and Bendigo Business Award

In November 2015, Bendigo Tramways was announced as the winner of the Cultural Tourism category of the Victorian Tourism Awards. As a result we then went on to the Australian Tourism Awards, competing against other cultural tourist attractions. At the national level we received the Bronze award.

Bendigo Tramways won the award for excellence in accommodation or tourism in the 2016 Bendigo Business Excellence Awards. Runners up were the Schaller Studio and Bendigo Pottery.

Sentimental Journey on Tram 880 at the Fountain with the statue of Marilyn Monroe in the background.
Bendigo Tramways

Bendigo Tramways – Business Awards winner, May 2016.
Bendigo Tramways

As with tram restoration, these awards could never be achieved without the tireless work of many team members, both paid and volunteer. We congratulate all those who contribute to the success of our operations. Bendigo Tramways could not be an award-winning tourist attraction without their dedication and enthusiasm.

W8s for Yarra Trams

On Thursday 3 March we waved goodbye to **No 1010**, the fourth in the line of upgraded W8 class City Circle trams. The tram was farewelled by Minister for Public Transport Jacinta Allan, who took the opportunity to announce that two further trams would be added to the W8 program, bringing the class total to six. The launch was attended by the Chief Executive Officer of Yarra Trams, Nicolas Gindt, and other officials. Completing major projects of this type requires dedication, skill and professionalism on behalf of our workshop staff. We congratulate every member of the team who contributed to the success of the project.

Work has begun on the next W8 tram, No. 981. The car has been stripped down to the frame ready for structural rebuilding, which includes installation of a new chassis, and new bolsters and side panels.

Restorations for a range of customers

Works on **Sydney R1 2050** are now completed with the kitchen having been installed and the electrical works completed. This car has been set up to be used either in a restaurant courtyard or as a pop-up restaurant. The owner is yet to confirm its final location.

The Tramways Management team with the Tourism Award in February 2016.
Bendigo Tramways

Melbourne tram 1010, and the team at the Bendigo Tramways workshop. S. Perrin

A business approached us late last year with the idea of installing an ex-Melbourne tram in Queen Victoria Market. The cosmetic restoration of former SW5 728 began in early 2016, including external and internal body works, painting and varnishing. The tram was also stripped of all components no longer required for its new use. The car has been restored to a green and cream livery.

When it moves to the Queen Victoria Market 728 is expected to be used as a cafe stand serving drinks, coffee and crepes. The tram will be fitted with a commercial kitchen at one end, and on board seating for guests throughout the rest of the car. The concept is expected to create point of conversation for people while shopping for their fresh produce.

As a long running community organisation, Peppergreen Farm Bendigo sought to enrich their market gardens with something truly synonymous with Bendigo, namely trams. Bendigo Heritage Attractions has sold Peppergreen Farm the body of **former Melbourne restaurant car 937** which they will repair and convert to suit their requirements.

At this stage, No. 937 is being held at the Gasworks Depot as Peppergreen Farm has to pour concrete footings on the spot where the car will be placed. Tourists should be able to see the tram at the farm when travelling along Thunder Street hill towards Emu Point.

Operating trams

Observant visitors to Bendigo would have noticed that former **SW5 No. 808** was missing in action for quite some time.

Earlier this year the car was provided with a reconditioned set of No. 15 trucks after it became clear that the wheels on the old trucks had reached the end of their life. After passing a series of test runs before Easter, No. 808 is again back in service, running at least once per week on regular trips and for special charters.

Sydney tram 2050 in the workshop with servery windows open. Bendigo Tramways

Birney the tram cat observing the comings and goings of the depot. Bendigo Tramways

Birney car 302 is once again the focus of the crochet and knitting exploits of Bendigo's society of secret knitters. Passengers will be able hop on board the 'yarn bombed' tram and fight off the cold Bendigo winter by rugging up under hand-crafted woollen blankets. Drivers can also be seen sporting warm brown and cream crochet ponchos.

As a sideline, our depot cat, a resident of the depot for more than 18 months, is known as 'Birney, the tram cat'. Popular with visitors, Birney regularly receives his own fan mail, even receiving a postcard from a fan in the UK. We have introduced a line of Birney cat souvenirs to our shop: the range includes books and postcards with more items to come.

Traffic

Because of concerns expressed by our tram drivers, a publicity campaign was mounted to alert road users of the difficulties caused by vehicles using right hand turn lanes at intersections. Overall the campaign was well received by locals. It is just the start of a process to help mitigate some of the problems that tram drivers encounter. Check out one reporter's journey to highlight our tram drivers' plight: https://www.facebook.com/JournoChrisPedler/videos/1042897652414810/

Bendigo Woollen Mills

Through an agreement with the Bendigo Woollen Mills, a gate has been installed between our two facilities that enables those visiting the mills to walk through to our depot. We are pleased to report that this has led to a respectable increase in our customer numbers – a mutual benefit to both organisations.

Staff changes

This year has ushered in several changes at Bendigo Tramways. In March we farewelled our Manager and esteemed colleague, Jos Duivenvoorden. After ten years of service, five as a Director on the Bendigo Trust Board and five years as Manager of Bendigo Tramways, Jos made the decision to retire. Jos' face can still be seen around the Bendigo Tramways at times, as a volunteer. As we all know you never truly retire, you only move to the back of the tram.

Luke Jenkins has taken on the new role of Projects Manager and Depot Supervisor. Luke has been with Bendigo Tramways for 15 years and started as an apprentice coachbuilder.

Jos's farewell memento. Bendigo Tramways

The new Woollen Mills access gate is proving very popular with visitors. Bendigo Tramways

Passing through the woodland, Perth Electric Tramway Society's former Melbourne W2 329 runs parallel to the Bennet Brook Railway after departing Whiteman Village Junction station for the Village on 31 May. Michael Stukely

Australian Electric Transport Museum' former Melbourne W7 class 1013 stands in the depot yard at St. Kilda on 11 July.
Samuel McGuinness