TROLLEY WIRE

Journal of

AUSTRALIAN TRAMWAY MUSEUMS

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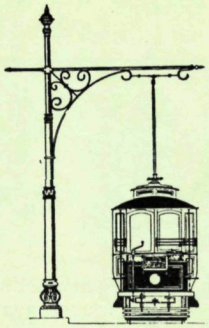

DECEMBER 1973

NEWCASTLE'S ELECTRIC TRAMS

50TH Anniversary

TROLLEY WIRE

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— SOUTH PACIFIC ELECTRIC RAILWAY
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— STEAM TRAM PRESERVATION SOCIETY

DECEMBER 1973 New Series Vol. 14 No. 6 Issue No. 149

and a

Merry Christmas

AND BEST WISHES FOR THE NEW YEAR

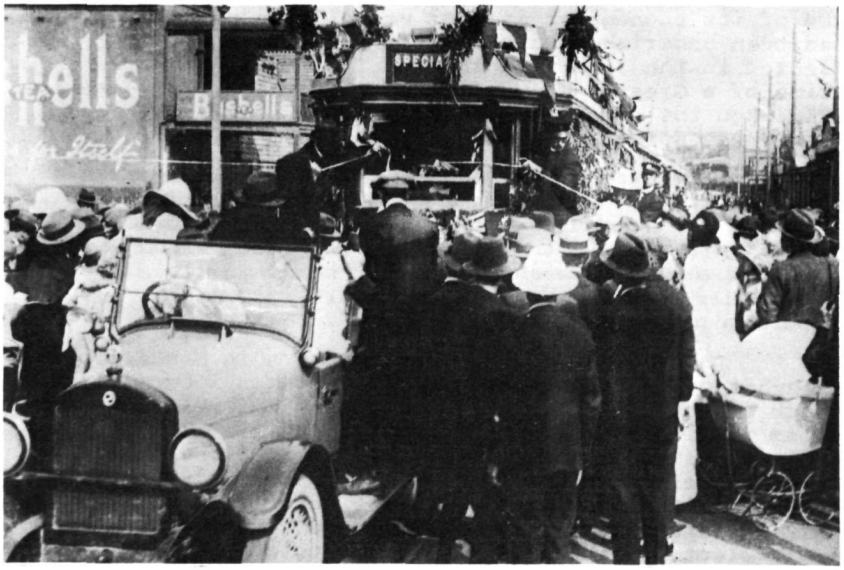
to all our readers

COVER PHOTO: The single track line in Hunter Street, Newcastle, used by out bound electric cars, as it appeared in 1934, with single L/P-class car 256 making its way sedately along, to Mayfield, along the route of the first electric tram services in this New South Wales industrial centre.

--Vic Solomons collection

A CHRISTMAS BOX FOR NEWCASTLE

by Ken McCarthy



Decorated L/P cars 374 and 704 at Mayfield on the occasion of the opening of Newcastle's first electric tramway.

DECEMBER 15th 1973 marked the 50th Anniversary of the official opening of the first stage of the electrification of the Newcastle tramway system on which occasion Mr. R.T. Ball, the then Minister for Works and Railways, stated that he was glad to be able to give Newcastle this Christmas Box and hoped he would be able to give them an even greater Christmas Box next year.....

Agitation for the electrification of the large Newcastle steam tramway system gained strength around 1903 when the conversion program for the main Sydney network entered its final stages and in 1907 representatives of the Newcastle Municipalities approached the Railway Commissioner, Mr. T. Johnson, to have initial preparations undertaken for this conversion. The Tramway Department Archives indicate that a start was anticipated on this work during 1911, but due to the increases in tramway patronage in Sydney, brought about by the popularity of the new mode of propulsion which in turn absorbed more electric rolling stock than originally planned and caused immediate extensions beyond the old steam terminals, the Newcastle project had to be postponed.

Manpower and equipment shortages brought about by World War I further delayed matters, but definite plans were finally released to the Municipalities concerned in April

1917 regarding the tramway electrification. By this stage much of the Newcastle steam rolling stock had reached the end of its economical life as very little new construction had been undertaken since 1891. This state of affairs reflected in the report of the Royal Commission on the formation of a Greater Newcastle Council Area released in April 1919 when the condition of the tramway system was castigated with these words:-

> "The existing tramway system at Newcastle is antiquated and inefficient... it constitutes a severe handicap upon development. Its defects are obvious. It needs to be modernised into an electric system designed to meet and keep pace with district conditions and future development... The existing rollingstock is generally so obsolete as to be practically worthless for conversion to electrical use...."

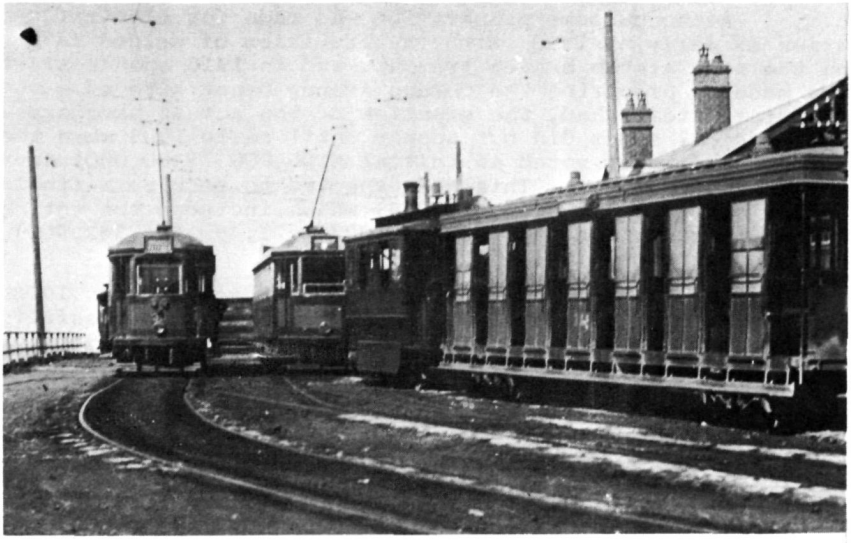
The steam rolling stock position in Newcastle was somewhat of an embarrassment to the tramways department which was naturally reluctant to spend large amounts on new steam rolling stock when members of parliament, on an immediate political whim, could vote a large sum of money for immediate electrification. Never the less, seven steam motors had to be built at Randwick Workshops to the Baldwin pattern to enable the Newcastle steam system to continue until electrification; four being constructed in 1916-17 at £1,660 ($3,320) each, carrying numbers 126 A to 129 A, while three more followed in 1922-23, at £2,200 ($4,400) each, as 130 A to 132 A. The last named was received from Randwick Workshops on November 18th 1923 at the eve of the opening of the electrification.

In 1919 the economic life of the Newcastle steam rolling stock was:-

10 (10" cylinder diam.) motors = 2 years, 43 (11") motors = 15 years
18 cars = 1 year, 106 cars = 15 years, 11 service stock cars = 10 years

This indicated that unless electrification proceeded soon, the entire system would creak to a standstill; this point being emphasised by the fact that holiday traffic on race days during that period required 122 trailer cars out of a total of 124 to be in traffic.

When the Tramway Traffic Manager, Mr. E. Doran, gave evidence in 1919 at the Newcastle Royal Commission, he stated that the Newcastle steam trams cost 32.29d per mile to operate while Sydney electric services "cost about half that" figure. But this claim did not throw too much light on the situation as the financial returns after the electrification were to reveal. Whereas the Sydney electric trams operated in two car sets the Newcastle steam trams frequently worked with a train of four trailer cars in busy periods. One classic example of this was recorded on November 14th 1925 when Driver Collinson, with a single conductor, hauled over 500 passengers in four trailer cars behind motor 98 A between Wallsend and Adamstown Junction, where the crowd transhipped to the Speedway adjacent to Newcastle Racecourse. Newcastle Tramway Archives reveal



Parnell Place terminus at Newcastle during the transition from steam to electric traction. L/P cars, 311 bound for Mayfield and 284 for Broadmeadow, with a Carrington steam tram, circa 1925. --O.S. Bolton

that the tram arrived at Adamstown Junction 5 minutes late showing 3/4 (gauge) glass of water and with the safety valve blowing off! Motor 98 A at that stage had not received an "A" type overhaul for 2¼ years, so it had not received special maintenance treatment to perform the task.

The steam tram frequencies on most Newcastle routes prior to electrification were generally of 30 minutes and 60 minutes, the exceptions being West Wallsend with 120 minute frequency and Broadmeadow with a tram every 15 minutes. After electrification 5 to 20 minutes became the accepted operational period and while this proved more convenient to the patrons, it more than doubled the tram miles run and only lifted patronage from 14,859,610 steam peak for the year ending June 31st 1922 to a peak for electric working in the late 1920's to 21,349,627 in 1927 with very little improvement in the profit and loss account.

To supply power for the new electric cranes at Carrington, which were manufactured by Cowan & Sheldon & Coy. of Carlisle, England in 1914 and 1915, a generator set was installed at the site of the later Zarra Street power station in Newcastle to supplement a similar set established earlier behind the Carrington hydraulic power station. By 1918 the permanent Zarra Street powerhouse construction was underway and this first stage completed in 1920. This undertaking was designed to supply power to the Newcastle tramways as well as for industrial and domestic use along the Hunter Valley.

Although some preparation was made for electrification as early as 1913, with the provision of welded rail on the new Waratah branch tramway, and in 1915 when a start was made on preparing the Gordon Avenue Depot site as a temporary steam shed, the erection of the actual hardware and physical signs did not appear until early 1923 when the Fuller government voted an initial £100,000 ($200,000) to the tramway project. This was expected to require a final outlay of £1,312,539 ($3,625,078) which included the entire Zarra St. work, and by December 1923 £671,480 ($1,342,960) had been expended.

The tramcar par excellence for Sydney between 1908 and World War I was the 80 seat "O" type which successfully, but roughly, handled the crowds prior to the development of serious private bus competition. As late as March 1914, Electrical Engineer, Mr. O. Brain, suggested to the Secretary for the Commissioner that a further 50 non coupling "O" type trams be built after delivery of the remaining 100 units, in the then current order, to keep the tradesmen at the Meadowbank Manufacturing Company together and to satisfy future traffic growth.

The industrial conditions during World War I prevented the manufacture of these additional 50 "O" type trams but during that period Messrs. Doran and Brain devised an improved 80 seat toastrack design with fully enclosed body and pull down glass windows which could provide comfortable conditions in all weathers. This was the "P" type design known as "Doran's Glasshouse".

Prior to the construction of this entirely new type, seven "O" cars (known as the "O/P" type) received the new body design when being reconstructed after serious collisions, and 21 bogie California cars of the "L" class were converted to a similar style, seating 70 passengers, between November 1918 and January 1920. This "L/P" type conversion was halted as production of new "P" cars was initiated; the exceptions being "L" 320 in December 1920 and "N" 704 in November 1922 which were rebuilt to the new style after suffering major damage. The Newcastle electrification required a large fleet of electric trams at short notice so the "L/P" program recommenced again in 1923 to satisfy this need.

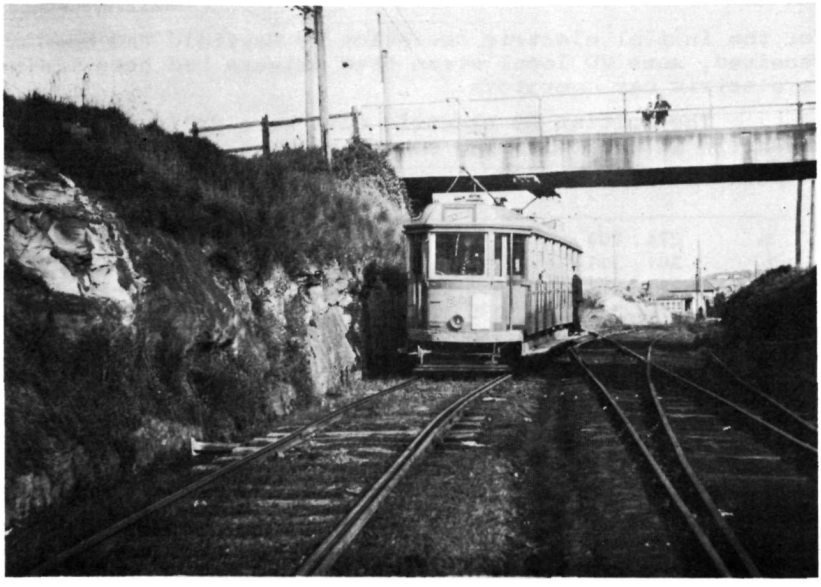
The Annual Reports dated June 30th each year reveals that by June 1924, eighteen such conversions were completed; in 1925, sixty three and in 1926 there were twenty eight, all destined for the Newcastle tramways. Not all of these, however, reached that city.

These "L/P" tramcars were welcomed in Newcastle as outwardly they presented the new modern body style, even if hidden under this facade were maximum traction bogies, old type traction motors, high steps and direct control equipment, all dating from circa 1900 when these vehicles first entered service in Sydney as the "F" type tramcar. Mr. E. Doran recorded in his interview with the "Newcastle Morning

Herald" on November 14th 1923 that these 70 seat cars to be used in Newcastle were selected from two standard styles. The 80 seat four motor ("P") car was for hilly routes while the 70 seat two motor tram ("L/P") was suitable for the less hilly routes as found in Newcastle.

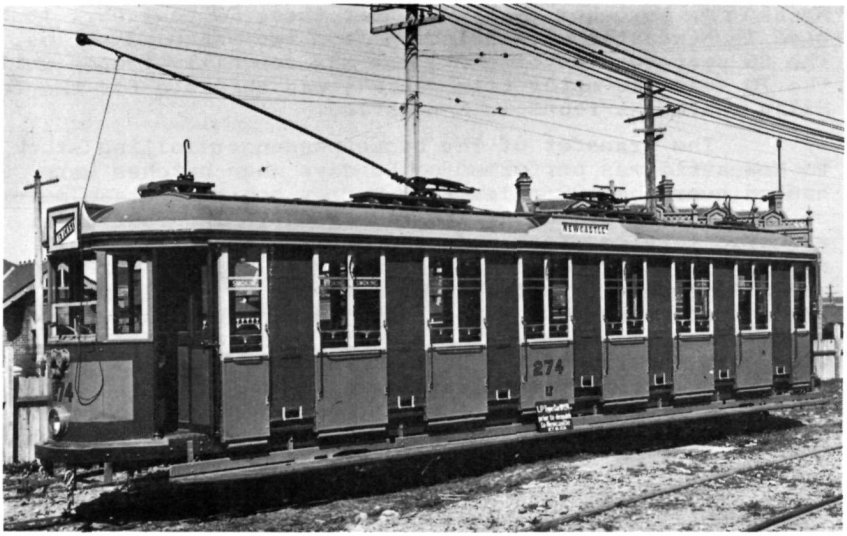
The transfer of the bogie passenger rolling stock to Newcastle was performed on Sundays when batches were hauled over the 100 miles from Sydney behind a steam motor on the railway tracks at limited speeds. The four wheel electric service stock made the journey on railway well wagons. The first two electric cars to arrive, "L/P" 704 and 274 reached Ivy Street per-way yard at Hamilton on Sunday September 30th 1923. When passing the Showgrounds at Broadmeadow, where a band recital was in progress, the cars were cheered by the several thousand present. On the following morning these trams were hauled along the rail tracks, a short distance towards Newcastle, to Auckland Street railway-tramway connection at Honeysuckle from where they were taken to the incomplete Gordon Avenue Depot.

These two cars were employed for driver training on a special test track, constructed on the depot property at Hamilton, which was available for electric trials when 60% completed, from the week beginning October 15th 1923. By mid November, when 20 of the 22 required cars needed



L/P 201, inward bound from Wallsend, crosses a colliery railway at Co-operative Junction, near Wallsend. The line shared the cutting with the railway for some distance.

--Ben Parle



The first L/P car, 274, poses in Randwick Workshops yard for the official photographer, prior to transfer to Newcastle. --Railways Photo

for the initial electric operation to Mayfield had been received, some 70 local steam tram drivers had been trained as electric car operators.

The initial 22 electric cars were delivered to Newcastle in the following seven batches:-

BATCH	CARS	PREPARED TO LEAVE RANDWICK	TRANSFERRED TO NEWCASTLE
1.	274 704	27- 9-23	30- 9-23
2.	301 311	11-10-23	14-10-23
3.	271 272 280 285	18-10-23	21-10-23
4.	270 342 367 375	25-10-23	28-10-23
5.	283 304 371 376	1-11-23	4-11-23
6.	247 317 361 360	8-11-23	11-11-23
7.	362 374 Motor 132A)	16-11-23	18-11-23

"C" type car 93 was converted to a breakdown vehicle in June 1915 for use at the new Leichhardt depot, but this depot was not opened as a running shed, so this car, which carried 119 "S" in the service stock roster, was prepared for transfer to Newcastle with the first two "L/P" cars on September 27th 1923. As the four wheel service stock was transferred on railway well wagons its exact arrival date in Newcastle is not yet known but reports indicate that it arrived in that northern city prior to October 21st 1923.

The "L/P" class was divided into two body variations. The first 21 cars carried low wooden sides constructed from

narrow tongue and grooved vertical "match boarding" while the remainder had higher sides of composite wooden frames and sheet metal panels. This alteration was made so that identical window glass could be used on the "L/P" and "P" tramcars. Of the 98 electric tramcars eventually used in Newcastle, 19 were of the low sided type and the balance of the later design. "L/P" 272 and 274 were later rebuilt after body damage. These two Newcastle trams retained their low sides but had the matchboarding replaced by the sheet metal "P" type panelling.

In 1919, a total of 104 "L/P" or "N" type trams were thought necessary to convert all the Newcastle steam operations, with the exception of the two long routes beyond Wallsend to West Wallsend and Speers Point. This figure was based on 89 being needed for the the maximum holiday frequency plus 15 additional to allow for an estimated 17% being stopped for repairs. In January 1924 this anticipated figure had grown to 150. A total of 87 electric trams were thought necessary for all lines as far as Wallsend, 43 for anticipated traffic growth giving a total of 150 when allowing for stoppages. The ultimate "L/P" car strength in Newcastle grew to 98 units, trams "L/P" 165, 243, 312 and 321 being the last arrivals from Sydney on Sunday October 17th 1926. Between 1926 and 1935 a total of 21 "B" type 70 seat steam trailer cars were officially listed as being available for use behind the Newcastle "L/P" passenger cars and the four wheel "C" type service stock.

Without doubt, the opening of the Newcastle electrification must have been the most thorough ceremony ever conducted in Australia! No less than four ribbons had to be cut along the initial 4 miles 38 chains route. Mr. R.T. Ball was entertained at lunch at the Great Northern Hotel on Saturday December 15th but the repast was such that the official opening, timed to take place at 2.30 pm from a dais in Hunter Street outside the Post Office, was delayed by one hour. During this period decorated coupled sets 374-704 and 304-274, detailed to carry the official party and the invited guests respectively, were parked on the new track in Telford Street. These were brought forward for the first ribbon cutting ceremony by Inspector Pickin and Chargeman Pendleton as acting drivers and Ticket Examiners Bingham and Smallman as conductors to the accompaniment of the Newcastle City Band.

After cutting this green and brown ribbon the procession proceeded westwards along Hunter Street where a second ribbon, in red, white and blue, had to be cut at Hannell Street on the Wickham Council boundary. The third ribbon, blue and white, was met shortly after at Stewart Street at the Hamilton Municipal boundary and following an inspection of the rebuilt high level bridge crossing the Great Northern Railway in Maitland Road, the trams continued unimpeded through Islington, Tighes Hill and Mayfield where, just short of the terminus, the final red, white and blue ribbon of the Waratah Council was despatched. Seeing that

this politician had to make a lengthy speech at each point, including the luncheon, without repeating his discourse, it is with little wonder that the official party retired to the "Mayfield Hotel" on arrival at the terminus after 4 pm.

In his speeches Mr. Ball revealed that on taking office he had suggested that the Newcastle district be given an improved road system to enable buses to replace the steam trams but to this he had received an emphatic "no". Mr. Ball stated "We are determined not only to proceed with the rest of the electrification but to complete it". This would amount to 34 miles 7 chains of route or 44 miles 54 chains of track and Electrical Engineer, Mr. O. Brain reported that the Zarra Street power house was now serving the Hunter Valley as far as Singleton and would shortly extend the transmission to Cockle Creek where a tramway sub-station would enable the completion of the electrification to West Wallsend and Speers Point.

Mr. Ball emphasised that for a long time Newcastle had to put up with the "casts-off" of Sydney in trams and other things. Newcastle had to put up with the old steam trams until the omnibuses had run these off the road..... and so the platitudes of the day continued.

The initial stage of the electrification had not proceeded with entire smoothness. Some of the difficulties are tabulated:-

1. Title to the portion of Shortland Park between the old steam tram sheds at Parnell Place and Telford Street could not be arranged in time and until November 22nd 1924 the Mayfield electric cars, and later the Merewether and Broadmeadow trams, were forced to reverse at Scott Street East and return on the down Scott Street track before joining Hunter Street East via Telford Street.

2. The initial Mayfield service had to be supplied from a restricted generator set at Zarra Street pending the completion of two 1000 kW converters at Brown Street sub-station, one similar unit at Hamilton substation and a battery of accumulators at Carrington substation. These were not brought into use until late 1924.

3. The first 12 roads at Gordon Avenue depot were not completely covered until 1927. A further 12 roads were to have been included under progressive roof extensions but this project was never undertaken.

But these factors were not obvious to the public. At last the electric trams had arrived after a wait of some 20 years!

The single track tramway through the shopping district in Hunter Street East had been constructed for this electrification, the steam services being limited to Scott Street in that area. The first electric trials along that new stretch took place on Tuesday December 4th 1923, on which date, it is believed, overhead tests were also conducted over the entire Mayfield line. The electric trams

involved had to be hauled by steam motors along the Albert Street tramway in Wickham, a section abandoned with the deviation of the Mayfield line over the high-level railway bridge in Maitland Road. This high level bridge had been closed to road traffic on 18th June 1923 for the rebuilding of the approaches to take the new direct electric tram route to Mayfield. The deviated track was cut in at the Maitland Road-Albert Street-Ivy Street intersection on the evening of December 12th-13th; thus for the next four days prior to the opening of the electric service to the public, steam trams had to battle the steep approaches to the high level bridge. On the evening of Saturday and Sunday 15th and 16th December electric lighting tests of the new electric cars' interior illuminations were conducted in Hunter Street, Newcastle and at Hamilton. A reporter noted that each tramcar carried 12 lamps of 42 candle power each which enabled all interior advertising to be read with ease. This was no doubt an improvement on the five 32 volt globes carried by some steam trailers after 1921 and certainly better than two or four gas lamps or the two kerosene lights carried by most of the steam fleet!

The true reason for these lighting tests was to reveal whether adequate electric power was available, prior to the opening of the permanent tramway sub-stations, to provide adequate illumination. Indeed Newcastle tram travellers of that period vividly remember the difficulty they experienced reading the evening papers in the pm peak period, when the electric cranes at the Dyke were busily engaged in loading export coal, as the tramway had to battle with the cranes for the meagre power available. This condition was never solved on the outer sections of the Wallsend line where power starvation was apparent until the closure of the line in 1949.

The convenient frequency of electric operation was apparent when the Mayfield working opened for public service on Monday December 17th 1923. The usual steam intervals were 30 minutes during weekdays and 60 minutes on Sundays. On that Monday morning a 10 minute operation was provided to Mayfield with trams every 5 minutes as far as Tighes Hill and in the afternoon this was magnified to a 6 minute/ 4 minute one to Mayfield and Tighes Hill. Because the entire fleet of 22 cars were available on that day, four trams supplied a 15 minute additional working from Newcastle to Gordon Avenue, Hamilton. This surprise operation was well patronised but could not be guaranteed at that stage.

Mr. Doran reported on December 17th that "only 22 cars can be made available at present, which is not enough for Broadmeadow" service, so it is possible that the overhead was erected as far as Adamstown Junction at that time but because of rolling stock and power shortages could not be operated regularly until April 14th 1924.

L/P 188 and Leyland bus 2180 in Hamilton Depot on the last day of tramway operation, 10th June 1950.

--Ken Magor

The original dates for the progressive conversions are:-

19- 5-1924	Darby St. Junction to Parry St. (Merewether)
28- 7-1924	Parry St. to Merewether Beach
2-11-1924	Union St. Junction to Glebe
2-11-1924	Telford St. to Parnell Place via Shortland Park
2- 2-1925	Adamstown Junction to Adamstown
6- 4-1925	Adamstown Junction to Waratah
11- 4-1925	Moira Rd. Junction to New Lambton (Rugby Rd.)
24- 5-1925	New Lambton to Lambton (Morehead St.)
14-11-1925	Adamstown Junction to Racecourse
26-12-1925	Lambton to Wallsend Depot
15- 8-1926	Hannell St. Junction to Carrington
11-10-1926	Albert St. Junction to Tighes Hill East
17-10-1926	Tighes Hill East to Port Waratah (full electric service provided)
26- 8-1938	Adamstown extension (Glebe Rd. to Victoria St.)

Note: Some of these dates indicate the introduction of a partial electric service only, due to shortages of rolling

stock or trackwork alterations. It would appear from contemporary reports that the entire tramway through to Port Waratah was available for electric operation from October 11th 1926 with steam helping at peak periods until after Sunday October 17th 1926 when the arrival of the last "L/P" cars provided adequate rolling stock to replace steam on this route.

The financial return of the Newcastle tramways was nevera happy one! Between the opening in 1887 and 1905, after the interest on capital was charged against the individual system, a profit was shown except for the partial operation during the first year. Between 1906 and 1928 only six years of profitable operations were revealed. After 1928 the Newcastle tramway scene never again experienced "ordinary conditions". Industrial unrest in the coalfields became widespread in 1929 with strikes and lockouts and this was followed by the economic depression, the effects of which lingered on in Newcastle until World War II. Private bus competition was controlled by co-ordination of services and severe licencing procedures for competing services in December 1930, but the steam tramways beyond Wallsend to West Wallsend and Speers Point were victims in this general reorganisation.

The Carrington and Port Waratah lines closed after the last runs on Saturday November 19th 1938, "L/P" 302 making the closing journey to Carrington and no doubt other lines would have been converted to bus operation but for the increase in patronage brought about by petrol rationing during the conflict.

During the 1930's one track in Lambton road needed urgent repairs and this was delayed, it is believed, by reverting to single track operation on June 6th 1936 between Moira Road Junction and the Gully Railway line crossing. Double track working reopened in December 1937, but the work must have been of a temporary nature as this section of the Lambton Road trackage had reverted to an excruciating condition by the mid-1940's. Poor patronage and the closure of the Port Waratah and Carrington lines enabled 10 "L/P" cars (271, 272, 283, 301, 304, 330, 331, 360, 367 & 375) to be withdrawn from service in 1939 but wartime traffic resulted in these cars reappearing by 1942.

With the gradual return to peacetime conditions after 1945 the Newcastle tramway undertaking was in poor physical condition and on short term considerations the decision was reached that the lower figure of replacing the tramway with short life buses would be more economical than modernising the tramway which would give long term benefits, especially as almost half of the network was on 'off-the-street' reservation. The progressive closures between 1948 and June 1950 has been briefly related earlier in these pages (see TROLLEY WIRE, June 1970 page 14).

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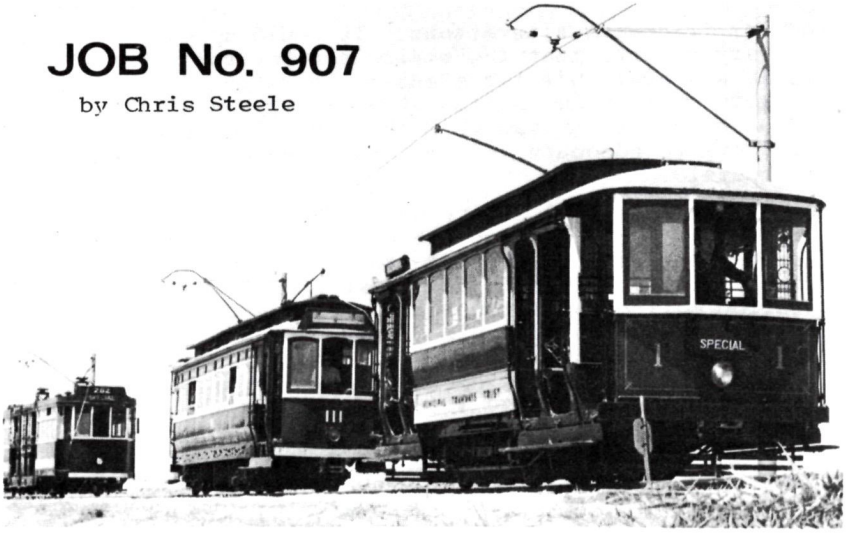
JOB No. 907

by Chris Steele



To the administrators of the Metropolitan Unemployment Relief Scheme at the Corporation of the City of Salisbury this uninspiring designation reflected the allocation of money from a Commonwealth Government grant. To the Council's engineering staff and labour force it meant the St. Kilda tramtrack. But to the members and supporters of the Australian Electric Transport Museum (South Australia) Incorporated it was, unbeknown, the "golden number" signifying a new era and the prospects of a dream coming true.

Commencing with a flourish on Monday January 8th 1973 and phasing out at length on Friday 24th August 1973 - a period of 153 working days - job 907 represents in excess of 20,000 hours of work by almost 100 men. Physically this has been interpreted into a single track tramway approximately $1\frac{1}{4}$ miles long with overhead poles and complete except for some 250 feet of sidings still to be laid at the township end.

As most South Australian readers will know, the Unemployment Relief Scheme there was initiated during 1972 by tne State Government. Grants of money were directed through the Lands Department (later the Public Buildings Department) to various local governing bodies with the condition that it would be spent on capital works. To this end the apportionment was:- 2/3rds for labour and 1/3rd for material. (The ratio was afterwards altered slightly to suit the circumstances). Following the change of administration in Canberra on 2nd December last year, a new but similar scheme with Australia-wide ramifications was drawn up and subsequently implemented, incorporating the one already functioning in South Australia.

Insofar as this influenced events at St. Kilda there is a necessary preamble.

Early in December 1972, the President of the AETM, Dr. John Radcliffe and several committee members were invited to a meeting of the St. Kilda Progress Association to hear proposals put forward by the Salisbury Council for the development of this (literally) backwater resort. In the discussions which followed, the AETM re-stated their intention of operating a tourist line in the district and pointed out that they were at that time negotiating a further lease with the Engineering and Water Supply Department for a tramway right-of-way to Samphire Road within the confines of the Bolivar Sewage Treatment Works. (Hitherto, an application by the Salisbury Council to the South Australian Government on behalf of the museum for a tourist industry development grant to build the line had been refused.) On the same day the Mayor of Salisbury, Mr. H.L. Bowey together with other council officials were requested to inspect the museum's premises and avail themselves of a short ride on one of the tramcars. Apparently this rekindled interest by the council in the potential of the museum as a tourist attraction.

Shortly afterwards, Dr. Radcliffe was invited to confer with the City Engineer for Salisbury, Mr. John Harris, on the proposition of the council applying for a grant under the Commonwealth unemployment relief scheme. The council would build a line from the museum to St. Kilda Beach and the members of the museum would operate the tourist tramway. Mr. Harris emphasised that work on the project would have to begin early in January 1973 if it were to be satisfactorily accomplished. In the absence of any formal, mutual conditions due to the exigencies of time, the museum executive gave its approval of the scheme.

It was at this stage that the writer became involved in what might aptly be described as a "labour of love"!

Above: Dismantling the abandoned railway siding at the RAAF Edinburgh Airfield, January 1973. --Chris Steele
Opposite: Testing the new diode rectifier power supply near Mangrove Loop, St. Kilda.

It was known to my colleagues in Adelaide that after six years abroad on a "working holiday", I was returning home on 16th December. Coincidently, my last job had been surveying the ways and structures and at oft-times supervising the track laying of a new 3'6" gauge branch line for Rhodesia Railways in the Republic of Botswana. So, among the first people to greet me as I disembarked from the SS "Oronsay" when it berthed at Outer Harbour, was the General Manager of the AETM, John Pennack. I soon ascertained that I had an option for another job! Despite this hasty approach I agreed to be seconded to the Salisbury Council's engineering staff as foreman of construction on the tramway. It was an arrangement of overall benefit. I desired only a temporary job while endeavouring to settle down, the council required a person experienced in tracklaying, and it was in the museum's interest to have someone on site for the duration of the project. Just prior to Christmas a further meeting of the President and myself with Mr. Harris and his engineers, Messrs Cameron and Gronow, determined how work on the tramway would be tackled.

In organisation, John Gronow was delegated to take control. Mr. Peter Edson, a full-time employee and currently supervisor of all St. Kilda projects became, in effect, site agent for the tramway. I was made ganger-in-charge -- there being other minor postings, such as my 2IC Mr. A.D. "Jock" Brown, from time to time.

Since the council had never previously undertaken a job of this nature it was necessary to "tool-up" from outside. Both the South Australian Railways and the Municipal Tramways Trust were approached for suitable equipment and the museum,too, loaned a number of items. Such things needed were:- rail tongs, track gauges, spike hammers, picks, pinch bars, rail saws, jacks and a 'Jim Crow' (rail bender). All were collected and ready for use in due course.

Labour was recruited in the first week of January 1973. On the following Monday, 12 men reported to the Royal Australian Air Force Edinburgh Airfield there to lift an abandoned railway siding purchased in situ by the Salisbury Council. I was placed in charge of this gang, while at Mallala a few miles further north another small party began collecting good, used sleepers from beside the South Australian Railways mainline and transporting them by truck to St. Kilda. Two weeks was spent dismantling the 2,100 feet of 60 lb track at Edinburgh Airfield which conveniently included a loop. This in turn was taken to St. Kilda and stockpiled in the E&WS compound.

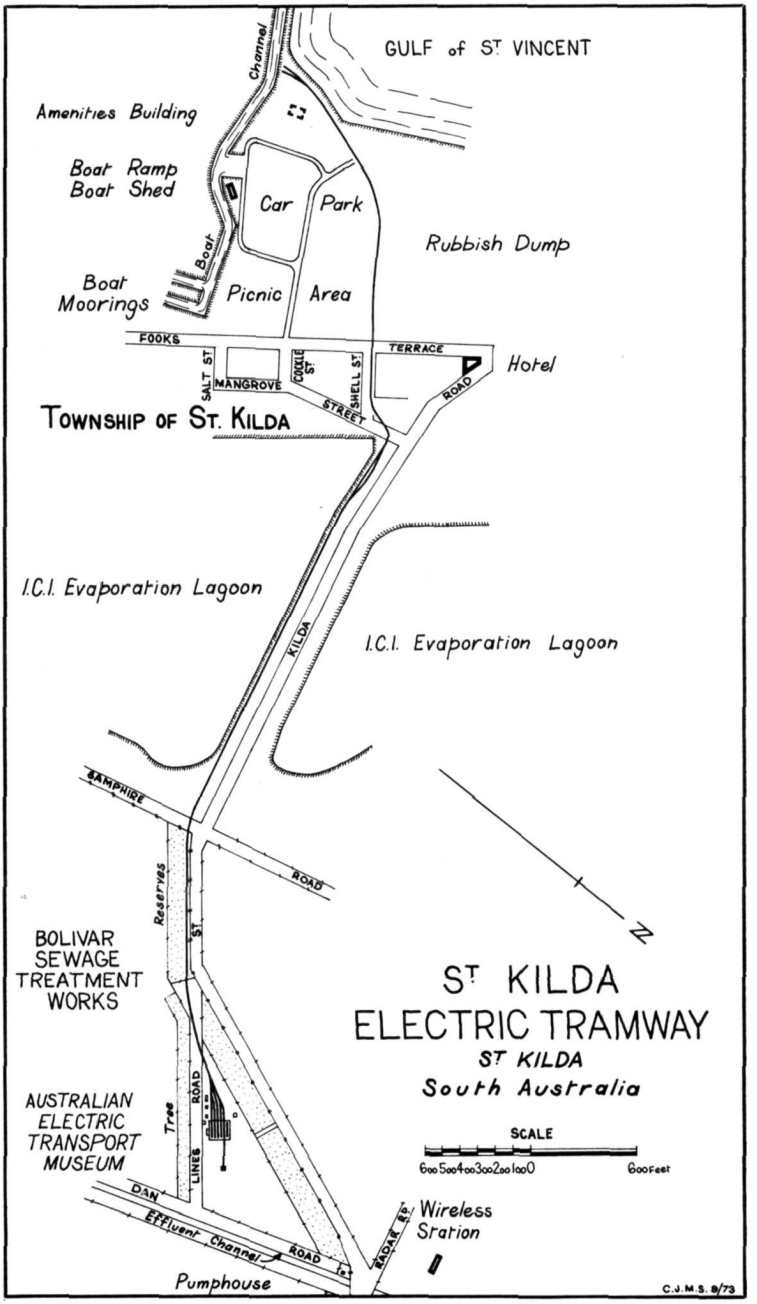
While manual labour was being performed, earthworks for the tramway were evolving at St. Kilda. At Coleman's pit some two miles away, a fleet of tip trucks was being loaded by a dragline and the spoil taken to the marshy ground beside the ICI evaporation lagoon dyke where it was dumped. A bulldozer, grader and vibrating roller spread and consolidated this fill over several weeks to provide an

Bulldozer preparing the embankment at the site of the Mangrove Loop, January 1973. -- Chris Steele

embankment for the tramway to cross. This feature represents the single most expensive part of the project. Earthworks elsewhere were comparatively simple.

At the commencement of tracklaying it was decided to remove the small portion of line partly laid in Lines Road. Not only did it fail to conform with the proposed new alignment, but it represented valuable material to the AETM now that the Salisbury Council had agreed to build the mainline to St. Kilda. In the light of recent moves this has meant that all track within Lot 129, Hundred of Port Adelaide, is subject to the museum's lease and without any tenure negotiated by the council on its own behalf.

Trial and error methods were the order of the first few days. The most noticable oversight was inadequate labour to lift the 40 ft long 60 lb rails into position. Already it was becoming apparent that there would be a high rate of attrition and absenteeism on this job. Consequently continual recruitment of personnel was needed to keep the labour force up to requirements. The optimum strength was set at 22 men. When not employed lifting rail, the men were engaged in small units at a variety of tasks. Two would assist with the surveying - requiring the placement of alignment pegs on the centerline of the tramway. Another group would mark the positions of rail ends with subsidiary pegs, staggered on curves, matching on straight track, the majority would carry sleepers from the stockpiles to the roadbed, space and centre them to a taut line, and a few others would position spikes, nuts, bolts and plates for the next stages of assembly. The council commissioned a small 1.1/3 hp, 240 volt motor-generator capable of being ferried in a wheelbarrow to provide electricity for the drill used to bore the sleepers. Because of the different gauge (5'3" on the


GULF of ST VINCENT
Channel
Amenities Building
Boat Ramp
Boat Shed
Car Park
Rubbish Dump
Boat
Boat Moorings
Picnic Area
FOOKS
TERRACE
Hotel
SALT ST
MANGROVE
COCKLE ST
SHELL ST
STREET
ROAD
TOWNSHIP OF ST. KILDA
I.C.I. Evaporation Lagoon
KILDA
I.C.I. Evaporation Lagoon
HAMPSHIRE
ROAD
Reserves
ST
BOLIVAR SEWAGE TREATMENT WORKS
ST KILDA ELECTRIC TRAMWAY
ST KILDA
South Australia
SCALE
600 500 400 300 200 100 0
600 Feet
AUSTRALIAN ELECTRIC TRANSPORT MUSEUM
Tree
ROAD
LINES
DAN
Effluent Channel
ROAD
RADAR
Wireless Station
Pumphouse
C.J.M.S. 9/73

SAR as opposed to 4'8½" on the MTT) sufficient solid wood was usually found for new holes, but most sleepers had to be turned over to avoid laying the rails unevenly on the old notches. There was a considerable wastage of sleepers through splitting.

Seven weeks were required to fully construct the first section of the mainline, from the northern boundary of Lines Road to the forward tangent point of curve 2 just west of Samphire Road. No haste was evident or essential at this juncture for the council was having difficulty procuring further supplies of rail. Thus the whole of this track was ballasted by hand using wheelbarrows to carry stone from a central pile at Lines Road. In order to relieve the monotony of this haul, one or two different men each day were transferred to the pole stacks. These consisted of reject tubular drawn steel tramway poles from the streets of Adelaide.

Coming into the custody of the Electricity Trust of South Australia when tramway services were withdrawn 15 years ago, they have gradually been replaced by the ubiquitous Stobie pole, especially during road widening schemes. ETSA agreed last year to supply any number of the old poles to the AETM from its Angle Park depot at a significantly low price provided the museum obtained official recognition as a tourist enterprise.

Many poles arrived at St. Kilda in poor condition. There were corrosion holes, and most were short, having been burnt off at ground level with an oxy torch. Nearly all were seemingly straight-jacketted in clamps, collars, crossarms and insulators -- all manner of aerial fittings. These had to be removed -- indeed the salvage of them will prove beneficial in further use by the museum -- the poles scraped of rust and flaking paint and a standard length determined (25 ft) and cut. Thereafter the poles were given one coat of red lead and white primer and two coats of dark grey gloss paint. Following an appeal to ETSA, decorative cast iron collars were saved to fully embellish each pole, and for the museum yard and township streets additional cast iron in the form of finials and ferrules were set aside.

Although the ICI dyke had been considerably widened to accommodate the tramway, it was realised it would provide very limited access and manoeuvring space to construction vehicles after the track had been laid. So it was decided to place the overhead poles here while awaiting the delivery of the rail. The South Australian Housing Trust subcontracted to bore the holes in the ground with their versatile mobile driller. As there was a danger that these excavations would cave-in through seepage, scrap asbestos cement pipes of about 2 ft diameter and 7 ft long were lowered into each hole on the removal of the auger and the outside and base concreted with a dry mix. When the caissons had set the council used their crane to erect a pole

in each and verticallity was maintained by wedges during the next phase of concreting. Finally the wedges and the protruding caissons were removed and neat batters paved at ground level. Such was the success of this method with the first 15 poles that it was ultimately adopted for the erection of the remaining 56 poles. The two ornamental centre poles which have graced the museum yard for over a decade are now appropriately located between the two tracks of the loop. The poles are numbered individually in true tramway fashion.

By the middle of March, with rail still unobtainable, it was anticipated that the majority of men would have to be retrenched. Instead of this drastic action being taken, the gangs were put to work modifying several tracks in the museum yard for the future layout. Eventually a special purchase of rail had to be made to ensure the progress of works. This, and subsequent consignments were, to the chagrin of both the council and the AETM, of only 41 lb per yard section. Heavier rail was simply not available at a budget price. As a result of this misfortune the longest piece of straight track - along the causeway - will be subject to speed restrictions.

Tracklaying commenced in earnest towards the end of the month and though by no means completed, had reached the site of the loop by early May. The four wheel trolley proved itself very useful as a supply vehicle for the sleepers and rails on the causeway. Winter showers were now beginning to interrupt the program and almost a week's work was lost at Easter. A time and motion study prepared by Mr. Gronow and myself at this stage revealed that the tramway could not be constructed to the proposed terminus at the beach within the target date, 30th June. Proposals were made for an interim terminus at Fooks Terrace. This, happily, was unnecessary. The City Engineer and his deputy insisted that the project be culminated 'in toto', and accordingly directed that another major gang be instituted to collect, transport and lay out the track components in advance of the main gang. Their first duty was to separate the rails of a consignment unloaded at Virginia railway station. These 41 lb rails, 32'2" long, had been rendered surplus following the renewal of the SAR's Karoonda - Waikerie line in heavier rail. Delivery to St. Kilda by semi-trailer was effected in about 10 days and thereafter, with one notable exception, rail was always in supply.

Progress slowed a little in the area around Mangrove Street for it was here that the loop was to be positioned. Also, due to the disposition of the causeway in relation to the town streets, it was necessary to introduce two sharp curves on the tramway; one of 73'5" radius, and the other of 151'2" radius. Rails for these curves were bent to a template. Sufficient 60lb rail had been set aside for this section; from the east end of the loop to the midpoint of Shell Street. Check rails were added to the first curve and these will also serve to protect the hot-mix tar

Installing check rail on the tramway at the sharp curve across Mangrove Street, July 1973. --Chris Steele

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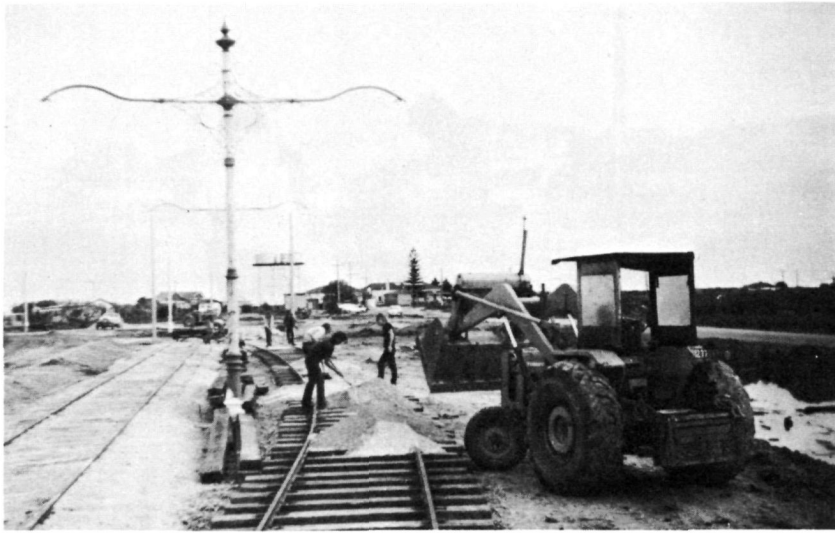
in the centre of the track at this busy road crossing. The Salisbury Council welder was kept busy butt-welding these rail joints. Care had to be taken in the township to ensure right of access to properties fronting the tramway. Each night driveways had to be restored and levelled with quarry rubble or reject sleepers. Generally speaking the few residents of St. Kilda have been receptive to the presence of the tramway and see in it a visible turning point in the history of their town -- 100 years old in 1973!

Across the rubbish dump, the tramway is laid on the substantial foundation of the former cell wall. This shell grit and clay embankment was dredged from the beach about 6 years ago to protect the land-fill from the sea. The rubbish dump has been closed and is presently being levelled and soil topped for public amenities areas. Lack of ground consolidation, wet weather and the inability to obtain a suitable turnout - it arrived the day the track gang was disbanded - prevented the terminal sidings being installed.

Meanwhile, attention reverted to the provision of overhead fittings. While inspecting poles at ETSA's Angle Park depot, I noticed a heap of discarded street lighting brackets. They looked ideal for modification to trolley wire support arms. A previous prototype arm fabricated at the Museum had failed, and a more functional and aesthetic design was sought; accordingly a sample bracket was sent to St. Kilda where it was reconstructed by the museum to the required dimensions and installed. It fulfilled requirements so an order was immediately placed for several dozen



Front end loader assists in the ballasting of the loop in July 1973. --Chris Steele

of the redundant brackets. Over a number of weekends at a suburban workshop the two inch diam pipe main arm was bent into a gooseneck shape and the truss rods modified by AETM members. Other components were also prepared. The assemblies were taken to St. Kilda in time to be positioned by the remaining council workmen, using the museum rail tower wagon and ladders. When the tramway is completed, 50 of these bracket arms will be in service.

The Salisbury Council had reserved from the Commonwealth grant enough money to buy the required length of 0000 gauge grooved cadmium-copper trolley wire. Produced by Metal Manufactures Ltd. of Port Kembla, NSW, it was delivered in three spools totalling 2393 yards from Cablemakers of Australia Pty. Ltd. to the museum on 17th September. The AETM members lost little time in stringing this wire from the existing limit of overhead at Lines Road to Samphire Road the following weekend! It is now possible to traverse this distance despite the limited power supply, and test, mechanically and electrically, the performance of the restored tramcars. As additional span wires are fitted to the brackets, so the remainder of the trolley wire will be run out. Then the rail joins will have to be bonded to ensure the efficient electrical conductivity of the line. This will probably be another joint venture; the AETM fabricating the bonds and the council welding them in place.

As I write these lines my own participation in the project is rapidly coming to an end. In recent weeks I have prepared the "as constructed" drawings of the tramway for

record and maintenance purposes. To facilitate the latter a series of concrete beacons with central steel pin marking alignment and level have been installed 3'6" from gauge at about 100 ft intervals, and set 18" below rail level. It is interesting to note that the line falls only 2 feet from end to end, the lowest point being Fooks Terrace at 13 feet above sea level.

* * * * * * * * *

In the weeks ahead museum personnel have two principal tasks before them; to connect tracks 1 and 3 to the main line, and equip the converter station with the transformer and solid state rectifier essential for simultaneously powering at least 3 tramcars the full length of the line. It is hoped to have 6 tramcars ready for operation at the official opening: 1, 21, 34, 111, 282, and 381.

It is salutory, in conclusion, to contrast equivalent statitistical implications of the Salisbury Council's involvement with the construction of the St. Kilda electric tramway. These postulate that under the most favourable of prevailing circumstances, the museum could depute no more than 6 men for 6 hours a day once a fortnight towards a similar effort. Irrespective of the finance commitment in the project, job 907 advanced the opening of the tramway by 21 years!

*MUSEUM Notes & News from ST. KILDA

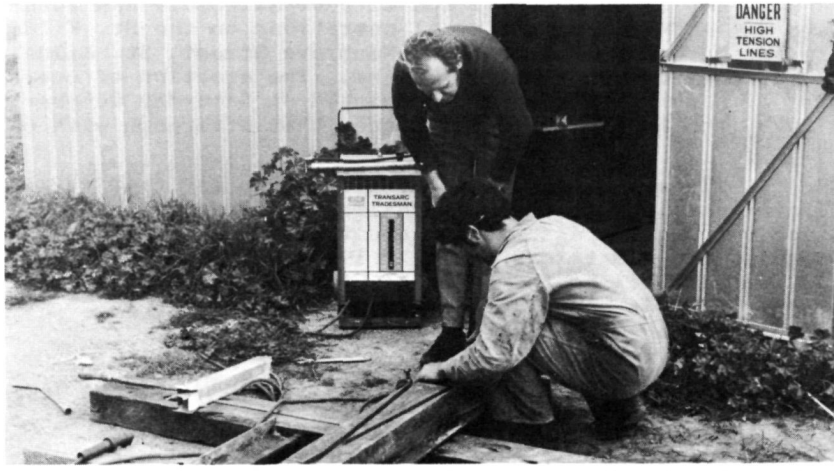
The Corporation of the City of Salisbury has authorised the AETM to conduct trial operations on the St. Kilda Tramway between the Museum and Mangrove Street, St. Kilda, a distance of approximately 1.1 km. The erection of overhead to Mangrove Street was completed on Saturday October 6 1973, the line being commissioned that afternoon with car No.1.

Plans are currently being drawn up for the St. Kilda Centenary Celebrations by the Salisbury Council, the St. Kilda Progressive Association and the Museum. The date is expected to be Saturday March 23 1974. A highlight of the festivities will be the Official Opening of the St. Kilda Tramway. It is hoped to give further details in the next issue of TROLLEY WIRE.

Car 111 has been restored to full operating order. The saloon seating is currently being re-upholstered, lifeguards are being replaced and sanding gear overhauled. Cars available for service are being fitted with BCF fire extinguishers. All cars are also to carry a water bucket for emergency use as the line is parallel to lakes or the sea for much of its distance.

As yet we have been unable to report on activities in the museum transport preservation field in Tasmania, but we are pleased to present this photo of the body of Hobart Municipal Tramways former double deck car No.13 as it was being rescued from Kingston Beach for preservation by the Tasmanian Transport Museum, of whom we hope to have more to say in the not-too-distant future.

--D.N. Jones



Ron Jenkins and Ron White working on the fabrication of a crossing frog at the AETM depot at St. Kilda.

--John Radcliffe

from BALLARAT

Tracklaying for the access line between the Tram Depot and Wendouree Parade has been completed and initial ballasting has taken place. Welding and fishplating of rail joints is in hand and when completed the track will be levelled, aligned and finally packed. It is anticipated that the pointwork for connecting to the Wendouree Parade track will be completed early next year. The depot fan serving the three shed roads and including a deadend siding is virtually complete, with final work on the laying of the turnout to No.1 road to be finished shortly.

Extensive drainage work has been necessary in the Depot surrounds due to the high water table in the area, Lake Wendouree being only a few hundred metres away. The high moisture content of the soil was apparent when the seven poles necessary to support the overhead were erected. It was some weeks before they settled sufficiently to allow work to proceed.

All necessary span wires have been erected and work commenced on stringing trolley wire in the depot area. The isolating transformer, recently purchased by the Society, has been rewired to suit the tramway power supply and placed in position at the rear of the depot. Work has commenced on the installation of a rectifier and switchgear so that the substation will be ready when the SECV provides a power supply early in December.

The Society has obtained the use of a tower wagon to assist in the installation of the remaining overhead equipment and facilitate the repairs to existing overhead which remains in position in Wendouree Parade.

On October 4th, the Society was incorporated in Victoria as a public company titled "Ballarat Tramway Preservation Society Limited". It has been decided that the tramway will be operated under the name "Ballarat Tourist Tramway".

The Society has reached agreement in principle with the Ballarat City Council on the conditions upon which the tramway will be operated. The attitude of the Council was most encouraging to the Society which regards the terms as being most satisfactory.

Visitors continue to inspect the Society's works in ever increasing numbers. Approximately 800 people, passengers on the Vintage Train Excursion to Ballarat, visited the depot on October 7th.

CORRECTION: The reference to Board positions (TROLLEY WIRE - August 1973 - page 26) should be altered to read "Mr. H.E. Cain did not seek re-election as President but now holds the position on the Board of Immediate Past-President".

from WOLLONGONG

Our request for a museum site moved one step closer on Wednesday November 21st when the Shellharbour Council, acting on advice from the relevant government departments, approved in detail the request for a museum site, at the most reasonable rental of $1 p.a.! On November 28th the Council informed the ILRMS that the way is now open for the final detailed agreement, so it is hoped that a start can be made on site preparation during this summer season.

The area is approximately 600 yards long by 200/300 yards wide on which an interesting tourist line one mile long can be constructed. The public areas will have to be fenced but it seems that two opportunities will present themselves soon in this regard... two lengths of park rail wooden fence will soon await our work force for demolition; one is $\frac{1}{4}$ mile in length, the other possibly 3 miles long!

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Owing to rising costs of large size post office box addresses the location of the ILRMS has been changed to PO Box 1036 WOLLONGONG, NSW, 2500.

from LOFTUS

As usual, about this time of the year, activity tends to be concentrated on a big cleanup in readiness for the annual Members' Day, held each year on the second Saturday in December. On this day many of our cars which are not otherwise available are given a run; in fact cars such as E529-530 and K1296 are in such non-trafficable condition at present that they often are not moved from one December to the next! But the surprising thing is that they do run. A tribute to electric traction if ever there was one.

This year, as a result of several months of feverish activity, the Brisbane Dreadnought car 180 will at last be completed. The paint will probably be tacky on the big day but we can at last write "finished" to a long overhaul job. 180 will not re-enter regular service immediately, however, due to the need to retrain our drivers and conductors on the proper methods of operation of a handbrake car, the first in the fleet of passenger cars to go into service at Loftus not fitted with an air brake.

Other cars have received intermittent attention including N728 which has had new footboards installed and is having attention to rotted sections of flooring in one end driving platform. Brisbane car 295 is still out of action, although an overhauled motor has been re-installed in the spare bogie. Once a bogie swap has taken place and

180 is moved from the paintshop external restoration of 295 to the striking silver colour scheme will continue.

* * * * * * * * * * * * *

A WORD FROM THE EDITORIAL COMMITTEE

With this issue of TROLLEY WIRE we close yet another successful year of publication. We apologise for the excessive number of typographical errors which appeared in the October issue, but with a choice of having the magazine printed on time or delaying release for possibly several weeks we took the choice which did not allow adequate time for proof-reading. And apparently at least one of the corrections made came unstuck before reaching the platemaker. Mr. Morris's previous visit to Loftus was in 1967.

The Committee would like to offer sincere thanks to all our contributors both regular and new, and also to our readers, without whose growing support TROLLEY WIRE could obviously not continue its expansion. As we go to press, details of bigger and better things for next year are still being finalised. We thank you for your support and trust we will continue to be so favoured in 1974.

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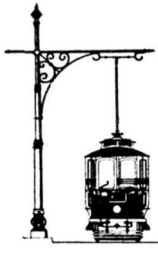
The SPER Publishing Department, in its search for suitable slides for inclusion in the various sets on sale or proposed for future release, has found itself in possession of some 300 individual slides, either duplicates or test slides, which it now has put on sale at Loftus, at prices ranging from 25¢ to 40¢ each, depending on quality and subject.

If you are interested in purchasing any of these slides enquire at the Bookshop at Loftus Depot.

Space, or more precisely lack of space prevents us listing available slides, so these are offered on a strictly 'self-selection, self-serve' basis.

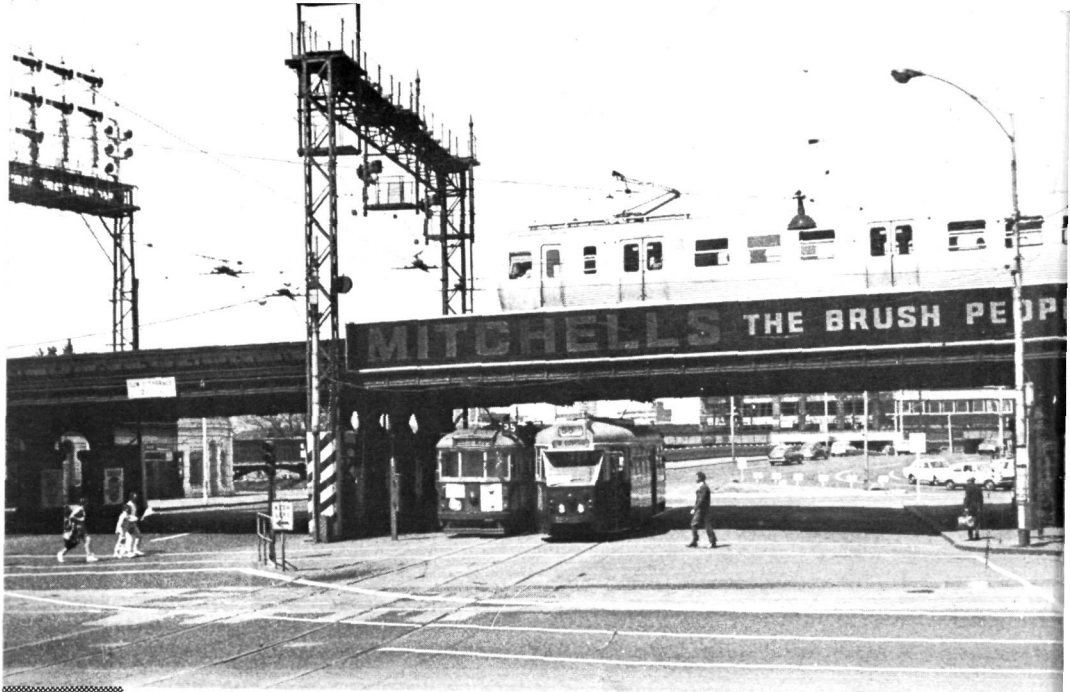
*50¢ - Recommended maximum selling price in Australia.



Editorial Committee:
G. A. Buckman
N. L. Chinn
D. E. Cooke
W. M. Denham
V. C. Solomons

TROLLEY WIRE is published bi-monthly by the **South Pacific Electric Railway Co-operative Society Limited,** P.O. Box 103, Sutherland, N. S. W., 2232.

Printed by Business Offset Service Pty Ltd.



Something old, something new.... Amidst the maze of overhead and signal gantries we see the front end of one of Melbourne's new stainless steel-sheathed suburban electric trains heading for Flinders Street Station along the Flinders Street / Spencer Street viaduct, while below, approaching the Flinders Street / Market Street intersection is the new Melbourne tram, 1041, en route to West Coburg. The lower photo shows the "old", a set of early Melbourne "Tait" suburban electric cars at Ashburton, on the Alamein line. Many of these cars were built originally as steam hauled stock, and were converted in the 1910's when Melbourne's first electric railway routes were opened.

Photos: (Upper) Colin Withington, (Lower) S. Dornan.

In spite of continued efforts at reducing the unit cost of this magazine, the Publishing Department has found, to its dismay, that a loss can be expected on the October and December issues.

This is brought about by several factors. The first is that our previous budget did not take into account substantial increases in both printing service charges AND paper prices. We were also very wide of the mark with our estimates of postal increases introduced after the August 1973 Budget. And despite encouraging signs in the nett increase in the number of subscribers, the printing order on the magazine could not justifiably be increased and thus bring about a reduction in the unit cost which would have absorbed some of the increases.

We are, therefore, reluctantly obliged to increase the selling and subscription prices of this magazine for 1974.

Earlier price rises have, to some extent, been cushioned by an increase in the number of pages per issue, while the policy of bonus "Blue Cover" issues has, for the regular subscriber at least, further softened the impact of price rise.

The two biggest factors ib the forseeable future are the proposed 10% increase in paper prices from January 1974 and the continued reduction of, and ultimate cessation of, postal conessions for magazines such as TROLLEY WIRE. This last factor will raise the postage on TW by about 300% ! even before taking into account larger issues.

On the matter of next years' TROLLEY WIRE, we have been negotiating with several other kindred organisations to participate in the magazine; negotiations which, if successful, will help to stave off further increases, while linking the groups in a practicable and beneficial way.

The SPER Publishing Department is also finalising details of a venture which will wnable TROLLEY

WIRE to be produced using a composer typewriter, thus allowing up to 40% more text on the present size page, without any noticeable loss in the legibility.

Also, to try to offset the increase in price, from April 1974 we propose gradually increasing the number of pages up to a maximum of 40 per issue. This will depend, however, on the continued support of our present readers and on gaining the required number of new subscribers.

We therefore advise that, from the first issue in 1974 (ie. February) the basic charges associated with this magazine will be:-

65¢ per issue (recommended retail selling price in Australia

$3.50 per annum to financial members of participating museum groups

$3.70 per annum to non-member subscribers in Australia and Papua/New Guinea

$3.90 per annum ($Aust) to other countries

Yearly subscriptions include packing and postage.

Should the support be better than anticipated, and therefore result in a possible trading surplus on the magazine, the Publishing Department will return the money to the readers in the form of further bonus issues; and our printer tells us that we can go to 60 pages before we reach the limit of this type of production.

We trust you will continue to favour us with your support in the difficult, but nevertheless potentially exciting period ahead, as TROLLEY WIRE continues to expand into the subjects of the smaller transport museums, a trend already apparent to most readers of this magazine.