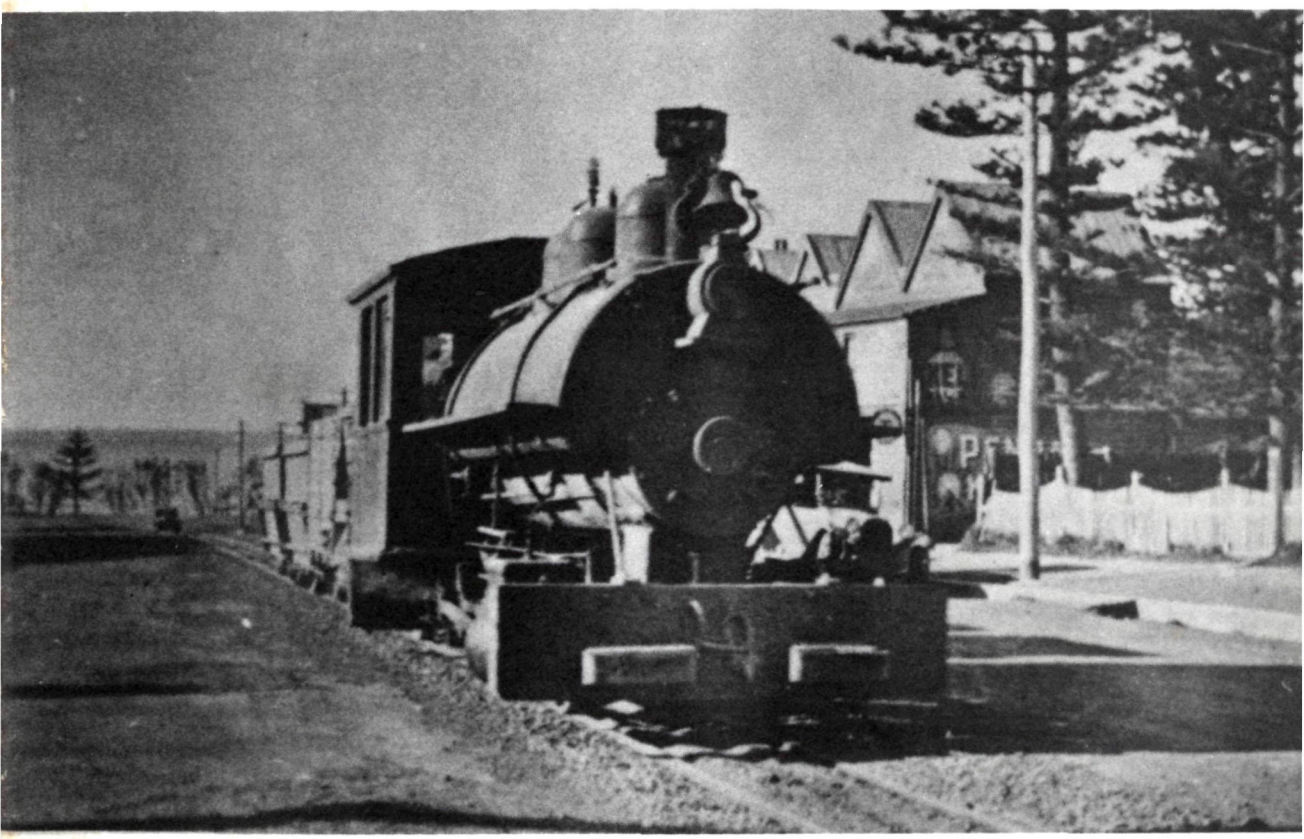
TROLLEY WIRE

Journal of
AUSTRALIAN TRANSPORT MUSEUMS

NUMBER 166
OCTOBER, 1976



—— TRAMWAYS OF KIAMA, N.S.W. ——

Registered for Posting as a Periodical – Category B

TROLLEY WIRE

Journal of
- Australian Electric Transport Museum
- Ballarat Tramway Preservation Society
- Brisbane Tramway Museum Society
- Illawarra Light Railway Museum Society
- South Pacific Electric Railway
- Steam Tram Preservation Society
- Tramway Museum Society of Victoria
- Western Australian Transport Museum

OCTOBER 1976

Vol 17 *No. 5* *Issue No. 166*

$1.00 *(Recommended selling price.)*

This magazine is published in February, April, June, August, October and December by the South Pacific Electric Railway, Loftus, and printed by Lynaul Press, Panania.

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P.O. Box 103,
Sutherland, N.S.W., 2232.

Subscription Rates:-
Members:- $4.75, per annum.
Non-member Subscribers:-
In Australia – $5.00 per annum
Overseas – Price on Application.

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PLUS.....
More Notes and News etc from from around Australian museums.

FRONT COVER.

PWD No. 23, Davenport Loco. (B. No 1517) heading up Manning St. towards the railway goods yard terminus, c 1931.
B. Holmes collection.

FROM THE PRODUCTION TEAM

While constructive remarks are made on the layout etc. of this magazine and are acted upon,we would like to point out that perhaps our contributers may be as co-operative when we ask that photos for inclusion in the articles,be clear, sharp and most important large SIZE.

Photos need to be 6"x4" (152 mm x 100 mm) so the cost of negatives that are made from these photos can be reduced by not havingto have enlargements made of every one.

The price of any magazine always reflects the cost of the photos because of the additional handling in the process of the screened negative therefore the more photos we get enlarged or reduced the more each issue costs.

If you submit photos for use on the Front or rear covers we request you send 10" x8" to allow for bleed-off on the edges etc.

The cost of future issues is in your hands,please help!!!

DEADLINE-December issue.

Please note that November 30th will be the last day items can be accepted for inclusion in the December issue.

TRAMWAYS OF KIAMA, N.S.W.

Part 1

Compiled by K. McCarthy

This brief history of the Kiama tramways is presented here to mark the centenary of the opening of Robertson Basin, Kiama Harbour. The coffer dam, erected across the Harbour mouth to enable the floor of the basin to be deepened and the stone quays to be constructed, was chopped down after midnight on Monday September 4th, 1876 and on Wednesday September 20th the harbour was officially opened by Miss Charles from the deck of the Illawarra Steam Navigation Coy's vessel "Hunter". The new harbour was crowded for the occasion; the "Ajax" carried the ministerial party while the "Illalong" was moored at the old wharf.

The shipping services were Kiama's only convenient connection to other major South Coast (of N.S.W.) centres and Sydney until the arrival of the Government Railway at North Kiama on November 9th, 1887 , but this line was not connected through to Sydney until the completion of the Clifton & Otford tunnels (near Scarborough) on October 2nd, 1888.

The coastal town of Kiama, 75 miles south of Sydney, is the centre of a prosperous dairy area, but from the early 1870's until the early 1960's much of the lucrative road metal trade, based on the availability of hard Kiama basalt, passed through the harbour.

Two tramways, 1 mile in length, were constructed to connect the Pike's Hill quarries, west of the township, with the Harbour, along Terralong St. The first line was in position between 1885 and 1889; built to the 3'6" gauge it was never put to work. The second, and more successful tramway was constructed to the 2 ft gauge, with a branch to the Government Railway Station, and served the stone industry between 1914 and 1941.

PWD No. 35 Fowler loco approaching the harbour at the Manning/Terralong Sts intersection c.1938. The disused "down" track can just be seen in the shadow of the tree.
Old postcard. K. Magor collection.

The First Tramway 1885 to 1889

Had anyone in Kiama been bold enough to even mention the word "tramway" in 1890 he would probably have been run out of town! The council's tramway project had just reached a tragic conclusion causing the Jamberoo Ward to break away, from October 31st 1890, as a separate municipality, and depressing the district with a huge municipal debt which was to hold back the introduction of municipal utilities. The water works were opened on October 26th, 1900 but were not reliable in times of dry weather, due to the limited funds available for construction at that time, while the sewerage scheme proposed concurrently with the project has still to be built. On the break up of the municipality the Kiama ward was saddled with a £3764 debt, the south ward £708 and Jamberoo £1,492, a large amount for those days when Kiama had a population of only 1,500 , and all this caused by the tramway debacle.

The tramway debt was finally settled by the Jamberoo Municipality in August 1928 at a time when Kiama Municipality's repayment had a further two years to run. In 1929 Jamberoo expressed the possibility of re-amalgamation with Kiama, but this did not take place until June 11th, 1954 when Gerringong and Jamberoo re-entered the Kiama Municipality with boundaries similar to that first established in 1859.

By 1880 the Kiama stone trade was rapidly increasing. One contract of that period was the supply of 20,000 tons, for Sydney tramway construction, at 32/– ($3.20) per ton, an order which would return £44,800 to Kiama. Due to the perpetual dust nuisance caused by the horse haulage of the gravel along Kiama's main street, the council proposed the construction of a street tramway between Pike's Hill and the Harbour. During June 1882 the Mayor and the Town Clerk framed a Bill for presentation to the Colonial Parliament to enable the municipality to borrow money for the enterprise. In August this draft Bill was approved by Council and sent to Dr. Tarrant MLA for presentation to Parliament.

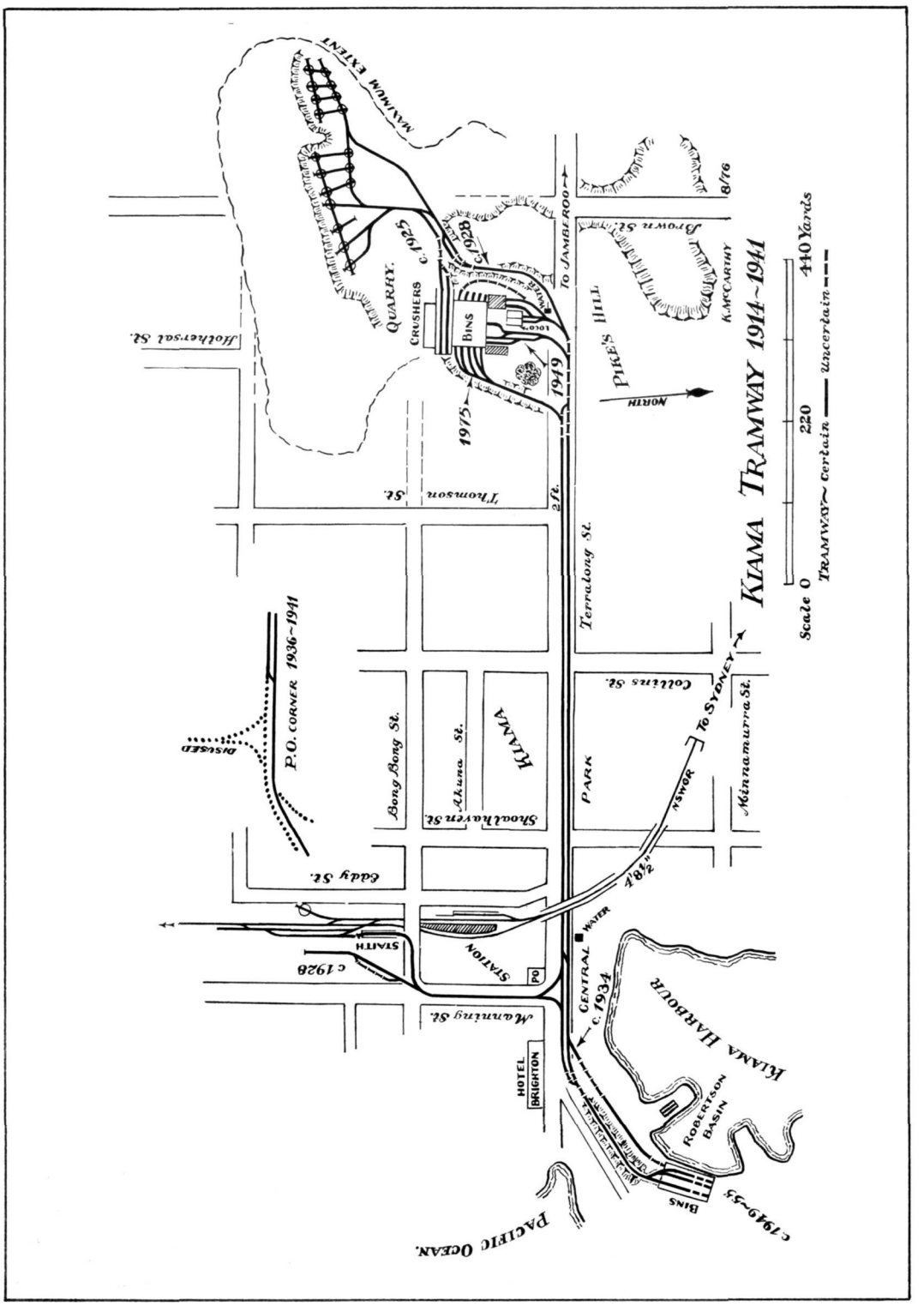
In the meantime Manning and Terralong Streets were being watered daily to keep down the dust while gravel was causing trouble when heaped on the quay side, as it prevented the efficient handling of general cargos. The metal trade continued to prosper, as during March 1883 three steamers were loaded over night on one occasion. During February 1883 the Tramway Bill was presented to Parliament. In the meantime two loading staiths were erected at Robertson Basin by the Government at a cost of £2,000 which enabled 400 tons of stone to be loaded each day, all this being delivered to the quayside by horse drawn carts. These staiths enabled the wharf costs to be reduced by half for on June 5th, 1883 six men were able to load the "Beagle" with 170 tons of gravel in 6 hours.

In February 1884 the tramway plans and specifications were formulated while Mr. W. Boak of the Fresh Food and Ice Coy. was called upon to assist the Council with professional advice concerning a steam loco. Originally the Council envisaged the loaded trucks being gravitated down Terralong St. to the wharf and returning by horse traction.

Mr. Moriarty, the Public Works Department engineer, advocated a gauge size of 4'8½" but this was defeated when Alderman Sommerville presented this advice to Council. A gauge of 3'6" was adopted and the rails immediately ordered in May 1884. The Kiama "Independent" of February 2nd, 1885 reported that the tramway was under construction with the portion on Government lands, between Manning St. and the Harbour being built under the direction of Mr. Moriarty. The Council portion west of Manning St. was supervised by John Leggatt for contractor McIntosh and Mr. H. Strathallen for the Council.

By May 1885 the first of many problems emerged. The up and down tracks on the council section in Terralong St. were laid only 2 ft apart but in the Government section this dimension was a more satisfactory 6 ft. The need for the tramway was daily growing more urgent as a period of heavy rainfall had made regular traffic dangerous and caused stone haulage to cease, during July 1885. At this stage the Engineer, Mr. Strathallen, offered to lease the tramway from the Council at a rental of 5% p.a. of the expected cost of £5,759 but this was rejected as the municipality felt that in 10 years the debt would be repaid and the income from the tramway would then be used as a rate relief.

During August 1885 Mr. Noaks, a representative from J. Fowler & Coy. inspected the tramway and suggested the employment of a six coupled loco as motive power. The Kiama "Independent" revealed that three tenders were received from suppliers of locomotives by September 25th, 1885. R. & W. Robertson's tender amounted to £1,000, Roberts Williams & Coy. to £750, but the quotation of J. Fowler was accepted as being the lowest. These must have been "ex factory" costs as the Fowler


KIAMA TRAMWAY 1914-1941
Scale 0 220 440 Yards
TRAMWAY — certain —— uncertain ---
MAXIMUM EXTENT
QUARRY
CRUSHERS
BINS
c.1925
c.1928
1949
1975
TO JAMBEROO
Brown St.
K.McCARTHY
8/76
PIKE'S HILL
NORTH
Hotchers'sal St.
J.Thomson St.
2 St.
Terralong St.
Collins St.
To SYDNEY
Minnamurra St.
PARK
KIAMA
Shoalhaven St.
Akuna St.
Bong Bong St.
Eddy St.
P.O. CORNER 1936-1941
DISUSED
NSWGR
4'8½"
WATER
CENTRAL
c.1934
STATION
STATION
Po
c.1928
Manning St.
HOTEL BRIGHTON
KIAMA HARBOUR
ROBERTSON BASIN
Bins
c.1949-53
PACIFIC OCEAN

engine amounted to £1,265 landed at Kiama. An order was placed with Fowler's agent, Waugh and Josephson in January 1886.

By September 1886 the Council's credit reached the £8,000 limit with the Joint Stock Bank and the situation was further aggravate d with the Government's withdrawal of its maintenance subsidy for Terralong St. The ratepayer s were not at all pleased with the lack of activity on the tramway, particularly as the first drain on the rates had commenced on August 7th, 1883 and not one penny had been earnt by the facility since then. The Kiama Tramway Act had allowed for a single track, but plans for a double track main line had been adopted and to keep the rails within the available area the tracks had been laid very close together. In addition to this, the track levels varied considerably to the adjacent road surface. Much of the stone trade had now been transferred to the Bombo area, 3 miles north of the town, where a horse worked tramway served the nearby jetty and the new Illawarra Government Railway line was adjacent to these workings, but the North Kiama terminus was isolated from the Kiama quarries by a very steep hill.

During November 1886, local businessmen met at the Council Chambers to devise means of helping the council. The community was relatively prosperous as the entire capital for the Kiama Gas Coy., founded by Messrs Tourney & Maltrop in August 1883 had been subscribed locally. Forty citizens agreed to guarantee the Council up to £50 each to allow the tramway to be completed and enable the Pike's Hill stone trade to be revitalised.

The trucks for the tramway were designed to a width of 5ft to enable them to be tipped in the 5'4" shoots at the Harbour side. During November 1886 the council approached Hudsons for estimates covering the construction of 20 trucks. Local problems were not confined to the tramway, for troubles were being experienced with the new clock recently installed in the Post Office tower. The pendulum came adrift and twice fell, crashing through the roof of the local post master's residence, before it was successfully fixed into position!

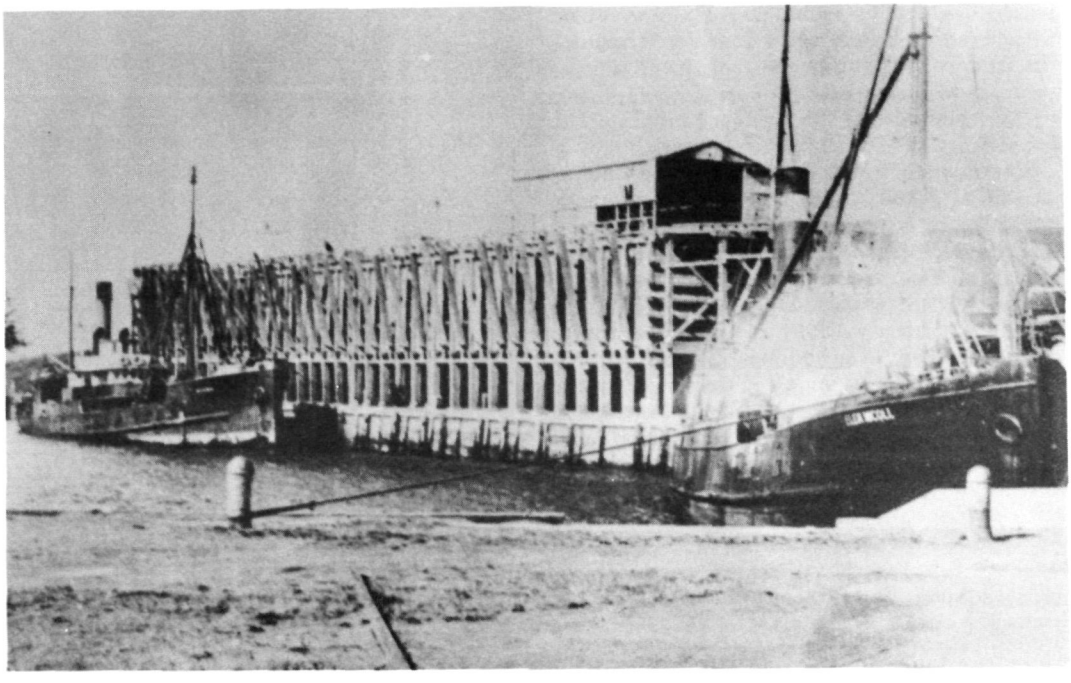
The Kiama "Independent" of December 7th, 1886 reported the trial of the Fowler 0-6-0 T loco which had arrived during the previous month. This engine carried Builders No. 5265 and was fitted with side tanks of 300 gallon capacity. The 3 ft diameter drivers were powered by two 11" x 18" outside cylinders and the boiler worked at a pressure of 180 lb/sq.in. This loco could not be put to work until the arrival of wagons. Dwyers built these to Council specifications but when received at the Harbour during May 1887 they were found to be built to 3'3" gauge, three inches undersize! while they were 6 inches too wide to fit the staiths at the Harbour. New axles arrived during the following month and were readily fitted, as the wagons were primitive vehicles, consisting of a box like body with a hinged flap for tipping at one end, fastened to the axles with inside bearings similar in appearance to simple 2 ft gauge colliery skips. The 20 wagons cost a total of £174.

A Public Meeting held in June 1887, was informed that the Council needed more money to enable the tramway to operate efficiently. An attempt in November 1887 to have the Council abandon the project was defeated when a Tramway Amendment Bill was drawn up for presentation to Parliament. This Act was passed on April 14th, 1888 and enabled the Council to raise a further £9,000 by loans.

At this period five quarries were operating at Kiama, three of these owned by Pike, one by Hindmarsh and the remaining one owned by Captain Charles, was located at Bombo and worked by George Hill. This last named gentleman had originally offered to lay and work the tramway as he recognised its necessity to enable the Pike's Hill quarries to work to maximum capacity but the Council had rejected his offer. A temporary decline set in at this stage in the Kiama stone industry due to Sydney Councils changing to hardwood blocks for road paving.

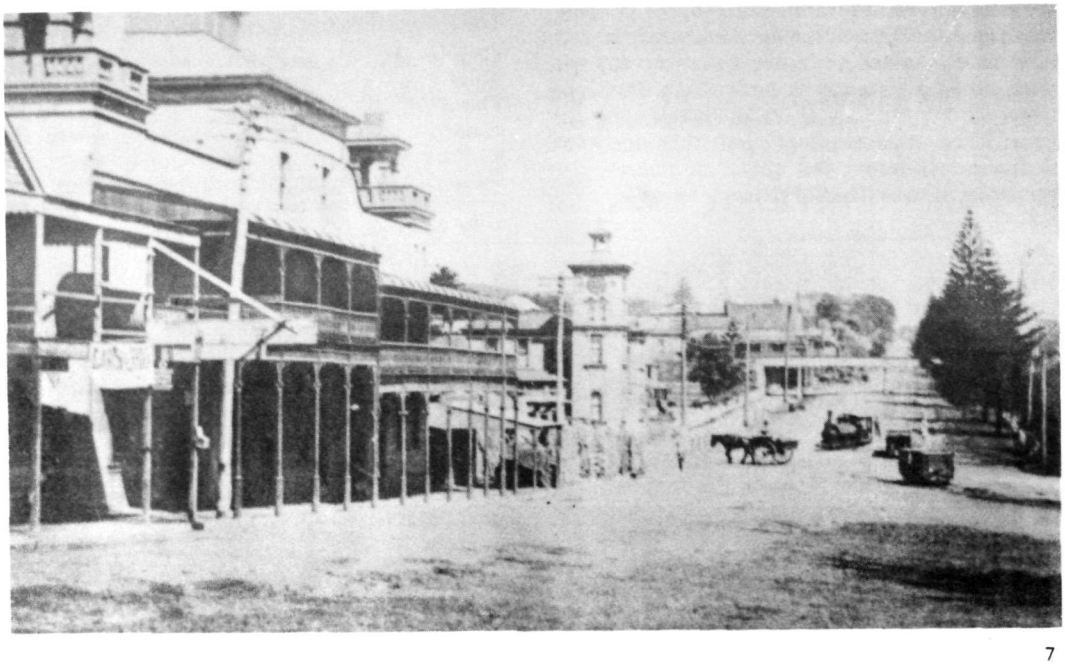
By August 1889 the Council had reached the decision to dispose of the tramway, a conclusion hastened by the unsafe condition of the rails which now stood well above the surrounding road surface. The whole project was costing the Council £70 p.a. in interest on top of the principal repayment, while the loco was standing unused due to the Council not being able to find any blue metal producer who would make use of the facility.

In November 1889 the Council accepted the tender of W. Carson for £70 to remove the rails and sleepers from the road, this being the lowest of ten quotations received. This job was completed in twelve working days, a contrast to the time taken to construct the tramway. On December 21st, 1889 the Kiama "Independent" reported a debt of £2,043 on the project from which no return could be expected, and £3,447 from which some finance could be retrieved. This latter amount was based on assets such as the loco valued at £1,265, wagons worth £174



Gravel ships "Ellen Nicoll" and "Kiama" at the large bins completed in 1919. The tramway ran the full length of this structure parallel with the quay. Prior to this, two separate banks of bins occupied this site served by tracks at right angles to the quay face. S. Cocks photo.

Baldwin loco shunting into Manning St from Terralong St, 1920.
Old Postcard, K. Magor collection.

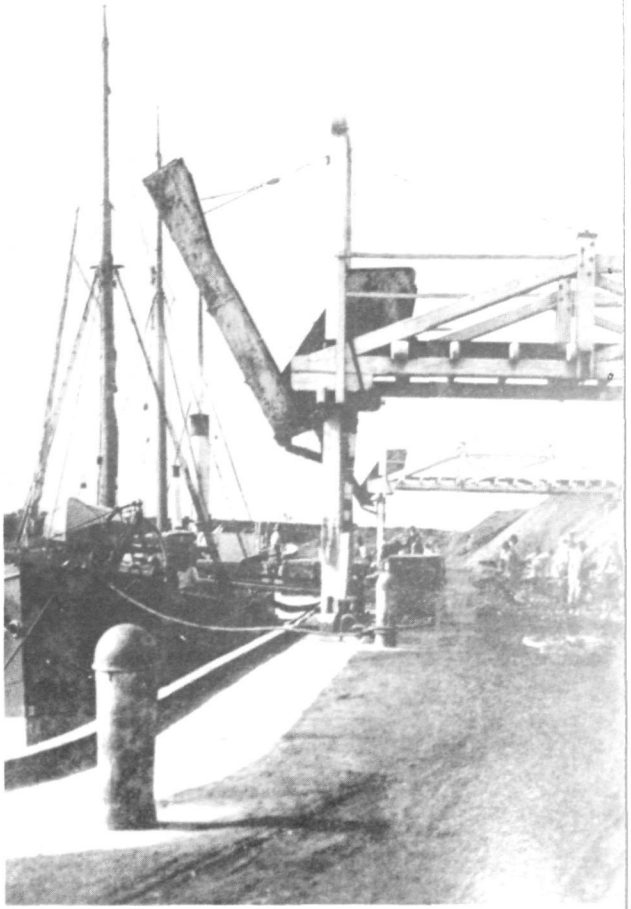


and £1,771 on work which otherwise benefited the borough. (this included £1,070 spent on further reducing Pike's Hill near the terminus). The interest bill during the repayment time of the loans was estimated to cost £2,067, bringing the total cost of the unsuccessful project to £7,557.

The Fowler loco was offered by the Council for sale at £800 and was sold for an undisclosed figure below this asking price at the end of June 1890. The happenings of this engine after that date are not clear, but during the early 1940's it appeared in Hobart, Tasmania station yard after working on a breakwater project at Macquarie Harbour on the west coast of the island. Plans to employ the loco on the Butler's Gorge dam construction did not reach maturity so it stood in Hobart Yard until 1974 when the Van Diemen Light Railway preservation group gained title to the unit. Long range plans envisage the restoration of this interesting engine so that it can join others in steam on the Society's Don River tramway.

Until 1887 the three wards of the Kiama Council district shared the tramway's cost equally, but this arrangement was altered so that the cost would be shared in proportion to the revenue of each ward. If the Local Government Act had allowed Kiama Council a levy of ¼d. per ton, as could be claimed by Councils for coal or gold won in their area, Kiama rate payers would have received £300 each year in rate relief.

The last word on this project, or the first word on the second tramway to follow in 1914, was expressed by Alderman Hindmarsh in January 1899, when he forecast that the day will come when a tramway is built along Terralong Street for the blue metal trade. At this stage the gravel ships were loading 1,000 tons per week at Kiama Harbour, and the dust nuisance in Terralong St. was steadily growing worse. . . .



Gravel ship "Lass o' Gowrie" at the government tipping straiths, Kiama Harbour c,1890. The 3'6" gauge tramway was planned to terminate on these two straiths from which the wagons would tip gravel directly into the ships. Weston collection "Kiama Independent"

to be continued .....

BUS STOP

MAN articulated "superbuses", of the type MAN is demonstrating to transport authorities in Australia,* have been sold to United States cities under contracts worth $A 30-million.

The sales are the biggest achieved by a European bus manufacturer in the U.S.

MAN has sold 384 of the SG 192 buses to Chicago, Pittsburgh, Washington, Los Angeles and 10 other West Coast cities.

* *See Busstop, T.W. August 1976.*

Albion double decker "low bridge" fleet No. 162, photographed when new in 1934. P. Simpson collection.

FINDING A STANDARD DESIGN

The Early NSW Government Double Decker Buses.

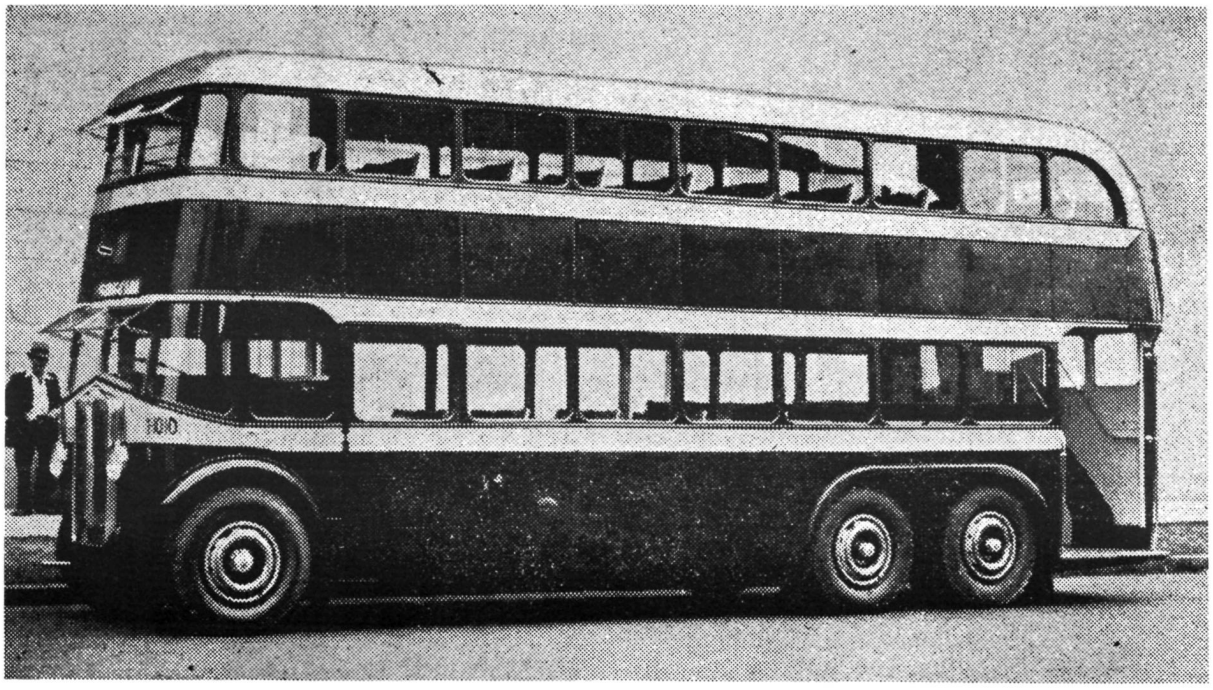
This article has been compiled by Ken McCarthy from a nucleus of newspaper clippings held by Paul Simpson. Considerable data has also been generously supplied by Ken Magor, Vic Solomons and Ross Willson.

On Saturday May 24th, 1975, double decker Leyland M/O 2769, ceremoniously departed from Newcastle as the last double decker bus to be employed in Government services in that city, the occasion being marked by a special tour organised by the Historical Commercial Vehicle Association of Australia. With the appearance of the newer Atlantean double deckers in Sydney during 1970, the then Minister for Transport, the Hon. M. Morris, intimated that these vehicles would also be used on the longer Newcastle routes in time, but this was not to be . . . The older standard type double deckers built between 1934 and 1953, of which M/O 2769 was the highest numbered vehicle in the series, lingered on in Newcastle until recently and now single deckers alone serve the Government routes in that city.

Dwindling numbers of the standard design double deckers still operated alongside the Atlanteans in Sydney, but their life was limited and the last bus (M/O 2769) was withdrawn from government service in Sydney on March 1, 1976 (See Pg 10 'TW' August 1976) and the private operators should phase their second-hand examples off the roads by 1985.

This article briefly traces the early double decker designs employed in the government fleet from which the standard pattern emerged. Some aspects of the story have been related before in more detail in this magazine, to which the reader is referred, but recent data has enabled the previous material to be brought up to date.

The Government Bus Service commenced in Sydney on Christmas Day 1932 with buses hired from private operators (See Pg 8, 'TW' February, 1971). During the early months of 1933 the Government Undertaking purchased idle private vehicles and amongst these were eight double decker (open rear staircase) buses seating 51 and carried on Leyland TD1 chassis powered by petrol engines. These had been commissioned by private operators during 1929 and when the Government numbering scheme settled down, these carried bus registration plates M/O 1001 to 1008 (Fleet nos. 1 to 8). All were fitted with "low bridge" type upper decks with long, four abreast, transverse seats and a depressed side aisle on the right hand side. The bodywork was of wooden framing, metal external sheets, with a "square" styling giving a box like appearance of the English buses of that period. Contemporary reports suggest that



Three axle double decker No. 10 M/O 1010. The largest double decker ever employed in NSW Government services. January 1934.

P. Simpson collection.

these eight TD1 buses were fully imported, but as related on a previous occasion (see P.26 "TW" April 1974) a "T. Richards & Sons of Adelaide" body plate was discovered on M/O 1003 when that vehicle was being dismantled for scrap in March 1963.

The next two double deckers were built for the Dept. of Road Transport and Tramways and not acquired second hand. A fully enclosed double decker, believed constructed by Syd Wood of Bankstown, on a Leyland TD1 chassis entered service in time for Christmass 1933 carrying registration M/O 1009 and fleet number 9. This retained the square fronted appearance of the earlier double deckers but a more "streamlined" rear top deck enclosed the staircase. This veteran was still in regular service along the Lyons Rd. routes radiating from Drummoyne Post Office during the mid 1940's and from memory seemed to be fitted with a more modern body front on the top deck by that period.

On January 31st, 1934, the Sydney press featured a photo of the next double decker, M/O 1010 (Fleet No. 10) which would soon enter service on the York St. to Concord Route. The body of this giant 74 seater is recorded as being locally built by H. Mackenzie on an AEC 3 axle, "Renown" chassis. Trade directories of that period do not list H. Mackenzie as a body-builder, but this possibly refers to the partner in the then well known Sydney bus firm "Glenister and Mackenzie". The possibility exists that H. Mackenzie was the importer of AEC products at that period and buses M/O 1010, trolley bus No.2. and the single decker built for the Dept. of the Interior for the early Canberra City services all attributed as having bodies built by H. K. Mackenzie, were imported complete.

The single rear entrance on bus No. 10 was somewhat of an embarrassment, as later in its life, a front door was cut through, reducing the lower deck seating from 33 to 30 and the total seating from 74 to 71. The need to remove one position from the second bench was dictated to allow free passage around the transmission dome which would have tripped passengers using the front doorway if only the one (double seat) bench had been removed. This bus was the first double decker built with a "streamlined" contour to reduce wind resistance; a rather difficult task in a wooden framed vehicle.

Bus No. 10 was available for service from February 1st, 1934 powered by a petrol engine with fluid transmission and self changing gear

box. Contrary to what has been published in the past, bus M/O 1009 as well as M/O 1010 were fitted with the "low bridge" upper deck seating configureation for the Concord route (see P.17 "TW" August 1971).

Before receiving any further double deckers, The Dept. of Road Transport and Tramways purchased no less than 149 single deck buses from the various former private operators, while M/O 1301 (Fleet No. 101), a three axle Thornycroft single decker, seating 40, entered service during December 1933 with a new body by Syd Wood. The fleet at this stage must have been a mechanics nightmare, being a mixed bag of Leylands, White, Garfords, Thornycrofts, Fageols, Reos, AEC's, Internationals, Brockways, Republics, De Dions, Studebakers!.

By this stage the government bus authorities had reached the conclusion that the bulk of the services would be accommodated in double decker vehicles and a press release of June 9th, 1934 outlined the chassis types which would be imported for the initial units in a double decker fleet.

Sixteen chassis had been ordered, of which twelve would be powered by petrol engines and four by diesel motors. The landed cost per chassis would amount to £23,000 ($46,000) and the total cost on the road with local bodies would be approximately £37,000 ($74,000. The ordered chassis were listed as:-

2 AEC "Q" types with diesel engines.

1 Leyland with diesel engine.

1 Leyland with petrol engine and torque converter.

2 AEC "Q" types with petrol engines.

3 Leyland "Regent" types with petrol engines.

3 Leyland "Titan" types with petrol engines.

2 Albion "Venturer" types with petrol engines.

The above were ordered on June 8th 1934, the following two chassis having been ordered earlier:-

1 Albion "Venturer" with petrol engine.

1 Thornycroft "Daring" type with Gardner diesel engine.

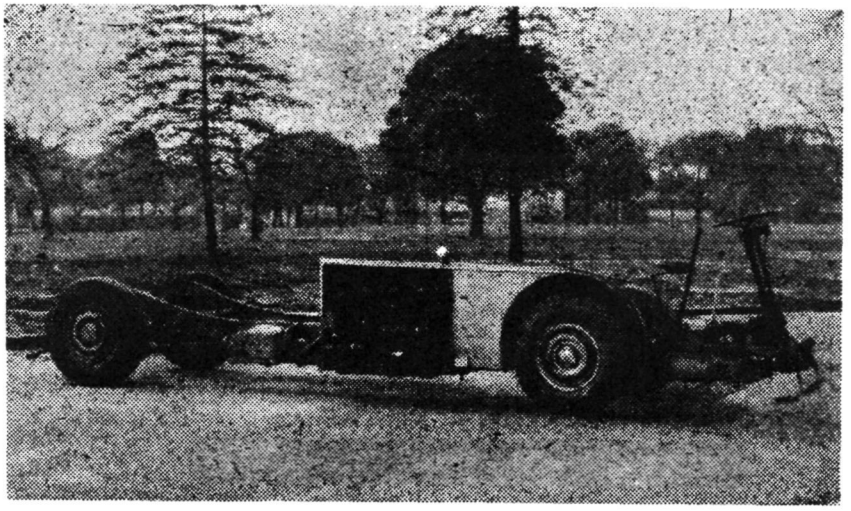
The report revealed that the second last item listed above would be the first on the road with a body constructed by Syd Wood of Bankstown. The official lists show that this bus was available for traffic on August 20th 1934 as M/O 1362 (later M/O 1162) fleet no. 162. A trade description of this first standardised double decker did not appear until October 9th, 1934.

The press report stated that the coachwork of this double decker vehicle had been manufactured locally and "shows the comfortable design of coachwork the Department of Road Transport has decided to adopt." Compared with similar models in England the shape of the double deck body is superior in that the front is well raked from the bonnet to the roof line, presenting a good reduction in wind resistance. The sliding windows permit ample ventilation and it has a straight up stairway leading from the back platform to the upper deck, this being an improvement on the earlier winding type.

"The seating capacity constitutes 27 seats on the upper deck and 26 on the lower, all seats are upholstered in latex rubber with scooped backs. This model has been placed on the Railway to Bondi run and is one of three ordered by the Department powered with a petrol engine. The Albion Company also markets compression ignition units (diesels) for bus chassis. The petrol engine is a six cylinder overhead valve unit rated at 43.4 hp and develops 100 hp, has renewable cylinder liners and valve inserts. The drive is taken through a large disc clutch to a heavy 4 speed gear box having silent constant mesh ratios, thence by an exposed propellor shaft and fabric universals to the rear axle worm drive."

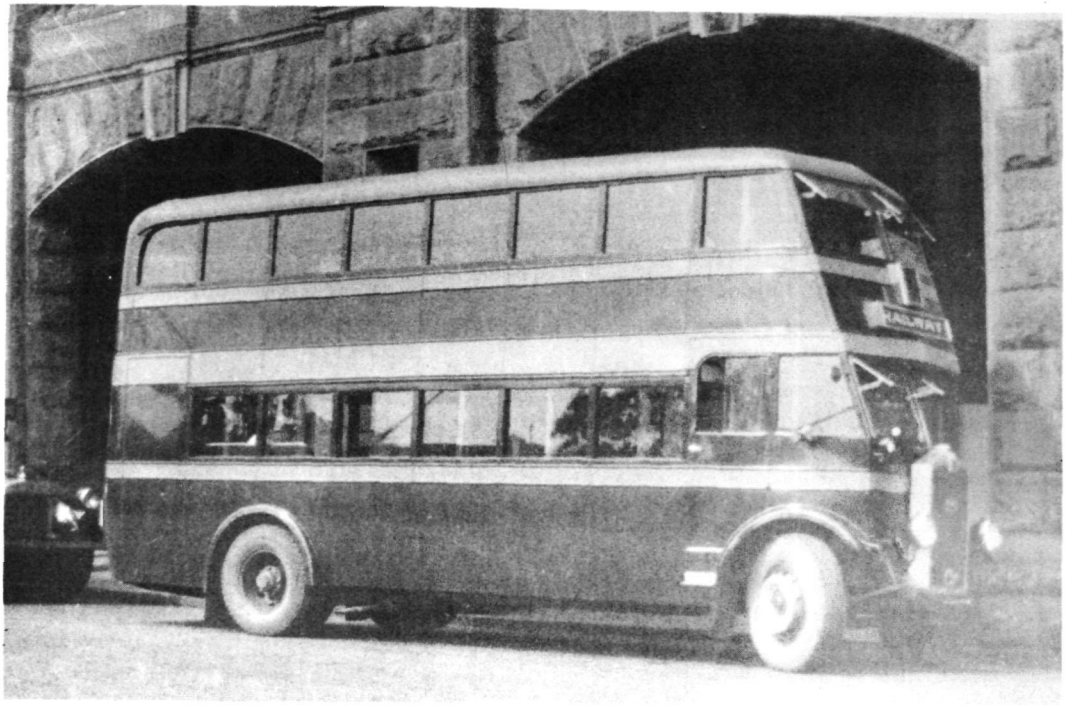
This bus No. 162 was also of the "low bridge" seating design with metal sheet panels fixed to a wooden body frame. The straight staircase, mentioned above, consisted of two flights: a transverse flight from the rear platform to a landing, followed by a longitudinal flight fromthe landing to the top deck. The earlier buses had awkward curved staircases with narrow treads towards the left end of each step, a dangerous style retained in the later trolley buses. Because of the unusual stair locations, the risky, semi helical, stair design was again repeated in buses (fleet nos.) 163-5, 176, 189, 193, 194, 693-7, on the front staircases of 257 & 258 and on the two old TD1 units purchased second hand in 1940, nos 698-9.

Only fifteen of the above sixteen chassis entered motor omnibus service; three, instead of four, "Q" type chassis were commissioned and these were powered by petrol units. The fifteen chassis carried the following (post Feb. 1940) numbers, only the Albion already mentioned received a "low bridge" body, the remainder of the fleet carried conventional centre aisles on both decks.



Above; one of the three "Q" type AEC chassis imported into Sydney in 1934. The engine was located on the right hand side behind the front wheel . P.Simpson collection.

Below; Albion "low bridge" double decker, fleet No.162 in Eddy Ave, Sydney, 1936 as M/O.1362. Renumbered M/O1162 in 1940. K.Magor photo.



Quantity and Type	Std M/O No. (after 1940)	Received
3 AEC 'Q' petrol front entrance.	1163, 1164, 1165.	Sept/Oct 1934
1 Leyland TD3 Diesel.	1166*	Oct 1934
1 Leyland TD3 petrol with Torque converter.	1161	Sept. 1934
3 AEC "Regent" petrol.	1167, 1168, 1172	Oct/Nov 1934
3 Leyland TD3 "Titan" petrol.	1175, 1176, 1177	Nov. 1934
2 Albion "Venturer" petrol.	1178, 1180	Nov/Dec 1934
1 Albion "Venturer" low bridge petrol.	1162	Aug. 1934
1 Thornycroft 'Daring' with 'Gardner' C1 engine.	1171	Nov. 1934

The bodies of all these buses were constructed by Syd Wood. The missing fleet numbers in the above lists were double deckers M/O 1169, 1170, 1174, 1179 and 1181 with Clyde built bodies on AEC "Regent" 0661 chassis, while M/O 1173 was a single deck Clyde body on a Leyland "Lion" LT5 chassis.

* *This was the first diesel unit and entered service with temporary registration plate M/O 1320.*

Details of the "Q" type side mounted engine buses, with front entrances, as well as the "Q" type trolley buses appeared in "TW" for February, 1974, but further information is now presented here:-

It would appear that the four "Q" chassis ordered in June 1934, viz:- 2 petrol and 2 diesel equipped units were revised to provide for three petrol and one electric trolley bus vehicle. The fourth unit appeared as trolley bus number 3, with imported Park Royal bodywork in time to inaugurate the Town Hall extension of the Elizabeth St. to Potts Point trolley bus route on September 30th, 1934.

A trade report dealing with the three petrol AEC "Q" chassis appeared on August 3rd, 1934. "This type of bus is entirely new. The engine is mounted in a central position outside the frame and has a very low loading line. Many new features are made possible by the location of the engine. The driver is situated in front with excellent driving vision, the entry platform is in front of the front axle and this results in better load distribution between the axles.

"This large design change in the front enables a life guard and "cow catcher" to be fitted". . . Trolley bus 3 entered operations with this tramway style safety device but it is doubtful if the other "Q" buses M/O 1163,4,5, and trolley-buses 4 & 5 were ever so fitted.

"The six cylinder engine in the "Q" chassis is rated at 130 hp and designed to give low revs, the engine speed at 20 mph is only 970 rpm. A similar chassis with compression ignition (diesel) engines are also manufactured and these should be available on the local market later. Transmission includes a fluid flywheel and pre-selective gear box."

A later report, dated August 11th 1934, indicated that the three petrol engined "Q" chassis had arrived in Sydney during the previous day and the manufacture of their double deck bodies would be put in hand immediately. "The quotation of Syd Wood has been accepted for the construction of the bodies at £958 each. . . . . ."

The six Sydney "Q" chassis vehicles can be summarised:-

Fleet No.	Chassis No.	Body Builder	Date in Service
Trolley bus 3	761T005	Park Royal	30. 9.34
Trolley bus 4	761T002	S. Wood	8. 4.36
Trolley bus 5	761T004	S. Wood	24. 6.37
M/O 1163	761022	S. Wood	15.10.34
M/O 1164	761021	S. Wood	19.10.34
M/O 1165	761018	S. Wood	19.10.34

World wide only five "Q" trolly bus chassis were built: the above three were used in Sydney. Of the remainder, one was displayed at Olympia, England, during October 1933 and was delivered to Bradford in February 1934 where it operated as trolley bus 633 (Registration KY 6210) until 1942 when it was sold to South Shields Corporation where it worked as No. 235. The other vehicle worked on the Southend Corporation's trolley bus system as

Sydney trolley bus No. 3 constructed on an AEC "Q" type chassis, shown in Rushcutters Bay Depot, Sydney, September, 1934. At this stage this vehicle carried a tram type life-shield gate and tray under the front platform.

P. Simpson collection.

Former Sydney "Q" type AEC motor buses ex M/O 1163 and 1165 shown at Rover Motors, Cessnock Depot as M O 3885 and CB314 circa 1950.

K. Magor collection.

Fleet No	Type	Chassis Details	Body Builder	Seating	Date Available	Converted to Diesel	Disposed
9	DD,LB	Leyland TD1	Leyland/S. Wood?	51	20.12.33	3/1939	3/1949
10	DD,LB	AEC "Renown" 664	N. Mackenzie	74(71)	1. 2.34	2/1939	3/1949
101*	SD	Thornycroft	S. Wood	40	22.12.33		10/1939
161	DD	Leyland TD3	S. Wood	56	18. 9.34	1/1939	3/1949
162	DD,LB	Albion "Venturer"	S. Wood	53	20. 8.1934		11/1949
163	DD	AEC "Q" 761	S. Wood	63	26. 9.34	18.8.1937	3/1949
164	DD	AEC "Q" 761	S. Wood	63	9.10.1934	3/1938	3/1949
165	DD	AEC "Q" 761	S. Wood	63	15.10.34	12/1937	3/1949
166	DD	Leyland TD3	S. Wood	56	15.10.34	Built as diesel	11/1949
167	DD	AEC "Regent" 0661	S. Wood	56	26.10.1934		3/1949
168	DD	AEC "Regent" 0661	S. Wood	56	2.11.1934		10/1949
169	DD	AEC "Regent" 0661	Clyde	56	30.10.34	4/1940	3/1949
170	DD	AEC "Regent" 0661	Clyde	56	9.11.34	8/1939	10/1949
171	DD	Thornycroft "Daring"	S. Wood	52	2.11.34	Built as diesel	12/1941
172	DD	AEC "Regent" 0661	S. Wood	56	9.11.1934	4/1940	11/1949
173	SD	Leyland "Lion" LT5	Clyde	34	21.11.34	3/1939	3/1949
174	DD	AEC "Regent" 0661	Clyde	56	15.11.1934		3/1949
175	DD	Leyland TD3	S. Wood	56	19.11.1934	1/1939	11/1949
176	DD	Leyland TD3	S. Wood	56	13.11.34	4/1939	9/1941 (rebuilt)
177	DD	Leyland TD3	S. Wood	56	21.11.1934	3/1939	3/1949
178	DD	Albion "Venturer"	S. Wood	56	20.11.34	4/1941	1/1950
179	DD	AEC "Regent" 0661	Clyde	56	20.11.34		11/1949
180	DD	Albion "Venturer"	S. Wood	56	4.12.34	2/1939	3/1949
181	DD	AEC "Regent"	Clyde	56	2.11.1934		3/1949
182	DD	Leyland "Titan" TD3	S. Wood	60	18. 4.1935	Built as diesel	11/1949
183	DD	Leyland "Titan" TD3	S. Wood	60	2. 5.1935	Built as diesel	11/1949
184	DD	Leyland "Titan" TD3	S. Wood	60	3. 5.1935	Built as diesel	3/1949
185	DD	Leyland "Titan" TD3	S. Wood	60	20. 5.35	Built as diesel	11/1949

Notes.

a. Prior to February 1940 these buses carried registration plates M/O 1009, 1010, 1301, 1361 to 1385 respectively.
After February 1940 these carried plates M/O 1009, 1010*1101,1161 to 1185 respectively. *Allocated, not received.

b. "Date available". Official lists give two dates for "Date in service". the earlier date of the two has been presented in the above lists.

No. 223 (Registration JN 4373)

On Tuesday May 28th 1935, the "Sydney Morning Herald" featured a trade article on buses M/O 1382-5 (Fleet Nos. 182-5). These were diesel powered double deckers with Syd Wood composite wood-metal bodies carrying centre aisles on both decks. These four 60 seat buses had recently entered service on the Eastern Suburbs routes in Sydney and were carried on Leyland TD4 "Titan" chassis. The motor transmitted power through a Leyland fluid torque converter instead of the customary gear box. With a standing load, 70 passengers could be accommodated on the 17ft 6in wheel base. The coach work frame was constructed with Australian timbers and featured an enclosed stair case.

Diesel fuel at that stage cost 7d per gallon (6c) on the open market and would yield 11 mpg while a petrol powered bus of similar output would only provid 6 mpg. The body weighed only 2½ tons, the entire bus amounted to 7½ tons.

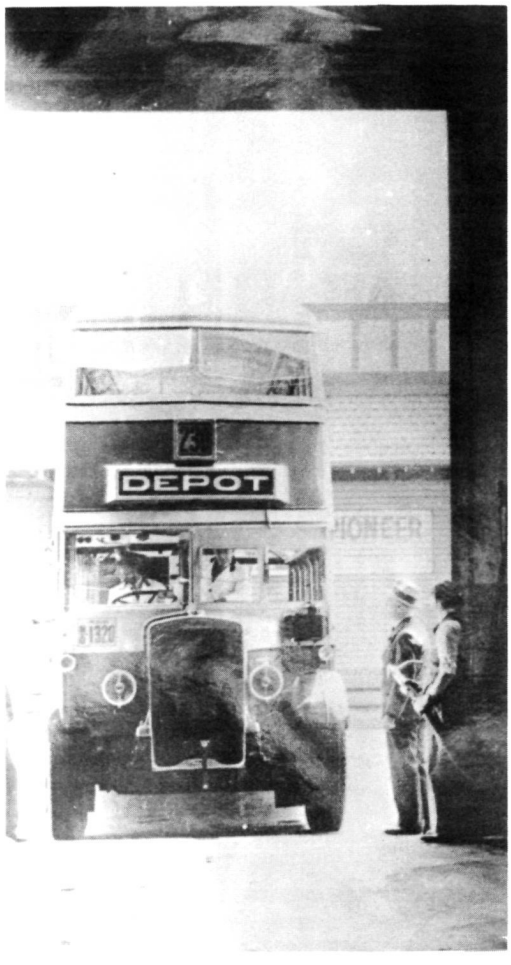
The main braking system on these four units consisted of a vacuum servo unit on all wheels. The engine had a capacity of 8599 cc's rated at 48 hp, with 57 bhp at 1,000 rpm and 93 bhp at 1900 rpm. "The fuel pump limits the engine revs. between 350 and 1900 rpm and can be started from cold by a 24 volt starter motor. The torque converter is a hydraulic turbine. Direct drive can be engaged by moving a lever actuated friction clutch which places the direct positive drive between engine and axle. Between standstill and 20 mph the converter takes care of all conditions of running."

In time, the heavy Sydney traffic on steeply graded routes proved the undoing of the fluid drive units. Passengers of the late 1930's well remember these gearless drive vehicles attempting Taverners Hill on Parramatta Road near Petersham, during peak periods. The engine would gradually attain maximum revs as the action of the bus would diminish . . finally the engine would reach maximum revs and the back wheels would be stationary! At that stage the passengers would disembark to join the city bound trams from Leichhardt and Abbotsford after an uphill trudge to Norton St.

M/O 1413 (later M/O 1213) a Leyland TD4 double decker appeared in service during February 1936 with an all metal body. After that date all Waddington and Clyde (and later Commonwealth Engineering) double deckers carried all metal bodies. Syd Wood was not, at that stage, geared for this type of construction and after the delivery of "low bridge" double decker M/O 1440 (later M/O 1240) in September, 1936, with a composite wood-metal body, that firm did not receive any further body contracts for the Government double decker motor bus fleet.

Thus the standard double decker bus type emerged which continued to be ordered by the Government bus service until 1953. This had evolved to be an all metal body, powered by a diesel engine with transmission through a manual gear box. The body was of the "high bridge" style, with centre aisles on both decks. The outline was "streamlined" with raked front and back surfaces and slightly tapered sides. A style which was ushered in during 1934 and remained the standard until the appearance of the Atlanteans in May 1970.

The first diesel double decker bus entering WOOLLOOMOOLOO DEPOT. M/O 1320. K. Magor collection.



50 YEARS OF ELECTRIFICATION

continued.....

ROLLING STOCK - 2

From the start of deliberations on the type of electrical equipment to be used it was recognised that multiple unit trains rather than locomotive hauled were needed for intensive suburban operation. The main question to be settled was train formation and the number of axles to be motored. It was economically necessary to use as many of the existing suburban cars as possible in the electric trains. Examination of the rolling stock revealed that only the 101 cars of the 1921 type were suitable for conversion to electric motor cars. The end platform cars were unsuitable for this purpose due to the underframes being incapable of carrying the weight of the electrical equipment and there also being insufficient room for this equipment. A number of these cars could, however, be used as trailers. With this in mind it was decided to use an equal number of motor cars and trailers and to make up trains of 2, 4, 6 and 8 cars as required, utilising driving trailers where necessary.

The maximum number of axles that could be motored with this train formation was 50%. This was the same proportion as proposed by Bradfield but the motors would now be concentrated on every second car, hence the two prototype bogies fitted to car 2212. The use of 4-motor cars was usual on interurban lines and many heavy suburban type electrifications although street tramways and many rapid transit lines used 2-motor cars. At this time, the Metropolitan Railway, Long Island and New Haven Railroads used 4-motor cars and 2-motor cars were used by the London tube lines, the District Railway, Tyneside (North Eastern Railway), and elevated and subway lines in Boston and Chicago. The Paris Metro used both types. Whilst some interurbans used 1200 Volts DC, most, as well as all the lines quoted, except the New Haven, operated on a nominal 600 V DC supply. The New Haven is an AC electrification. It is notable that the Sydney tramways introduced 4-motor cars in 1908.

Investigations carried out, probably on car 2212, showed that with careful placement of equipment sufficient axle- loading could be obtained so that 2-motor cars would just be practicable, although with little margin to spare. With the use of 4-motor equipment, 750V would be used, with pairs in series, however 2-motor equipment would necessitate the use of 1500V motors which was not very common at this time. Various manufacturers had indicated that they would be willing to manufacture and guarantee 1500V motors. With this in mind and believing that there could be substantial cost savings with 2-motor equipment, tenders were called for both types. Consideration of the tenders received showed the 2-motor equipment to be the most attractive cost wise. A contract to equip 150 motor and 150 trailer cars was let to the Metropolitan Vickers Electrical Company of Manchester, who together with their successors subsequently supplied all equipment until 1960. A condition of this contract was that as much as possible of the work was to be carried out in Australia and to this end the company established a factory at Auburn N.S.W.

Equipment

The traction motors were MV172 type, self ventilated, of 360 HP (1 hour rating), with a gear ratio of 18:58 for use with a 42" wheel. Series - parallel control with resistance, full field and weak field steps with automatic acceleration was selected. This was operated by electro-pneumatic contactors from a 32V auxiliary supply. Westinghouse electro-pneumatic brakes, superimposed on the standard automatic air system were adopted.

Only one set of controls per driving car were called for as the cars would be single ended. Half width driving cabs, on the left hand side, are provided at the leading end of the car over the non-powered bogie to which is fitted a trip lever. Power is collected by a double pan air operated pantograph on the car roof over the driving bogie at the trailing end.

Proposed Train Formations.

The 300 cars to be equipped under the initial contract were to provide the service on the Illawarra and Bankstown lines as well as sufficient spares to enable rostering and maintenance requirements to be determined. Eight car trains would be used in the peak hours, with mainly 4 cars at other times although some 2 and 6 car trains would also be required. Fifty-six trains would be formed -

4	*2 car*	=	*8 cars*
29	*4 car*	=	*116 cars*

4	*6 car*	=	*24 cars*
19	*8 car*	=	*152 cars*

The train formation would not be varied as it was only proposed to use driving cars at the outer ends of the sets. Non-driving motors would be used in the intermediate positions and only 112 driving cabs would be provided. However the trains would be coupled to form 8 car sets as required for the peak hours and a total of 37½ such trains could be formed if required. The codes used to distinguish the different types of car and subsequently shown on each vehicle are:

Driving Motor	*C*
Non Driving Motor	*N*
Driving Trailer	*D*
Trailer	*T*

It is believed that this was the first large scale use of non-driving motor cars. London Transport, a large user of this type of car did not introduce them until 1938. Provision was made for conversion to driving motors if desirable, which in fact took place fairly soon. Gaps were even left in the numbering system to accommodate them.

To make up the trains as afore mentioned the following compositions were proposed:

2 car	*C - D*
4 car	*C - T - T - C*
6 car	*C - T - N - T - T - C*
8 car	*C - T - T - N - N - T - T - C*

This required the following cars:

C	*108*
D	*4*
N	*42*
T	*146*
	300

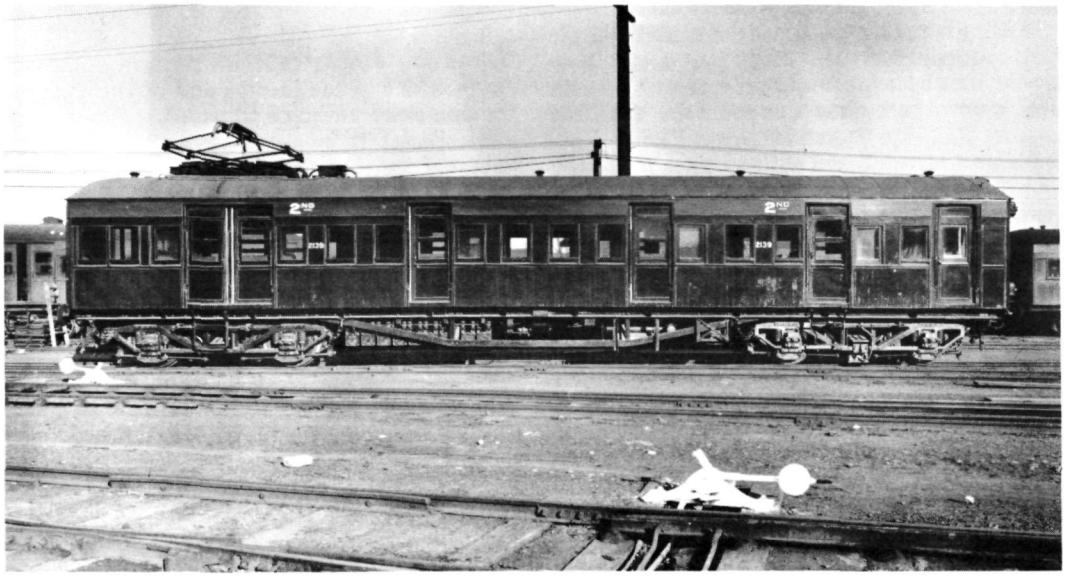
This orderly arrangmeent did not come to pass. The first trains in service were of 6 cars, some with and some without non-driving motors and also using the driving trailers intended for the 2 car sets. The 6 car sets disappeared fairly soon, along with the non-driving motors and the divisible 8 car set, with 4 driving motors became standard. A number of these sets were further divisible into 2 car sets using the driving trailers. Also, as will be seen later, the first electric train to run under power had 4 motors, but this was only a diversion and not part of the mainstream development.

Traffic Requirements

E. E. Lucy, in 1926, gave the number of cars in Sydney steam suburban service as 956. This comprised –

1921 type car, 2139 fitted with 4 motor equipment and used for overhead testing prior to the availability of the 2 motor equipment ordered for Sydney. It is otherwise in steam service condition – note buffers.

(PTC Archives)



Country Type	*75*
End Platform, truss sided	*584*
End Platform, steel underframe	*196*
1921 type	*101*

The limits of the suburban service at this time were, Cowan, on the north, Richmond and Penrith on the west, Campbelltown and Camden on the south and Waterfall on the Illawarra, far beyond the lines to be electrified. Suburban services were also provided in Newcastle and Wollongong. These used a varied collection of vehicles, but as already stated 15 of the steel underframed cars listed above were sometimes used at Newcastle. It is thus not possible to judge, at this distance in time, the accuracy of Lucy's figures.

The number of passengers carried on the Sydney suburban lines in 1925 was 111,582,123. This had grown from approximately 45,300,000 in 1910 and was expected to reach 140,000,000 by 1930 by normal growth and 185,000,000 with the added attraction of the new electric trains.

To cater for this projected patronage it was estimated that 1100 electric cars would be required. This figure made allowance for the higher running and turn around speeds of the electrics as compared with steam and also that the new cars would have a greater seating capacity. These cars would be provided as follows–

1921 type suitable for motors	*101*
Steel underframe cars suitable for widened trailers	*193*
Truss sided cars suitable for trailers	*132*
New steel motors	*449*
New Steel trailers	*225*

The remaining end platform cars were too old for conversion and some would also be required for the remaining steam suburban services.

The projected passenger loadings for 1930 were not reached, nor were 1100 converted or built by that date. Electric rolling stock in 1930 was –

Motors	*Converted*	*101*	
	New	*340*	*441*
Trailers	*Converted*	*193*	
	New	*248*	*441*
Parcel Vans (Motors)			
	New		*3*
			885

The truss sided end platform cars were never converted for electric use and some still remain in steam service to this day. All future electric cars were built new.

Conversion Of Steam Stock Cars

The 1921 type cars required little work to convert them to electric motor cars. Electrical equipment and a motor bogie was fitted to the 101 cars and a driving cab and controls to 91 cars. The remaining 10 cars were non-driving motors until fitted with controls in 1928/9. The diaphragms and buffers were removed and auto couplers fitted to those cars which were screw coupled at one end. Wider buffing/tread plates were fitted than those used for steam service. Marker lights and an air whistle were fitted on the driving end. The weight of a converted car was 47 tons.

After conversion the cars were renumbered to C3001 to C3091 (Driving) and N3501 to N3510 (Non-driving). The original sequence was not followed, the new numbers being allocated in order of conversion. The non-driving motors were allocated C3092 to C3100 and C3000, in sequence, upon the fitting of controls.

The motor bogies, later designated type A, were built by the railway workshops. Fabricated from standard steel sections, both rivetting and electric welding was used in their construction. Although much heavier and larger than the Randwick bogies used under 2212, the basic design shows similarities. Primary springing is coil and secondary elliptical. The wheels are 42" with a wheel base of 9'. This design was subsequently used, with little modification, until 1956. The bogies were designed for an axle load of 14½ tons.

Prior to the availability of the new electrical equipment and bogies, two 1921 type cars, 2139 and 2140 (later C3091 and C3001), were equipped as a 2 car set of motor and driving trailer to test the overhead then erected. Most, if not all of the equipment was borrowed from the Victorian Railways and hence used 4 motors. Two special bogies were constructed at Eveleigh Workshops. In appearance these differed little from the A type, the first drawings for which were issued on 16 October 1923. The first recorded use of these cars under power was on 27 November 1924. The equipment was removed by 24 August 1925. It is notable that the Randwick bogies were still under 2212 when these two cars were equipped.

The conversion of the 193 steel underframe end platform cars was drastic to say the least. The sides were moved out to give an overall width of 10'5" instead of the former 9'3½"; cantilever extensions being added to the underframe. The ends were also moved out to eliminate the end platforms, three single sliding doors

being provided along each side. The basic roof structure was retained, new supports were cantilevered inwards to support it. This was clearly visible from inside the cars. The exterior of the roof was modified to the new width. In this form the cars seated 68 on 2 & 3 transverse seating, except at the car ends where 2 & 2 seating was used. The side buffers were removed and auto couplers fitted to those cars not so equipped. The wider type of buffing/tread plates were also fitted.

Sixty-one cars were fitted with a guard's compartment at one end, thus reducing the seating capacity to 59. The guard used the adjacent passenger door, which in most cars was replaced by an inwards opening swing door with drop window. A further 9 cars were equipped as driving trailers, with a driving cab in the guards compartment. In these cars the adjoining passenger doors were all of the sliding type.

Gas lighting was fitted to these cars when built and this was initially retained when the cars were widened as they were temporarily returned to steam service. The Clyde Engineering Company undertook all the conversion work.

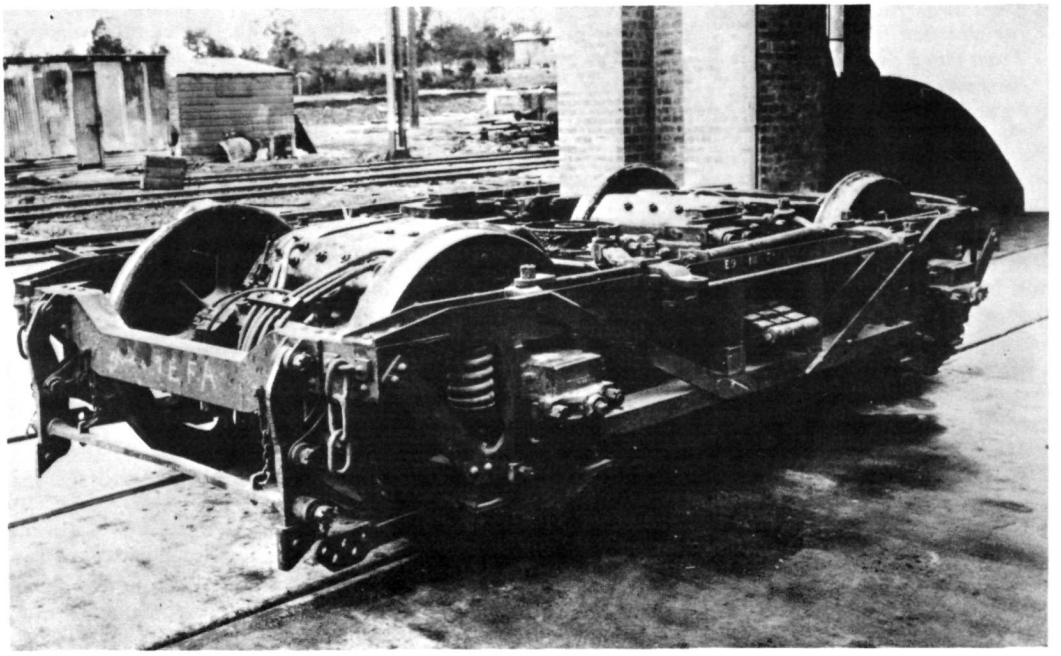
The numbers allocated to these cars on conversion were T4101 to T4284 for the ordinary trailers and D4001 to D4009 for the driving trailers. Once again the original sequence was not followed. The trailers with guards compartments were distributed at random throughout the series.

The remaining 132 end platform cars considered for conversion were built from 1910 to 1912 and were entirely of wooden construction with the lower part of the sides forming a load bearing truss. It was therefore impractical to rebuild these cars in the same manner as those with steel underframes. The cars would have retained their original width with the saloon reduced slightly in length. The ends would have been moved out to enclose what would become lengthened end platforms and 3'6" wide, outside hung sliding doors provided. Seating capacity would remain unaltered at 60. It is probable that the end platforms would have been built out in the manner of the cars working with the 1921 type cars on the Milsons Point line. These cars were screw coupled at the ends of sets and close coupled within. Side buffers were also fitted. It would have been necessary to auto couple these cars to enable them to work in electric sets. Because of the type of construction this may not have proved practical.

The resultant vehicle would, obviously, not have been entirely satisfactory for intensive electric service. The conversion of this group was not proceeded with and additional new steel trailers were ordered instead.

to be continued.....

Type A motor bogie with 2 MV172 type 360 HP motors, as used on Sydney motor cars. (PTC Archives.)



MUSEUM Notes & News

from ALBION PARK

Illawarra Light Railway Museum Society

Corrimal Job Completed.

On Saturday August 28th, the last load of rails from the former Corrimal Coal Company 2 ft gauge railway, was delivered to Albion Park, thus completing this major track lifting and retrieval task commenced in April 1972. During June the large quantity of 45 lb rails stored in Wollongong were also transferred to the museum, which means that, except for museum items being restored off site, all material is now at the museum property.

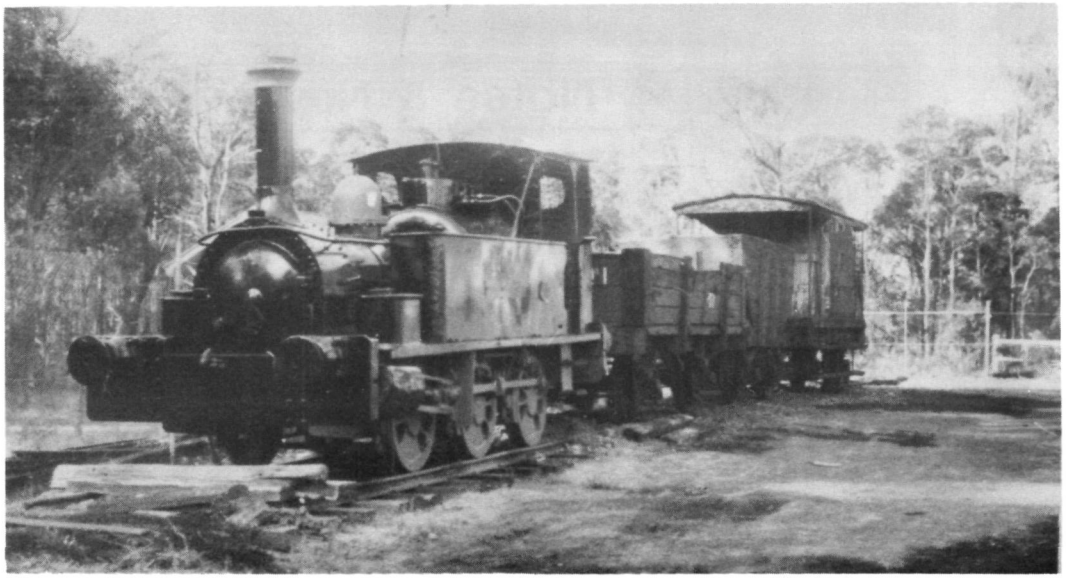
Former Ball's Head Coal Loader hopper cars No. 24 and 31 at Albion Park, Sept. 10th 1976. At that stage No. 24 stood on temporary 2ft gauge bogies while No. 31 remained on its original 20" gauge bogie on a length of three rail track.
K. McCarthy photo.

Coal Loader Hoppers Arrive.

During August the Society received a surprise offer of two bogie hopper cars used on the former Ball's Head Coal Loader cable railway (See TW December 1975 and June 1976) from the principal of the firm, Preston Demolitions, the contractors dismantling the plant at Waverton. The prices asked for the wagons earlier, had been beyond the resources of the ILRMS, but as the result of a later submission, cars 24 and 31 arrived at Albion Park on August 26th.

A further two hopper cars are being preserved by the Southern Highlands Light Railway Society at Colo Vale N.S.W.

On Saturday September 4th No.24 was placed on temporary 24" gauge bogies while No.31 received similar treatment on September 10th. The original 20" gauge diamond framed bogies are to be regauged and will eventually be refitted to both vehicles to make them mobile on the Society track.



ARHS rollingstock at Albion Park 0–6–0T loco South Bulli No. 2., Ex Newnes and AIS "D" truck RT No. 1, former Corrimal Coal Coy. hopper and AI&S "CHG" type guards van. Sept. 19th 1976. K. McCarthy photo.

Standard Gauge Items.

On Friday September 10th two further Australian Railway Historical Society exhibits arrived at Albion Park. These are a brake van and an open four wheel wagon, donated last December by the Australian Iron and Steel plant. The "D" open wagon was one of ten vehicles built by Clyde Engineering in 1910 for the Commonwealth Oil Corporation's Newnes railway, where they carried numbers 151 and 160. At the start of World War II eight of these were bought by the A.I.& S. for their Port Kembla Steel Works' railway. The wagon at Albion Park is numbered RT1 (Rerailing Truck No.1) indicating its role as an emergency vehicle in recent years.

The brake van is an end verandah "CHG" type, once numerous on the NSW coal fields railways on the rear of non air braked trains. This 18 ton example was on the A.I.& S. roster and carries NSWGR registration plate No. 7234 of 1928, and was last in active service over 12 years ago.

The ARHS and ILRMS sincerely thank their carrier, Mr. John Ward for arranging this difficult transfer job and carrying out the task at cost price.

The South Bulli loco No.2, was sand blasted and primed during June, and to prevent deterioration, this engine has been undercoated and has received one coat of gloss black from the footplate upwards. When the loco compound is made secure the final all over black coat will be applied, lining carried out and the name plate refitted.

Other Developments.

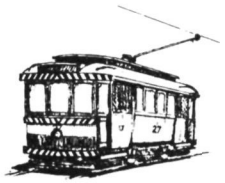
On several occasions over July to September, cranes were hired to transfer heavy equipment to alternate locations at the museum. The 3'6" gauge coal wagon, once used on the new incline at Corrimal Colliery, has been transferred to a length of track parallel with the northern boundary fence and the two diesel mine locos of that gauge will soon join it.

The Perry boiler was lifted onto a cradle during early September where it can be readily inspected, retubed and overhauled. The next stage being undertaken is the lifting of the frame of this 2 ft gauge 0-6-2T engine so that the wheels can be dropped free from the bearings for inspection.

A roller shutter has been fitted to the waiting room doorway of the Yallah station building making it secure from unauthorised entry, while the broken window glass has been replaced. Some defective woodwork has been renewed and a start has been made on repainting the building.

On September 18th a further 50 ft of chain wire was fixed to the north east corner of the loco compound leaving only some 25 ft to be fitted to the eastern fence and approximately 75 ft, including gates, to the western section, to complete the job.

from BALLARAT



Ballarat Tramway Preservation Society

No. 40 Operates all Day, 19th September, 1976

In recalling the absence over the past five years of S.E.C. operated tramways in Ballarat, the society embarked on a mild publicity programme.

No. 40 was again limelighted by the fitting of a headboard to the apron at the St. Aidens Drive end.

The writing on the board indicated to the public the significance of this day. Good publicity culminated this excellent day.

Our thanks to Brian Wood for some first class sign writing.

School Holiday Traffic.

A successful fortnight of tramway operation was enjoyed during the recent September school holidays; an average of 120 passengers per day highlighted the popularity of the trips.

For two days our services were disrupted by a strike by S.E.C. workers, which precluded electric power for operation of entertainment and public transport; hence our non-operation.

C.B.C. Roof Advertisement.

Another addition to tramcar roof advertisers has been the supply and fitting of an advertise-

The five years since closure of the S.E.C. tramway was marked by the fitting of a sign across the apron of No. 40.
Signwriter Brian Wood explains to motorman Richard Gilbert and conductor Graeme Jordan the problems he encountered completing the sign.
Bob Prentice photo.

ment from the Commercial Banking Company of Sydney.

Tram advertising was a well-known feature of S.E.C. tramways, which added to their uniqueness; the society continues the policy of displaying roof advertisements, because this earns us much needed revenue.

Radio Publicity.

During the afternoon of Monday, 13th September, our trams and tramway were placed before the listeners of Western Victoria, when the local radio station, 3BA Ballarat, invited general manager Richard Gilbert, to outline the aims and objects and operation of B.T.P.S. This was the feature of the half hour informat chit chat show "2 SCORE AND MORE".

The programme is a very popular mid-afternoon session, as 3BA has recently revamped all of their programmes so that this session is now broadcast daily.

No. 28

Work is progressing steadily; body painting has been reached.

A component of the motor casing failed; however, this will be repaired in the next few weeks by our professional welding engineers, Ted Quillian.

Society Engineer

We welcome the return of society engineer, Bill Kingsley, after an extensive overseas tour. He said that he has been impressed by a lot of the overseas gorups, and that B.T.P.S. should gain great benefits through the exchange of information about mutual problems. Welcome back, Bill!!

A.G.M.

The Annual General Meeting of the society was held at 1.00 pm in ELECTRA HALL, Camp Street, Ballarat, on Sunday 17th October 1976.

The society's platform staff have other duties to perform besides operating trams. Here Bob Prentice and Andy Hall outline Ballarat's tourist points to a group of eager tourists from New South Wales. At the end of the discourse, they were warmly invited aboard No. 14.
Ballarat Courier.

Opposite: V.R. G 34 is visible on No. 1 road in the depot, with Recipricating Rail Grinder No. 1 & Ballarat car No. 17 outside. K.Kings photo

from BYLANDS

Tramway Museum Society of Victoria

Depot.

The last outstanding task to make the car-shed completely weather-proof should be completed about the end of September. The north end (front) gable has been a protracted job due to many other tasks popping up and requiring attention. The eastern half of the framework was completed and clad with corrugated galvanised iron by early September, whereupon the western half was commenced. Other jobs associated with the main shed which will be done as circumstances permit in the future are the fitting of spouting and downpipes, concrete footings around the base of the shed and fitting rubber strips at the edges of the doors to keep out birds and wind!

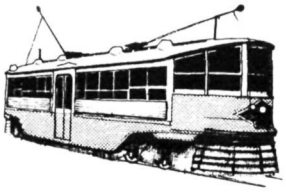
Rolling Stock.

The cars on No.1 road have also been re-arranged for better utilisation. They are now, from north to south, Grinder No. 1 (outside), 467, 36, 680, 34, 22, 21E truck. Once the shunting mentioned above and in the last issue had been completed, the temporary 240v. lighting leads were re-arranged and re-connected to selected cars. The southern extension of No. 2 road has been surfaced to car park level, and No. 673 is towed out on selected days for display purposes. The 21E truck from the old Driving School at Hawthorn has finally been virtually completed. One or two minor items remain to be fitted and some black paint is required in places. It will probably be temporarily placed under Geelong No. 22's body to save track space, and possibly to make 22 mobile. The Radiax truck, ex 'T' class 182, has been shortened from 12 ft. to 10 ft. wheelbase by the M. & M.T.B.'s Preston Workshops to enable it to be eventually built up and placed under Geelong No. 22. The skill and equipment required to do this substantial engineering job was beyond our capacity, and we are most grateful to the Board for agreeing to do this task and the staff concerned who actually carried out the work. Other Bylands cars to receive attention recently have been W3 667, which has had its brake rigging refitted and Elwood (VR) 34, which had its destination boxes replaced. Other cars have had destination curtains fitted to the boxes which are historically appropriate to them.

Malvern Depot.

Eon Scholten and his team continue to achieve good results on our cars stored at this location. No. 180 has had all the interior varnish stripped from seats, windows, bulkheads and doors. Much of the bare timber has been sanded down and the first coat of clear varnish has been applied to one drop-end and the small saloon. No. 8 has received a thorough cleaning from top to bottom, inside and out, for the first time in possibly five or six years. All the stored items were removed to enable the saloon to be cleaned, and many of the items were moved to the upstairs rooms. Nos. 164 and 217 are washed and cleaned periodically, and plastic sheeting has been placed over their roofs to provide protection from wheel grinder dust and pigeons!

from CANNINGTON



Western Australian Transport Museum

The body of Melbourne W4 674 arrived by road on Monday, 6th September 1976, followed by the bogies a few days later. Body and bogies have been re-united and placed on a track in the depot.

London double deck bus, RTL 547, is to have its seats recovered. Genuine Moquette was airfreighted from England for this purpose.

Bus operation continued at the Lion Park at Wanneroo during August, but was transferred to Cannington for the Castledare Fair on Sunday 5 September 1976. Almost $350 was raised by the WATM for the Boys' Home from bus rides and depot inspections.

Melbourne W4 674 being unloaded at Cannington on 6th Sept. 1976.
Ric Francis photo.

Why walk when you can ride? After all thats what the bus is there for . London RTL 547 operating in the Lion Park at Wanneroo.
Ric Francis photo.

from FERNY GROVE

Brisbane Tramway Museum Society

Help From Rotary:

The Mitchelton Rotary Club is considering assistance to the Society as its next long term project. To this end it invited BTMS President, Bill Daniells to attend a recent meeting as guest speaker. The first project would probably be the provision of barbecue facilities.

Depot

Maxwell's of Ipswich have erected the steel framework for the second depot building. It now remains for members to paint this and erect the roof and wall cladding. The completion of the second building will enable all of the Society's tramcars to be housed under cover.

Trackwork.

All rail has been placed and secured for the double track terminus; only ballasting now remains to be done to complete this area. The track gang has temporarily transferred its efforts to completion of the second depot building.

The Brisbane City Council has given formal approval for the next stage of tracklaying to be undertaken. This will be on Council land outside the area of the Society's lease.

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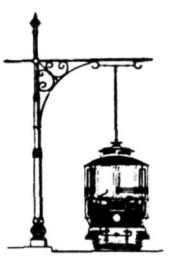
from LOFTUS



South Pacific Electric Railway

Rollingstock.

Work on the recovering of the roof of LP 154 is proving exceedingly difficult. As noted in August TW many layers of canvas have to be removed. The original sealing was white lead and muslin and this is reluctant to come off.

Brisbane 548 has been rubbed down externally and is now ready to be undercoated and painted.

F 393 is receiving major attention to its bodywork. The longitudinal, turnover seats in the open compartment at the north end have been removed and the floor boards taken up. New boards have been cut to size and primed prior to installation.

Overhead

The temporary wire over the east branch was replaced by the permanent one on 4 September. It is tied off to a steel pole near the sub station and does not cross Lady Rawson Avenue. No frog is provided at the junction with the main line; the new wire parallels the main line wire for a short distance. A & B tracks into the depot annexe are not wired.

The main line wire, which has seen service for 12 years, was replaced on 18 September. The new wire runs from South terminus to the Princes Highway, whereas the old one terminated on track 3 in the depot yard with a separate wire to the Highway.

The depot entrance track, which becomes track 3, was rewired on 2 October. This wire was extended into the depot building, but is not yet in use. Work is continuing on rewiring the yard and wiring depot tracks 1,2 & 4.

The old wire was stranded, galvanised steel on a hemp core and approximately 3/8" dia. It was originally used because of the probability of a copper wire being stolen. It has outlived initial expectations and the new wire is identical, coming off the same reel.

Site Developments.

Sutherland Shire Council, at its meeting of 5 October 1976, approved in principle the re-

location of the Sydney Tramway Museum to the site adjacent to Loftus Railway Station, together with the construction of tracks in the road reserve (i.e. Princes Highway) towards Sutherland. This now opens the way for firm proposals to be formulated and signals the start of much hard bargaining with government and semi-government authorities. Negotiations to re-establish the Museum in this area originally started in February 1971.

from ST. KILDA

Australian Electric Transport Museum

New Display Established.

A comprehensive new display has been erected on a series of boards in the new trolleybus shed. The display fulfils a need, recognised by the Museum committee for some time, to give visitors more information about the role which trams and trolleybuses played in Adelaide in years gone by. The exhibit includes a series of glass-encased photographs taken in King William Street and King William Road in the period 1880-1958. Transport routes are shown on maps prepared by Tom Wilson who has in recent years been responsible for the compilation of transport maps issued by the Minister of Transport.

Other panels display equipment used for overhead and permanent way construction, while how a tramcar works is also depicted. The important role of the car-building industry is also described and interesting components of cars are on show.

Car 303 Popular.

Since being placed in traffic on August 8, 1976, Birney car 303 has proved popular with both members and visitors and by the end of August had already operated over 100 miles on the St. Kilda tramway. Although only four of these cars were used on the Port Adelaide tramways, a number of visitors have come forward to describe how they travelled in them in the twenties and thirties.

Improvements in Facilities.

The 1976-77 AETM budget made provision for additional shelving to be installed in the Stores shed built last year. This has now been erected and a further rationalisation of stores has become possible. No wooden body parts are now retained in the main workshop except parts from vehicles undergoing immediate restoration. mains power has recently been extended to both the stores shed and the new trolleybus shed by John Pennack.

Overhead Upgrading.

Following the installation of two new span poles at Mangrove Street beyond the western end of the loop by the Salisbury Corporation, Max Fenner has commenced a programme of upgrading the overhead around the Mangrove Street area. Most of the tension on the curve was taken by one pole, but it will now be possible to distribute this load over three poles. In addition, it will be possible to raise the overhead on the road crossing by several feet. A number of strategic fittings required for the project have been made available by BTMS and SPER.

Restoration.

Several projects have recently been completed. The No. 1 end of 192 has been finished apart from reinstallation of two ceiling veneers and the restoration team led by Chris Andrews and Peter Keynes has moved to the No. 2 end saloon. Filling of minor surface blemishes on the outside has commenced prior to external repainting. Restoration to the style used in Adelaide in 1915-1925 has been adopted, and evidence of this style has been located on the car, despite its late arrival in Adelaide from Melbourne. The No.1 end sliding doors were lined and varnished prior to being reinstalled on the car and give some guide to ultimate splendour of the vehicle.

The repainting of the ceiling of 381 has been completed. The ceiling of car 303 has also been repainted since its arrival from Bendigo. This car will be given detailed refinishing at a later date.

AETM President Dr. John Radcliffe sets out on the ceremonial run to Charing Cross after receiving the car from Mr. Balfour. Warren Burt photo.

Loaded on a low loader by members of the Bendigo Trust, car 303 traverses Pall Mall for the last time en route to Adeliade on July 28th 1976. John Radcliffe

from PARRAMATTA

Steam Tram Preservation Society

Works Report:

The rebuilding and reconditioning of car 1918 is steadily progressing. The captain and his team of buccaneers have replaced each brake shoe, and at the same time, reconditioned the brake mechanism. As a prelude to this work, both bogies were removed for maintenance to the bolster beams and sole-plates. The car was trialled on Sunday, 19th September and the bogies and brakes were found to be in excellent order.

The side panels have now been repaired or replaced, prior to the refitting of the sliding doors. The seats have now been permanently fitted. (The seats used were salvaged by the Society several years ago from "O" car 1424 lying derelict at the Naval Bombardment Range, Jervis Bay.).

The facias, gutters and roof is now receiving the attention of the "wood sculptors". Much work will be necessary in this area to replace the ravages of exposure when 1918 was in use as a dwelling at Janalli.

Associate Membership.

This status of membership has recently been introduced following enquiries from our tramway patrons. Known as Associate Membership, it is designed primarily for the interested person who cannot commit him/herself to the Society's activities but would like to be associated with the steam trams.

Associate membership has been set at $10 per year. If any interested readers of "Trolley Wire" would like to become an Associate Member, they may obtain an application form from our sales office on steaming days or mail a request to The Secretary, S.T. & R.P.S., Box 108, Post Office, Kogarah. 2217. Your support in this way will surely help the steam tram to puff and whistle its way into the 21st Century.

City Section

NEWS OF THE MELBOURNE & METROPOLITAN TRAMWAYS BOARD

Melbourne's 50th Z class tramcar was officially commissioned at a ceremony held at Preston Workshops on Tuesday, 31st August. The Minister for Transport, Mr. Rafferty, Board Members and various other V.I.P.'s were present, and media coverage was reasonable.

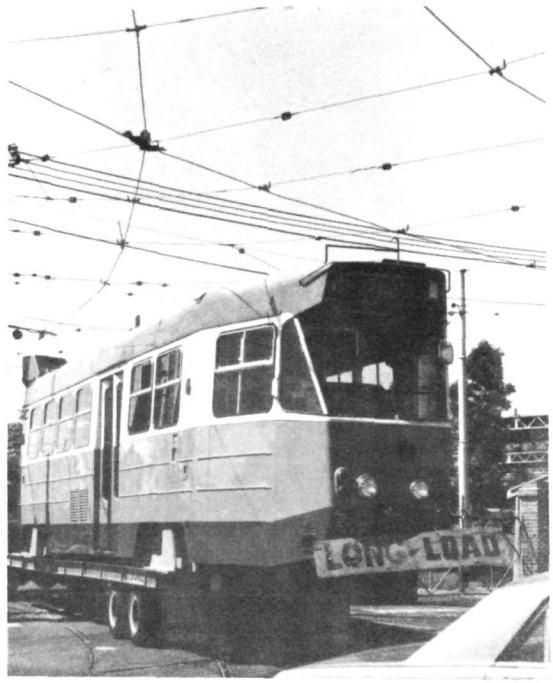
It was announced that No. 50 would spend one month traversing all routes on weekdays as part of a publicity campaign to show the people of Melbourne their new public transport vehicles. Commencing on Monday, September 6th, No.50 spent the Monday and Tuesday based at Kew Depot running on Mont Albert and North Balwyn. It then went to Camberwell Depot for use on Camberwell, Burwood and Wattle Park routes. The next fortnight it was based at South Melbourne Depot to enable it to operate on the remaining eastern and southern suburbs lines. Monday, 13th September saw it on Toorak, followed by Glen Iris, Malvern - Burke Road, East Malvern and Carnegie.

The third week its schedule was East Brighton St. Kilda Beach - City, South Melbourne and St. Kilda Beach - City, not used on Show Day, (Thursday, 23rd), and South Melbourne - City. The fourth week's schedule had not been prepared at press time, but presumably would include the Brunswick and Essendon lines.

No. 46 was in service by mid-August, but nos. 47 to 49 are still at the Workshops. No.10 appeared late in June fitted with small ventilators on the leading off-side panels, apparently to increase air-flow into the Driver's area. A transport stand is being prepared for the Royal Melbourne Show and is being built at Preston Workshops. The M. & M.T.B.'s contribution to the joint stand will feature a "mock-up" of the front section of a Z class tramcar, complete with working driver's controls. The new brown uniforms, introduced with the Z class cars, are now being issued generally as stocks of material for the blue uniforms have been exhausted.

The track relay in High Street, Malvern, has progressed well. Both tracks were completed between Glenferrie and Tooronga Roads by mid-August, and work focussed between Tooronga and Burke Roads. This work was completed during September.

Cabinet is to consider during September a plan to create a city tram loop using Collins, Spring, Bourke and Spencer Streets. Additional tracks would be needed in Spring Street (between Collins and Bourke Streets) and junctions would have to be installed at all four corners. The Premier, Mr. Hamer, in reply to a question in Parliament, has stated that work is due to commence this financial year on the extension of the Burwood tram line to East Burwood, following the favourable Report by the Public Works Committee. On a radio interview, Mr. Hamer stated that the same Committee would be investigating the question of extending the East Preston route to the vicinity of La Trobe University.



An unidentified Z class body arrives at Preston workshops from Commonwealth Engineering.

COTMA

Notes & News

Museum delegates have recently been advised of arrangements being made with the Melbourne and Metropolitan Tramways Board for greater co-ordination of activities with the Board. It is hoped to develop procedures which will simplify administration of museum matters within the Board whilst leading to more effective communication with museum groups.

Executive Officer Bill Kingsley returned to duties in Melbourne in September following his return from overseas. Discussions were held at a number of overseas museums, details of which will be circulated later. At Branford, New Haven, valuable information was obtained about driver training procedures used in North America, while at Crich, it proved possible to further develop discussions commenced by COTMA Chairman John Radcliffe in the previous year.

While in London, the possible acquisition of Brill pattern 21E trucks from Brussels was discussed with Mr. David Packer who has been acting for COTMA in this matter. It had originally been thought that these trucks would become available on short notice when the remainder of a group of cars were scrapped, and that no later opportunity to obtain them would arise. A change in policy in Brussels involving a re-evaluation of the use of trams now means that their disposal has been delayed, and they may become available over a longer period.

Editing of the Proceedings of the 1976 COTMA Conference is now being carried out in Sydney and it is hoped that these will be available by the end of the year.

Any reader who would like ot tender any evidence to the COTMA Expert Panel on Tramway Museum Safety Standards is asked to have his submission in he hands of the Convenor of the Panel, Mr. David Rawlings, P.O. Box 103, Sutherland. N.S.W. 2232, not later than December 31, 1976.

80 YEARS ON - CAR 290.

On 31 October 1896, four small 4 wheel saloon tramcars were placed in service by the NSW Government tramways, in Sydney. Built locally by Bignall & Morrison, they were intended for electric service and generally resembled the three experimental cars of 1890. Three of the cars, later numbered 6, 7 & 8 were motors and went into use on the infant North Sydney electric line. The fourth, a trailer and initially numbered 1, in a separate series, and later 290, was put to use as a steam trailer. The reason for the construction of a trailer car at this time is not clear as electric trailer operation was not introduced until the George Street line opened in 1899.

A total of 97 cars of this type was constructed up to 1900. They were classified 'C' in 1905 although there were 4 variations in length, 3 in width and 4 in the number of windows along the sides. Forty-one cars of the group entered service as trailers but these were gradually motored.

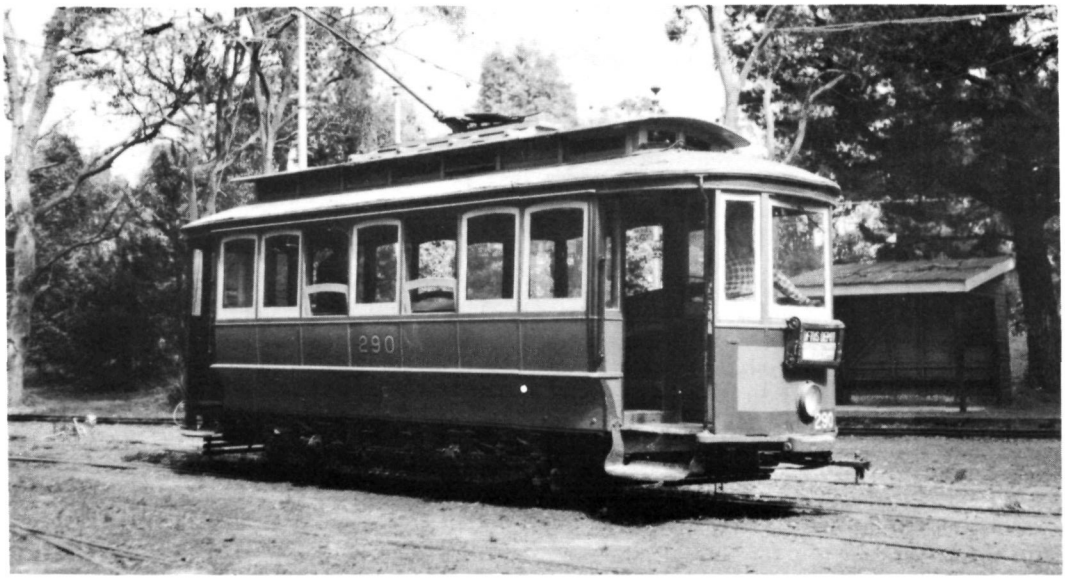
Large, high capacity, bogie cars soon eclipsed these small 4 wheelers. Withdrawals started in 1905 when 3 cars went to Ballarat. Conversion to service stock started in 1909. It was, however, many years before any were scrapped as they found homes in many varied places and served in many diverse ways. Their last regular passenger use in Sydney was on the Circular Quay to Railway service in 1926. One car, originally No. 11, which entered service on 29 August 1898 and was converted for breakdown use in 1909 and renumbered 57S, was still in stock when the Sydney tramways finally closed in 1961.

Despite the early and wide dispersal, 7 of these cars still survive, all in retirement. The most active of these is the original trailer of 1896, now celebrating its 80th birthday. No. 290 was motored on 6 September 1911 and converted to a breakdown car on 22 August 1914 and sent to Enfield Depot. On the closure of this depot in 1948, 290 went to Dowling St. Depot. It was withdrawn on 22 December 1955 and given to SPER and subsequently arrived at Loftus on 19 March 1957.

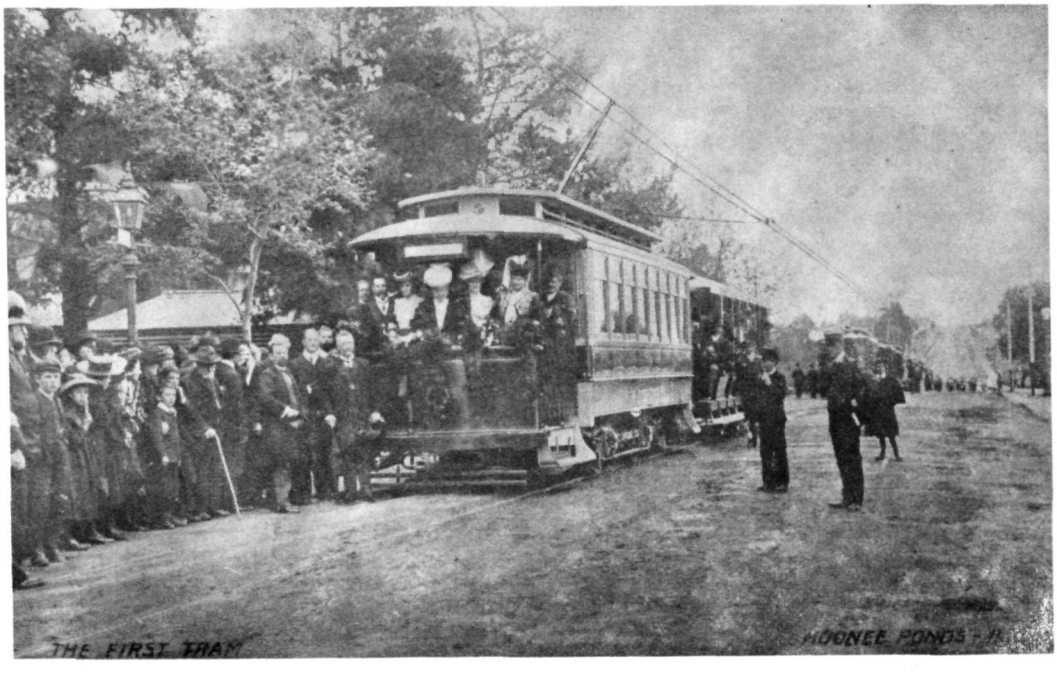
Repainted in the olive, fawn and grey colours that it carried in the '20s and carrying its passenger number, 290, instead of 115S that identified it for over 40 years it is operable and indeed goes very well. It is not used in regular passenger service as the interor still shows the signs of many years of breakdown use. As the oldest surviving complete, operating electric tramcar in Australia it is accorded the compar-

ative comfort of a quiet corner in the Loftus Depot, its home now for over 19 years. This is in marked contrast to the many years it stood in front of the Enfield Depot, shabby and neglected, awaiting the rare call to duty.

C290 poses for its photo in the depot yard at Loftus, except for enclosed ends it is substantially in the same form as when it entered service.



Opening day scene on the North Melbourne Electric Tramway & Lighting Company's lines, 11th October 1906. Said to be at the Saltwater River terminus.
- from an old postcard.



ESSENDON BY TRAM.

70 YEARS OF ELECTRIC OPERATION

Most tramways in Australia have been built and usually operated by government, semi-government or local authorities. Company systems, although in the minority, were wide spread and diverse. One such concern was the North Melbourne Electric Tramway & Lighting Company which opened a 7¾ mile system on Thursday 11 October 1906.

The company was very much an average concern. Neither the first to commence operation, nor the last to cease, it was not either the largest or smallest. Yet its system has endured and now, as part of the large Melbourne system, it has completed 70 years of continuous electric operation. These lines are now the longest serving in Australia and not far short of the record of just under 72 years held by Brisbane.

The original system comprised two main lines which commenced in Mount Alexander Road, Flemington Bridge, just north of Moonee Ponds Creek. A rather long walk south enabled connection to be made with cable trams to the City. The longest line ran 3¾ miles to North Essendon, following Mount Alexander Road to Moonee Ponds, then Pascoe Vale Road and Fletcher Street to Essendon Railway Station where Mount Alexander Road was regained and followed to Keilor Road. Track was double to Puckle Street, Moonee Ponds (Essendon Town Hall) and single to the terminus with a loop at Essendon Railway Station. A single track branch ran from a triangular junction along Puckle Street to Moonee Ponds Railway Station.

A double track line turned left out of Mount Alexander Road into Victoria Street about ¼ mile of the Flemington Bridge terminus then followed Racecourse Road, Epsom Road and Union Road to Ascot Vale. It then became single and turned into Maribyrnong Road and terminated at the Saltwater (now Maribyrnong) River, 3½ miles from Flemington Bridge.

A depot and powerhouse were built in Mount Alexander Road near South Street. The present Essendon Depot is on the same site and incorporates part of the original building.

Twenty-five cars were provided to work these lines. Ten were small saloons, 5 open crossbench and 10 open crossbench trailers. All were 4 wheel. Photos show the trailers in use but surviving track plans do not indicate suitable terminal arrangements for such use.

The company was taken over by the Melbourne & Metropolitan Tramways Board on 1 August, 1922. Improvements and extensions were put in hand. All single track was duplicated and extended.

The City was reached on 19 July, 1925 with a terminus in William Street at Collins Street. This was changed to Elizabeth Street at Flinders Street in 1935. The Victoria Street line has been closed and replaced by an extension of the Racecourse Road line. The Puckle Street branch had no place in the Board's schemes and was quickly abandoned.

The Essendon group of lines now reach to Essendon Aerodrome, West Maribyrnong and Footscray. A cross country connection has been constructed between Moonee Ponds and Ascot Vale. There are long stretches of reserved track on the Aerodrome line as well as to West Maribyrnong and Footscray.

The M&MTB did not like the trailer operation and soon sent some of its new bogie cars to supplement and then replace the company cars. The saloon cars were used elsewhere and some remained in passenger service up to the 1940's. The crossbench motors and trailers do not appear to have been used in passenger service but lasted for a time as service stock. Three of the company cars survive to this day, albeit in vastly altered form. One of the trailers, number unknown, forms the basis of ballast trailer 24W. Former crossbench car 13, later V class 214 has been rebuilt into a box car and is used as advertising/freight car, 17W. Both these cars are now unrecognisable as to their origin. The third car, formerly saloon 4, later U 205 and now 19W is also used as a freight car, but retains something of its handsome lines and is still recognisable. These cars are now the oldest in use in Melbourne and hence on a public tramway in Australia.

Essendon Depot now has 24 tracks and is home to about 94 cars of various classes and provides cars for the West Coburg line as well as the complex services on the Essendon group. With the introduction of new trams and a policy favouring the retention and possible expansion of the tramways the old North Melbourne Company's lines will survive to celebrate their 75th Anniversary and probably their Centenary.

Vale Bob Harvey.

It is with profound regret that we record the passing of SPER member Robert Charles Harvey on Sunday September 26th, after a brief period of hospitalization brought about by a stroke. Bob was the senior Sydney Tramway Museum member and was most active in its affairs until his death.

Bob was born on April 24th 1901 and by 1917 was in the employment of the New South Wales Government Railways, an occupation he followed until retirement over ten years ago.

He joined the SPER tramway museum in November 1964 at a time when mechanical faults were developing in the tramcars after their initial "shake down" trials following the start of electric operation in July 1964. Bob's expertise in the maintenance of brakegear, air systems and the associated electrical accessories was available at Loftus in the nick of time. His personal efforts contributed greatly to the operational success of the grand opening day in March 1965.

Bob's early years in the railway service consisted mainly of country appointments, his main spell of duty being in the Junee-Temora districts during the 1930's in the occupation of steam fitter. Bob and his late wife, Stella arrived in Sydney around 1940 and made their home in Kogarah. His main work in Sydney was as a train equipment examiner which took Bob to the electric train car sheds and Eveleigh, while he could occasionally be seen on the "flying squad" which replaced windows, broken window shade louvres or made door adjustments in the off peak period while trains traversed the city lines. This training enabled him to fill a vital role in the maintenance of the SPER tramcar fleet.

During the period 1942-50 Bob built and operated an extensive "O" gauge electric model railway based, until 1946, on the NSW Illawarra line with the planned extension beyond Nowra, while after that date the layout was rebuilt to represent a throgh standard gauge line between Sydney and Melbourne. This large undertaking worked to "run cards" and timetables, while working signals added authenticity to the operation.

It was during these Sunday afternoon model sessions that many of the now senior members of the AETA and SPER gained acquaintance for the first time and recruitment for both societies grew from this contact.

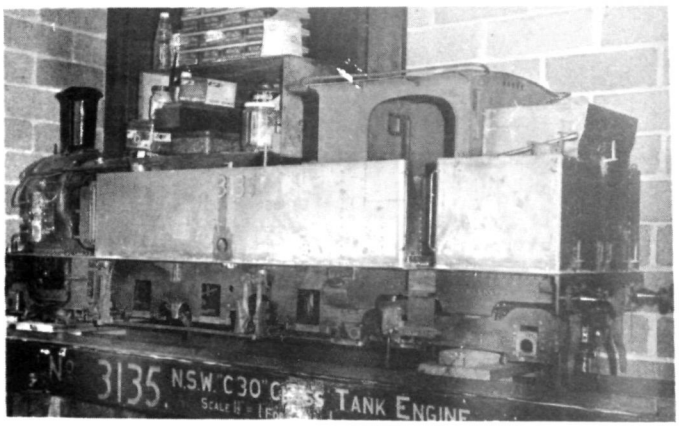
Bob was ever ready to contribute information when research was being conducted for this and other magazines, while his early photographic efforts, both in the still and movie field, have contributed to the entertainment sectors of meeting nights at SPER and kindred groups.

His greatest contribution was to the model making fraternity. During the 1950's he compiled a regular section of the magazine "Hobbies Illustrated". Prior to this, Australian model magazines either published reprints of English or USA articles on the subject, or limited themselves to such shallow topics as "How to oil your loco", "How to make a set of points", "How to decorate a station" etc. . . . . Bob's regular section presented working drawings, constructional diagrams, and practical techniques for the construction of "O" gauge motive power and rolling stock of NSWGR and VR prototypes as well as deviations into tramcar modelling. Many of these articles are still sought after, and because of his practical background and experience in the field these models actually worked. These writings were especially welcome at a time when tin plate, balsa wood and army disposal electric motors were almost the only items available from which models could be made.

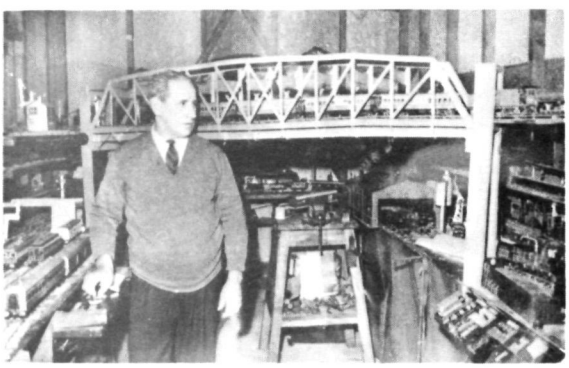
In his retirement, Bob Harvey embarked on a very ambitious project, the construction of a super detailed model of NSWGR suburban tank loco 4-6-4T No. 3135. This live steamer was planned to a scale of 1½" = 1 ft or 1/8th full size. The quality of work placed in this project was superb, and it is a pity that he was not spared with health and strength for but another year as only the construction of the wheels and axles, together with the fitting of the motion remained to complete this work. No. 3135 was the first loco on which Bob worked as an apprentice so it is fitting that his life's work started and finished on this machine.

Time, unfortunately is now taking toll of the pioneers of our hobby of the 1930-40 period. In recent times we have seen the passing of C. C. Singleton, H. H. Mathews, A. G. Ranwick, A. Stell, M. Park, O. B. Bolton, R. Wylie and G. Eardley. To them, however, must go our gratitude for laying the foundation on which our research societies and museum groups have grown. Their pioneer efforts not only enabled the first steps to be taken to overcome physical difficulties, but they helped surmount the objections of many members of the bureaucracy who could not see why we amateurs had the audacity to develop an active interest in railway and tramway affairs.

K. McC

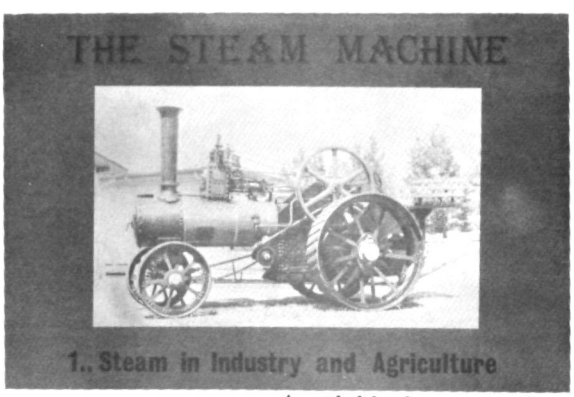


Progress reached in the construction of the 1½" = 1ft scale model of the 4-6-4T N.S.W.G.R. loco 3135 during May 1973. Unfortunately this superb model was not completed.
K. McCarthy photo.



Bob Harvey at the controls of his "O" gauge model railway layout c 1945. Late R. Harvey collection.

NEW BOOKLET *(Steam Preservation Society)*



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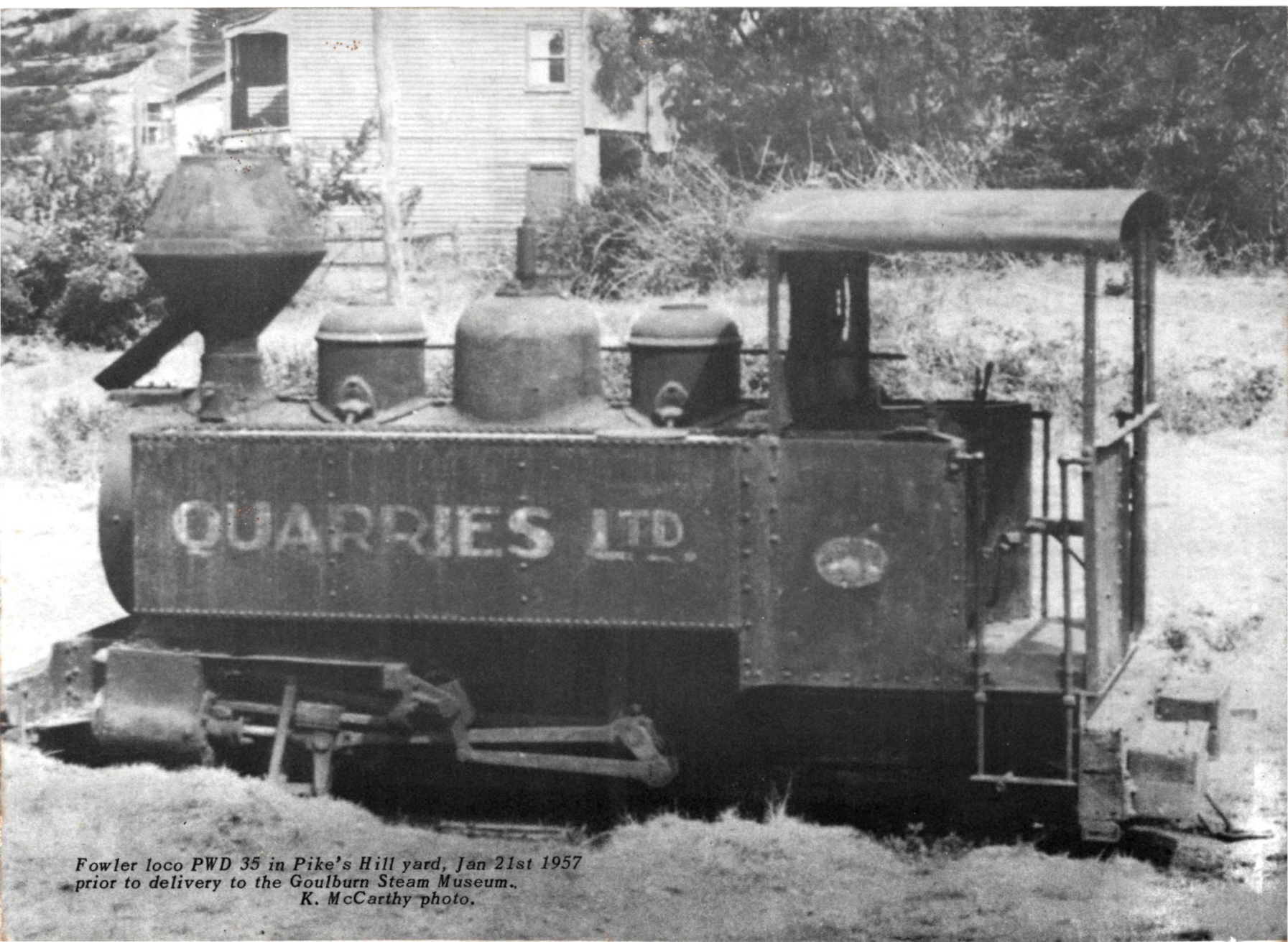

Fowler loco PWD 35 in Pike's Hill yard, Jan 21st 1957 prior to delivery to the Goulburn Steam Museum.
K. McCarthy photo.