



Working Paper

Series

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Brisbane tramway system -
A contrast with the retention
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Abstract

Melbourne, the capital of the State of Victoria (Australia), currently operates an extensive tramway system as part of a metropolitan multi-modal (train, tram and bus) public transport network. During the 1950s and 1960s, there was a worldwide trend especially in the English-speaking world to replace tramway systems with bus services.

Melbourne largely ignored this post war transport trend and as a consequence, Melbourne became the only Australian city to retain a tramway system, which in turn has survived into an era when it is not only unfashionable to abandon tramways but globally there is an upsurge of interest in tramways and their modern application as light rail systems.

A separate working paper in this series (Turnbull, 2002) describes the development of the Melbourne tramway system, experiments with double deck buses in the 1940s, the public debate over the relative merits of trams and buses and the appointment of Mr R.J.H.Risson (later Sir Robert) as Chairman of the Melbourne and Metropolitan Tramways Board (M&MTB).

Risson was a staunch supporter of the tramcar and in the opinion of many is the person who more than anyone else saved Melbourne's trams. Risson ironically, came from the Brisbane tramways where he rose to the position of Assistant General Manager. Risson's tramway experience was founded upon the Brisbane system.

In Brisbane, the capital of the State of Queensland, the tramway system enjoyed the benefits of post war modernisation, particularly in the period between 1947 and 1952. It is not unreasonable to suggest that to some extent, developments in Brisbane during that short period were well in advance of events in Melbourne at the time.

However, by the mid 1950s events behind the scenes and a drastic decline in the number of new trams being constructed, contributed to the beginning of the decline of the Brisbane tramways. The loss of some 65 trams in a depot fire at

suburban Paddington in 1962 hastened events and ultimately forced decisions to be made on the future of Brisbane's trams.

Despite open public speculation for years, a formal announcement was however not made by the Brisbane City Council of its intention to changeover to an all bus system until June 1968. This announcement could hardly be regarded as surprising as the Council had previously placed an order for the delivery of 340 new buses. Subsequent events were swift and rapid.

The last tram ran in Brisbane in April 1969. Yet it is not unreasonable to postulate or argue that if the system had managed to survive for a few more years, that given the concerns of the environment and the energy crisis that emerged in the 1970's, together with the worldwide development of light rail, the Brisbane tramway system like Melbourne's could well have survived to the present day.

Introduction

In the immediate post Second World War period only two Australian cities, Brisbane and Melbourne continued to expand and modernise their tramways. Both cities introduced new tramcars which were fitted with resilient wheels for quiet running, improved lighting, power operated sliding doors and featured fully upholstered seating. In both Brisbane and Melbourne, large sections of track were re-laid in mass concrete and extensions were made to both networks.

There was a period in the late 1940s when it could be argued that Brisbane actually led Melbourne in tramway development. However, whilst Melbourne and tramway management remained committed to the tramcar the diesel bus alternative gradually emerged in Brisbane and the Queensland capital eventually followed the trends that had already taken place in Sydney, Adelaide, Perth and Hobart.

The end of the Brisbane tramway system is often linked to the aftermath of the disastrous 1962 Paddington Depot fire but the trend away from total support for tramway operation can be observed many years earlier. Indeed some decisions taken in what may be termed the heyday of the tramcar in the 1930s can equally, with the benefit of hindsight be seen to have finally had a significant impact in the early 1960s, when the future of the system hung in the balance.

In contrast, Melbourne which unlike Brisbane was not a first generation electric tramway system (largely due to the longevity of the cable tram network) had in the critical 1950s and 1960s a greater percentage of less life expired rolling stock. Both systems were known for generally well maintained track and amongst tram passengers both networks enjoyed considerable support. The move against Brisbane's trams did not come from the passengers.

Commenting upon the closure of the Brisbane network, Clark and Keenan (1977, p.3) remarked, the last decade of Brisbane's trams coincided with a time of major change within the city. A new skyline was emerging to overshadow the imposing structure of the City Hall clock tower and new suburbs were developing beyond the tram termini.... and regional shopping centres were being built to accommodate

the expansion of the city. The age of the private motorist had gathered considerable momentum adding to the transport problems of the city and reducing the demands upon public transport.

For better or for worse Brisbane, as Australia's third city, had discarded the image, considered by many, of a large country town, and deservedly became a modern expanding city with a bright future. These changes were not without their disadvantages as traffic congestion, urban sprawl and less frequent one-man [person] operated bus services have left the city centre less accessible to many people than in the tramway days.

For many years the tramway system was identified by its distinctive silver, and subsequently light grey, painted cars; many of which had open sided centre compartments and drop down driver's windscreens, concessions to the warm sub-tropical climate of the city. Clark and Keenan (1977, p.3) concluded:

“...ironically there is little doubt that had the tramway system survived to any large extent for a further five years, subsequent developments involving environmental issues, the energy crisis and the tide of public opinion already in evidence at the time of closure, should have ensured its retention.”

This is supported by recent progress in Melbourne and overseas where modern trams and light rail systems are emerging as a practical and economical answer to many of the transport problems in cities the size of Brisbane. Sadly, such awakening came too late for Brisbane and its tramway system will go down in transport history as one of the last comparatively modern networks of its size and style to be completely abandoned in favour of diesel bus operation.

In contrast, whilst little occurred in the way of innovation, in Melbourne the system survived, due to several factors, not the least being Risson's leadership. By the mid 1970s Melbourne had embarked upon rolling stock replacement and route extensions.

Using the criteria of fleet size, route kilometres and the number of serviced lines, the only cities with systems [now] larger than Melbourne's on the basis of all three criteria

[in the world] are St Petersburg, Bucharest, Moscow and Kiev, in that order. Melbourne therefore has the largest tram system of any English-speaking country, and the largest outside Europe and the former USSR (Budd & Wilson, 1998 p.68).

This paper describes the development of the Brisbane tramway system, from the initial small horse tram network to the acquisition and electrification of the network by the Brisbane Tramway Company, and the enterprising and at times controversial management of the General Manager, Mr J L Badger, and finally the subsequent compulsory acquisition by the Government of the network.

The absorption of the tramway system by the Brisbane City Council at the time of the creation of the Greater Brisbane Scheme and the entry of the Council into bus operations, along with the post war 'modernisation' and tram extensions during the 'Quinn' era are reviewed together with the decline of the system both before and after the disastrous Paddington Depot fire. Selected references are made to contemporary tramway developments in Melbourne. The paper concludes with a review of numerous events that surrounded the last years of trams in the Queensland capital.

Significant issues that emerged were:

- The appointment of Mr J. L. Badger as General Manager of the Brisbane Tramway Company Ltd and his management style;
- The transfer of the tramways to public ownership, initially the Brisbane Tramway Trust and subsequently the Brisbane City Council;
- The continued building and placing into service, up until 1938 of a standard design of tramcar, originally designed in the early 1920's. This obsolete design ultimately became a significant factor that contributed to the demise of the system;
- A period of post Second World War expansion and modernisation of the tramway system, that was at least equal and in many respects substantially

better than other contemporary tramway developments in other parts of Australia;

- This was followed by a period of significant indifference towards the tramways on the part of the City Council;
- The Paddington Depot fire in September 1962, in which 65 trams were destroyed;
- The ultimate decision, and the final belated announcement that Brisbane's trams were to be abandoned and replaced by an all diesel bus system.

Despite two unsuccessful attempts to introduce a new light rail system (modern tramway) into the inner Brisbane area in recent years, the issue of the scrapping of Brisbane's trams still evokes public and transport debate not only in Queensland.

Objectives of the Research

- Review the decision making process and events that led to the elimination of trams in Brisbane;
- Investigate the significant events, which impacted upon the Brisbane tramway system;
- Determine the extent to which factors, other than the Paddington Depot fire and the election of a new Town Hall administration, (under the leadership of Alderman Clem Jones as Lord Mayor) in April 1961, contributed to the decline of the Brisbane tramway system;
- Review service developments and management policy changes that impacted upon the tramways during the post war period;
- Briefly review the transfer of Robert Risson from the Brisbane tramways, following his appointment as Chairman of the Melbourne and Metropolitan Tramways Board in 1949;
- Review the decline of the Brisbane trams alongside the contrasting retention of trams in Melbourne; and
- Examine the influence, if any, of the Brisbane closure upon street transport policy in Melbourne.

Research Questions

I have been associated with the operation of public transport and the development of transport education since the late 1960s. Although a significant period of this time was associated with metropolitan rail transport and subsequently long distance non metropolitan transport in country Victoria, the development of urban street transport has remained of personal and professional interest.

The research questions were framed as follows:

- Why did both Melbourne and Brisbane retain trams in the immediate post war period, when other Australian cities abandoned their trams for more 'flexible' bus services?
- What significant tramway developments were achieved in Brisbane in this period and how did they compare with developments in Melbourne?
- What events subsequently led to tramway development being discouraged in Brisbane?
- Did the Paddington Depot fire in September 1962 really mark the beginning of the end of the Brisbane trams? Or were there other strong precipitating factors that could lead to the conclusion that the fate of Brisbane's trams was already sealed before the fire?
- Were there occasions when behind the scenes, it can now be advanced with the benefit of hindsight, that the long term future of the Brisbane tramway system was uncertain?

Review of the Literature

In comparison with other Australian capital cities, very little research has been published on the Brisbane tramway system and there is even less documenting the sequence of events and the political processes that were responsible for the eventual rapid removal of trams from the streets of the Queensland capital. The one notable exception is the work of Clark and Keenan (1977), which thoroughly documents in chronological format in general terms the operational events (but not the specific political events) of the last decade of the Brisbane tramway (and trolleybus) system.

A brief article (author unspecified) published in *Electric Traction* (April 1960, p.3) as part of an ongoing series on Tramways in Australia, provides a review of the various entities that had been responsible for the operation of tram services in Brisbane up to that year.

For those seeking information on the wide variety of rolling stock and individual tramcars that have operated on the Brisbane electric tramways, Richardson (1964) is regarded as the definitive reference. Richardson (1956) provides numerous alternative illustrations in an earlier edition of the same publication.

A series of articles by Lynas (2000 - 2002) review the extensive bus fleet, which has been operated over the years by the Brisbane City Council, including the large order of vehicles purchased to replace the trams. Millar and Lynas (1983, p.6) make additional brief mention of the international significance of the size of the tram replacement bus fleet.

A better understanding of the horse tramway system that preceded the electric system is obtained by reviewing Ford (1974) whilst the operations of the Brisbane Tramway Company Ltd that acquired the horse tramway system and in particular the impact and management style of the company's manager Mr J.S.Badger is the subject of a further article by Ford (1977).

McCarthy (1974) reviewed the Brisbane tramways from the inception of the horse car system until the compulsory acquisition of the Company in 1923.

An article (author unspecified) was published by the Brisbane Tramway Museum Society in their internal magazine, *Dreadnought* (December 1970). Although described as a brief history, it provides a reasonably detailed description of events from December 1925 when the Brisbane City Council acquired the tramways.

The day to day changes (largely reductions in the 1959-68 period) to services, the reluctance of the City Council and in particular that of the Lord Mayor to announce a firm policy for or against continued tramway operation, the sensitive and at times highly emotional campaign for and against tramway retention and in the end the rapid closure of the system are best covered by contemporary publications of the time, the *Brisbane Courier Mail* (1953-69) and *Electric Traction* (1953-1969).

Some of the social aspects of tramways such as references to tramways in contemporary literature in Australia together with selected aspects of tramway history (including aspects of Brisbane tramway history) form the basis of the work of Jones (1993). Jones devotes a chapter to the demise of the Brisbane system and provides some comment on the philosophy towards continued tram operation that was at the time emanating from the City Hall administration. Unlike most of the other literature, the work of Jones, records many of the numerous political and managerial issues associated with the decline in popularity (amongst administrators) of Brisbane's trams.

Methods

The data for this study has come from two main sources: (a) published literature and contemporary press and journal articles and (b) from interviews with a cross section of individuals.

Many of the historical publications mentioned in the literature review provided excellent background information and confirmed the date of numerous significant events, but in general these publications do not examine the reasons, political and otherwise behind planning decisions.

Those interviewed were interviewed primarily in conjunction with the research project on the retention of Melbourne's trams (Turnbull, 2002) but a comparison with Brisbane surfaced on many occasions. This factor together with the long association of Sir Robert Risson with the Brisbane tramways before his appointment as Chairman of the Melbourne and Metropolitan Tramways Board in 1949, encouraged me to review the decline of the Brisbane system, as a comparison to events in Melbourne and in turn this encouraged the preparation of this working paper.

Several of those interviewed originated from Queensland and in some instances others had been engaged in projects which had equally impacted upon Brisbane transport policy as well as events in Victoria which was my initial research focus.

Particular care was taken to verify as many of the facts and assumptions recalled by individuals as possible through the use of standard questions and checks to monitor the frequency of similar / identical responses.

Given that the research is concerned with recreating and re-establishing the facts associated with public events that occurred over thirty years ago, little sensitivity was encountered from respondents. Almost without exception respondents were keen to recall events and expressed significant encouragement, which in turn challenged me to enter an even deeper field of research associated with the topic.

The Development of the Brisbane Tramway System

Brisbane and the inner suburbs were initially served by a small horse tramway system and before that by horse drawn buses and wagonettes. The Metropolitan Investment and Tramway Co. commenced operating horse trams on 10th August 1885.

The Brisbane Tramways Co. Ltd (BTCo) purchased the system and decided upon electrification. The first electric trams ran on 21st June 1897, using a combination of new trams and converted horse cars. Although early electric cars were of the single truck open combination type, single and double truck open toastracks were soon placed in service, and these cars served a steadily expanding system (*Electric Traction*, April 1960 p.3).

Although the BTCo's associated construction undertaking, the Tramway Construction Company (until 1900) and the Brisbane Electric Tramways Investment Company (until 1923), were financed by British capital it was Mr J. S. Badger, an American, who was responsible for the conversions and expansion. This gentleman continued with the BTCo. until 1923, spending most of the period in the dual capacity of Chief Engineer and General Manager (McCarthy, 1974 p.7).

Although the Brisbane Tramway Company (BTCo) was formed in England with British capital, the type of passenger cars introduced into the fleet reflected the American background of Badger. As stated by Ford (1977, p.4):

"The General Electric Company of USA was awarded the contracts for equipment of the system and as this [Brisbane] was one of the first electric systems south of the Equator, and General Electric's first in the South Pacific, they turned it into a demonstration system. [Accordingly] one of their best engineers, Joseph Stillman Badger, was despatched to Brisbane to install the system."

Badger had quickly shown he was an able and courageous administrator. This is why the BCo asked him to remain as Engineer and Manager. Badger overcame delays in the delivery of electric cars by electrifying several old worn out horse cars. He used loopholes in the Tramways Acts to the Company's advantage and ensured that the Company's views were well known in Government circles. Several local directors were even members of Cabinet at times. Badger has been described as both arrogant and philanthropic. He was despised by the workers and upheld as a fine example of a businessman by others (Ford, 1977 p.5). Richardson (1964 p.4) described Badger as a man of autocratic but enterprising temperament.

The year 1912 was significant for Badger, for from then and for the next ten years he was the rallying point for capitalists throughout Australia and later the world. He appears to have gained his reputation as an arrogant person because of the stance he took against the extremely militant Australian Labour Federation. His actions led to the infamous 1912 General Strike over the right to wear union badges (Ford, 1977 p.6).

Acquisition of the system by the Brisbane Tramway Trust

The initial Brisbane Tramway Company franchise was due for review in September 1920 after which the Government, through the Commissioner for Railways, would have the right to purchase the tramways at any time. Not until 1922 was the Brisbane Tramway Trust Act passed which enabled the eight member trust to take over the undertaking on 1st January 1923 (McCarthy, 1974 p.10).

For some time it had been obvious to the Brisbane Tramway Company that a long term franchise extension beyond that date seemed impossible: as a result only limited expansion took place after 1915 (McCarthy, 1974 p.7). Indeed there were no track extensions from 1915 to 1923, and the effects of the First World War also curtailed development.

The newly formed Brisbane Tramway Trust (BTT) inherited a run down system and found it necessary to commence a rehabilitation program. To provide additional capacity and to enable the gradual withdrawal of older trams, the Trust designed a

large bogie car, which featured an open drop centre compartment, and was capable of carrying 110 passengers.

The design of this car followed advances made to tramcar design in other Australian capitals but the drop centre cars, as they became known, were notable in that they continued with the Brisbane practice of being fitted with hand brakes, as distinct from air brakes which were by now becoming commonplace elsewhere in Australia. The decision to continue to build trams to this design for a substantial period afterwards also proved ultimately to be equally significant.

Tramways Come Under the Control of the City Council

At the time of the passing of the Act in 1922, it would appear that it was intended for the BTT to become a permanent body. The Brisbane Tramway Trust, however, proved to be only an interim body. The Government was in the process of consolidating the various local Councils of the Brisbane suburban area into the Greater Brisbane Council scheme, and decided to include the tramway system. On 30th November 1925, the Trust ceased to exist, and the Brisbane City Council (BCC) Tramways Department (later Transport Department) came into being (*Electric Traction*, April 1960 p.3). This was the beginning of municipal operation of public transport in Brisbane, a feature that continues to the current day.

The Council continued with the drop centre design until 1938, by which stage 191 cars had been built to a design which was rapidly becoming more and more obsolete. Only the last seventeen dropcentre cars built were fitted with air operated brakes at the time of construction. The drop centres were to become the largest single type of tram in the Brisbane fleet.

Despite the fact that ultimately ninety of them were to be retrofitted (rather belatedly given increased road traffic volumes) with air brakes, the events of the 1930s ultimately meant that as the Brisbane tram system entered the critical 1960s with a large percentage of the fleet was still relying on motormen using hand braking as distinct from air braking as the main in service brake. Brisbane tramway motormen were very proficient in the use of these brakes, but it was a feature that critics of

continued tramway operation were able to successfully exploit. As quoted in *Electric Traction* (April 1960, p.4):

“In contrast from the late 1920's, it has [had] been Brisbane's policy to lay [tram] tracks in mass concrete to the rail-head, using either grooved tramway rail or forming a groove in the concrete when using railway rail.”

The first of the four motor (FM) streamlined cars (tram no 400) appeared in January 1938 and this design with ongoing modifications and improvements was to represent the final Brisbane tramcar design. A total of 150 FM's was subsequently envisaged by the post-war Council (*Dreadnought*, 1970 p.8).

The Introduction of Bus Services

In Melbourne, the Tramways Board considered using motorbuses for two purposes: to counter competition from private operators and as an aid to the conversion of its cable trams to electric tramways. The first service commenced running on 3rd January 1925 (Kings, 1974 p.4). The former Brisbane Tramway Trust had operated a limited bus service from November 1925, just before the acquisition of the Trust's operation by the City Council, but the Council withdrew the service due to mounting losses two years later.

In other Australian states, tramway operators had commenced to operate bus services in addition to railed transport. Initially these bus operations were limited to ancillary operations usually feeders to tram routes, but over time these operations grew into sizeable operations in their own right.

By 1940, the Brisbane City Council was able, however, to provide a wider service by again venturing into the field of bus operation. As reported in *Dreadnought* (1970, p. 7):

“Twelve Albion diesel [buses] were purchased and fitted with Hope [a local Brisbane bodybuilder] bodies, while a new bus garage was built adjacent to the Light Street tram depot. The first bus service began on July 6, 1940,

between Herston and Stanley Bridge, and this was soon followed by the Jubilee, Oriel Rd., and Chatsworth Rd. routes. The opening of the Jubilee bus route meant the discontinuance of the Red Hill tram service on November 11, 1940."

By the end of the war the Council was operating 19 motorbuses.

Throughout the Second World War, the Council continued tramcar construction and by the end of 1945 over 50 streamlined (FM) cars were in service. As the design of these cars featured a very pronounced tapered front (and back) and were painted in the then standard Brisbane livery of silver, these cars were known, at least locally, and with some considerable degree of civic pride and affection, as 'silver bullets'.

In 1947, the design was modified to incorporate sliding doors as distinct from canvas blinds and two years later the BCC fitted a car with resilient wheels. Sponge rubber upholstered seating was introduced as standard in new cars and floors of the latest cars were covered in attractive linoleum floor tiles, hitherto unseen in tramcars.

Brisbane Leads the Way in Tramway Development

Indeed it could be said that at this juncture that Brisbane led the way in Australian tramway development. Although not the first resilient-wheeled car built in Australia [Brisbane tram] no. 497 was the first to enter regular service (Richardson, 1964 p.9). Brisbane subsequently introduced fluorescent interior lighting years before such facilities appeared in the interior of Melbourne trams.

The motorbus side of the BCC's operations was also expanding rapidly. Apart from the purchase of new vehicles, between October 1947 and May 1948 twenty private operators (and 76 buses) were acquired (Lynas, January 2001 p.4). At the end of the 1947/48 financial year the bus fleet stood at 140 vehicles. A year later it totalled 188 vehicles. The bus services operated by four additional private bus operators were acquired in the 1951/52 financial year.

In Melbourne major new tramway track construction after 1945 included (Jones, 1993 p.118) the William St to Hanna St (2.5km) connection which opened February 1946, the Latrobe St line (2.5km) opened in January 1951, the Ordnance Factory connection (1.4km) in May 1954, and from Spencer and Bourke Sts to Northcote, Dundas St (9.9km) opened in June 1955 and from the Exhibition to East Brunswick (4.3km) which was opened in April 1956.

In virtually every instance these additions to the network represented connecting lines or the replacement of bus routes which in turn had previously had been operated as cable tram routes. In contrast Brisbane's route extensions were essentially that, extensions into the (then) new suburbs.

Between March 1949 and the same month four years later, nearly eight kilometers of extensions were added to the network in the Queensland capital. The extension from Lutwyche Cemetery to Chermiside (1.5km) which opened in March 1947 was followed by further extensions, Camp Hill to Belmont (1.5km) opened in July 1948, Newmarket to Enoggera (2.1km) in August 1949, Holland Park to Nursery Rd (1.5km) opened in November 1950, and finally Nursery Rd to Mount Gravatt (1.1km) was opened in March 1951(Jones, 1993 p.119).

In November 1952 the Brisbane City Council (BCC) Transport Department announced a transport plan for the city. Although the plan was mainly one of policy, without many specific projects, its message was clear in the newspaper headlines which greeted it: 'Council Decides to Keep Trams as Best Service for Public' (Jones, 1993 p.92).

The plan was, in fact, according to Jones (1993, p.92) the testament to the city of its great tramwayman, Sydney Lawrence Quinn. Quinn as General Manager was like his Assistant General Manager until 1949, Robert Joseph Henry Risson (later Sir Robert), a staunch supporter of the tramcar.

Pre-war, Risson was the Permanent Way Engineer and largely responsible for bringing the condition of Brisbane's tracks up to a very high standard largely through the extensive use of mass concrete, as mentioned earlier.

After an impressive, indeed outstanding military career during World War 2, Risson returned to the BCC rising to become Quinn's assistant before being appointed Chairman of the Melbourne and Metropolitan Tramways Board (M&MTB) in June 1949. Risson moved south and officially became the Chairman of the Melbourne system in October.

Sydney Quinn had a 51 year association with public transport, commencing with the Queensland Railways where he rose to the position of Assistant to the Commissioner for Railways. In 1923 he joined the newly formed Brisbane Tramway Trust (BTT) as the first Secretary of the BTT, he was subsequently appointed Assistant Manager and Secretary in 1925 at the time the Brisbane City Council (BCC) acquired the tramways. He attained the position of General Manager of the Transport Department in 1938.

In 1946, the BCC had introduced into service 16 new tramcars, all built internally at the Council's Milton Workshops. Eleven more followed in 1947, fourteen in 1948, seven in 1949, ten in 1950, thirteen in 1951. Car building continued, and the BCC's goal of 150 FM's was raised to 156; and controllers and contactors continued to be built there (*Dreadnought*, 1970 p.9).

The introduction of these modern vehicles enabled many of the older (open sided) vehicles dating from the company days to be withdrawn. A further eight new trams were constructed in 1952 but in the following year however only three new vehicles were built at the Milton Workshops. With the benefit of hindsight this reduction now takes on greater significance and is a significant turning point.

At the 30th June 1953 the fleet operated by the Brisbane City Council totalled 426 trams and 187 buses. Six years earlier the fleet had stood at 420 trams and 35 buses. From 1949, the majority but not all of the new cars which had entered service had been fitted with resilient wheels but on several trams these resilient wheels were subsequently replaced by standard wheels. It could be argued that the Brisbane tramways were from around this juncture taking two steps forward and one step back. As quoted in Jones (1993, p.93):

“[Nevertheless] with these [track] extensions and the introduction of new modern resilient wheeled cars fitted with roller bearings and smooth helical gears it was little wonder that in 1953 Alderman Coutts was able to announce to the beleaguered New South Wales transport minister, with pure insular chauvinism, that Brisbane already led the Australia and possibly the world in tramway transport.”

Both the route extensions together with the rolling stock developments described above however, tended to mask the real situation. Electric Traction commented (July 1954 p.3):

“...only 21 Brisbane cars have resilient wheels, and whilst one third of the fleet are 'silver bullets', only 50% of all cars are fitted with air brakes, and only 58 cars and one Dreadnought [car 177 originally placed in service by the BTC] have upholstered seating.”

Change although not so obvious at the time was imminent. The decision to concentrate on the old hand brake dropcentre design for so long in the 1930's was about to have a significant cyclical impact.

Trams, Trolley Buses and Buses

In October 1953, the BCC announced that the Cavendish Road tram was to be replaced by trolleybuses. This was a tram route which it was previously intended to extend to Holland Park. The Council also indicated that the decision to replace the Cavendish Rd tram did not imply that there was an intention to replace trams generally. The line to Cavendish Rd was single line with two passing loops. Significantly none of the track on the route was laid in mass concrete. This factor would have influenced the decision.

In the same month Sydney Quinn attended The Australian and New Zealand Tramways Conference, which was held in Melbourne. Present were the respective General Manager's of each of the major cities street passenger transport systems.

The Sydney Public Transport Network was represented by the Commissioner for Government Transport, Mr Shoebridge. Melbourne was represented by the Chairman of the Melbourne and Metropolitan Tramways Board, Mr Risson, and Adelaide was represented by the General Manager of the Municipal Tramways Trust (MTT), Mr Keynes. Other prominent administrators from other Australian and New Zealand cities were also in attendance. Risson was elected Chairman of the conference.

A considerable portion of the conference was given to a discussion of the merits of trams versus trolley buses versus motorbuses. In general discussion, Shoebridge indicated that Sydney had reached the conclusion that on economic grounds the diesel bus with driver only was the vehicle for the future for Sydney's surface transport. Shoebridge added, we have operated 25 trolleybuses since 1936 and we do not like them well enough to consider seriously encouraging any extension of their use. We will wear out what we have got and replace them with diesel buses (Australian and New Zealand Tramways Conference Proceedings, 1953 p.15).

Adelaide had embarked on a similar policy. "Our policy is to go largely for the diesel bus", Keynes told those assembled (Australian and New Zealand Tramways Conference Proceedings, 1953 p.15). Keynes added: "...if we can increase the capacity of our vehicle, that may tend to reduce the capital cost and operating costs because there are fewer units to buy and to run, and fewer units to maintain. For that reason, we, like Sydney, pump for diesel buses. We have a number of trolley buses, some of them are quite new, and it looks as if they will not be replaced [by new trolleybuses when they wear out]."

Mr Napier, the General Manager of the Western Australian Government Tramways and Ferries, told the conference that so far as Perth is concerned, trams are on their way out. From the point of view of riding comfort the trolley bus [versus the diesel bus] wins, but against that the trolley bus is definitely nowhere in the same picture from the point of flexibility. The [diesel] omnibus offers the very best class of vehicle to the operator.

Quinn was asked to comment upon the current situation in Brisbane. Quinn told those assembled (Australian and New Zealand Tramways Conference Proceedings, 1953 p.15-16):

"...some months ago we had a change of Council and it was necessary for the Council to decide what type of transport it had to be, having regard to transportation costs..... All through the War we were modernising and increasing our cars and after 15 years all of our tram tracks have been put into solid concrete, with the result that they have a very long life except for about 10% which is worn out and old macadam. In addition, bus transportation in Brisbane is having a pretty rough spin. Firstly, we have to pay the registration on our vehicles just the same as a private operator would, or a carrier. We have to pay the Government 4% of our revenue as a tax to the Commissioner of Main Roads. That means that [in comparison with trams] we start off a bit behind scratch from an economic basis. If we were to convert our tram system to buses over a period of years this tax alone, apart from the interest and depreciation, would be equal to 10% on a capital expenditure every year of about £2,000,000 for road improvement. The Council agrees with me that, with a reasonably modern track and also a high percentage of modern vehicles, it would be unwise to start scrapping them and replace them with something that is going to be considerably more expensive. We are actually scrapping more cars than we are building but we are increasing the capacity of each vehicle we convert. I do not think we will build more tramcars. Our experience with trolley buses, so far, has not been encouraging. That is due to the value of novelty, and also to the fact that it ties in very considerably with an apartment scheme which is out of the heart of the City. I have since installed another, and propose to extend that to use up a fleet of thirty trolley buses purchased some years ago. We find trolley buses very popular. It is too early yet to make any comparative costs with diesel buses although we anticipate they will be considerably less."

Whilst there would appear to be some inconsistencies in relation to trolley buses in the comments of Quinn, there appears to be less doubt in his stated view as to the future of the trams. As was noted earlier in this paper, the Council only placed in service three new tramcars in 1953.

In a strict literal sense, Quinn was slightly incorrect in his assertion at the conference that the Council would not build any more tramcars for a further two new trams were built in 1954 (cars 537-538) and five in 1955 (cars 539-543) but Quinn's general

conclusion proved a fairly accurate prediction. Work commenced on a further three cars (544-546) but construction did not proceed far before work was suspended late in 1955.

The Quinn era was drawing to a close. Assistant Manager Francis who had replaced Risson retired in September 1952 and on 31 December 1953, Mr S.L.Quinn, General Manager, Transport Department himself retired.

The Brisbane Lord Mayor, Alderman Roberts, spoke highly of Mr Quinn's services with the Queensland Railways, the former Tramway Trust and the City Council. Roberts was quoted as expressing the view that in no small measure the modernisation and effective operation of the city's tram and bus services, recognised as the best in Australia and comparable with the best in the world, are due to Mr Quinn's ability and outstanding vision (*Electric Traction*, Dec.1953, p.3).

On the occasion of his retirement, Quinn when interviewed by the press said, Brisbane Transport is not only known for its modern cars but for the courtesy of the staff. Public transport could succeed only when it had speed and comfort as well as economy and efficiency (*Courier Mail*, 31 Dec.1953, p.3).

Changing Management and Changing Times

Sydney Quinn was succeeded as General Manager by Mr G.R.Preston. As General Manager, Preston was destined to remain in the role for a period considerably less than Quinn.

The Cavendish Road tramline duly closed in November 1955, being replaced by trolleybuses with extra diesel buses assisting in providing a supplementary service in peak hours.

Down south in Melbourne, 'Bob' Risson, as he was always remembered as in Brisbane, was finally able to open the new Bourke Street route (to Northcote replacing diesel buses and extended over existing tracks to East Preston) in June 1955 and finally the East Brunswick extension again replacing buses in April 1956.

There were to be no more extensions in Melbourne from that date for a long while either, but Risson continued his emphasis upon maintaining the permanent way in good condition through the extensive use of mass concrete during major tram track relays, and resisting any attempt to replace Melbourne's trams.

The M&MTB placed in service 69 new trams between 1946 and 1952. An additional 62 trams (W6 and W7 class) entered service between 1954 and 1956. Construction of a further 30 W7 class cars had commenced and 10 were well advanced when the State Government cancelled the order to reduce expenditure (Cross 1993, p.44).

The delivery of these 131 trams, provided Melbourne with a fleet, which contained a slightly greater percentage of newer cars than existed in Brisbane. It enabled Risson to campaign very effectively throughout the 1950s and 1960s that you do not abandon an asset worth in monetary terms millions of pounds.

Risson was a powerful advocate for tramcar retention who chaired a large well respected semi government department. In Brisbane, the respected advocate for tramway modernisation, in Quinn, had retired. The new General Manager in Brisbane headed a Department that was subject to more external influence than the structure of the M&MTB.

Electric Traction noted (March 1956, p.9) the halt in new tramcar construction and the fact that not all new trams were receiving the resilient wheels. The latest car on the road is still No 543, work having been suspended on numbers 544-547 owing to lack of funds. Cars 542-3 have solid wheels [not resilient wheels].

On 10th July 1958, the Appeals Board commenced hearing an appeal by Mr G.A. Preston, against his dismissal as the City's transport manager. The Queens Counsel appearing for the Brisbane City Council submitted that the Board could not hear the appeal. This submission was rejected, after which the Council asked the Queensland Supreme Court to prevent the Board dealing with the appeal. The hearing was then adjourned indefinitely (*Electric Traction*, August 1958, p.19).

Elsewhere in Australia, 1958 was a significant year in relation to tramways. In June the last tram ran in Perth, the last tram ran across the Sydney Harbour Bridge in the same

month when the North Sydney lines were abandoned and the last street tramway in Adelaide (to Cheltenham) closed in November. In the South Australian capital, only the line to Glenelg was retained, largely because it travelled its own right of way.

“On the 15th December [1958], the City Council Appeal Board was advised that the former Transport Manager (Mr G. A. Preston) had withdrawn his appeal against dismissal. A negotiated settlement included an unspecified payment by the Council to Mr Preston, and the issue of a Council statement that the dismissal ‘involved no reflection whatever upon the character and administrative ability’ (*Electric Traction*, March 1959, p.8).

Around the same time it was reported, that the Lord Mayor of Brisbane, Alderman Groom, had forecast the elimination of tramways from Brisbane in his lifetime (*Electric Traction*, March 1959, p.10).

In January 1959, a replacement for Mr Preston was announced. Ironically, like Risson the appointment was a man with considerable experience in the Australian Army. The *Courier-Mail* (23 Jan. 1959, p.1) reported that:

“Brigadier L.G.Binns, 58, of Melbourne, a high Army Department administrator and transport expert, was appointed yesterday as manager of the Brisbane City Council Transport Department. For the last six years he has been the representative of the Army Minister on the Australian Transport Advisory Council. The position [to be occupied by Brigadier Binns] has been vacant since June 18 [1959], when the dismissed manager, Mr G. A. Preston, was told suddenly to leave that day after having been given three months notice.”

Brigadier Binns had a long experience in the Army and with Transportation problems. His career commenced with Army training at the Royal Military College, Duntroon, and upon gaining his commission, he served with the British Army in India from 1924 to 1925. When he returned to Australia, he made a special study on Australian Railway problems in 1937, with some comments on gauge standardisation. He also made very favourable comments on the Wentworth [Rail] Gauge Standardisation Scheme in 1956.

During World War II from 1940, he was Director of Movements-Transportation, and in 1942 he was appointed Australian Liaison Officer, General H. Q., Middle East. In 1945, Binns performed special duties for the Commonwealth Government for War Settlements for the Allies, and also Purchasing Missions. Eventually he retired from the Army in 1950. Upon entering the Public Service, he was appointed Assistant Secretary (Dept. of the Army) and worked on Organisation, Planning and special duties endeavouring to reduce administration in the Army.

He also represented the Army on the Australian Transport Advisory Council. *Electric Traction* also commented (April 1959, p.5) Brig. Binns now enters a completely different type of transport authority-street transport. It will be interesting to see how he adapts himself to the specialised duties of the Brisbane tram and bus system.

Meanwhile the first of the three partly completed trams, No 544, entered service on the 5th March, and was allocated to Ipswich Rd Depot. *Electric Traction* (April 1959, p.5) also reported that this was the first tram to be completed since tramcar building was suspended over three years ago.

The Era of Indecision and Indifference

The Manager of the Transport, Mr L. G. Binns, recently stated, in a television interview, that Brisbane tramways could continue to serve the public for up to twenty years. The permanent way was in good order, and the trams had a higher revenue-earning capacity than buses. This was quickly followed by a Lord Mayoral statement that there would be no tram extensions so long as his party was in power (*Electric Traction*, November 1959, p.7).

Around this time, and for some time afterwards, it appears that the head of the Transport Department and the Chairman of the Transport Committee, were generally supportive of the continued operation of the trams, however within the wider council and at Lord Mayoral level, the lack of support for tramway retention often went beyond that towards hostility.

Yet even as Transport Manager, Binns it seemed was to some extent hinting at the inevitable. On his return from the 1959 Transport Managers' Conference in Adelaide, *Electric Traction* (December 1959, p.12) reported that Transport Manager Mr L.G.Binns stated that:

"An all-bus system was a possible important development in the next 10-20 years."

He added that:

"The Municipal Tramways Trust (MTT), Adelaide was providing the BCC with details of its changeover to all-bus transport."

However, Mr Binns mentioned that the MTT, in a city of similar size, to Brisbane, was carrying only about half as many passengers as the BCC. Commenting on this report, Transport Committee Chairman, Ald. M.S.Duus said that Brisbane trams were doing a very good job, though [Duus was forced to concede that] buses gave a more manoeuvrable service, and it was likely that the latter would be used for future extensions. (*Electric Traction*, December 1959, p.12)

At the end of the 1950s, after a controversial report by consultants, W.D.Scott & Co, feelers were put out to the state government to take over the tramways from the City Council. The answer was a definite No (Jones, 1993 p.94). In their report, W.D.Scott & Co estimated that replacing trams with buses at weekends would mean a saving of £30,000 a year (*Courier-Mail* 30 Jan.1959, p.3)

Tramcar no 544 (as noted earlier) and tramcar no 545 finally appeared in 1959 whilst car no 546 entered service in January 1960. These last two cars were the first to be built with fluorescent lighting. Engineering staff within the Council's tramway workshops at Milton continued to introduce innovations and improvements within the constraints of funds available but the days of building thirteen and fourteen new trams each year were over. Accordingly the average age of the tram fleet was steadily increasing each year.

Subsequently it was announced that all four-motor trams were to be fitted with internal fluorescent lighting (*Electric Traction*, November 1960, p.11) but these minor rolling stock improvements were overshadowed by new bus deliveries which totalled 20 in 1960 and a further 14 new vehicles the following year.

The Transport Manager, Mr L.G.Binns, when addressing the sixth Australian Planning Conference in Brisbane on August 3 1960, said that:

“...the replacement of trams in city streets by buses would not solve Brisbane's traffic problems. Also, such a measure would necessitate the purchase of 900 new buses, which would seriously affect Council finances.” (*Electric Traction*, September 1960, p.8).

On 11 November 1960, the Lord Mayor stated that proposed new arterial roads and the inner distributor road would relieve pressure on existing traffic routes, and could make it possible to prolong the operation of tramways in Brisbane, though he repeated his personal belief that they must ultimately be removed. Cities, which had discarded trams, had in many cases been faced with run-down equipment and worn-out tracks, whereas the Brisbane tramways were in good condition, providing clean and fast transport and using locally produced fuel.

Approximately two months later, early in 1961, the Acting Lord Mayor (Ald Crawford) in a statement to the press pointed out the advantages of trams on the many hilly routes around Brisbane, where they out performed diesel buses, and reaffirmed the Council's intention to operate trams for many years. However he also reiterated the belief held by senior Citizens Municipal Organisation (CMO) aldermen that the removal of trams from at least one arterial road might be undertaken, in the hope that such an expedient might lessen traffic congestion. A leading town planner expressed the opinion that it would be madness for Brisbane to rely wholly on buses, especially when Australia did not have any commercial oil deposits. (*Electric Traction*, February 1961, p.8)

Also of significance was the fact that in February 1961 the last trams ran in Sydney, when the lines to La Perouse and Maroubra Beach were closed. Apart from the Glenelg line in Adelaide, the only Australian capitals now retaining trams were Brisbane and Melbourne.

April 1961, a New City Administration Comes to Power

Commenting upon Labor's sweeping victory in the Brisbane City Council election, the *Courier-Mail* reported (1 May 1961, p.1) that the Lord Mayor elect (Alderman Clem Jones) announced that the A.L.P. City Council would conduct a searching investigation into sewerage, water, road, drainage, planning, transport, and other vital activities of the council. Alderman Jones announced that a practical programme for the sewerage of Brisbane would be prepared as soon as possible.

Following the City Council elections on 29th April 1961, which brought a new administration into power, Alderman W.C.R. Harvey was chosen as Chairman of the Transport and Electricity Committee (*Electric Traction*, June 1961, p.6).

On an optimistic note, *Electric Traction* reported (August 1961, p.12) that:

...“the new administration of the Brisbane City Council had not yet given any public indication of its transport policy, but the Lord Mayor (Alderman Jones) has announced a provisional allocation of £410,000 from loan funds to the tramway section, which may be a sign of improvements to the rolling stock and tracks. Under the previous Council there was a virtual ban on tramcar construction.”

Electric Traction (August 1961, p.12) also noted that the Transport Committee Chairman (Alderman Harvey) was considering several measures aimed at reducing losses on the system's buses and trams, including a reduction of the number of stops, a drive against fare evasion, co-ordination of various services, and reduction in the number of administrative staff.

Alderman Harvey also expressed dissatisfaction with the light grey paint finish introduced by the former Council, and committed to examine alternative schemes, as well as improving methods of cleaning vehicles. The replacement of hand brakes on the older dropcentre cars slowly continued, as evidenced by a report that cars numbered 299, 300 and 301 had been fitted with air brakes (*Electric Traction*, August 1961, p.12).

In common with every other city, Brisbane saw people turning away from public transport to the private car and televised recreation, with the consequent loss of profitability for the transport operator, but according to Jones (1993 p.94), the Brisbane tramways were under no real threat until the election as Lord Mayor in 1961 of Clem Jones.

Jones was a Labor man of the old school: At the age of 43 when he was elected, he kept an iron grip on the city for a record term, to the extent that the city was seen as a major source of opposition power and patronage by the conservative, rural-orientated State Government. It was a major tenet of his ideology that every person should have the right to drive their cars into the city for whatever purpose, and if public transport got in the way, so much the worse (Jones, 1993 p.94).

In an interview ten years later in 1971, and nearly two years after the last tram ran in Brisbane, Jones stated categorically:

“...we are [were] trying to get rid of public transport..... I'm not an anti-motor car man. There are two things I believe people are entitled to: a home and a motor car. What's the good of having a society which provides for a man [person] to own a car and tells him he must leave it at home five days a week? I believe our job is to appreciate this age of the motor car”
(*Walkabout*, March 1971 p.37).

Mr L.G.Binns, who was Manager of the Brisbane City Council Transport Department from January 1959, resigned from that position on 18 August 1961. At that stage, Mr Binns would give no reasons for his decision but subsequent press interviews indicated that he considered the Transport Department was subjected to undue direction by aldermen. (*Electric Traction*, October 1961, p.5)

Electric Traction (October, 1961, p.5) also went on to report, that there was good reason to believe that strong personal opinions of some senior aldermen restricted managerial initiative over the past last two years. On 8 September 1961 it was announced that Mr D.R.Macnaughton, an official of the Electricity Department, had

been appointed as Transport Manager. Mr Macnaughton, who was then 56 years of age, had joined the Council staff as an electrical fitter in 1927, and had since then progressed through several supervisory and administrative posts in the Electricity Department.

Alderman Harvey, Transport Committee Chairman, continued to remain a strong supporter of the trams and ordered the progressive removal of unsightly wooden advertising frames from the exterior of the four motor trams. It was announced that in the future, advertising signs will now be painted directly on the sheathing. The wooden frames caused corrosion, and dirt and dust collected around and behind the advertising panels. (*Electric Traction*, Oct.1961, p.6).

During a televised discussion of traffic matters on 18 August 1961, Mr K.Leitch, State Traffic Engineer, warned that Brisbane would make a very serious mistake if it removed its trams before some more efficient form of public transport could be developed. Mr Leitch mentioned the new Congress Street expressway in Chicago, with built-in rapid transit in its central strip as the ultimate desirable solution. On existing Brisbane streets the greater width required by buses caused them to take up over one traffic lane, in contrast to trams which fitted into existing lanes without reducing the number available to other traffic. (*Electric Traction*, October 1961, p.6).

A statement in 1962 by the Lord Mayor of Brisbane, Alderman Clem Jones, indicated that because of increasing traffic problems in the city consideration should be given to the construction of expressways as in other cities such as Sydney. The Lord Mayor stated however: "That he was not advocating the removal of trams." Jones went on to concede that increased 'bus congestion' in Sydney, was causing doubts in some quarters whether it had been advisable to remove the trams (*Electric Traction*, May 1962, p.3).

There was growing opposition to continued tramway operation from within other sectors of the Council, especially from the Works Department. The Chairman of the Brisbane City Council Transport Committee, Alderman W.C.R.Harvey, stated on 29 May 1962 that he was opposed to the removal of any tram routes, mainly because the trams handled the passenger traffic much more economically than buses.

These comments were in response to the Metropolitan Works Board making the approval of a short track relay subject to Council's decision on the proposal to replace the route concerned with buses. Alderman Harvey denied he knew of such a proposal and ordered his Transport Department officials to make a full report on the future of trams. It would appear that Works Department officials were trying to interfere with the Transport Department's track relaying programme. For some years the Works Department, it was alleged, had been pursuing a policy of non co-operation in matters involving tramway construction and had opposed the construction of all concrete tram tracks. (*Electric Traction*, July 1962, p.4)

In Council, the Opposition was also suggesting an all bus system. Replying to a Citizens Municipal Organisation (CMO) alderman who advocated all-bus transport for Brisbane, Ald. Harvey pointed out that:

“On an operating cost basis, trams showed a profit compared with the huge loss by buses. To replace them would mean putting an additional 559 buses on Brisbane streets, which would add to traffic congestion and strangle the bus services themselves” (*Electric Traction*, August 1962, p.2).

Meanwhile at the Day to Day Operational Level

Council staff at Milton Workshops continued pursuing vehicle improvements. Following the success of the fluorescent lighting installed in four-motor cars no 511, no 545 and no 546, it was announced that a further twenty cars were to be so equipped (*Electric Traction* August 1962, p. 2).

The Transport Committee Chairman Alderman W.C.R.Harvey, announced that the deficit on tram and bus services for 1961-62 was £314,841 pounds, the lowest figure for 10 years. Alderman Harvey also announced that a further 20 trams were to be fitted with fluorescent internal lighting, and that the conversion of further hand braked cars to air brakes would continue. *Electric Traction* (September 1962, p.4) specifically mentioned that drop centre car no. 289 has been converted to air braking; this made a total of 30 cars so converted in the then current programme.

But no one, not even Alderman Harvey was prepared for what lay ahead.

The Paddington Depot Fire

Brisbane's Paddington Tram Depot was totally destroyed by fire during the evening of Friday 28th September 1962 causing damage estimated at half a million pounds (*Electric Traction*, November 1962, p.6).

Under the front page heading, *67 Trams Destroyed in City's £500,000 Blaze, Fifth of Council Fleet Burnt*, the *Courier-Mail* (29 September 1962, p.1) reported that:

"The fire which destroyed the Paddington Tram Depot last night was Brisbane's biggest and most spectacular fire. The fire destroyed 67 trams [actually 65], which represented almost 20 per cent of the City Council's tram fleet. The two-storey depot and workshops, in Latrobe Terrace, Paddington were built of galvanised iron and wood in 1915. The depot was ablaze from end to end within ten minutes."

An editorial in the *Courier Mail* (1 October 1962 p.2) commented that:

"The Council will be faced with a heavy capital outlay for the replacement of the lost trams with either new trams or with a much larger fleet of buses. It will have to consider very carefully which alternative would be a sounder investment."

Whilst the Transport Department had enough spare trams and buses to meet the Monday morning peak requirement, there were insufficient vehicles to meet the afternoon peak. The Council arranged to hire buses from the Department of Government Transport in Sydney. Staff flew from Brisbane to Sydney, where they were accommodated overnight at the Eastern Command Personnel Depot, South Head. Fifteen AEC 31 seat single deck buses, those most recently overhauled, were assembled at Randwick Workshops on Saturday 29 September and on Monday 1 October, the buses arrived in Brisbane (Travers, 1982 p.140).

After the fire, it was announced that Transport Department Officers had been preparing a report on the future of tramway operations in Brisbane since last May, following a request from the City Council Transport Committee. It was also

announced that the investigation would be speeded up and it was hoped to have the report by the end of October (*Electric Traction* November 1962, p.8).

Electric Traction also reported that a decision had already been made against rebuilding a new tram or bus depot on the site of the Paddington Tram Depot. The Lord Mayor stated that the site would probably be sold and the money obtained used to build a new bus depot. He stressed that this did not mean he was in favour of more buses and fewer trams. Notwithstanding the loss of the tram depot at Paddington, the Lord Mayor was quoted as saying that "we simply need a new bus depot, The Milton Depot has outgrown its purpose" (*Electric Traction* November 1962, p.8).

The Lord Mayor added that the whole future of Brisbane's transport system was tied up with the City plan and the City's general economics. From this point in time, it would appear that the real issue of concern to the Council was not whether to convert to an all bus system but rather the cost of a tram to bus conversion.

It was also reported (*Electric Traction* November 1962, p.8) that a majority of Aldermen of the Labor-controlled Council, including the Transport Committee Chairman, Ald. Harvey, continue to favour the retention of trams. *Electric Traction* commented that if the report recommends continued tramway operation and is adopted by the full City Council a new tram depot would probably be built on land adjacent to Milton Workshops. As the tram fleet was in excess of requirements before the fire, it is unlikely that more than thirty new trams would be built.

"On 9th November 1962, the Lord Mayor announced, despite the loss of the tram depot, that a new bus depot would be built, near Toowong tram terminus, to house 150 diesel buses, including those now at Milton bus depot. He stated that the depot had been planned before the Paddington fire. Critics of the decision commented that despite the tram depot fire, it would appear that the Lord Mayor did not consider any adjustment of priorities to be necessary. Referring to tenders, which were also announced, calling for the delivery of 20 new buses, Ald. Harvey (Transport Committee Chairman) said that many bus extensions, into areas as yet not served by the Council, were planned" (*Electric Traction*, December 1962, p. 2).

The report in *Electric Traction* went on to comment that, it is obvious that powerful pressure is being exerted to prevent the construction of new trams, even though the Council possesses workshops well equipped for this task, and trucks and other equipment, notably from FM class cars, have been salvaged from the ruins of the Paddington Depot site. There is also pressure from officials and/or aldermen to force the closure of Toowong and Dutton Park tram routes, and at least one shorter route is threatened. It has been stated that the 15 Sydney buses at present operating on tram routes in evening peak periods will probably be returned in March when delivery of 20 new Council buses is expected to commence.

Electric Traction (December 1962, p.2) again summarised the situation:

“While public opinion (especially among tram passengers) is far from being generally hostile to trams, a close vote has been predicted in the Council's 'Cabinet', comprising the Lord Mayor (Ald. C. Jones), the Vice-Mayor (Ald. N. L. Buchan), and Aldermen W.C. R. Harvey, T. J. Doyle, and C. J. Greenfield. Under Labor Party rules, all members of this group must vote for the majority decision, when the committee's decision comes before the pre-council meeting of all Labor aldermen. Tenders have been called for a fire protection system, to be installed at Light St. tram and bus depot; Ipswich Road Depot and Milton Workshops already have sprinkler systems, and the Milton Bus Depot has an uncertain future.”

Electric Traction (December 1962, p.2) also reported that following modifications at Milton Workshops, Cars 288 and 287 re-entered service after being fitted with air brakes; the latter was a Paddington depot car, which escaped the fire because it was undergoing this modification. This work together with the fact that the workshops immediately after the fire, began repainting some of the centre-aisle type trams, which had seen very little use for some considerable time, indicated that at this level tramway staff were engaged in on going maintenance of the system, appropriate given the circumstances.

A report in *Electric Traction* (December 1962, p.2) lists centre-aisle cars 131, 133, 136, 138, 143 and 144 as having been repainted, but also notes that no further trams of this type had been taken to the Workshops to be repainted after October.

The centre-aisle tramcars were older than the dropcentre trams and dated from the BTRCo era and apart from their age did not have the same carrying capacity as the dropcentre cars. In Brisbane they were widely known as 'Dreadnoughts', for at the time of their introduction they were larger than other contemporary vehicles in the BTRCo fleet.

In the same month it was reported that the City Council administration was expected to make an early decision on future policy on trams and buses following the loss of 65 trams in the Paddington Depot fire (*Courier-Mail* 6 October 1962 p.3). The report went on to suggest that in the event of the council deciding to resume tramcar construction, no more than 30 trams would be expected to be built because only about 30 of the 65 trams destroyed were used to any extent. Some of the trams [centre-aisle cars] which previously were being used infrequently, were being used following the fire together with the 15 buses hired at short notice from the Department of Government Transport in Sydney.

On the 20th December 1962, the Council sought approval from the Transport Commission to replace trams with buses on three services from Christmas Day. The *Courier-Mail* (21 December 1962, p.1) reported that the services were from Bulimba to Fortitude Valley, Rainworth to Kalinga, and Toowong to the City. This actually involved four tram routes as the Kalinga route was through routed to Rainworth. At the time of the changeover it was widely reported that this was to be a trial, but in fact tram services were never restored to the four routes in question.

The following day the *Courier-Mail* (22 December, 1962, p.1) in a front page editorial was highly critical of the manner in which the Establishment and Co-ordination Committee, secretly and without reference to the aldermen, decided to approach the Transport Commission for permission to replace trams with buses. As the Council had gone into recess [until February 5], the *Courier-Mail* informed its readers that the ratepayers and citizens had been treated with complete contempt by the Lord Mayor and other members of the Council Committee and that the events represented a dangerous departure from democracy. The Establishment and Co-ordination Committee was effectively the council 'cabinet'.

A mass meeting of 250 tramway employees on 23rd December 1962, passed a motion condemning the City Council Establishment and Co-ordination Committee for its switch to buses from trams on the four routes (*Courier-Mail* 24 December 1962, p.3). The Lord Mayor, (Alderman Clem Jones) was quoted as saying that the aim of the tram-bus switch was to give a better service and that more buses would operate during peak hours.

The leader of the opposition Alderman Crawford said (*Courier-Mail* 26 December 1962, p.3) that:

“The Lord Mayor and his Establishment and Co-ordination Committee, well knowing that there was considerable opposition not only from a large section of the public, but within his own Labor caucus, resorted to wily political tactics to evade the issue.”

After the council had gone into recess, the policy of removing the trams on the Rainworth-Kalinga, Toowong and Bulimba Ferry lines was implemented and instructions were issued to the Transport Department to have the changeover operating by Christmas Day.

In a move that appeared contrary to other developments at the time, it was announced by the Chairman of the Transport Committee, Alderman Harvey on 26th December 1962 (Boxing Day) that the Council is to build eight new 400 (FM) class trams at Milton Workshops, which are to cost £82,750 (*Courier-Mail* 27 December 1962, p.3). Alderman Harvey said that the trams to be built would be of the '400' type, the same as the latest trams in Brisbane. It was reported that if the Council were to design a tram in accordance with the latest trends, it probably would be eight months before the first would run. There was little doubt that this very modest construction programme was a compromise, as evidenced by the fact that barely more than a handful new tramcars were to be built, and that no real advance was to be made away from the basic 1938 design of the newest cars in the existing fleet.

Electric Traction (February 1963, p.4) reported that the first new tram was expected to be ready in June. Material such as trucks had been salvaged from the burned depot, and fifty-seven new motors were already in stock.

The System in Decline

Brisbane's first new tram to be completed since December 1959, car no 547, was driven out of Milton Workshops by the Lord Mayor, Alderman Clem Jones on September 16, in the presence of over 400 employees of the Transport Department. This ceremony had a strange background, as the Lord Mayor was widely known to have strongly opposed the building of the group of eight FM class cars, of which 547 was the first to be completed (*Electric Traction*, October 1963, p.3). Rolling stock records of the BCC record that the next six trams, cars numbered 548 to 553 entered service between October 1963 and February 1964. The last car of eight FM class trams No. 554, ordered after the Paddington Depot fire, was driven through the gateway of Milton Workshops by the Lord Mayor Ald C. Jones on 20th March 1964.

Press reports that a dozen West German cities were constructing, or preparing to construct, underground tramways through city centers, should have received close attention, according to the Brisbane Development Association president Mr T. H. A. Cross. However, the Lord Mayor insisted that no comparison of Brisbane with European cities could be made, because of differing vehicle population densities (*Electric Traction*, May 1964, p.2)

In a publication reviewing the Brisbane tramcar fleet which was published shortly after the placing into service of car no. 554 (Richardson 1964, p.5) commented that:

"The political climate now tends to discourage tramway development, and that advantage was taken of the destruction by fire of Paddington Depot to curtail tramway services, despite the fact that financial results heavily favour the trams."

Behind the scenes, other events were taking place to ensure that no further trams were to be constructed. It was revealed soon after car no. 554 left Milton Workshops

to enter service (amid TV and Newsreel publicity) the body jigs, upon which cars 400-554 were constructed, were ripped out of their concrete foundations and quietly dumped among some old rails near Windsor Park. Alderman Harvey (Transport Committee Chairman), described this equipment as 'in storage', and said that the Council's action did not mean that the Department would not build any more trams or would not use these jigs again. No explanation was given as to why this valuable equipment could not be stored out of the weather in or near Milton Workshops (*Electric Traction*, June 1964, p.15).

The *Courier-Mail's* City Hall reporter indicated (20 April 1965, p.1) that "the transportation study report to be released in June is likely to recommend the gradual elimination of Brisbane's tramway system". The front-page article went on to report that the State Government and the City Council had sponsored the report, which will make suggestions on relieving Brisbane's traffic congestion. Some influential opinion at the City Hall favors a policy of gradually replacing the present tramway system. The Council has nearly completed the design of an all bus system. In an interim report in April 1963, on public transport policy, a Transport Department committee had stated that the tramway rolling stock was obsolescent by modern standards.

The *Courier-Mail* (10 May 1965, p.9) in reviewing the then forthcoming Labor-in-politics convention at Townsville, commented on the possible conflict at the convention between the Lord Mayor (Alderman Clem Jones) and the Transport Committee Chairman (Alderman Harvey) during any discussion on transport policy. It was reported that some Labor aldermen believed that Alderman Harvey should be restored to full control of the Transport Department. Alderman Harvey was generally seen as a supporter of continued tramway operation on existing routes, whilst in support of bus expansion beyond the areas served by the trams.

On 4 August 1965, the preliminary report by the North American consultants, Wilbur Smith & Associates' was presented to the Deputy Premier of Queensland and the Lord Mayor of Brisbane. The consultants recommended a 20 year programme which included 5 new bridges, 8 freeways totaling 80 miles, 4 expressways totaling 16 miles, and the conversion of 17 streets to one-way traffic flow. As previously forecast, the Americans strongly recommend a 'rush' programme of scrapping all tramway and

trolleybus services within three years, and the substitution of diesel buses.

In addition the consultants did not recommend the electrification of suburban railways, or improved passenger rollingstock, but a rapid transit rail service was recommended between Darra and Virginia. In what could be seen as keeping his distance, the Premier Mr G.F.R.Nicklin stated that "the early substitution of buses was a matter entirely for the City Council" (*Electric Traction* September 1965, p.2).

Reporting on events associated with a television interview the Lord Mayor, in response to being asked whether public transport was in danger of being sacrificed to make way for private cars, was quoted as expressing the view, "that if people are allowed to buy cars, they should be allowed to use them" (*Electric Traction* January 1966, p.3). Several months passed and there was no official indication of future policy on tramway operations from City Hall.

Despite the release of the Wilbur Smith & Assoc. report several months earlier, the Lord Mayor maintained that the future of Brisbane's tramways, and whether or not they should be abolished as recommended by North American consultants, had not yet been decided (*Electric Traction* May 1966, p.2), whilst Alderman H. A. Crawford the Opposition Leader in the City Council criticised the delay in implementing the U.S. consultant's plans.

The Introduction of Express Buses on Tram Routes

During his budget speech on 10 June 1966, the Lord Mayor announced that:

"As from July 11, express buses will operate from Mt Gravatt and Belmont tram termini to the city during the am peaks with return pm trips, and that if successful the competitive service would be instituted on other tram routes, and as patronage of the trams was affected, they would be reduced out of service."

At the time it was also announced that 114 (later increased to 204) rear engined buses were on order, whilst a notable omission from the budget for the 1966/67

financial year, was any loan fund allocation for (relaying) concrete tram tracks (*Electric Traction* July 1966, p.4).

Despite all this the City Hall Administration continued to maintain that no decision had been reached on the future of Brisbane's tramways.

The *Courier-Mail* reported (12 July 1966, p.9) that:

"The introduction of an express bus service from the city to Mt Gravatt and Belmont yesterday brought no serious disruptions to peak hour traffic as buses picked up passengers in Queen Street. The secretary of the Tramways Union earlier predicted the express buses would cause chaos in the peak-hour traffic as they stopped to pick up passengers along busy Queen Street. Public reaction to the new express service was most favorable. Hundreds of city workers took advantage of the express buses and cut from 15 to 25 minutes from their normal traveling time."

An editorial on the same page (*Courier-Mail*, 12 July 1966, p.9) summed up the changing situation:

"The success of the express buses on the Mt Gravatt and Belmont tram routes yesterday marked the beginning of the end of trams in Brisbane. Because of City Council-Union negotiations which started this morning (over continuous employment for those displaced by the replacement of trams by diesel buses) neither side would admit this yesterday."

On 8 August 1966, following several conferences with council officials the Tramways Union secretary Mr W.J. McCormack issued a press statement expressing belief that Brisbane trams would be eliminated in 5 or 6 years (*Electric Traction* October 1966, p.7). McCormack's target was generous in relation to the amount of life left in the trams. The conversion to buses and the demise of the Brisbane tram was to be achieved in a much shorter time frame.

A few days earlier the president of the Queensland Retailers' Association Mr N. J. Loveday, stated that his group regarded trams as the best type of public transport for the fast, efficient conveyance of Brisbane's working and shopping public and

that insufficient reference had been made in the U.S. consultants' report to improved public transport (*Electric Traction*, October 1966, p.7). City traders and the major retailers at the Fortitude Valley had over a long period supported the trams. Jones (1993, p.93) noted that it was the boast of Allan and Stark's department store in the city that every tram ran past its doors.

Brisbane's public transport users voted heavily in favor of trams in the opinion poll conducted by the *Courier-Mail* in October 1966. Nearly 500 letters were received by the newspaper during eight days, of which 450 advocated continued use of tramways. Some of the letters were signed by as many as 16 people.

Commenting in the press, the Lord Mayor said that:

"The poll was being conducted on the incorrect supposition that the Council intended to replace trams with buses."

The Lord Mayor was further quoted as suggesting:

"That this question had never been considered by the Council" (*Electric Traction* January 1967, p.11).

At the final Council meeting for 1966 the Lord Mayor said that the Council could decide to make variations to the Wilbur Smith & Assoc. recommendations which had favoured the replacement of trams and the introduction of an all diesel bus street transport system (*Electric Traction*, January 1967, p.11). Around this time there was no shortage of opinions, both for and against the retention of Brisbane's trams.

Mr Paul Ritter, a city planner from Perth, visited Brisbane in November 1966 at the request of the Brisbane Development Association. Amongst other comments, Mr Ritter warned against over emphasis on freeways, and praised electric transport on environmental grounds. He added that trams should not be lightly dismissed as in the Wilbur Smith & Assoc. plan, and should not be totally replaced by diesel buses. If Queen and Adelaide Streets became pedestrian malls, tram services would be a boom and would follow the best modern practice in cities like Philadelphia (*Electric Traction*, January 1967, p.11).

More Express Bus Services Introduced

Ironically it was to be the introduction of more express bus services that was ultimately going to enable the last of the hand braked trams to be withdrawn. Peak hour supplementary express bus services commenced operation on the Salisbury and Balmoral tram routes in March 1967. The introduction of the express buses on four tram routes coupled with a fall off in loading on all lines resulted in the introduction of reduced peak hour tram services from July. This rendered 54 hand braked dropcentre cars surplus and the scrapping of these cars commenced, whilst the shape of things to come was provided when the order for 204 rear engined diesel buses was increased to 340 vehicles (Clark & Keenan 1977 p.51).

The new buses featured a Leyland Panther chassis upon which locally built bodies were constructed. One prototype Leyland Panther was delivered in advance (Bus no.10) before delivery of the other 340. The large size of the order was significant as Millar and Lynas, (1983 p.16) noted, that the largest batch of Panthers anywhere in the world were the 341 supplied to the Brisbane City Council between 1967 and 1969 for tramway replacement. The first, No. 10 was a prototype and differed slightly from the production models.

The new bus depot at Toowong which was designed to service 150 diesel buses, was opened by the Lord Mayor in April 1967. Whilst plans had been drawn up for a new Victoria Bridge, the City Council refused for months and months to confirm if the plans included tram tracks on the new structure or not. In January 1968 express buses started in competition with Ashgrove trams and in June further extensive service cuts to tram services were implemented. The following month the Council announced that a decision had been made to resume land near the Carina bus terminus for another new bus depot with a capacity of 150 buses (*Electric Traction*, March 1968, p.6).

The End of the Tram System

Despite open public speculation for years, and the lack of any evidence to the contrary that the trams were not going to be replaced, a formal announcement, on the conversion of trams to buses, was not made by the Brisbane City Council until June 1968, when at the time of the Budget the Lord Mayor publicly announced the Council's intention to changeover to an all bus system. It was seen by many as a rather belated announcement, but the street transport issue remained highly sensitive.

Even in Melbourne, Risson did not escape the attention of the press. Asked to comment on the announcement by the Brisbane Lord Mayor, Alderman Jones, on the 21st June 1969, that Brisbane trams would be replaced by diesel buses during the financial year 1968-69, the Chairman of the M.& M.T.B., Mr R.J.H. Risson, said that Melbourne would never lose its trams if they were judged on their merit. Just because other cities give up trams does not mean to say they are right and trams are the main public transport vehicles in Europe and many parts of America (*Electric Traction*, September 1968, p.3)

Following the announcement of the tram conversion program, which virtually came as no surprise to the majority of Brisbane citizens, the Lord Mayor (Alderman Jones) said that he took full responsibility for the conversion of the City Council's public transport system to diesel buses only.

Alderman Jones was quoted in the *Courier-Mail* (22 June 1968, p.5) as saying that he considered it "imperative in the interests of traffic improvement that this Council should co-operate with the State Government in the implementation of the scheme, and irrespective of party politics". The Lord Mayor indicated that he was well aware that there would be public controversy in the months to come. In reality, the issue has never really gone away.

Alderman Jones said that it had been claimed that the Council had not been forthright in its statements on the future of public transport, and had inferred rather than stated that trams were to be replaced by buses in Brisbane. Jones acknowledged that this criticism was to some extent valid since he had avoided

making any statement until he was in a position to know when the conversion would be effected and how it would be paid for (*Courier-Mail*, 22 June 1968, p.5).

Again in an editorial in the *Courier-Mail* (22 June 1968, p.2) under the heading, *End of Trams*, the newspaper commented upon the long period which had seen "a stone wall of silence and evasion on the future of trams". The editorial went on to comment that "all we can hope for now is that the replacement buses will have a measure of comfort somewhere equal to that of the trams – which in the opinion of the newspaper the existing buses did not have".

The first line affected was the Ashgrove - Grange tram route which ceased operation on Monday, 5 August 1968. Following this action there was a dispute over the replacement of trams by one-man operated buses which resulted in the calling of a transport strike early the next morning that was to last for 23 days. Services resumed only after Tramway Union officials had received assurances of continued employment in other Council departments for tramway staff rendered surplus by the closure of the tramway system (Clark & Keenan, 1977 p.52).

On 1 December 1968, Brisbane saw the last day of operation of the remaining Adelaide Street routes between Stafford – Bardon and Enoggera – Chermside (Clark & Keenan, 1977 p.55). This conversion resulted in the closure of Light St Depot to trams leaving only one remaining tram depot, that at Ipswich Rd, on Brisbane's southside.

Electric Traction reported (April 1969, p.6) that on 11th March 1969, the Premier, Mr Bjelke-Peterson, [and not the Lord Mayor] announced that the final conversion from trams to buses had been delayed until 14th April, two weeks later than the date originally announced by the Lord Mayor. The Premier stated that certain operations in regard to the new Victoria Bridge had not been progressing as quickly as anticipated, and the whole situation had been reviewed at a conference between representatives of the Government, the Brisbane City Council and the bridge contractors.

It had been decided that the earliest possible date on which the change of traffic flows from the old bridge to a sharing of traffic by both old and new bridges could

be anticipated (*Electric Traction* April 1969, p.6). Friday evening April 11, 1969 witnessed the last peak hour operation of trams in the city (Clark & Keenan p.56). Tramway operation on the remaining Queen Street routes ceased after the completion of normal services on Sunday evening, 13 April 1969 (*Electric Traction*, May 1969, p.3). Brisbane's last tram ran that evening.

Brisbane and Melbourne

The fact that the Brisbane tramway system had closed had little impact upon the members of the Metropolitan Transportation Committee (MTC) who were in the process of finalising a master transport plan for Melbourne (the 1985 Transport Plan).

Members of the MTC believed that a major contributor to the demise of the trams in Brisbane was the fact that they had to compete for road space in very narrow city streets in the Central Business District (CBD). Brisbane's Queen and Adelaide Streets were narrower (although not all that much narrower) than the streets traversed by trams in the Melbourne CBD.

More than one transportation / traffic engineer whom I have interviewed commented upon the lack of modern trams in Brisbane as another strong factor that led to the demise of the system.

Whilst the 'silver bullet' design had widespread appeal, critics who supported an all bus system had little difficulty in arguing that basically the 'silver bullets', painted in their latter years in an unattractive, all over light grey colour scheme, were still a 1938 design. On the other hand those who supported tramway retention, found the large number of obsolete dropcentre cars still in use in peak hours did little to advance their cause.

Within the Queensland capital replacement of the trams was seen as a far more controversial political closure. Jones (1993, p.98) commented that it is not just nostalgia which leads many Brisbane people to say that they [the trams] should never have gone.

In December 1969, eight months after the last tram ran in Brisbane, the Metropolitan Transport Committee released the 1985 Transport Plan for Melbourne. The report recommended the continued operation of trams in Melbourne and moreover that further studies be undertaken into proposed tram or bus extensions.

Quietly, Sir Robert Risson had won the battle. For the first time there was public (Government) recognition that Melbourne's trams were to be retained. The person who more than anyone had contributed to this outcome in Melbourne was a Queenslander, a person whose transport and tramway career had been built on both the foundation and experience of the Brisbane tramways.

There will always be unanswered questions.

What would have happened if Bob Risson had remained in Brisbane in 1949 and succeeded Sydney Quinn in 1953?

Even more importantly, what would have happened in Melbourne if someone other than Risson had been appointed Chairman of the M&MTB in 1949?

Conclusion

There is little doubt that Sir Robert Risson is the key figure associated with resisting any attempt to close the Melbourne tramway system, just as in his capacity as Lord Mayor Alderman Clem Jones is seen by many to remain the key figure associated with the final demise of Brisbane's trams.

Whilst Alderman Clem Jones will always be remembered by many as the person who closed down Brisbane's trams, Jones who was Lord Mayor of Brisbane from 1961-75 will also be remembered because of his significant contribution to public works, housing, sewerage, road construction, aged care, services to disabled persons, youth welfare and support for the sporting community.

Above all, the City Council administration led by Jones, laid the foundations for the modern Brisbane of today, the dynamic prosperous capital of Queensland, and the vibrant centre of economic activity that it is today. Although Brisbane has successfully introduced busways in recent years to better facilitate movement by mass public transportation, a modern light rail system would compliment the 21st century city that Brisbane has become.

The turning point, towards an all diesel bus system, in relation to Brisbane's trams is often seen as the Paddington Depot fire in September 1962. Although, as significant as the destruction of the Paddington Depot was, the period immediately after the fire represented the last opportunity to save and modernise the system and reverse a trend of significant indifference towards trams in Brisbane, which had occurred, under successive council administrations.

Had a decision been made to retain and modernise the system (as distinct from the chilling silence) after the Paddington Depot fire the Council would have found it necessary to invest in a very substantial vehicle construction program, at least of the magnitude of the level of activity that occurred in 1946 when sixteen new trams were built in a year. There is no doubt however, that the Milton Workshops were capable of doing this.

Indeed, it could be argued that the demise of Brisbane's trams began when the new vehicle construction programme ceased in the mid 1950s. At that time numerous hand braked drop centre cars still formed a large percentage of the fleet, and if one closely examines events, the demise probably started, slightly earlier, around the time, when those who did not really support continued tramway operation realised that Sydney Quinn was approaching retirement. Infact, I would go further to suggest that the warning signs can be traced to an earlier period. Brisbane continued to operate the first generation of trams from the 19th century (the original BCo fleet) in daily service throughout the Second World War and even into the 1950s.

The permanent way side of the undertaking had kept pace (due in no small measure to Risson) but in practice even in the halcyon years of the tramways, vehicle replacement lagged and, except for the period in the late 1940s, when Brisbane invested in new rolling stock it largely stayed with existing out of date tramcar designs for longer than was accepted practice in Melbourne. As the M&MTB Chairman Risson was also assisted by the investment in a fleet of new trams which were required for the Bourke Street routes when they were opened in the mid 1950's.

Given that the rolling stock situation in the immediate post war era was a little more favourable in Melbourne, perhaps it is no surprise that Risson with all his experience in military strategy, maintained his strategy of relaying Melbourne's tracks and for good measure, the majority were placed in mass concrete.

As one tramway researcher commented during an interview, the effort Risson and the Tramways Board put into ensuring the tracks were well maintained in Melbourne was noted by the tram buffs, and presumably by the inner city councils, since the Board was responsible at that stage for the full cost of maintaining the centre of the road, but one suspects largely unnoticed by the state politicians.

Equally as Risson exhibited a sense of vision (even if not everyone shared that vision) well in excess of the average transportation manager, perhaps he realised even in 1949, when one could argue that Brisbane's tramway 'modernisation' was at its height, that the Melbourne tramway system' was more secure and had a future and above all else that the Melbourne system could more fittingly accommodate his professional aspirations.

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