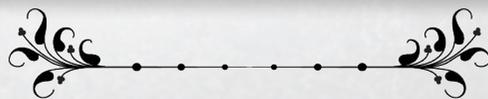
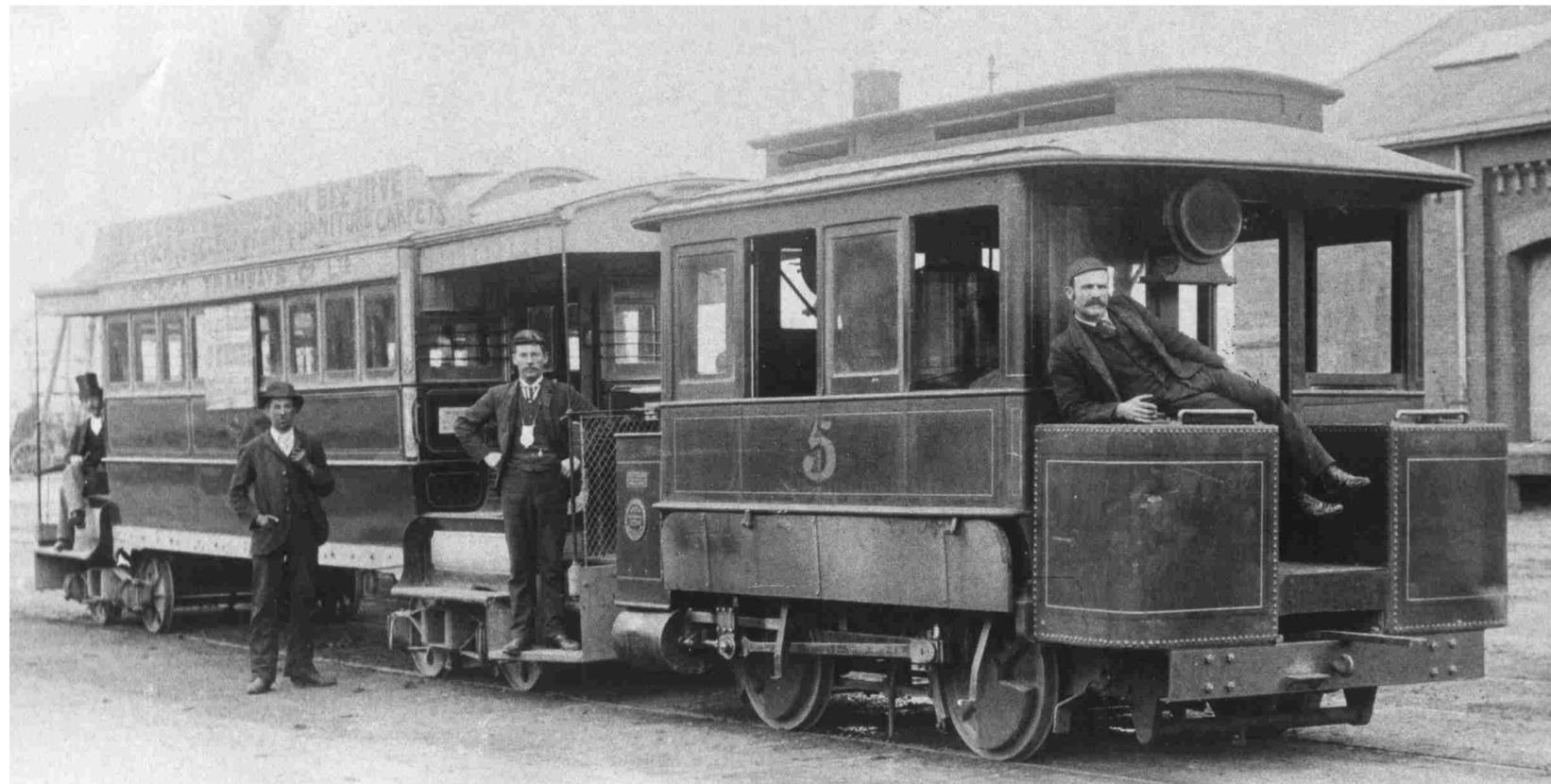




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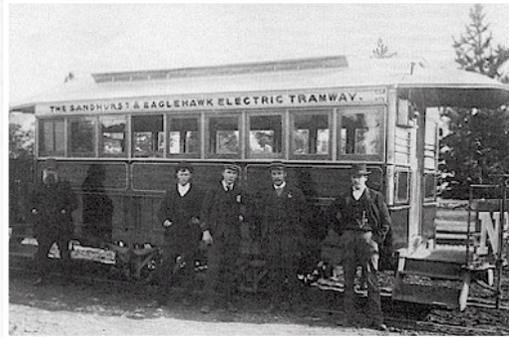
THE BENDIGO TRAMWAYS STORY



Timeline: Early beginnings to present day

1890

Since June 1890, trams have been operating in Bendigo. The first tramway, operated by battery trams, ran from the Railway Station located at the eastern end of Mitchell Street through the city and on to the nearby Borough of Eaglehawk, a distance of four miles.

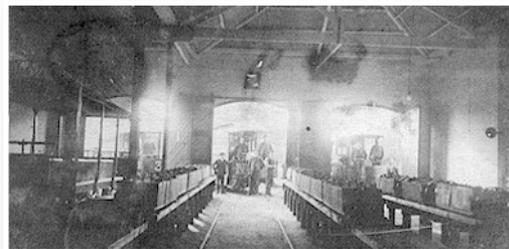


Bendigo Battery tram introduced in 1890.

It soon became apparent that the technology employed to power the trams was inadequate for the hilly terrain of Bendigo. Trams were able to make the journey to Eaglehawk, but invariably were stranded somewhere along the track on their return, because the batteries had become flat. On such occasions, the system reverted to a horse-drawn tramway, with any near-by horse being commandeered to rescue the tram and its passengers and take them back to Bendigo. The trams then returned to the depot in Mollison Street to have their flat batteries replaced with newly charged batteries.

The battery tramway company lasted a mere 13 months at the end of which the Sandhurst and Eaglehawk Tramway Company went into voluntary liquidation and its assets were purchased by the newly formed Bendigo Tramway Company Limited.

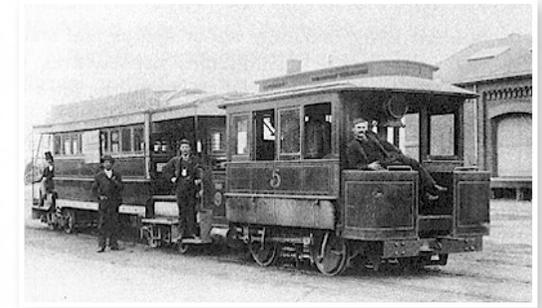
The new company elected to operate the tramway with steam trams and five steam tram motors were ordered from the Baldwin Locomotive Works in the United States of America. These trams were employed to haul bogie



The old depot in Mollison Street.

trailers which had been rebuilt from the battery trams by the Bendigo Rolling Stock Company. The Steam Tramway travelled over the same route as the former battery tramway.

Steam tram services commenced in February of 1892 and soon proved to be a reliable and safe means of transport for the populace of Bendigo and Eaglehawk. With the onset of the depression of the 1890s, the company soon felt the effects through decreased passenger numbers.



A Bendigo Steam Tram from 1892.

The steam tramway was put up for sale in 1896/7 but no offers were forthcoming. However, the company decided it was best to keep the service running as it would be more saleable as a going concern.

In 1899 an English company, the British Insulated Wire Company, bought out the Bendigo Tramway Company and was incorporated as the Electric Supply Company of Victoria.

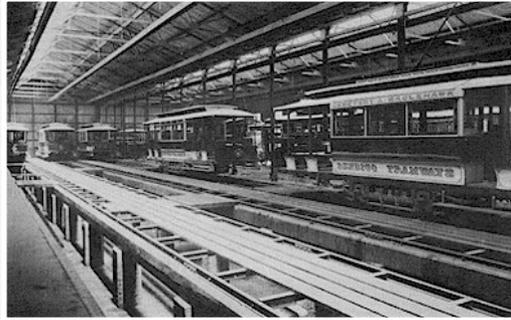
The new company had a grand scheme which included the purchase of the Bendigo Tramway Company Limited, a 30 year franchise to install and operate electric trams using the overhead wire system, an extensive network of tracks linking the centre of Bendigo with Golden Square and Kangaroo Flat, Quarry Hill, White Hills and Eaglehawk.

Because the infrastructure of the Bendigo Tramway Company was inadequate, land was purchased in Arnold Street and building started in 1901 on a generating plant, sub-station, workshop, stores, a tram depot and offices.



1903

By 1903, all was in readiness for the introduction of electric trams to Bendigo, and although the lines did not extend to Kangaroo Flat and White Hills as planned, the tramway was officially opened on 21st April 1903. Unlike those of its predecessor, the Electric Supply Company trams were a success from the very beginning and provided a cheap means of transport for Bendigo citizens until the tramway was taken over by the State Electricity Commission of Victoria.



The Arnold Street depot was officially opened on 21 April 1903.

At the end of World War I the Victorian Government constituted the new semi-government instrumentality the State Electricity Commission of Victoria. The SEC was to take over all privately owned power generating companies in Victoria and operate as a state owned monopoly. Although keen to acquire the electricity generating side of the Electric Supply Company's operations, the SEC was not particularly keen to accept responsibility of the tramways system but it was to become an unavoidable part of the deal.

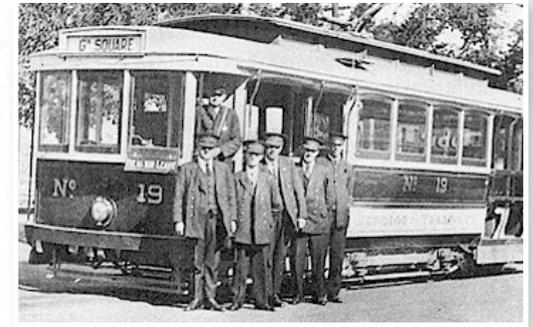
Because it still had a few years before its franchise was due to expire, the Electric Supply Company continued to operate the tramway under SEC supervision until 1934. By this stage, the rolling stock and equipment were 30 years old and the tracks were in poor repair. An immediate program of rehabilitation was put into action which included: track reconstruction, overhead rewiring and the upgrade of workshop equipment.

Before the take over, the ESCV had begun to replace and augment its

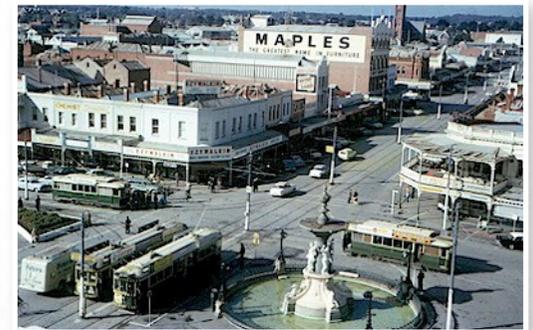
dilapidated rolling stock. Instead of purchasing new trams, second hand trams were obtained from Melbourne, with the first of these being the redundant California Combination trams and by 1936, 14 of these trams had arrived in Bendigo.

Bendigo settled into its new service with little difficulty. The improved equipment, updated rolling stock and better tracks meant a faster and more reliable service. The outbreak of World War II was to prove a testing time: passenger numbers increased and shortages in manpower and materials were to cause difficulties. The Government Ordnance factory was built and the tracks were extended from Lake Weeroona to North Bendigo to provide transport for hundreds of workers it employed.

Trams travelled in a north-south and east-west direction on the Bendigo Tramways. There were no intermediate destinations on the Golden Square to Lake Weeroona/North Bendigo route. Most of the other destinations were intermediate destinations on the Eaglehawk to Quarry Hill line. Charing Cross was the City terminus at which all routes met.



Second hand tram obtained from Melbourne.



Charing Cross was the City terminus at which all routes met.



End of World War II

At the end of World War II, Bendigo received an influx of maximum traction bogie trams from the Melbourne and Metropolitan Tramways Board and the first of the famous Birney trams arrived from Geelong in 1947. By this time however, the tramways were feeling the effects of neglect because of the wartime economy measures then in place. Rolling stock and infrastructure were worn and in need of repair. As well, automobiles were beginning to make an even greater impact and so the tramways began to lose even larger amounts of revenue as the next 2 decades progressed.

Keen to divest itself of the financial burden of operating a costly tramway, the SEC made several attempts at closing the tramways and handing the urban passenger services over to private bus operators. Ultimately, the SEC met with success when the Victorian Parliament granted the application for abandonment of the tramways at Bendigo in July of 1970. The first line to cease operation was the Golden Square to North Bendigo route in March 1972, while the remaining route - the Eaglehawk to Quarry Hill line - ceased operations on Sunday 16th April 1972.

The Bendigo Trust was established in 1970 as the result of a general concern in the community that the legacy of the past was being squandered. With the tramways system under threat and public opinion running high, a small study group was set up by The Bendigo Trust to examine the possibilities of retaining the trams as a tourist attraction. In July 1971, the Trust presented a 22 page submission to the Bendigo City Council asking for the



The Arnold Street depot was included in The Bendigo Trust's submission to the Bendigo Council.

retention of the track and overhead from High Street (at Violet Street) to the Emu Point (North Bendigo) terminus plus access from McCrae Street to the Arnold Street Depot; the use of the tram sheds for storage, display and maintenance and the existing converter station; all the trams, maintenance equipment, uniforms, ticket punches, cash bags and historical records. In August the Bendigo City Council gave its positive backing.

1972

Even though the trams had stopped running on 16th April 1972, The Bendigo Trust was determined to keep all the trams which operated in Bendigo. It pointed out that if it was to retain the whole fleet, and in particular the rare Birney trams, Bendigo would have a tramway which was unique in the world, it would be kept as an operating service to carry people on a tour through the city. A proper tramway, not just a joyride on some remote section of track.

The Trust's persistence was finally rewarded and on 11th September 1972 the Victorian Cabinet announced that it had approved a two year trial for the tourist tramway. Four trams were to run over eight kilometres of track, from Central Deborah Gold Mine to the Joss House at the Emu Point terminus. On 9th December 1972 the Premier of Victoria, Mr Dick Hamer, broke a bottle of Bendigo district red wine over the front bumper of Birney #30 and launched the Bendigo Vintage Talking Tram service.

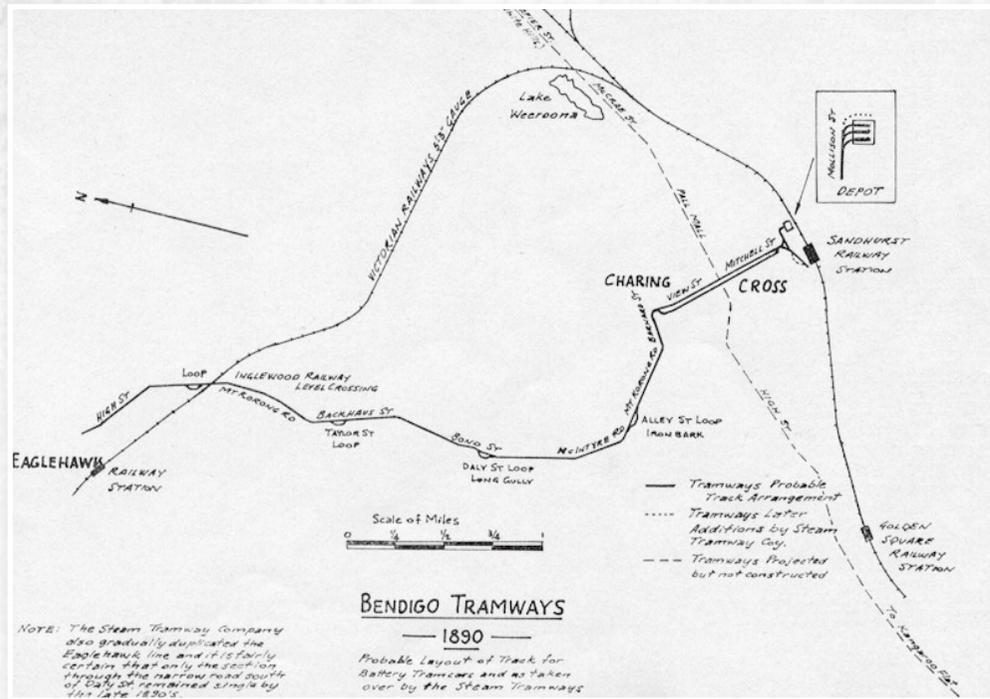
After more than 3 decades of operation the Bendigo Vintage "Talking" Trams are fast approaching the two millionth passenger mark, solid proof of the universal interest in trams and the worth of this type of historic preservation.

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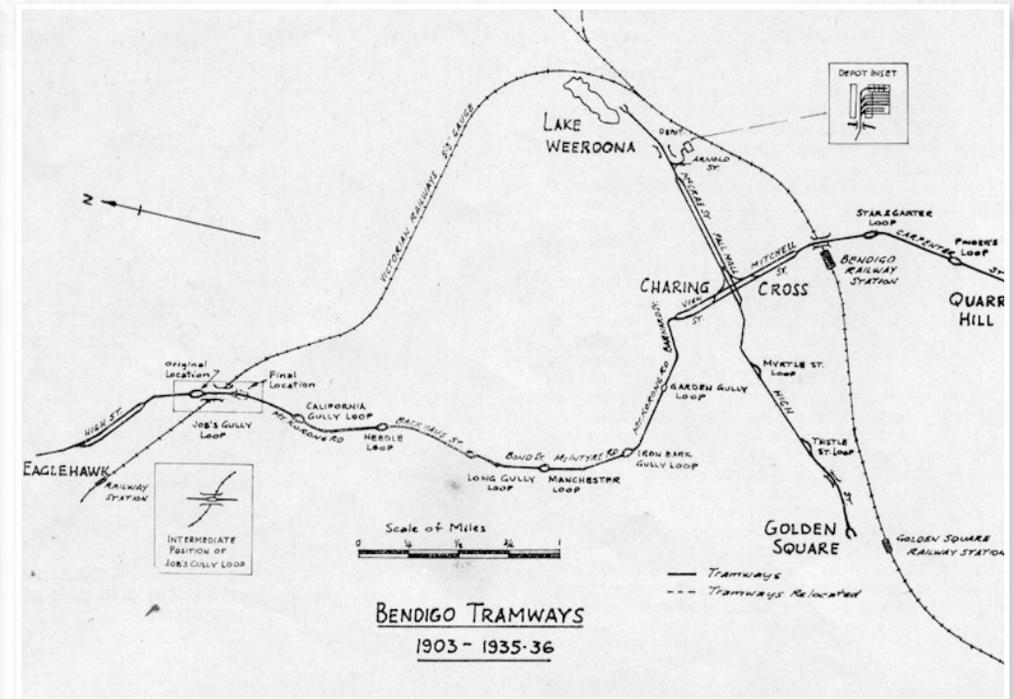
Maps of the tramways

Map of Battery & Steam Tramways system:



Although the map depicts the majority of the Battery system as being constructed of single track with passing loops, when the Bendigo tramways Company Limited took over, they gradually duplicated the track from View Street to Eaglehawk.

Map of 1903 Tramways system:



Note the use of a 'Y' at the termini. This was necessary because up until November 1925, the trams were required to tow a trailer at times such as Regatta Days, Mothers Day, Easter and other periods of peak loadings. The tram and trailer would arrive at the terminus, stop before the points and the tram would be detached from the trailer. The tram would then run onto one arm of the 'Y' and the trailer would be pushed by the crew onto the other arm. The tram would then change ends and move back onto the single track and the trailer would be pushed forward and attached to the tram.

In the case of the Eaglehawk terminus, the tram and trailer would arrive and stop before entering the single track. The tram would be detached

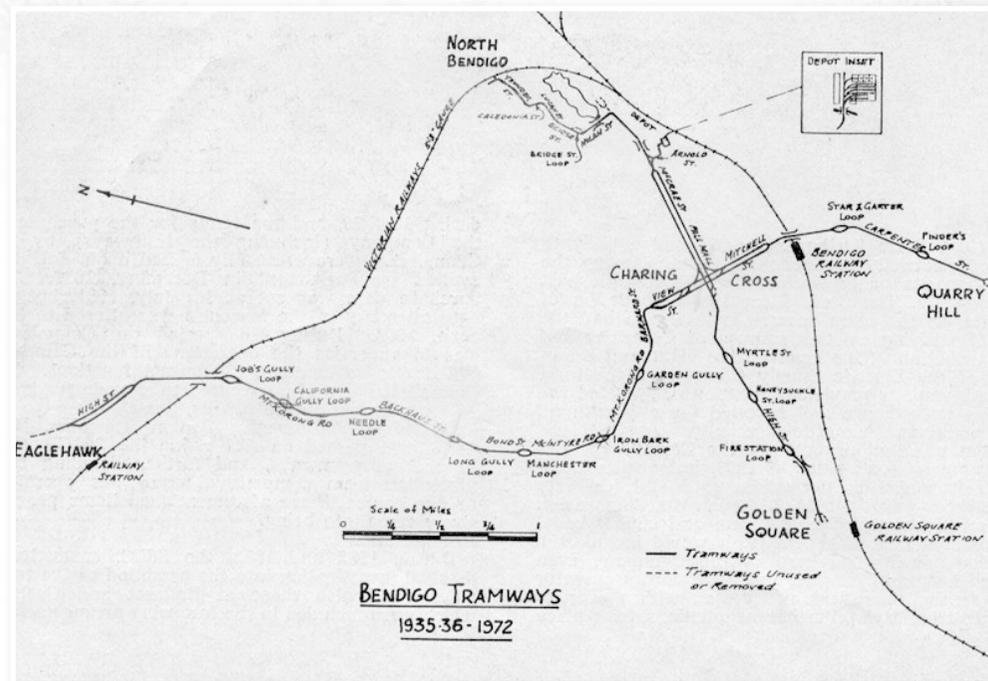


from the trailer, move forward clear of the points onto the single track, change ends and then be driven back onto the other line. The trailer would then be pushed onto the single track clear of the points, then pushed back to the waiting tram and attached to it.

Of particular note is the 'facing' cross-over in Mitchell Street and the 'scissors' cross-over in Pall Mall. These were necessary to enable trams and trailers travelling from Quarry Hill or the railway station to be able to travel directly to Lake Weeroona, which was at the time a very popular regatta and picnic venue. Trams and trailers would cross over to the 'wrong' line, turn right into Pall Mall, travel 'wrong road' to the scissors cross-over, then resume the correct running road after negotiating the scissors cross-over.

For the return from Lake Weeroona to Eaglehawk, a similar movement would take effect. Trams and trailers would arrive at the scissors cross-over negotiate it, and travel on the 'wrong' line until meeting a set of facing points. The tram and trailer would then turn right into View Street, still travelling 'wrong' road until meeting another set of facing points at the start of a cross-over. They would then negotiate this cross-over and then resume the correct running road to Eaglehawk.

Map of SECV 1972 Tramways system:



With the abandonment of trailers from 1925 onwards, the need for the 'Ys' and 'scissors' cross-over in Pall Mall was diminished. Trams could still operate directly to Lake Weeroona from Quarry Hill and the railway station and directly to Eaglehawk from Lake Weeroona.

However with the increase in the number of motor vehicles using Bendigo streets the movements by trams at Charing Cross to gain access to and from the Lake Weeroona line during busy times became hazardous. Laws governing the flow of all traffic had been introduced in Victoria, whereby the left-hand side of the road was established as the correct side of the road for all traffic to travel on.



With the rejuvenation of the Tramways during the 1930s, most of the track for special working to and from Lake Weeroona at Charing Cross was removed. The cross-over in View Street was retained to enable trams running to the Depot from Quarry Hill to change ends, shunt and take up the correct line before making a left turn into Pall Mall and on to the Depot.

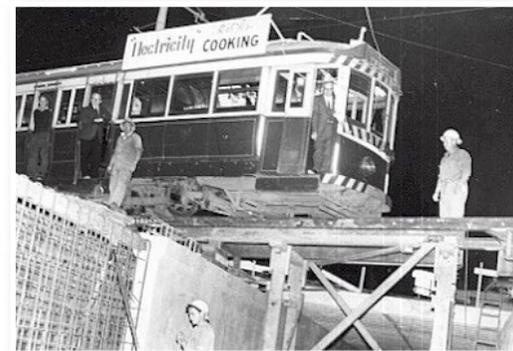
Up until 1965 however, trams running into service from the Depot onto the Eaglehawk line would still maintain 'wrong' road running. The tram would run to Charing Cross, turn left into Mitchell Street clear of the points, change ends, then run from Mitchell Street onto View Street until meeting another set of facing points at the start of the cross-over there. The tram would then negotiate this cross-over and take the correct running road to Eaglehawk. This practice was maintained during periods of light vehicular traffic such as first cars in early morning or the commencement of tram services early on Sunday afternoons. For trams entering service on the Eaglehawk line during the day, these trams were required to turn left into Mitchell Street, run to the railway station, run onto the single track there, change ends and then take up the correct running road for the trip along Mitchell Street and on to Eaglehawk.

In 1965 the bridge which spanned the Bendigo Creek at Charing Cross was to be rebuilt. Because the Golden Square and Eaglehawk routes crossed this bridge, alterations to the shunting facilities at Charing Cross had to be implemented. The double track on the Golden Square side of Charing Cross was shortened by one span pole length to enable a Birney tram to terminate and return to North Bendigo. A private bus was hired to carry passengers on the Golden Square route, with an SEC conductor collecting the fares. In the case of the Eaglehawk route, more complex arrangements had to be made.

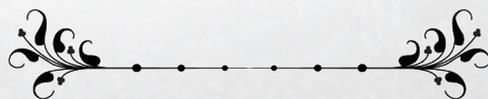
The original cross-over at Charing Cross was partly on this bridge and had to be cut. It was replaced by two new cross-overs, one further west in View Street and the other in Mitchell Street east of Pall Mall. The View Street cross-over was then able to serve the Eaglehawk route while the one in Mitchell Street served the Quarry Hill route.

To accommodate maintenance of those trams on the isolated Eaglehawk route, the rarely used track alongside the Eaglehawk Town Hall which terminated at Simpson Street was utilised. A small pit was dug between the rails and a watchman's hut provided so that 6 bogie cars could be berthed there. These arrangements remained in place from 5th March to 20th April and on at least two occasions during this period, temporary rails were provided at the site of the bridge reconstruction to allow an exchange of trams between the Eaglehawk depot and the main depot.

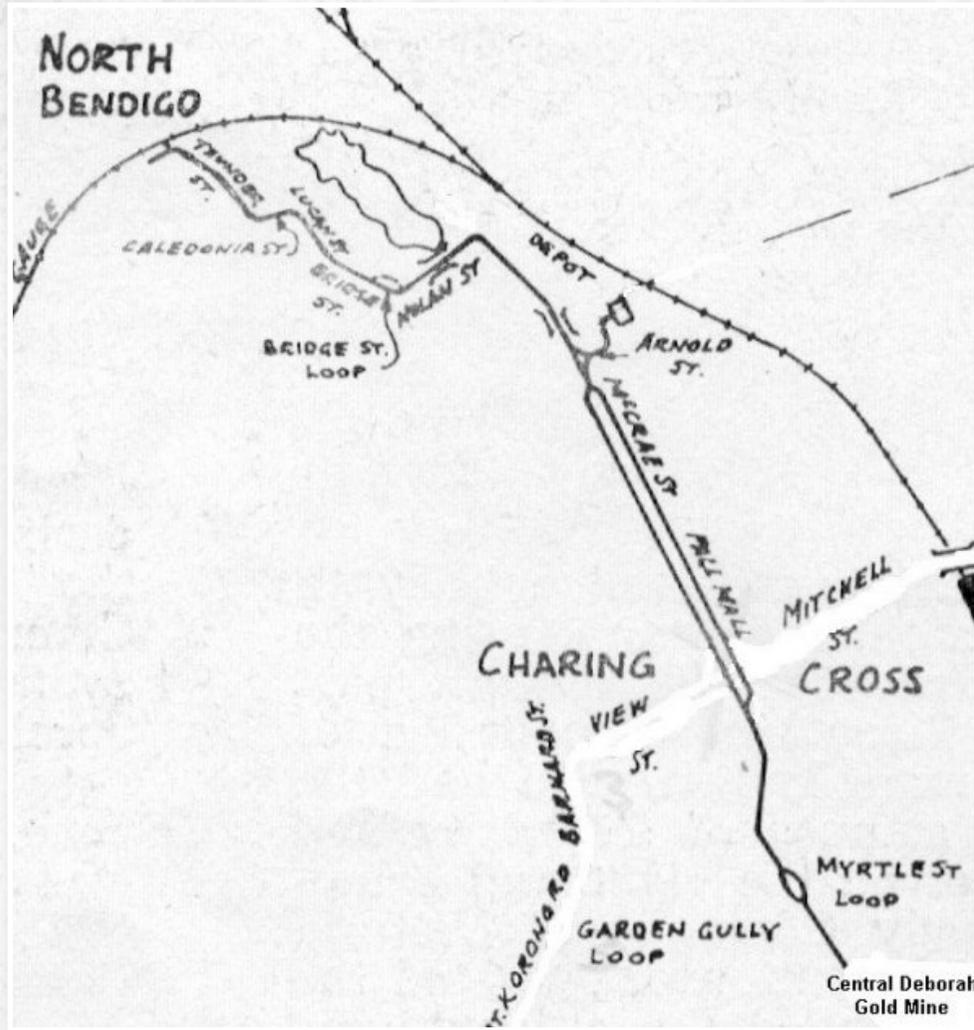
As a result of these new arrangements at Charing Cross, trams entering service on the Eaglehawk route from the Depot no longer used wrong road operation. Instead, trams entering service on this route would turn left into Mitchell Street and run to the new cross-over there. The crew would then change ends, drive the tram through the cross-over and onto the Eaglehawk line.



Exchange of trams between Eaglehawk depot and main depot.



Map of Bendigo Trust Tramways 1972:



When The Bendigo Trust took charge of the Bendigo Tramways in September 1972, the State Government had decreed that the section of track of the former Golden Square route from Honeysuckle Street (including

the loop) to Charing Cross was to be retained. As well, the entire North Bendigo route was also retained. In October 1972, a spur into Violet Street adjacent to the Central Deborah Gold Mine was laid and as a consequence the section between Violet and Honeysuckle Streets was lifted.

Initial tram services offered could provide for a half hour frequency with a 15 minute lay-over at the Joss House. However Easter 1974 saw the introduction of a 3 car 20 minute service. Trams crossed on the Myrtle Street loop and at Arnold Street. After Easter 1975, track reconstruction commenced and the section between Violet Street and Vine Street was lifted and second-hand rail was laid in mass concrete. The line in this section was single throughout. A 'Y' was installed at the end of the spur in Violet Street, thus enabling a 20 minute headway to be offered when required. Trams would lay-up at the Mine for 20 minutes while patrons at the North Bendigo end could catch the next tram after visiting the Joss House. The section between Vine Street and south of the bridge crossing the Bendigo Creek at Charing Cross was also relaid in 1975.

Between February and Easter 1976 reconstruction at Charing Cross began. The points adjacent to the Cenotaph were removed and the track made single from there to the Fountain tram stop. The 'H' crossing which served the former Eaglehawk to Quarry Hill route was removed. The set of points which linked the western lead from the former Eaglehawk line to the North Bendigo line were lifted and reinstalled north of the Fountain tram stop.

In the late 1970s the section of track north of Arnold Street to Nolan Street was lifted and relaid in mass concrete. This was followed soon after by the section from Napier Street to Bridge Street.

The mid 1980s saw the final section of track relay between Mundy Street and Arnold Street take place. A set of points was installed at Mundy Street and the track singled to the Lake View Hotel. A loop was installed



at the Lake View just south of the 'Y' at Arnold Street. Tram services were maintained during this period, with trams travelling along temporary tracks which were laid beside the excavations.

During Easter of 1980, the Tram Museum was included as part of the tour. A 4 car 15 minute service was offered with trams crossing at the Fountain, the Lake View and the Depot. As a result of the positive comments received from patrons regarding their visit to the Tram Museum, The Bendigo Trust introduced visits to the Tram Museum as part of the regular Talking Tram Tour. The 15 minute lay-up at North Bendigo was discontinued and instead the lay-up time was allocated to the stop at the Tram Museum.

In the late 1980s, a spur line was constructed from the corner of Caledonia Street and Weeroona Avenue across Weeroona Avenue and into the Gas Works. A new car barn had been built there, where the surplus Bendigo trams could be stored. This was viewed as a means of insurance against any possible disaster at the main depot.

Easter of 2001, saw the 15 minute service being maintained, only this time 3 cars were used with passengers and crews alighting and boarding the tram when it arrived at the Tram Museum. While the patrons and crews experienced the 15 minute lay-up at the Museum, the tram would simply run in set down and take up passengers and continue the tour. This eliminated the need to run the fourth tram.

Track extension took place at the tram depot in 2001, where 1 road was extended to enable trams to enter the new workshop.

May 2004 saw the relaying of the Arnold Street junction and Lake View loop with new track and double-bladed points. An additional safety feature of the relay was the installation of automatic points at the north-

facing and west-facing junctions

It is envisaged that the Bridge Street loop will be reopened, thus providing for greater flexibility with tram services over the North Bendigo section.

Easter of 2002 witnessed a reversion to a 20 minute headway, because the demands of the taped commentary, heavy traffic conditions and the necessity for a quick turn-around at the tram museum placed too much strain on trams and crews alike. Each Easter, a special timetable is operated during the 4 day period, which is designed to provide the most frequent service to patrons who visit Bendigo for the Bendigo Easter Festival.

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Easter: Our biggest event

For the life of the Bendigo Tramways, Easter has always been the busiest time of the year. From the ESCV era through to the present, the year is planned around Easter. In the past, every tram capable of carrying passengers had to be available. On visiting the Tram Depot on Easter Monday it was usual to find only the Scrubber car present or perhaps a tram which was disabled a few days before. Traffic and depot staff were not permitted to take their annual leave at this time. It was simply a matter of, "all hands (and trams) on deck!"

Because of the smaller capacity of the single truck trams and up until the arrival of the maximum traction cars, it was necessary to operate short-working trams on the Eaglehawk route on Easter Monday before and after the parade. Three trams would depart Charing Cross in convoy bound for Eaglehawk. The leading tram would be the through tram to Eaglehawk, followed by a second tram which would terminate at Thorpe Street (California Gully) and a third tram which would terminate at Long Gully.

Upon arrival at Long Gully loop, the leading trams would continue their journey towards Eaglehawk, while the trailing tram would terminate there and wait on the "wrong" side of the loop for the next return convoy from Eaglehawk.

Once the ex-Eaglehawk convoy arrived at Long Gully, the leading ex-Eaglehawk tram would proceed through the loop and the ex-Long Gully tram would depart. After permitting the Long Gully tram to clear the loop, the ex-Thorpe Street tram would follow the ex-Long Gully tram and all three trams would return to Charing Cross.

Upon arrival at Charing Cross, the ex-Thorpe Street and ex-Long Gully trams would terminate, be turned, loaded, then using the cross-over to gain the correct running line, follow the next Eaglehawk bound tram to Thorpe Street and Long Gully respectively. Newly refurbished ESCV #9

can be seen on the Long Gully loop during Easter Monday 1947, waiting to become part of the next division to return to Charing Cross from Eaglehawk - photo courtesy Mr Campbell Busch.

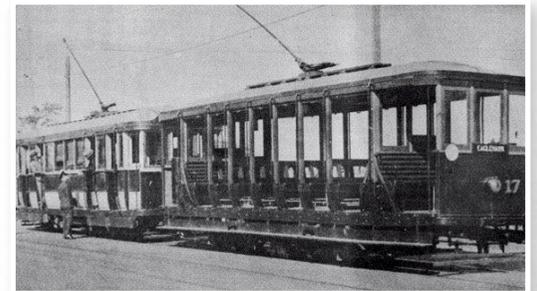
In order to alert motormen travelling in the opposite direction that they were crossing a convoy of trams on loops, all but the last tram in a convoy carried a white disk on the hand-brake side dash.

In the latter years of their service, the two semi-retired toastracks were taken out of mothballs for the Easter period. The photograph below, from the collection of the late Mr Wal Jack, illustrates #17 leading a convoy of trams on the Eaglehawk line (as indicated by the white disk) during a busy Easter Monday in 1941. The trams are waiting on the Hayes Street loop for Quarry Hill bound trams. Delays at such busy times were sometimes caused by the generators at the substation being unable to cope with the heavy demand for power. The circuit breakers protecting the generators would open and trams would be stranded until the breakers were closed by the substation personnel.

The last person to drive #17 in service as a passenger carrying vehicle on an Easter Monday for the SECV - Mr Bert Vertigan (who later became an



No.9 at Long Gully Loop - Easter Monday 1947 - Photo Courtesy Mr Campbell Busch



Inspector) - once related to the WebAuthor that on that day #17 caused delays to the busy tram service by developing an electrical fault. The tram was immediately withdrawn from service and languished at the Depot until it was converted to a track scrubber.

The practice of using the short-workings ceased after Easter 1965. In that year, the WebAuthor clearly remembers 3 single truck cars being laid up west of the bridge reconstruction at Charing Cross, in readiness to operate the short-working to Long Gully. However, because this service was not required due to a lack of demand, the Officer-in-charge (Mr Basil Miller) instructed the crews to return the trams to the Depot.

During the last years of operation at Easter, the maximum traction bogie cars maintained Easter Monday services on all routes. Three cars would be used on the Golden Square to North Bendigo route providing a 15 minute headway.

The Bridge Street loop had been decommissioned in the late 1960s in order to provide a set of replacement points at Eaglehawk, and so 12 and 9 minute services could no longer be provided on this route using the smaller truck and birney trams.

On the Eaglehawk to Quarry Hill line, 6 cars would provide a 12 minute headway. Thus 9 of the 10 bogie trams would be in service, with the 10th bogie tram entering service before and after the parade as a double header between Charing Cross and Eaglehawk. Sometimes all bogie cars would not be available, so #s 19, 20 or 21 would be substituted as they were more suited to the Eaglehawk to Quarry Hill line because their motors were more powerful than those fitted to the other truck cars.

During Easter 1972, only the Eaglehawk to Quarry Hill line remained open. A 24 minute 3 car service was provided by bogie cars for the entire

Easter period. A more frequent service on Easter Monday may well have been provided had it not been for the shortage of personnel due to the impending closure of the tramway a fortnight later.

The Bendigo Trust provided 'Talking Tram' services during Easter of 1973. Capacity loads were carried by a Birney and Truck Car double-header and a Maximum Traction Car. A 30 minute headway was provided and since then the frequency of services during Easter has increased to 15 minute headways. The Bridge Street loop is still not available and this combined with speed restrictions brought about by the taped commentary, prohibits the use of a more frequent service. On Easter Monday, up to 6 trams (not including 'Specials' and Charters) have been used in service at any one time over the 4.2 km route. Thus, as was the practice during the ESCV and SECV eras, the Bendigo Tramways still plans its maintenance and leave schedules around the busiest time of the year - the Easter holidays.

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Safe Working

A practice unique to Bendigo was that whenever a tram used a set of points requiring the tram to turn off any of the main tram routes, it was the responsibility of that crew to ensure that the road was correctly reset after the tram had made its movements. In theory then, crews operating trams on the 'normal' routes could assume that the points were always set correctly and proceed to their destination. But invariably this was not to be the case. It was common for a driver to approach facing points only to find at the last minute that they had not been set correctly, resulting in the tram heading in the wrong direction. This resulted in time being wasted while the driver and his conductor changed ends twice in order to resume the correct running road. One such incident caused alterations to the configuration of the points at the 'Y' at Arnold Street.

It was the practice that whenever trams ran in to the Depot from North Bendigo, the crew would set the facing points for the curve, enter Arnold Street and a crew member would return and reset the points for the straight. On one occasion a crew was in a hurry to finish work and did not reset the points. A following tram approached the points at speed, swung off the main line around the curve and in the process collided with a passing automobile. From that day until the closure of the tramway, the points were 'sprung' so that only trams entering from Arnold Street travelling to North Bendigo could use the curve. Trams running in to the Depot from North Bendigo had to run through the junction to the trailing points south of the 'Y', change ends, round the curve into Arnold Street, then walk back and reset the points for the main line. One hazard had been eliminated, but the potential for similar events taking place at the other points still remained.

Perhaps the simplest solution (which was the practice in Melbourne) would have been to place the responsibility for the road being correctly set, in the hands of any tram driver who arrived at a set of facing points.

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Loops

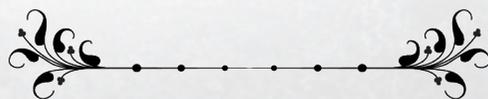
Many a person was intrigued by the way in which a tram seemed to automatically take the correct road when running through a loop; in particular when another tram was also entering the loop from the opposite direction and a collision seemed imminent. The system was very simple because the facing points at each end of the loop were always set so that the approaching tram would divert to the left. While passing over the trailing points as the tram left the loop, the flange on each wheel would push the blade across and once the wheel was clear, a spring would force the blade back to the correct position.

In order to avoid instances where trams would meet head-on in those sections between the loops, trolley wheel operated two-aspect colour-light 'Forest-city' signals were installed around 1938. Below is an SECV document which explains the operation of the signals.

BENDIGO TRAMWAYS "FOREST CITY" SIGNALS

"The signal system is operated by the contact of trolley wheel with insulated strips called contactors; those in the position of a tram about to leave a loop are known as setting contactors and those near the entering end of the loop are restoring contactors. The necessity of the trolley wheel remaining in contact with the trolley wire when running through the contactors; requires that the speed of the tram shall not exceed 6 m.p.h., and to avoid arcing, power should be cut off at controller.

The arrangement of this signal is such that when a RED light is showing at one end of a single track section, there must be a GREEN light showing at the other end, and vice versa. It is necessary for motormen to clearly understand that these signals are a self-operated system and give only an indication of the condition of the section of single track concerned. When no light is showing it indicates that the section is empty of trams. When a RED light is showing it indicates that there is a tram in the section moving



towards the RED signal. When a GREEN light is showing it indicates that there is a tram in the section moving away from the GREEN signal.

It is now to be understood that a motorman arriving at a loop finding a RED light showing, is not free to proceed any further until the tram in the section arrives and restores the signal to blank. Should the motorman however, ignore the RED (danger) signal, he cannot get a GREEN (all clear) signal owing to the interlocking of signal circuits. When the signals are blank (no lights), the movement of tram under the contactor near the leaving end of the loop gives the GREEN signal and the motorman is all clear to proceed to the next loop.

The location of contactors and signal boxes is arranged so that, should the GREEN signals not be obtained or a RED signal light up, the tram can be stopped before arriving at the points at the leaving end of the loop.

In the former instance, no light would indicate one of the two faults:-

1. Trolley wheel did not make the necessary contact with contactor.
2. That the signal circuit is out of order.

To prove which fault exists, the car must be reversed so that the trolley wheel runs back into the contactor. If still no signal this would indicate a fault in the signals and the tram cannot proceed. In this case word should be sent at once to the traffic office, and providing no RED light shows up meantime, it may be possible to obtain the services of a passing motorist to act as pilot to the tram over the faulty section.

If in passing over the contactor a RED signal appears, this indicates that another tram has entered into the section from the opposite end first, and inasmuch as the tram has passed the setting contactor it will be necessary to return to the contactor so that a signal be obtained as soon as the other tram arrives and clears the RED signal.

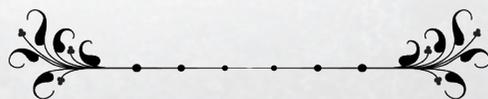
In connection with trams running in duplicate, such as to and from the Depot, in which case the first tram will operate and clear the signal, the general rule to be observed is that no tram will follow another tram through a single track section unless it is within 100 yards of the preceding tram and advises the preceding tram accordingly. If a greater distance separates trams, the second tram will wait until the first tram clears the signal before it enters and obtains its own proceed signal. Thus the showing of a GREEN light does not give all clear unless it is switched on by the tram entering the section, or as stated, the second tram is within 100 yards of the tram which did operate the signal.

If power goes off, all signals are immediately put out and in this respect the resumption of power requires special consideration. When a tram is in a signal section and power goes off, the motorman must realise that the RED signal will not be showing at the loop he is approaching, and with continuous use of gong around any curves and blind spots, and by extremely cautious driving, he will resume his progress through the section. There must be no attempt at this juncture to make up any lost time.

Similarly, any tram not in a signal section when power goes off, must, upon resumption and approach to signal controlled section, make as certain as possible that there is no tram in the section he is about to enter by referring to time schedules and as to where other trams are normally passed. If possible make use of a passing motorist to act as pilot through the section and proceed very cautiously, and by use of gong and reduced speed in blind areas, be prepared to stop at the shortest notice.

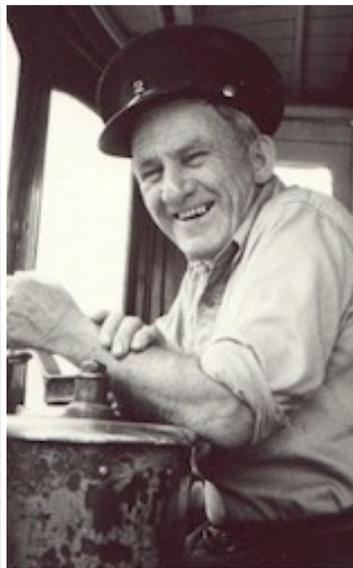
In order that all motormen be aware that power has been off, the power, if interrupted, will not be restored in less than 1½ minutes in day-time."

Trams were required to cross on specific loops, depending on the



frequency of the service being provided during the day. It was an unwritten rule that motormen should give crossing trams some grace by waiting when confronted with a green light, particularly during peak periods. Motorman Tom Hulls related that this system was not perfect because some motormen would proceed through to the next section only to be greeted by a scowl from the motorman of the tram waiting on the loop ahead because he had been 'shot down'. In such instances the late running motorman would drive his tram 'like a bat out of @#!*%' to make up the time, or else wait his chance until later in the shift when he could settle the score with the offending motorman by shooting him down. Whenever one of the two globes in the signals had blown, it was convention to operate the service strictly to the safe working rules as they applied to the service being provided.

The trips for the signals are depicted in the overhead to the left of the entrance to each loop.



These shots to the right were taken from the rear cabin of a maximum traction tram a few Saturdays before the closure of the system. Driver Hughie Harvey (pictured left) drove the tram through each loop and paused for a few seconds in order to permit the photos to be taken. When operating the minimum service (24 minute headway) on the Eaglehawk to Quarry Hill route, 3 trams were required and they would cross at the Long Gully loop and Charing Cross. On the North Bendigo to Golden Square route, 2 trams were required and they would cross at Charing Cross.

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Charing Cross (City) to Eaglehawk loops



Loop 1 - Iron Bark



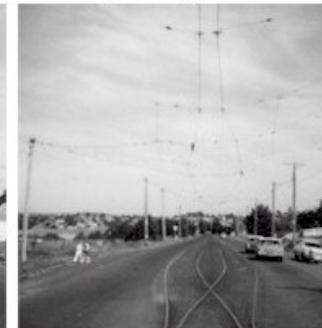
Loop 2 - Hayes Street



Loop 3 - Manchester



Loop 4 - Long Gully



Loop 5 - McGowan Street



Loop 6 - California Gully



Loop 7 - Jobs Gully

It took a tram 24 minutes to travel from Charing Cross (City) to Eaglehawk. Thus, when operating a 24 minute service, 2 trams were required. The tram departing from Charing Cross would depart at the same time as the tram departing from Eaglehawk. The two trams would cross at the Long Gully loop - half way. 12 minute services required 4 trams crossing at Hayes Street, Long Gully and California Gully. During the latter years of SECV operations, a 15 minute service was provided during peak periods with 3 trams crossing at Hayes Street and California Gully loops.

The loops in operation.

