

A Brief History of

THE TRAMWAYS OF ~~THE~~ BENDIGO.

By K. S. Kings.

This month marks the 75th. anniversary of the first trial run of a ~~the~~ battery tramcar in the Victorian provincial city of Bendigo (then called Sandhurst). This brief history of the Tramways of Bendigo is presented to commemorate this event.

Bendigo and its suburbs has in turn been served by battery trams, steam trams and electric trams drawing their power from an overhead trolley wire, and this history is therefore divided into these three sections, with the latter again divided into operation by the Electric Supply Company of Victoria Limited and the State Electricity Commission of Victoria. The text which follows will deal mainly with the overall history, and, in order to keep the article to a reasonable length, detailed descriptions will not be given of the rolling stock, as such is covered in the book "Destination Eaglehawk", which is due to be published about the same time as this article.

Bendigo is the fourth ~~largest~~ largest urban area in Victoria, being situated approximately 100 miles from Melbourne, on the main north-east railway line. The population at present is approximately 40,000 people, which figure covers the "greater" area of Bendigo, and includes the independent Borough of Eaglehawk, and Kangaroo Flat, which is situated within the Shire of ^aMarong. Gold was first discovered in the area in 1851, and the usual "rush" followed, and it is reported that 25,000 people were in the district by the following year. The Municipality of Sandhurst was proclaimed in 1855, being declared a city in 1871. The population reached 28,700 in 1881, and has increased very little since (30,190 in 1961), the remainder living in Eaglehawk or Kangaroo Flat. Bendigo flourished on its rich gold fields for many years, but has changed little since the 1880's, except for "modernisation" in the last few years.

The twin communities of Sandhurst and Eaglehawk were relatively early in considering the possibility of operating street tramways within their areas. One such proposal was made to each Council in April, 1887, by a Mr. G. D. Mendell, representing a Tramway Syndicate, who planned to construct and operate horse tramways from Charing Cross to Sandhurst railway station (40 chains), Eaglehawk (3 miles 70 chains), Lake Weeroona (1 mile), and Maple Street, Golden Square (1 mile 30 chains), a total of 6 miles 60 chains. He also offered to purchase many of the cab horses and employ their drivers (many horse cabs regularly plied for hire between Sandhurst and Eaglehawk, and provided employment for several dozen men). Another interesting offer was made in the same month by a Mr. Burk, as agent for the "Creusot Foundaries Patent Tramway Lines", which company had already installed its products in France and South America. The design called for 36 lb. rail to be carried in cast iron chairs (at 39 in. to 60 in. centres), held in place by wedges and kept to gauge by tie rods, with points of cast steel, and curve rail bent at the works for easy installation at the site. Another interesting offer came from a local resident, a Wm. Buttle, of Quarry Hill West, who proposed to form a "Sandhurst Cabowners Tramway Company" to convert the horse cabs to horse trams. A model was displayed wherein the wheels (presumably of the horse cabs) would be removed and replaced by eight inch diameter rollers, running to a gauge of either three feet or six feet (presumably, that is, in a shallow trough). Nothing came of these proposals.

The public also took an interest in the events. Petitions were presented requesting variations to the routes and protesting against the installations of trams. Other residents urged that any concession be not granted to Melbourne "capitalists", as the profits would be taken out of the district in addition to the cab men suffering. Some idea of the size of the cab industry can be gained from the following figures:- 70 cabs on the Eaglehawk route; 50 cabs on the Kangaroo Flat road; 11 to White Hills; 32 on Hackney carriage stands; 220 horses used, and valued at about £3,000; cabs cost between £30 and £100 each, and valued at about £6,000; some £10,000 per year spent to

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feed and shoe the horses; an estimated £2,000 (approximately) per year spent on road maintenance; license fees amounted to nearly £400 per year; and it was also a useful occupation for injured miners, there being some 25 such men on the Eaglehawk route alone.

The first real move took place ~~in~~ late in May, 1887, when a joint meeting of the Sandhurst and Eaglehawk Councils took place, being termed a "Tramway Conference". No decision was reached, but, after subsequent individual Council Meetings, another Tramway Conference was held on 14th. July. As each Council was in favour of installing tramways, this meeting agreed to jointly call tenders for various routes and types of motive power, and subsequently, at another conference on 1st. September, such items as rental, fares, headways and term of lease were added. It was decided to apply for an Order-in-Council to construct the tramways, and that steam tram motors would not be allowed. A further Conference, later in the month, opened the tenders. Woolf and Mendell, of Melbourne, proposed to lay a double line of cable tramway from Sandhurst railway station to Eaglehawk Town Hall, and a single line of horse tramway from Lake Weeroona to Maple Street, Golden Square, with extensions to be made later to White Hills and Kangaroo Flat. Thompson Moore & Co., of Ballarat, offered to instal horse trams from Sandhurst Railway Station to Eaglehawk Town Hall (similar to the type that they were then constructing for Ballarat). A third tender was received from Mr. Burke, of the Creusat Works, Melbourne, proposing horse tramways, on the Creusat system, from Sandhurst to Eaglehawk, and White Hills. It was decided to ask Woolf and Mendell to amend their tender, and such was considered at a further Conference on 6th. October. It was suggested to the Conference that enquiries should be made to Mr. Walter Prince, of Dunedin, concerning battery tramcars. It was subsequently learned that Mr. Prince had purchased the colonial rights for battery trams on the Weiss system, and was about to conduct a series of experiments with one of his motors in Sydney.

In January, 1888, Mr. G. Mendell withdrew the tender of the Sandhurst Tramway Syndicate, and this was accepted by the next Tramway Conference in April. Also

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in January, Messrs. Booth, Ellson & Co., civil and electrical engineers, of Melbourne, advised that they represented certain English firms, and would be pleased to visit Sandhurst to discuss the matter of a tramway system. The April Conference also received a translation from French giving details of M. Julien's system of battery tramcars, and an offer to tender from W. Masters, electrical engineers, of Melbourne. However, the only tender received by another Conference, held on 7th. May, was from Booth, Ellson & Co., and this was subsequently accepted. Briefly, it contracted to operate battery tramcars between Sandhurst and Eaglehawk for a 30 year period, using 45 lb. rail on transverse sleepers with metal ballast and macadam surface for the track, and tramcars seating 16 passengers; also, to build a line from White Hills to Kangaroo Flat, and to be permitted to transfer the contract to a Company then in course of formation. Mr. ^{Ellson} ~~Booth~~ subsequently left for England to investigate the equipment available and to place orders accordingly. The line to Eaglehawk was to be double track to the Five Lions corner, thence single off the crown of the road to allow for duplication, with passing loops as agreed upon, while the White Hills to Kangaroo Flat line was to be either in the middle of the road or off-centre, as agreed. It would appear that negotiations between the Sandhurst and Eaglehawk Councils, the Shire of ^a ~~Merong~~ (in whose territory Kangaroo Flat is situated), Government Departments and the Company to finalise all the necessary documents and to obtain the Order-in-Council became somewhat protracted. Tenders were called by the Company for materials and work, but could not proceed for some time.

Councillors became uneasy and complained about the lack of progress at the February, 1889 meeting at Sandhurst Town Hall, which gathering was told that the Company was interested in and negotiating for some equipment then operating in the Sandhurst Exhibition. ~~This apparatus included a long length of circular narrow gauge track, a small locomotive and two small wagons with seats, poles and overhead wiring, and generating equipment.~~ Meanwhile, the Sandhurst and Eaglehawk Electric Tramway Company Limited had been registered on 9th. October, 1888, and the Victorian Railways had granted permission

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for the Company to construct its track on the railway reserve in order to reach the entrance of the Sandhurst railway station. The Sandhurst City Surveyor reported to a Tramway Conference (Councillors of Sandhurst, Eaglehawk and ²Morong) on 8th. April that Mr. Booth had recently conferred with him on the sites of the loops for the Eaglehawk route, suggesting three after the Five Lions corner. The Surveyor subsequently realised that this would be insufficient, and recommended four loops to the Conference, which delegated the Surveyors of Sandhurst and Eaglehawk to arrange the locations with the Company. The loops were to hold two cars on each track, be situated on as near level ground as possible, and be placed to allow a ten minute service to be operated. An extraordinary meeting of shareholders of the Company was held on 6th. March, 1889, during the course of which there was much argument and many charges were made. It would appear that the Sandhurst and Eaglehawk Electric Tramway Company Limited had paid the Australasian Electric Tramway Company £6,000 plus 5,000 shares for the rights to build and run the trams, but the Sandhurst, Eaglehawk and Morong Councils had not yet fully delegated their powers to the Australasian Electric Tramway Co. In the weeks before the meeting, the Company's 5/- shares, which had been selling at 6/6d., had failed to attract buyers when offered at 1/3d. Eventually, on 27th. May, 1889, the Tramway Conference was able to delegate the Council's powers to Messrs. Booth, Ellson and Co., and, on the same day, Mr. Ellson arrived in Bendigo from his overseas trip, and gave details of his journey. He stated that he had ordered six cars, and that he tested one himself on severe grades under heavy loads. It had been shipped six weeks ago, and the remainder would follow in June and July, with the plant and equipment due in June.

Work now proceeded quickly on the local scene. Track excavation commenced on 4th. June at the railway station, and sleepers and rails were quickly laid. Building of the car shed and charging house (for the batteries) got under way, and it was hoped to have the first car running in September on a section of the track, and to reach Eaglehawk in November. However, as events were to prove, such optimism was to be proved

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false, while this relatively brief period of rapid local construction was to be the only bright spot in the Company's history.

The second half yearly meeting of the shareholders was held in Sandhurst on 29th. July, and heard various reports on the progress of the works. The forecasts of a few weeks earlier were already fading, as it was now stated that the first car would arrive in August, with the other cars and the charging plant a few weeks later. It was also mentioned that eight cars had been ordered (whereas previous reports had said six). The plant comprised water tube boilers from Babcock and Wilcox, of Glasgow, compound vertical engines, Dynamos from the Brash Electrical Engineering Co. Ltd., of the E2 Victoria type, while this latter firm also supplied the electrical equipment for the tramcars. The buildings and track were completed by late October, and the boilers received, but most of the remainder of the plant was now long overdue. The delays were blamed on strikes at the docks in England and to a glut of orders held by the manufacturing Companies, which meant that they could not maintain their schedule of deliveries. It was subsequently revealed (during recriminations after the Company had failed) that proper contracts were not entered into (with penalty clauses), because no supplier would undertake work under such conditions. The first car was assembled and ready by about the end of October, but could not be tested, and was laid aside pending further developments. The Directors told the third half yearly meeting of shareholders, held early in February, 1890, that they were disgusted with events relating to the seven cars and certain equipment. They proposed testing the track, by hauling a tramcar over it by horse power, before accepting it from the contractor.

The remainder of the plant eventually arrived and was assembled, and the first trial run was held at 10.00 o'clock on the night of Thursday, 10th. April, 1890. Ill fortune continued to haunt the Company, as the car derailed on the curve leading from the Depot, into Mollison Street. It was re-railed, and ran quite well along the level track towards Mitchell Street, but there was much arcing from the motors when the car was driven up the gradient towards the railway station. It was feared that the

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floor of the car might catch fire, so the trial was abandoned, and the car returned to the depot. Another trial was run on 24th. of the month, when the car ran on the level in Mollison Street for about two hours, but did not venture to the station. This tramcar was fitted up at the works of Messrs. Stephens, Smith & Co., Millwall, being built by Mr. George Milnes, of Birkenhead, to the best American two horse pattern. It was driven by two Reckenzaun motors, each of eight horse power, through worm gears with a pitch of 45 degrees, to the two axles. The 72 cells, each of 17 plates of 160 ampere hours capacity, were placed on long boards on rollers beneath the seats. The car was lighted by incandescent lamps, ~~which~~ fitted only with hand brakes, and had a controller mounted on each end platform. Four more cars arrived about the middle of April, and a half hourly service commenced between the railway station and the corner of Barnard Street and Mt. Korong Road on Saturday, 14th. June. Operations were extended to the Ironbark Hill on Wednesday, 25th, but the service had not reached Eaglehawk by 30th. ~~June~~ June. Between the 14th. and 30th. June, two trams had run 780 miles and carried 4,938 passengers. The fourth half yearly meeting of shareholders was told on 30th. July that the six ~~new~~ saloon cars had been assembled, but had all needed modifications to suit them better to local conditions. The Engineers, Messrs. Booth, Ellison & Co. reported that cars Nos. 2 to 6, supplied ^{by} ~~the~~ the Brush Company, were not as advanced as had been expected, over the car supplied by Messrs. Stephens, Smith & Company, and had needed much rewiring, improved protection for the motors and other modifications. They were also 15 cwt. heavier than expected, and it was suggested that they be used on the very flat terrain from Kangaroo Flat to White Hills, if the Company were able to construct this route. The trams had apparently reached Eaglehawk by the 30th. July, as the journey time was reported as 40 minutes, whereas the Directors hoped that it could be reduced to ~~30~~ 35 minutes.

The first reported accident took place on 7th. July, when the front of a tram was slightly damaged due to a collision with a horse-drawn dray, while a more serious accident took place on Sunday, 27th. July, when a crowded tram, estimated to have been carrying about 70 passengers, entered the Job's Gully loop at speed (on a

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down grade) and derailed. The service continued to operate, but not satisfactorily. Breakdowns were continuous, and the Directors withdrew the trams on 23rd. September, 1890, after some 13 weeks of running. The last two trams received, Nos. 7 and 8, were summer cars (described alternatively as "of the dummy type"), and probably entered service during August. Exact details of their appearance has not been ascertained. The Company requested the Sandhurst City Council, at its meeting on 19th. September, for permission to convert to overhead wires, stating that the battery trams were a failure. The Council referred the request to its Finance Committee and to a Tramway Conference. Offers were made to the Company to convert to either cable or steam haulage, as well as horses and overhead wires, the latter being made by a Mr. Chas. Flesch, of Melbourne, with plans of the Thomson-Houston system, apparently in competition with the Union Electric Company of Australia Ltd., who offered the same system. A stormy meeting of shareholders was held on 29th. September, during which it was stated that Messrs. Booth, Ellison & Co. had favoured the overhead system, but the Sandhurst Council had objected, and, therefore, the Company had had to obtain the next best available - battery tramcars. It was also stated that the Brush Company had tested only one car before they were shipped from England. Various charges and allegations were made, and a committee of shareholders was finally appointed to confer with the Directors on the future of the Company. Enquiries were made from the pioneer electric tramway at Box Hill, Melbourne, who were expecting their second car to arrive any day, and of the Randwick to Waverley electric tramway, Sydney. The Company also approached the Eaglehawk Council requesting its permission to convert to overhead wires, and the rate payers voted 590 to 189 to grant permission, at a poll held on 22nd. January, 1890.

Extraordinary meetings of shareholders were held during 25 March and April, 1891, to pass and confirm various motions to amend the structure of the Company, to enable additional capital to be raised so that conversion to overhead trolley wire could be carried out. However, by late April, very few of the additional shares had been subscribed to, and it was decided that the Company should go into voluntary liquidation.

Meanwhile, the task of winding up the Sandhurst and Eaglehawk Electric Tramway Company Limited quietly continued, and was concluded in July, 1893. The 55,000 issued shares, already called up to 15/- each, received another call of 1/- each to enable the liquidation to be carried out, and a very small sum (possibly only £414:0:9) was returned to the shareholders. From the available newspaper reports, therefore, it appears that the shareholders lost virtually all of the £44,000 that they subscribed for shares in the company.

Negotiations took place between the Councils and the new Company in June, 1892, concerning details for the construction of the White Hills to Kangaroo Flat line. The Company proposed a variation to its agreement dated 3rd. September, 1891, to enable the section from Golden Square to the Gas Works to be constructed first, with the extension to Kangaroo Flat later. The Councils agreed to apply for fresh Orders-in-Council, to enable the Gas Works to Golden Square section to be built within 2½ years of the date of the Order, and the Kangaroo Flat section within a further 4½ years.

Naturally, there were protests from the residents of White Hills, but these were apparently not heeded. The second half yearly meeting of the new Company was told on 30th. July, 1892, that, for the five months ended 30th. June, the earning rate had been 15 per cent., and that a 10 per cent dividend could be paid, but that the Directors thought it best to wait until the end of the year before making a decision. The five motors had run 44,428 miles to 13th. July, and had carried 252,055 passengers. It was proposed to increase the issued shares from 37,925 to 40,000. The first serious accident reported happened at 6.15 p.m. on Wednesday, 20th. July, when a tram descended the hill to the Jobs Gully level crossing (from Bendigo), and collided with a horse drawn buggy in the narrow section of the roadway which formed the fenced approach to the railway line. The three men in the buggy were injured, one seriously. On Tuesday, 1st. November, very shortly after the Phoenix motors went into service, six drivers and four conductors went on strike, alleging that the Phoenix motors were unsafe. The Company managed to

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extending the end platforms and fitting bolsters and bogies. Battery cars Nos. 2 to 6 became steam tram trailers Nos. 1 to 5 (not necessarily ~~in order~~ respectively), the first one being delivered and tested in ~~the~~ Mollison Street before Christmas. The first motor to be completed was tested by ~~the~~ running it as far as the Garden Gully Hill early on Monday, 18th. January, 1892. Further trips were made later in the day, including hauling a trailer. The work of assembling and testing the steam motors was carried out in the presence of engineers from the Baldwin Company. The steam pressure was 120 lb., and steam brakes were fitted. The trams commenced public service on 1st. February, 1892, and proved immensely popular, carrying 9,495 passengers on 110 round trips by the end of the first week. The Company decided (before the end of the second week!) to order two more motors and three more trailers, as a matter of urgency. The Bendigo Rolling Stock Company was commissioned to produce the cars, and work was immediately put in hand on battery trams Nos. 1, ~~2~~ 7 and 8, and they became steam trailers Nos. 6, ~~7~~

7 and 8. As battery tram No. 1 was a six-window saloon car compared with nine-window saloons for Nos. 2 to 6, it received longer end platforms during its transformation to steam trailer No. 6, than did the other cars when they became steam trailers Nos. 1 to 5. As previously mentioned, the appearance of battery trams Nos. 7 and 8 is not known, ~~but~~ except that they were summer cars, but a former employee maintains that steam ~~tram~~ trailers Nos. 7 and 8 were bogie vehicles. The tender of the Phoenix Foundry, Ballarat, was accepted for three (increased from the earlier decision to acquire two) steam tram motors, and these were to be larger than the Baldwins, and capable of hauling two trailers. The first one was tested in Skipton Street, Ballarat, ~~near~~ outside the Phoenix Company's works, on the horse tram line, on 29th. September, and hauled two horse trams. It was despatched to Bendigo and entered service early in October, followed by the other two units. They received Nos. 6 to 8, being builders Nos. 315, 316 and 317 ~~respectively~~ respectively.

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The Company advised the three Councils (sitting in a Tramway Conference), who agreed to release the Company from its contract provided that another body was found before 30th. June which would enter into a similar agreement. The Company called tenders for the purchase of all its assets but, as the closing date was 30th. May, none were received. Three enquiries were made from interested parties requesting more details and an extension of time. Eventually, The Bendigo Tramway Company Limited was floated and registered (the name of Sandhurst having been changed to Bendigo on 18th. May), and purchased the plant and equipment of the Sandhurst and Eaglehawk Electric Tramway Company Limited. It is interesting to note that the Councils altered their thoughts on the form of motive power to be used - the new Company was granted permission to instal steam trams. The new Company obviously acted very quickly, because the five steam tram motors it had ordered from the Baldwin Locomotive Works, U. S. A., through Messrs. Newell and Co., Melbourne, were due to arrive in December, and it was hoped to commence

running before Christmas. These machines carried Builders Numbers 12241 to 12245 (not respectively), and were of the ~~new~~ 0-4-OST type, being of 4 ft. 8½ in. gauge. The new Company announced that it would extend the ~~single~~ double track from the Five Lions corner to the top of the Garden Gully Hill, duplicate the main street at Eaglehawk, the section from California Gully to beyond the railway crossing, and from the Manchester Arms Hotel to the Pioneer Hotel, through Long Gully (although it would appear that this latter section was either not done or modified to some extent). It was hoped that the trip from Bendigo railway station to Eaglehawk would take 20 to 25 minutes.

The five tram motors left New York on 10th. ~~in~~ October for London, were trans-shipped, and arrived at Melbourne early in the new year. The first one arrived at Bendigo on 8th. January, and the remainder the next day. Work commenced immediately to assemble them, and was expected to take about a fortnight. Meanwhile, The Bendigo Rolling Stock Company contracted to rebuild the battery trams as bogie vehicles by

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run a limited service with two trams, and began recruiting fresh staff. A District Locomotive Inspector from the Victorian Railways tested the Phoenix Motors and passed them as safe. The Bendigo Trades Hall Council entered the dispute on behalf of the striking men, and it was decided to refer the matter to an Arbitrator, who subsequently found in ~~the~~ favour of the Company. Thus ended the first industrial dispute on the Bendigo tramways, with the Company refusing to re-employ the strikers.

The Company had hired Bell Punches from the Melbourne Tramway and Omnibus Company Limited to aid its fare collection, but soon found that it could save £50:0:0 per year by importing another type from America, which was stated to be "the same as is used in Sydney". Traffic continued to boom, and the loops were extended to hold three cars if necessary. The existing track and rolling stock could not handle the crowds at football and holiday times, but further duplication could not be carried out pending a new Order-in-Council. However, the half yearly meeting of shareholders, held on 31st.

January, 1894, was told that the financial position of the Company was not good, despite 406,955 passengers being carried, and 71,613 miles run, for the six months just ended. The Eaglehawk line urgently needed duplication to ~~enable~~ enable a better service to be run, as many passengers would not wait 20 minutes until the next tram, and the Company was bound to build the Golden Square to Gasworks line within eight months. All the issued capital was fully called up, and it was considered no use offering additional shares to the public because of the Company's poor financial state. The Company advised the Councils in March that it would be unable to build the second line and, after the Company's books had been inspected, the Councils agreed to allow the Company to drop this project. This decision was probably influenced by the "boom" bursting, resulting in a drop in traffic, ~~shortage~~ shortage of money for new works, and the Company actually stating that, if the Councils insisted upon the line being built, it would stop the trams on 5th. May and "give up". Its fully paid up ~~■~~ shares had provided a capital of £19,212 on which an average dividend of 1½ per cent had been paid, and it could not raise the

additional £15,000 necessary to build and ~~equip~~ equip the new line. The traffic statistics for the half year ended 30th. June, 1894, showed that 397,746 passengers had been carried, being a drop of 9,209, but the real impact of the depression was felt during the next six months when passengers carried dropped to 365,223 - down 32,523. Mileage had increased to 73,704.

The half yearly meeting of shareholders, held on 1st. February, 1895, appears to have been given some insight into the problems encountered. It would appear that the track and rails had given trouble, being too lightly constructed for the traffic offering. Much work had been necessary, in addition to the duplications laid. It was stated that all double track sections were in reasonable condition and within visible distance of each other. Late in 1894, three tramcars had been purchased, which, "with slight alterations", it was considered would be of considerable use. These cars became Nos. 9 to 11, and were six window saloons with end ~~platforms~~ platforms. Their origin is not known, but it would appear from the report that they were second hand. They were four wheel vehicles. It is reported that they were former Melbourne horse trams, but it is not known which suburban line would have had surplus cars of this type available in 1894. The steam tram motors had been using coke as their fuel, but the Victorian Railways stopped the special freight rate for coke in June, 1894. A legal action ensued in which the Company won a verdict for £247. The Company tried using coal, but it was not successful. The Bendigo Gas Company was unable to supply sufficient coke for the Company's full requirements, so wood was used - and soon brought many complaints about sparks emitted from the motors, and a number of fires which they were ^{really} alleged to have started. Relations with the Victorian Railways became strained when the Company received notice to stop running in the railway reserve (from Mitchell Street to the station) on 29th. February, 1895, ~~to~~ remove its tracks and reinstate the surface within seven days. The Council sided with the Company, but appeals to the Railways Commissioners failed. It was stated that the Company could not afford to pay the £270 per annum rent required by the Railways. It was considered excessive, because the

trams conveyed many passengers to the railway. The Company applied to alter its track layout in Mitchell Street, to suit a terminal arrangement, but details are not known. It was subsequently ~~stated~~ stated that the change had slightly benefited the Company, but the reasons were not given.

On Saturday, 13th. July, at 6.30 p.m., in rainy weather, Motor No. 8 and a trailer descended the hill from Garden Gully to Barnard Street, and apparently got out of control, due to the wet rails. It derailed and slewed a little, and the end of the roof of the trailer was damaged when it struck the motor. The trailer was re-railed by the next motor to Eaglehawk, and motor No. 8 re-railed ~~itself~~ itself. The trailer involved is described as a "dummy", and is presumably either No. 7 or No. 8. In February, 1895, the coaches running between Eaglehawk and Bendigo reduced their fare from 6d. to 3d., and the Company was obliged to do likewise. The Company was subsequently reported to be considering the introduction of fare sections. The deadlock continued with the Victorian Railways over the freight rate for coke, and the Company continued to use wood during the winter, keeping the limited coke supplies from the local gas works for summer. However, despite several experiments with spark arrestors, complaints continued, and no type tried proved 100 per cent effective. Late in 1895, the Company constructed one, and subsequently two, new cars of light construction. They were very small four wheel vehicles, and referred to as "Umbrella" cars. They were numbered 12 and 13, and were intended to augment the existing trams at holiday periods. It would appear that the Sandhurst and Eaglehawk Electric Tramway Company Ltd. had constructed the first of these cars in an effort to overcome the problems associated with their heavy cars and the limited capacity of the batteries. It would have been ~~their~~ their No. 9, but, although reported successful in operation, was too small to cover its running costs. It is not certain whether it entered passenger service, or was produced after running ceased, and thereby only used experimentally. Three additional cars (Nos. 14 to 16) were apparently commissioned during 1896. They were six ~~■~~ window saloon units, with end platforms, and four wheels. They were slightly shorter than Nos. 9 to 11, but of the same appearance.

The lowest point in the economic depression was apparently reached in the second half of 1895, when only 513,761 passengers were carried. The through fare was 3d. ~~was~~ during this period, and the Directors said that they did not propose to increase it. Traffic subsequently improved with 556,839 passengers being carried for the first half of 1896, and 356, 159 for the second six months. The half yearly meeting of shareholders held on 29th. July, 1896 listened to a mixed report on the state of the undertaking. During the last 18 months, much money had been spent on track duplications, rail replacements, maintenance of the steam tram motors, and building and buying new tramcars. It was stated that the Company now had sufficient cars to meet all traffic requirements. However, only £384 had been paid in dividend (in 1892), and it was decided to keep operating until a reasonable offer to purchase was received, rather than stop the ⁿ liquidate, and be forced to ~~sell~~ sell for scrap value. Requests had been made to the Councils for assistance (such as relief of rent and rates, and for the Councils to take over the road maintenance), but these had been refused. The

Company held an extraordinary meeting of shareholders on 20th. August, 1896, to consider future policy. A Melbourne Company had enquired the price of the plant (details not given), and another firm in Coolgardie (Western Australia) sought the cost of five motors and four trailers. As the Directors did not have power to dispose of the Company, this meeting appointed five shareholders and five Directors to investigate the sale of the Company, preferably as a whole, rather than in lots. Subsequently, a group of citizens petitioned the Councils to help the Company, and the Traders Association favoured keeping the trams, while one man collected 206 signatures from Long Gully residents in one day in appreciation of "regular and rapid transit to and from the city".

A Tramway Conference of the Bendigo and Eaglehawk Councils was held on 7th. September, during which some interesting statistics were supplied by the Company. From the end of January, 1892 to June, 1896 (almost 4½ years), receipts had totalled £39,200 1 8.

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being an average of £ 8,711 per annum; operating expenses were £ 36,811: 15:10, being an average of £8,180 per annum; thus, receipts exceeded expenditure by an average of £531 per year. The Company's assets stood at £23,500 and, if proper rates of depreciation had been applied, the net loss would have been £2,110 or £469 per year. Fares had been collected from 3,234,686 passengers during 70,970 round trips. The Company had duplicated $2\frac{1}{2}$ miles of track at an expenditure of £2,500. However, the Eaglehawk Council had decided at its meeting three nights earlier not to grant the Company any concessions, so this Conference was adjourned until 21st. September, during which interval several petitions for and against granting the Company's requests were lodged. The adjourned Conference remained deadlocked, and referred the question back to the Councils. The Company advertised throughout Australia for intending purchasers, and shareholders were told at the half yearly meeting on 26th. January, 1897, that negotiations were proceeding. It was also reported that the tramcars were in good condition but needed painting, that new regulators were being fitted to the Baldwin motors, and that many of the T rails laid in 1894 were causing concern and would need to be replaced shortly. The situation between the Company and the Councils appears to have continued in a stalemate, with the Company continuing to keep the trams running. The 12th. half yearly meeting of shareholders, held ~~in~~ early in August, 1897, was told that a $1\frac{1}{2}$ d. system of sections had been introduced, by pre-paid ticket, on 1st. June, in an effort to counter falling traffic. The through fare was 6d., but had been reduced to 3d. The bell registers (for fare collection) had been continually breaking down, and it was decided to adopt the Evans patent fare receiver, as used in Adelaide and Ballarat. These units should have been in use shortly before the meeting. Early in 1897, the Company had sought permission from the Eaglehawk Council to erect sheds either on the Market Reserve or on Crown Land behind the Town Hall, so that operations could be transferred there in order to effect certain savings. This was refused, so the Company purchased the Mollison Street leasehold, including the land occupied by the Bendigo Electric Company, in order that £90 per year would be saved in rent. ~~which~~ An additional track was laid on the

northern side of the Depot to take three cars, so that rolling stock would no longer have to be left in Mollison Street during the night. The permanent way, described as being in "fair condition", was being metalled, and 15 chains of T rail had been replaced by 50 lb. steel rail. Three trams had been re-painted, six re-touched and varnished, and sheet iron had been laid over the roofs of the larger cars to protect them from the weather. An industrial dispute had taken place during the last few days when the Conductors had complained about the new fare registers. The men had gone on strike, but the dispute had now been settled - by the Company taking on fresh men!

It would appear that the Bendigo Tramway Company's efforts to dispose of its tramway did not succeed until the British Insulated Wire Company entered the scene. In February, 1899, the two ~~companies~~ companies applied to a Tramway Conference to allow the former to sell to the latter, to enable electric trams to be installed. The new Company, of English origin, was in the process of purchasing the Bendigo Electric Company, and sought a 30 year franchise to instal and operate electric trams on the

overhead wire system. The routes mentioned were to Eaglehawk, and between Golden Square and the Black Swan Hotel (to be later extended to Kangaroo Flat and White Hills). It was decided to approve the application, subject to a formal agreement being drawn up. The new Company even suggested using the "slot system" to the Five Lions corner, and then overhead wires to Eaglehawk. A further Conference was held on March 2nd. at which the proposed draft agreement was tabled. The full details of this document appear to be about as optimistic as the two previous ill-fated agreements. Some of the items are as follows:- a 30 year franchise; power to be electricity from overhead wires; the present track to be reconstructed in double track all the way, with the sections between Mollison and Barnard Streets and Buzzo's corner to Eaglehawk Town Town on a concrete foundation with wood block surface, the remainder being on longitudinal concrete stringers with tarred macadam surface; the first two mentioned sections to be at 11 ft. 6 in. centres with centre steel or wood and steel poles, and the remainder at 9 ft. centres (as with

the existing steam tram tracks) with side poles and span wires; 4 ft. 8½ in. gauge; 90 lb. grooved rail; a single track "branch" (this could be ~~much better~~ better described as an extension) to Darling Street (from the steam tram terminus along the northern boundary of the Eaglehawk Town Hall land); routes proposed were from Lake Weeroona to Golden Square South, from Mollison Street to Quarry Hill, and a branch off the latter along Olinda Street (for about half a mile into a hilly section) two streets south of the railway line. The first proposed route was to be laid on a concrete base with wood block paving between Munday Street and Wattle Square, with a tarred macadam surface elsewhere, and to be double track throughout with centre poles and brackets; the other two proposed lines were to be either double or single track, and all three were to be laid with at least 70 lb. rail; the basic service to be 15 minutes, with a 10 minute ^{headway} during the morning, noon and evening "peaks"; the type of tramcar to be similar to that then in use in Brisbane (a straight sill open "California" combination

car, with no motorman's bulkhead or windshield); speed to be between a minimum of seven and a maximum of fifteen miles per hour; the first section to be commenced within two years of the delegation of the Order, and completion ~~minimum~~ to be with all reasonable speed; the Councils to have power to purchase. The Conference approved of the foregoing and other items, and referred them to their respective Council meetings. While consideration was being given to these proposals, the residents of Mollison Street petitioned the Bendigo Council and asked that the new Company should not be allowed to use their street for the trams. They alleged that the present Company had built a double track in Mollison Street without authority to do so, and that the various operations (shunting, cleaning fires, blowing-off, etc.) ^{were} ~~are~~ a nuisance, and detrimental to their property. The matter was referred to the City Solicitor.

As a result of negotiations, The Electric Supply Company of Victoria Limited was brought into being, and purchased the Bendigo Tramway Company Limited and the Bendigo

Electric Company, having a capital of £400,000. The new Company decided that the Mollison Street premises of the Tramway ~~and~~ Depot and Power Station was not suitable for conversion and expansion, and commenced work on land opposite Arnold Street, between the railway line and a small creek, in 1901, to erect a new power house, tram depot and offices. By October, work on the buildings were well advanced, and construction was to a very high standard of brickwork and steel frames. Work to convert the steam tram tracks could have commenced in December, but it was decided to defer it until January, 1902, so that residents would not be inconvenienced during the pre-Christmas shopping period and while the Exhibition was being held. (The Exhibition was being held to commemorate the 50th. anniversary of the discovery of gold in the area; a narrow gauge electric railway was one of the most interesting exhibits, and is the subject of a brief article in the June, 1957 issue of this journal). The proposals mentioned earlier had been somewhat diluted by the time the final agreement was reached and construction commenced. The Eaglehawk line became single track with no less than seven passing loops, being double track only at the Bendigo and Eaglehawk ends, while the only double track on the Lake Weeroona to Golden Square line was between Charing Cross and Arnold Street, although the single track to Golden Square was laid off the crown of the road to be suitable for duplication. This latter section had the poles placed on the crown of the road to approximately the site of the present Fire Station loop, as did both the double track sections on the Eaglehawk route, and the double track in Pall Mall. The remainder was side poles with span wires, except the Darling Street extension (single track), which had side poles and short bracket arms.

The track relaying appears to have commenced at Eaglehawk, with the steam trams being progressively cut back (and replaced by horse cabs) as the new work moved forward. On June 24th., it was reported that the steam tram service would soon be suspended, and additional men employed to hasten the completion of the new track. The track was then completed to Long Gully (about half way), and ~~and~~ it was hoped to have the electric trams running before Christmas. By the middle of July, the head of the

work had surmounted the Ironbark hill, and was steadily nearing Bendigo. At the beginning of December, work was in hand in Pall Mall. However, it appears that there were delays with the construction of the tramcars. The Adelaide firm of Duncan and Fraser had contracted to construct 12 single truck cars, but it is not known if the delays were due to the late arrival of the electrical equipment or trucks, or to other causes. The first trial was run shortly after 5.30 p.m. on Wednesday, 8th. April, 1903, when a tramcar left the Depot and ran to Charing Cross. It returned to Arnold Street, and then ran to Mundy Street and back. Passengers were carried - fare 6d. - between Arnold Street and Charing Cross two nights later. The next morning (Saturday, 11th.) saw a trial trip to Eaglehawk, and all went well except for a little trouble with a set of points at Charing Cross. A track gang was put to work to rectify this, and it was planned to have at least two trams running to Eaglehawk on Easter Monday (13th.), but a rail broke at Charing Cross and prevented this taking place. Cars were run in Pall Mall on the Monday and Tuesday, and finally commenced service to Eaglehawk on ~~Monday~~

Wednesday, 15th. April, 1903, with two trams in use. It was stated that construction of the remaining tramcars was being hurried along, and four cars were operating on the Eaglehawk route within a week. Two days later it was announced that six trams were complete, with two more nearly so. By this time, complaints had been lodged that the trams were causing interference to the telephones and fire alarms. It was not until Wednesday, 13th. May, that the first electric street lights were tested. On 30th. May, the Electric Supply Company of Victoria Ltd. advised the Bendigo City Council that the track to Quarry Hill was virtually completed, and was ready for inspection by its Surveyor, but a newspaper report three days later stated that no poles had yet been erected for the overhead wires. The Company then completed arrangements for building the line to Golden Square, and this project was put in hand.

The first serious accident to be reported happened at 11.00 p.m. on Friday, 29th. May, when two trams collided head on at California Gully. The tram from

the driver

Bendigo carried the theatre crowd, and was subsequently dismissed for not waiting at the Needle loop. Both trams were damaged, ~~and the one ex-Bendigo~~ the one ex-Bendigo badly so. The second driver was severely cautioned and reduced to a Conductor for one month. The Golden Square line was started early in June, and a 30 minute delay was caused when a section of the overhead wires broke at Charing Cross at 11.00 p.m. on Sunday, 14th. June. The routes to Quarry Hill, Golden Square and Lake Weeroona were subsequently completed, passed and opened, but the dates have not yet been ascertained.

Four additional trams were constructed to supplement the original 12 cars, and were in service by 1904. Nos. 13, 15 and 16 were three window saloons, converted from steam tram trailers Nos. 9 to 11. No. 14 was a two window saloon car, believed to have been converted from one of steam tram trailers Nos. 14 to 16, but it could have been built new by Duncan and Fraser. All sixteen cars were carried on 21E trucks, with two 25 h.p. motors in the first twelve and two 30 h.p. motors in the last four. A water tram was ordered new from the British Electric Car Company in December, 1902, and

entered service the following year. It was stored in 1918, reconditioned in 1935-36 for further use, and finally withdrawn and scrapped in 1954. The remaining twelve steam tram trailers were retained as trailers to the electric cars, being withdrawn and scrapped about 1910 to 1913. In September, 1905, six double deck horse trams were transferred from Ballarat (which system had been converted to electric trams by the same Company on 18th. August, 1905), and immediately proved popular (probably because of their better passenger to weight ratio than the ex-steam trams). They continued in use until 11th. November, 1925, as required, and were scrapped the following year. Two new electric trams were built by Duncan and Fraser in 1913, being single truck open summer cars. They were built with windshields, and same were subsequently added to the other sixteen trams during the late 1910's and early 1920's. These two cars were numbered 17 and 18, and continued in service until 1947, with No. 18 being scrapped the following year, and No. 17 being converted to the present track cleaner in 1953. The Company

decided to convert the Lake Weeroona to Golden Square route to one-man operation in 1913 as an economy move, and trams Nos. 1, 5, 6, 9, 11 and 12 were suitably altered, being referred to as "Fare Box Cars". The rolling stock continued to run thus until "new" cars were purchased from 1930, and these will be mentioned later. Nos. 2, 3, 4, 6, 10, 12, 13, 14 and 16 were withdrawn and scrapped in the early and middle 1930's, and Nos. 1, 5, 8, 9, 11 and 15 in 1947. No. 15 was converted to one-man operation in 1942, while Nos. 8 and 9 were modernised in 1946, as the beginning of a programme to improve the six remaining 1903/4 cars. However, this decision was reversed, and all were scrapped. These cars were fitted with destination boxes about 1935, and also air brakes, with No. 9 the first to get the latter.

The trailers were used at times of heavy loading, including holiday and sporting traffic. Trams would meet trains from Melbourne at the station on picnic days, and would operate direct to Lake Weeroona via the facing crossover in Mitchell Street, ~~the~~ ^{then} the connecting curve into Pall Mall and the [^] facing section of the compound crossover

in Pall Mall. Shunting at Lake Weeroona, Quarry Hill and Golden Square was by human effort on the level track, and gravity at the end of the double track at Eaglehawk. The Job's Gully passing loop was originally placed north of the railway bridge, which was its correct position when the single track extension to Darling Street was in use. However, as mining fell away, the service was cut back to just beyond the end of the double track at the Eaglehawk Town Hall, and the correct position for the loop was now on top of the railway bridge, in accordance with the new time tables. This proved both awkward and dangerous, and it was subsequently removed to its present site. While mentioning this location, it has not been ascertained when the steam tram level crossing was altered to an overbridge, which is believed to have been of timber construction. Likewise, the date of construction of the present steel bridge with brick abutments is not known, but it is probably about 1920.

The State Electricity Commission of Victoria was created by Act of Parliament

to be the main electricity supply authority for Victoria, and was vested with powers to generate same or to purchase existing electricity supply companies. The first move made by the S. E. C. towards the Electricity Supply Company of Victoria Limited came in 1925, when the Commission advised the Company that it was willing to purchase the Company, whose franchise expired in 1931. Conferences were held between the S. E. C., Bendigo Council and the Company during 1928-29, at which it was agreed that the S. E. C. should acquire both the electricity supply and tramway sections of the Bendigo undertaking. However, although the Commission had power to do the former, it lacked power for the latter, and an Act was passed by Parliament to fully ratify the negotiations, in December, 1929. The date of sale was fixed at 1st. July, 1931, but the operating franchise was extended to 30th. June, 1934, with the operations of the Company subject to the over-riding control of the S. E. C., which would supply funds for works necessary during this period. One of the provisions of the 1929 Act was to protect the tramways against motor bus competition by not allowing the Bendigo Council

to issue a license without the permission of the Commission. During 1932-33 the S. E. C. carried out a detailed investigation of the condition of the Bendigo tramway system, and presented a comprehensive report to the Government, and local councils. The report showed that the most economical solution to the problem of the 30 year old and fairly worn out system was to rehabilitate it for a life estimated at 15 years. The cost was given at £66,000 with the bulk of this devoted to track work, and the remainder to overhead construction, workshops equipment and construction plant. Most of the money required was received from the National Recovery Loan Fund on moderate terms, with the balance being a grant from the State Government and from the S. E. C's. own resources. The work was quickly put in hand after the Commission assumed full control, and full gangs were on the job by about the end of September, 1934. By the 30th. June, 1935, practically all the overhead had been reconstructed and 5.44 miles of track had been relaid.

Reverting to the matter of replacement rolling stock, the S. E. C. agreed that the Company should purchase a number of surplus single truck trams from the Melbourne and Metropolitan Tramways Board, commencing in January, 1930, in order that many of the old 1903/4 ~~trams~~ tramcars could be withdrawn. The first car received was Melbourne M class No. 107 (ex Hawthorn Tramways Trust No. 1), and became Bendigo No. 19; it was later renumbered (second) No. 12. It was altered for one-man operation by cutting a passageway through the drop-end tip-over seats, removing a sheet of glass from each near-side motorman's bulkhead, ~~fixing~~ fixing un-wanted barrier rails in the lowered position, and thus making it possible for passengers to enter and leave by the one doorway only, paying the operator through the space in the bulkhead as they passed. This car, and several others, were later altered to the present style. Another nine trams were received from Melbourne during 1930/31, being ex- B, J and M classes, and becoming Bendigo Nos. 2, 3, 4, 6, 7, 10, 13, 14 and 16. They were supplemented in March, 1935 by three more ex-M class which became Nos. (second) 19, 20 and 21, and ex-R class No. 153 which became No. 22, in January, 1936. This latter car differed in being a straight sill closed combination type, whereas the earlier ones were typical drop-end open California combination units. ~~The~~ The fleet ran thus until the late 1940's. No. 22, never popular because of the high steps, saw limited service, and was withdrawn and sold for scrap in 1956. In addition to No. 12 (ex 19), ^(second) Nos. 16, 19, 20 and 21 were converted to one-man operation with doorways at the front of the car and immediately behind the saloon, while No. 13 was also altered, but on the "Ballarat ~~sp~~ style", with the doorways at the four corners of the car. The other cars remained in unaltered condition until withdrawn and scrapped between 1951 and 1957.

A further stage in the development of the rolling stock took place on 16th October, 1945, when a maximum traction bogie tramcar was received from Melbourne. It was ex-N class No. 123, and became Bendigo No. 23, being followed by three more like vehicles by 1947, which became Nos. 24 - 26. Between July, 1947, and June, 1949, the S. E. C.

transferred its six Birney safety cars from Geelong to Bendigo, subsequent to deciding not to continue with the programme to modernise the six remaining 1903/4 tramcars. These cars became Bendigo Nos. 11, 15, and 27 - 30, all retaining their Geelong numbers except No. 11, which had been Geelong No. 14. Two more maximum traction tramcars were purchased from Melbourne in 1951, being class E (originally Prahran and Malvern Tramways Trust cars), ^{becoming Bendigo Nos. 17 and 18,} and this appeared to terminate rolling stock development for the foreseeable future as no further cars were surplus in Melbourne. The problem of increasing costs and decreasing passengers and revenue had become quite serious in the post war period, and the Commission decided to convert No. 17 (bogie car) for one-man operation in 1952. The work was carried out, but the car has never run as such a unit because the Tramway Employees Union have refused to man it as such. When the tramway system at Geelong was closed early in 1956, the S. E. C. sent five maximum traction bogie trams to Bendigo, where they became Nos. 1 to 5, and allowed the last of the unaltered California combination cars to be withdrawn, together with No. 13.

The combination of Bendigo's centre-of-the-road single tracks and poorly lit streets was causing concern, as the increasing evening motor traffic since the late 1940's had resulted in a number of head-on or off-side corner collisions with motor cars. Car No. 3 was fitted with battery operated red tail lights in the lower corners of each apron early in 1950, as a result of which all cars were so equipped. Incidents continued, so white reflector tape was added to the dashes in 1956/57. The next move was to fit canopies above the headlights and paint them and the bumpers in yellow and green stripes, ^{in 1961,} Six globes, each 60w, were fitted to each canopy, and illuminated the apron as well as shining out through holes in the canopy. The two outside globes were red and acted as additional tail lights, while the middle four were white for use in conjunction with the headlight. The result is quite impressive, and has resulted in fewer incidents and collisions. The front of a Bendigo tram now has one headlight and four canopy lights, as well as the destination box, facing oncoming traffic, while the rear is guarded by four tail lights; both ends have patterns of white reflective tape.

reconstruction, while the off-centre track on the Golden Square route was placed on the crown of the road during the relaying. Most of the track was relaid, reconstructed or reconditioned at this period, including points and crossings. The only extension to be made was opened on 23rd. November, 1942, from Lake Weeroona to North Bendigo, to serve the Government Ordnance Factory. It had originally been hoped to cross the main railway line, but the Victorian Railways would not allow a level crossing at this point on their main line. Pending the outcome of negotiations, a short spur line was built parallel to the main railway line, to act as a terminus, and this became the permanent terminus; ~~the~~ the track which approached the crossing ^{became} ~~an~~ an unused stub, being removed ~~in 1956/57~~ in 1956/57. The double track terminus at Lake Weeroona was removed before 1950, leaving only the single track as a spur terminus; this was removed probably at the same time as the North spur. The Golden Square double track terminus was removed about February, 1960 and replaced by a single track terminus, while the similar facility at Quarry Hill (unused for many years, as the cars stopped at the points) was taken up in July, 1964. Two recent bridge re-building projects have involved the tramways. The first was in Nolan Street, on the North route. Work commenced in March, 1964, and the road was closed to motor traffic, but the bridge kept open to the trams as ^{much} ~~as~~ as possible. The old timber structure was dismantled except ~~for~~ for the piles and bearers carrying the two tram rails, while concrete retaining walls and piles were built on either side and underneath. The bridge was closed to tram traffic on about three occasions in May and June, while work was carried out or the structure strengthened after damage by the waters. On one occasion Birney No. 29 was isolated for a few days to run the service on the North side, while at other times a mini-bus and taxis were used. Some of the rails from the dismantled Quarry Hill terminus have been placed in the new bridge - in mass concrete to ~~the~~ surface. The work was completed by December, and attention turned to Charing Cross, where the Bendigo Creek passes underneath the whole intersection, including the Golden Square and

Eaglehawk tram lines. The Tramway track gang (supplemented by the men from Ballarat) had carried out preliminary work over the week-end of December 6th to 8th., 1965, by shortening the double track on the Golden Square route by one pole length. This enabled one Birney tramcar to terminate just clear of the points while the roadway was opened during stage two of the bridge re-decking work. Stage one comprised the area between the Golden Square and Eaglehawk routes, and Stage two cut the Golden Square line from 1964.

Monday, 7th. December, Private buses were hired to service the route, and carried a Tramways Conductor to collect the fares. The service co-ordinated with the North Bendigo trams to the existing timetable. The tram track was re-connected about late January, 1965, with rails set in mass concrete to surface, and the tram service restored, while work continued with the roadway on either side of the track. Stage three, which includes the Eaglehawk tracks, provides a number of interesting items. It has been decided that the private bus operators will be unable to service the route,

so a number of bogie ~~cars~~ cars will be isolated for varying periods from the rest of the system. Most of the extension to Darling Street is being brought back into use as a storage road, and a pit will be dug to facilitate servicing the cars. Suitable protection will be provided, including a watchman. The crossover at Charing Cross is partly over the bridge, and will be removed; another crossover was laid in View Street, late in January, two pole lengths towards Eaglehawk. These items will enable a shuttle service to be run on the Eaglehawk line, and it is hoped to have a temporary connection over the bridge from time to time to enable cars to be exchanged as necessary. The Quarry Hill route will also have to be run as a shuttle service, and a crossover has been laid in Mitchell Street, near Charing Cross. These works have been shown on the accompanying map, and explain what doubtless appears to be an impressive track layout about Charing Cross! The only other track alteration took place by November, 1964, when one set of points was removed from the passing loop on the North Bendigo route. This

action placed the loop out of commission, and the single line section now extends from Arnold Street to the terminus.

All sections of single track in Bendigo are protected by two aspect colour light signals, operated from trolley wheel contactors placed on the trolley wire, except the short length between Finders Loop and Quarry Hill terminus, and in Arnold Street to the Depot. Decorated cars appear to have been rather scarce in Bendigo. In the early years of the electric tramways, crews were encouraged to decorate their trams at Easter, but it is not known how long this practice lasted. No. 21 was decorated in 1937 for the Coronation of King George VI, and No. 22 was decorated and illuminated in 1954 for the Royal Visit in February and March of that year by Her Majesty Queen Elizabeth II and the Duke of Edinburgh. The timetable for June, 1940, discloses a basic service of 15 minutes on weekdays, tapering to 20 minutes later in the evening, except on Friday afternoons when trams ran every 10 minutes, on the Eaglehawk to Quarry Hill line. Saturday headways were the same as weekdays except for a 10 minute service from mid-morning to early afternoon and between 7.00 and 8.00 p.m. Sunday running provided a 15 minute headway during the afternoon and evening, with two trams between the Railway station and Eaglehawk in the morning. The Golden Square to Lake Weeroona route received a basic service of 12 minutes on weekdays and evenings, with cars every nine minutes from the middle of Friday afternoon to mid-evening. On Saturdays, trams ran every 12 minutes to 11.00 a.m., then every 9 minutes until early afternoon, every 12 minutes until early evening, ^{and} 9 minutes until about ~~11.00 a.m.~~ 11.00 p.m. The Sunday service was every 12 minutes during the afternoon and evening. The last trams departed from Charing Cross when the Theatres concluded their performances, usually about 11.00 p.m., while the last cars on Sunday nights were a little earlier. The present day timetables provide for a 15 minute service on Eaglehawk/Quarry Hill until about 9.00 a.m., 20 minutes until noon, 15 minutes until mid-afternoon, 10 minutes until about 6.00 p.m., 15 minutes until about 7.30 p.m., and 24 minutes until about 11.00 p.m. Saturdays receive

two early cars at about 30 minute intervals, then 20 minutes to 8.00 a.m., four runs to 9.00 a.m., then 15 minutes until about 7.30 p.m., with 20 minutes until the last car, about 11.00 p.m. A 24 minute service is provided on Sunday afternoons and evenings, while one tram meets the train from Melbourne about 11.45 a.m., runs to Eaglehawk and returns to the Depot. The North Bendigo to Golden Square line has trips somewhat irregularly spaced at various times on weekdays, but at 15 minute intervals between 8.00 and 9.00 a.m., 24 minute intervals from mid-morning to noon, 15 minutes during the afternoon until about 6.00 p.m., and 24 minutes from about 7.30 p.m. until 11.00 p.m. The early Saturday morning runs vary from 19 to 25 minutes apart, thence 15 minutes until the last car. Sunday afternoons and evenings receive a 24 minute service.

The State Electricity Commission of Victoria, being set up as the electricity supply authority for Victoria, naturally did not want to inherit the provincial city tramways when negotiations were under way in the late 1920's., but circumstances decreed that someone had to have them, and Parliament decided that it should be the Commission. The S. E. C. Annual Reports make continual reference to the problems involved in the ~~operation~~ operation of the systems, including Bendigo, but the first occasion on which the Commission is known to have endeavoured to use the provisions of its Act relating to the closure of any of its tramways came in July, 1953. The Commission wanted to abandon the Golden Square route on 6th. of that month, but the Government vetoed the plan. This route has the Kangaroo Flat private bus running over it for the full distance, and would have been relatively easy to close and substitute the bus for the trams. The next major move came on Friday, 2nd. February, 1962, (now known as "Black Friday" to A. E. T. A. members) when the S. E. C. announced that it would petition State Parliament for permission to abandon its tramways at both Bendigo and Ballarat (and the M. & M. T. B. announced that it was about to close the three local tram routes radiating from Footscray railway station). The resultant uproar from much of the local population at Bendigo (and

Ballarat) ~~in protest~~ in protest against this proposal was considerable, and in excess of that by those favouring the change. A number of protest meetings were held, and committees organised. Although the S. E. C. prepared their petition to be tabled in Parliament, it has not been lodged. It is not known what has gone on "behind the scenes", but it is possible that the problems of organising and providing replacement private or Government bus services is in excess of keeping the elderly and financially unsound tramway system running. However, towards the end of 1963, the Depot staff re-commenced major overhauls on tramcars, and this has continued. It would appear, therefore, that the Bendigo tramway system will continue to operate for some time yet, especially in view of the recent special arrangements in connection with the re-building of the Nolan Street and Charing Cross bridges. These latter two projects would have provided quite substantial arguments in favour of abandoning the tramways, in view of the age of the system in general, even though it operates quite well. From a loss of £721 in 1935, when the S. E. C. first took over, the financial position has steadily declined. The annual deficiency reached £19, 539 at the beginning of the war, dropped to £13,159 in 1943, due to the increased loadings, and since then has generally increased to reach £84,810 in 1961. The position was reached then when it was costing nearly 3.1d. to operate the system for every 1d. collected in revenue. Since then, a comparatively steep increase in fares would have altered this ratio and the financial results, but the position would still be poor (even though it is understood that remarkably few passengers have been lost because of the fare increase). And so the situation rests. The S. E. C. continues to faithfully operate the undertaking and provide the service that it does not really feel it should, with (until recently) the ^{local} ~~local~~ electricity tariff rates bearing the deficiency. The system is kept in remarkably good condition, but the preponderance of single track sections, the use of single truck tramcars, ~~and~~ Union insistence on virtually all two-man operation, the motor car age and television make it practically impossible for any appreciable improvement to be made in the financial

Acknowledgements. Although a good deal of research has been carried out to enable this article to be written, much more remains to be done. Readers will have noticed that fairly detailed work has been executed from 1887 to the late 1890's., with only a general coverage for the remaining years. Although this has tended to make the article unbalanced, it has been included in order that these details may be made readily available to those interested, and so that anyone planing research work need not duplicate the work already done. The story of the Sandhurst and Eaglehawk Electric Tramway Company Limited is one of high hopes that were doomed to tragedy through prevailing circumstances and the limited technical knowledge of the day. This article was to have been a sequel to "A Brief History of the Tramways of Ballarat", by W. H. Jack and K. S. Kings, which appeared in December, 1962 and January, 1963 issues of this journal, but Mr. Jack's untimely death last year has made joint authorship impossible. However, some of the information used by the writer has been based on information received from the late Mr. Jack's files in past years. Others to assist in various ways have been Messrs. W. Evans (retired Tramway Superintendent, Bendigo), H. Watkins (retired Tramway Superintendent, Bendigo), B. W. Miller (Acting Tramway Superintendent, Bendigo), T. Griffiths (former Senior Traffic Inspector, Bendigo), K. Makepeace (Depot Foreman, Bendigo), D. Irvin (Depot Foreman, Ballarat), the late A. V. Mawby (S. E. C. Superintendent of Tramways)? P. W. Duckett, C. R. G. Field, L. G. Poole, K. McCarthy and J. H. Price (of London). References perused were "The Bendigo Advertiser", "The Bendigonian", "The Weekly Advertiser", "Commonwealth Engineer", Commonwealth Year Books, ~~XXXX~~ Victorian Year Books, S. E. C. Annual Reports, A. R. H. S. (Victorian Division) Bendigo Railway Centenary booklet, and the writers files. Although many interesting items have been discovered during the research to date, it is certain that many others remain to be discovered. It is to be hoped that the foregoing article will serve as an interim record pending further research into the past and recording of events to come.