

THE BIRNEY SAFETY CAR
AND ITS USE IN AUSTRALIA

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Numbers in brackets [] refer to references appended.

The Birney Safety Car

In 1916, many streetcar systems in the USA were in the 20 to 30 years age group. Cars and track were beginning to show their age, but finances were generally short. As they had done before, and would do several times more, the managements sought a miracle to save them from ruin.

Their miracle did not arrive, but many a system achieved a temporary reprieve due to a design by Mr Charles O. Birney, designing engineer of the Stone and Webster Management Association, which operated several streetcar companies.

The Birney car was successful in its combination of several notions then in vogue. It was a single truck, light weight, one-man, safety car.

The single truck idea was a calculated return to earlier concepts (bogie cars were standard at this time) presumably justified on economic and weight grounds.

The light-weight properties of the car considerably reduced both power costs and track maintenance requirements. In reply to a questionnaire prior to the Atlantic City Convention of 1919, streetcar companies stated [3] that power consumption was down 51.2% to 1.5 kWhr/mile.

One-man operation was the obvious way to reduce running costs as, even then, crew wages were a large proportion of costs. In reply to the afore mentioned questionnaire 89.2% of companies (83 out of 93) reported that their crews' reactions to one-man operation had been favourable!

In those early years the name most frequently attached to Birney's, and their similar contemporaries, was "Safety Cars." The Birney was referred to as the 28' 0 $\frac{1}{2}$ " Safety Car. Apparently the protagonists of the Birney car felt that the public would fear inattentiveness of an "operator" who had the dual responsibility of driving and collecting fares.

Their fears appear to have been unfounded, but safety equipment remained a standard feature on new Birneys. Doors and brakes were interlocked so that doors could not open, nor the coupled step drop down, while the car was in motion. Similarly, if the door was open, and the step down, the car could not move.

(This feature appears ^{on} the AEC Regal Mark VI Bus for the MMTB as late as 1964!)

The following extract, a masterpiece of understatement, serves to describe another safety feature, the "dead-man's handle" —

"The dead-man's handle requires that the operator have his hand constantly on the controller or it would throw off the power. Similarly, if power were so thrown off, the brakes would be automatically applied and sand fed to the track, and, when the car comes to a stop, the doors, previously held securely closed by air pressure, are made available for manual operation to form emergency exits if desired" (whew!)

The American Electric Railway Association produced the following accident data [4] —

Operation	2 MAN	1 MAN	% REDUCTION
Number of Accidents	45	32	29
Cost	\$10,699	\$7,541	34
Personal Injuries	83	44	47
Collisions with other Vehicles	207	196	5.17

(All monies in this ~~article~~ ^{section} are in American Dollars)

Asked whether any accidents were traceable to one-man operation, six out of eighty four companies replied YES, but added that the operator had failed to observe the "rules".

Purchase price of the safety cars varied from \$4500 to \$7000, but was generally \$6000. They could be purchased on the basis of 20% cash and the balance in equal monthly instalments with interest at 7% on deferred payments covering a period of five years. This arrangement must have aided many small companies to purchase the cars. One wonders how many companies failed within the five years — or had cars repossessed!

The number of cars purchased steadily increased in the four years following 1916 and then declined as can be seen from the following table [5]

Year	1916	1917	1918	1919	1920	1921	1922	1923	1924
Orders for New Cars	187	280	644	1383	1699	565	772	312	103
Progressive Total	187	467	1111	2494	4193	4758	5530	5842	5945

In 1919 69% of all city cars ordered in the USA were Birney cars!

The decline of the Birney cars was due to several factors. Initially sales dropped off as the market became saturated. The single truck notion was their downfall in many cities, where they were used in peak traffic - for which they were not designed. They were, understandably, unable to handle the heavy peak traffic.

By the 1940s, the only Birney cars in service were working low-load shuttle services etc. and these soon disappeared.

Birneys in Melbourne

On the morning of June 5th, 1924 a small number of people ~~were~~ ^{was} present in Power St., Hawthorn to witness the first run of a Birney Safety Car in Australia. No 217, in brown and cream, with two trolley poles and a destination board reading "BRIDGE RD" was tested and demonstrated to the gentlemen of the press. The press were particularly struck by the large windows which gave "an uninterrupted view of the landscape" [6]

Five days later, on June 10th, 217 went into regular service on the Power St. - Hawthorn Bridge shuttle service. It seems likely that 218 entered service on the following day.

The cars were an immediate success. It was reported [7] that "the one man trams recently placed in operation on the Power St. line at Hawthorn had given complete satisfaction The construction of the cars is comfortable" (!?)

However, by this time, an important change had been made to the cars. On 19th and 20th of September the cars, in turn, had their trolley pole removed and a single bow collector fitted. Trials with these were not successful, (the collectors apparently 'bounced' at high speed), and the cars were later fitted with a single trolley pole each. (Probably in mid 1927)

At this time, the Birneys were no longer Melbourne's only safety cars. Seven X1 class cars had been completed and Y469 was about to enter service. All of these cars and the later X2 and Y1 class cars can trace their origins to X 217 and X 218.

When 217 test ran in June 1924, it was suggested by the press that 218 might enter service on the Point Ormond section. In 1928 both 217 and 218 were transferred to Glenhuntly Depot to operate the Point Ormond shuttle service, a task they shared with an X2 or sometimes an X1 car in later years. From 1928 until the mid 1950s the Birneys provided a reliable service on this section.

In early 1956, 217 was transferred to Footscray Depot for the RUSSELL ST service, but saw little duty.

The two cars had seen some service on the all-night tram services over an extended period. On replacement of this service with a (much-curtailed) bus service in early 1957, the Birney cars became redundant and were withdrawn in April (217) and June (218).

It was intended to donate both cars to the Deaf and Dumb Childrens' Home at Burwood, however, following representations by the AETA 217 was held for preservation.

Today 217 is in the process of being restored to its pristine condition of that June morning in 1924 when it made its first run along Power St. 218 has recently become ~~donated to the T.M.S.V. for the Deaf at Burwood~~ ^{donated to the T.M.S.V. for the Deaf at Burwood} and will be protected from further deterioration. ^{and there is a possibility that the T.M.S.V. may be able to obtain it although the body is in dreadful condition.}

Finally, it must be said that these cars have not distinguished themselves as magnificently as (for instance) that magnificent work horse, the W2, has. However, they have proved sturdy and efficient little cars, part of a world wide caste, and have well earned a place of honour in an operating museum.

Other Australian Birneys

Two other tramway concerns have operated Birney Safety Cars in Australia, in three cities.

In Adelaide, the Municipal Tramways Trust possessed four Birneys classed G and numbered 301 to 304. They operated on the isolated Port Adelaide system, to the north-west of the city. The four cars were assembled at the Port Depot, reportedly [8] at a unit cost of only £820. (\$1640). It is uncertain whether the Adelaide cars ever had two trolley poles, as did the Melbourne and Geelong cars as no photograph of them as such is known to exist. They arrived about a year later than the Melbourne and Geelong cars and it is quite possible that they differed in this respect. In December 1925, they entered service and were used principally on the Rosewater route until the Port Adelaide system was converted to trolley bus operation in July 1935. In 1936 they were sold to the State Electricity Commission of Victoria who numbered them 30, 29, 27 and 28 respectively on the Geelong roster.

The Melbourne Electric Supply Co. operated the tramways of Geelong in 1924, when two Brill Birney cars, numbered 14 and 15 were assembled at Geelong Depot. 14 and 15 differed from all other Australian Birneys in that they had longitudinal seats instead of the usual lateral, tip-over seating. They were probably fitted with two trolley poles originally, which were

removed and replaced with single trolley poles at a later date. These two cars were joined by the four from Adelaide in 1936.

In 1947 the ex-Adelaide cars were transferred to Bendigo, to be followed by 15 and 14 in 1948 and 1949 respectively. No. 14 was renumbered 11 in Bendigo.

Since then, No. 27 has met with an accident and been scrapped. No. 15 met with a similar accident and is unlikely to be repaired. However, Nos. 28, 29, 30 and 11 still operate, mainly in the evening and on Sundays. They are in quite good condition and provide a capable service to Bendigo. It is unlikely that any of these cars will be scrapped, unless a severe accident befalls them, as trolley museums throughout Australasia and the world have asked that they be held for preservation - when no longer required for service!

To complete the story for Australasia, New Zealand operated Birney cars in two cities; Invercargill operated six Brill Birneys until September 1952 and New Plymouth operated three Brill Birneys, which had 4 doors (one on each corner), until July 1954.

Proposals

There was, [9], in 1920, a proposal to obtain a fleet of 30 Birney cars for Sydney, but this was rejected, chiefly on "political" grounds.

The Victorian Railways considered Birney Cars for their Sandringham - Black Rock Electric Street Railway in 1924. They received a quote from Noyes Bros., the local agents for St. Louis Car Co., of £3242 - (\$6484) which was considered rather high (by comparison with bogie cars of V.R. manufacture). Because of this, and other operative factors, the proposal was shelved.

It seems most likely that all other electric tramway operators in Australia would have considered, at some time, the introduction of Birney cars, For their success, while transitory, was most spectacular.

Technical Details

The following table, for which I am much indebted to Keith Kings, includes details of the cars and some key dates.

Technical Details

CAR No (Last)	217	218	11	15	27	28	29	30
BODYBUILDER	Brill	St. Louis	Brill	Brill	Brill	Brill	Brill	Brill
TRUCK	79E1	St. L. 7*	79E1	79E1	79E1	79E1	79E1	79E1
SEATING	33	33	30	30	32	32	32	32
MOTORS	GE 264	WH 510	GE 264	GE 264	GE 264	GE 264	GE 264	GE 264
TARE (Ton)	8.2	8.5	7	7	7	7	7	7
PREVIOUS NOS.			14		303	304	302	301
DATES IN SERVICE								
Melbourne	10/6/24	11/6/24						
Port Adelaide					26/12/25	26/12/25	16/12/25	16/12/25
Geelong			27/8/24	29/9/24	17/1/36	24/1/36	6/2/36	30/1/36
Bendigo			-/6/49	-/1/48	16/12/47	30/10/47	13/7/47	13/7/47
STORED	16/2/57	16/2/57		24/4/59	-/7/56			
DISPOSED OF	21/8/58**	10/7/57			31/7/58			
MILEAGES								
Melbourne	717469	826785						
Port Adelaide					200598	203648	195522	185785
Geelong			416863	399578	202773	184600	188362	195787
Bendigo			***	66736	53134	***	***	***
TOTALS	717469	826785	***	466314	456505	***	***	***
OPERATOR (Last)	MMTB	MMTB	SEC	SEC	SEC	SEC	SEC	SEC

* Rebuilt ^{for re} and classified ^{as} MMTB Not by ~~MMTB~~

** To TMSV (AETA Initially)

*** Still in Service.

The following details apply to all the cars -

LENGTH 28'
 HEIGHT 10' 9"
 WIDTH 8' 2"
 WHEELBASE 8' 0"

Finally

I would like to thank Messrs. Keith Kings and Bob Prentice, without whose able assistance this article would have been severely depleted.

Regrettably, this is not a complete coverage of the subject. This is partly due to lack of time for further research but mainly due to shortage of information, particularly in certain areas. I would appreciate hearing of any errors or doubtful points in this article and suggest that they be communicated directly or through R.T.

References

1. The Birney Car, Dr. H.E. Cox.
2. Trolley Car Treasury, pp. 171-4, F. Rowsome.
3. Electric Railway Journal, "Report of Atlantic City Convention, 1919", p 31f.
4. Tramway and Railway World, 19th. April 1923.
5. Electric Railway Journal, Vol. 65.
6. The Herald, (Melbourne), 5th June 1924.
7. The Argus, (Melbourne), 2nd October 1924.
8. Development of Street Transport in Adelaide, Official History of the Municipal Tramways Trust, 1907-1965.
9. Tram Tracks, February 1949.

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