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The Times

—Contents—

埼玉大宮の**鉄**道博物館はエントランスの床が東北新幹線の時刻表になっているのは有名だけど、天井が同じく東北新幹線のダイヤグラムになっていることは何故かあまり知られてないよね？ The Railway Museum in Saitama Omiya is famous for the floor of the entrance being the timetable of the Tohoku Shinkansen, but for some reason it is not well known that the ceiling is also the timetable of the Tohoku Shinkansen, isn't it? Now go to the rear cover!

Red Hill Fruit Season Rail Motors 1925

DAVID HENNELL

L AST CENTURY, THE MORE elevated inland parts of Victoria's Mornington Peninsula were noted for their orchards. Some of the railway stations in the area sported large cool-stores – the ones at Hastings and Somerville on the Stony Point line have now gone but that at Tyabb still exists in the form of a very interesting major collectables and antiques venue (that's the merchandise, not the patrons but one never knows). The Tyabb cool-store is readily accessible by Sprinter railcars from Frankston or, if you prefer, bus routes 782 and 783 also from Frankston. It is well worth a visit.

The Red Hill branch was one of Victoria's later developmental/political branch lines, opening on 2nd December 1921. Closure occurred on 1st July 1953. Its ledger entries over its short life were always written in red ink.

However, a few railmotors and railcars ran on part of the line after closure. During the summer holidays until January 1956, they conveyed children to the Coolart Road level crossing, about 2½ mi from Bittern, where they alighted for the Lord Somers Camp. The trains continued as necessary a further mile to Balnarring to run round. The last train to Balnarring was an enthusiast excursion operated by Walker 280hp DRC 85RM which ran on 25th February 1956. The operation of these trains muddies the definition of the term 'closure' as they would have produced revenue.

With the spread of private motor trucks following the end of World War I, produce traffic was being lost to the Victorian Railways and to railways elsewhere worldwide. The late construction of the Red Hill branch would not have helped its viability as fruit could now be taken directly from orchard or cool-store to market more efficiently by road than by rail. However, the establishment of a cool-store in the station yard at Red Hill immediately prior the railway's

		Mon	Tue, Thu				Wed, Fri	Mon
		car goods	car goods				car goods	car goods
		a.m.	p.m.				a.m.	p.m.
Flinders Street	d	9 20	5 05		Red Hill	d	6 30	2 30
Frankston	a	10 15	5 57		Merricks		a	a
	d	10 21	6 07		Balnarring		a	a
Baxter	a	10 39	6 25		Bittern	a	7 15x	3 30
	d	10 42	6 37		*Bittern*	d	7 25	4 00
Bittern	a	11 08x	7 01x		*Baxter*	a	7 55x	5 20x
Bittern	d	11 10	7 15			d	8 10	5 36
Balnarring	a	a	a		*Frankston*	a	8 25	5 52
Merricks	a	a	a			d	8 32	6 05
Red Hill	a	12 10	8 30		*Flinders Street*	a	9 28	7 02

opening meant that fruit did travel courtesy of the VR, at least in the early years.

In the case of the Red Hill line, the AEC rail motors ran during the 1924/1925 and 1925/1926 summer seasons, conveying both passengers (very few) and soft fruits such as strawberries (oodles). These AECs replaced the mixed trains which normally provided for passenger traffic but goods trains were provided for freight during these periods.

The full normal 1925 Red Hill service was sparse at best indicating a paucity of possible passengers and a gross shortage of general goods loading (table above).

Bittern connections were with Stony Point trains and Baxter connections were with Mornington trains. Conditional stops were shown in PTTs of the time by the symbol 'a'. Not very encouraging for prospective travellers.

The 1925/1926 fruit (and passenger) motor commenced on 30th November

1925 and finished on 2nd February 1926. Christmas Day 1925 was a Friday. The total passenger service to Red Hill during the 1925/1926 summer fruit season is shown at the top of page 4.

Conditional stops were shown in WTTs of the time by the symbol '§'. Suburban electric trains provided the rail motor connections from and to Flinders Street. Given the 1 in 30 uphill grades against down trains beyond Merricks, it's not surprising that the sparsely loaded AEC to Red Hill took longer than did the loaded downhill one. You'll find much of interest about the 5 12 p.m. pass to Red Hill and the 8 40 p.m. empty cars from Red Hill in the timetable pages herewith.

During the operation of the Daily (i.e. Monday to Saturday in the language of the time) AEC motor, goods trains ran on Tuesday and Thursday, providing a day return service from Melbourne.

The 30th November 1925 Suburban

PTT showed the rail motor service. The normal service was also included but these trains were obliterated by violet rubber stamp ink. It also stated that the "Service on Red Hill Line will be reviewed about the middle of January watch Press for particulars." This implies that the rail motor to Red Hill would not run from mid January as this would be the end of the fruit season but it survived until the beginning of February 1926.

The rail motor provided an unusual (for that line) service for branch passengers that was not available to them at other times of the year; viz: the possibility of making a day return journey to Frankston or Melbourne for shopping, appointments, etc. One hopes that day return tickets were on issue.

The Red Hill service shown in the 23rd May 1927 Suburban PTT is at right, lower. The Tuesday train had been withdrawn at the beginning of February 1927.

The 14th October 1929 Suburban PTT tells us that:-

"RED HILL LINE

A Goods Train which is available for Passengers under usual conditions runs on the Red Hill Line on Mondays in connexion with the 9.20 a.m. from Melbourne, returning to connect with the 4 p.m. train from Bittern."

Passenger accommodation was provided on the branch by a platform seat placed in the guard's van and the 'usual conditions' were the signing of a goods train indemnity. [A similar situation existed on the Balranald line from 1948 to 1953 – travelling from Echuca to Balranald on a platform seat for 9 h to 10 h in either summer or winter would have rugged at best! … and no rug provided.] VR used the spelling 'connexion' rather than 'connection' for many years, similarly 'parlor car' instead of 'parlour car' and 'employe' rather than 'employee'.

Calling the Red Hill goods a "goods train" meant that it could be cancelled if there were no traffic offering although this would have rarely, if ever, been the case. Cancellation would not have been possible if it had been an advertised passenger service.

		Mon - Fri	Sat	Thu			Mon - Sat	Thu
				24th Dec.				24th Dec.
		rail motor	rail motor	thro pass			rail motor	ety steam
		p.m.	p m.	p.m.			a.m.	p.m.
Flinders Street	d	1 08	1 10	5 12	Red Hill	d	7 40	8 40
Frankston	a	2 10x	2 12x	6 18	Merricks		7 51	*
	d	2 20	2 20	6 28	Balnarring		7 58	*
Baxter	a			6 46	Bittern	a	8 06	9 20
	d	2 39	2 39	6 48	Bittern	d	8 07	9 30
Bittern	a			7 13	Baxter	a	8 31	10 00
				thro mxd		d	8 32	10 05*
Bittern	d	3 04	3 04	7 25	Frankston	a	8 50x	10 25
Balnarring		3 13	3 13	§		d	9 01	10 35
Merricks		3 22	3 22	§	Flinders Street	a	10 03	11 45
Red Hill	a	3 35	3 35	8 20				

The Christmas New Year 1925/1926 Christmas Excursions Suburban Service Circular C. 23/25 (a 224 page book although pages 2 & 224 are blank) includes the full passenger service (apart from that on Sunday 27th December) beyond Frankston. The Sunday service at the time consisted only of a 10.50 a.m. from Flinders Street to Mornington, returning at 7.10 p.m. after a 6½ h layover. A close study of these 3 lines' holiday service will be well rewarded as they show just how important rail travel still was a century ago, just at the start of the car's ascendency. Despite the title, this book is just the Christmas/New Year period suburban working timetable.

In the end, VR's attempt to fruitfully capture the Red Hill fruit traffic turned out to be fruitless.

Footnotes:

1. VR's suburban working timetables, holiday books and suburban public timetables traditionally included the Whittlesea, Healesville, Warburton, Gembrook, Stony Point, Red Hill and Mornington lines. Despite a hiatus in the early 1980s, Stony Point has survived and electric trains are

		Mon, Thu				Mon, Thu
		car goods				car goods
		a.m.				p.m.
Flinders Street	d	9 20	Red Hill	d		2 45
Frankston	a	10 11	Merricks			a
	d	10 12	Balnarring			a
Baxter	a	10 29	Bittern	a		3 35
	d	10 31	Bittern	d		4 00
Bittern	a	10 55x	Baxter	a		5 20x
Bittern	d	11 10		d		5 36
Balnarring		a	Frankston	a		5 52
Merricks		a		d		6 05
Red Hill	a	12 20	Flinders Street	a		7 02

gradually creeping towards Whittlesea.

2. There is a very interesting and well illustrated article on the history of the Red Hill railway in the November 2021 issue of Newsrail. It marks the line's centenary. [This Newsrail article provided additional information for The Times' article and this is gratefully acknowledged by this author—DH]

MELBOURNE TO MORNINGTON, RED HILL AND STONY POINT.

Full Passenger Service for Dec. 24, 25, 26, 28, 29, 30, 31, Jan. 1 and 2.

No. of Train.	No. 2 Ord.	—	No. 6 Ord.	No. 4 Ord. Altd.	119	
Dates to Run.	Dec. 24, 25, 26, 30, 31, Jan. 1, 2 Empty Electric	Dec. 25 Rail Mtr	Dec. 24, 29, 31, Jan. 2 Steam	Dec. 25, 26, 28, Jan. 1 Steam	Dec. 25, 26, 31, Jan.1 Steam	Dec. 24 Electric.
	a m	a m	a m	a m	a m	a m
Flinders-st. ... dep	6 30		9 20	9 23	9 40	10 34
Richmond	6 23		•	•	•	10 23
South Yarra	6 36		•	•	•	10 28
Hawksburn	6 38		•	•	•	10 30
Toorak	6 40		•	•	•	10 32
Armadale	6 42		•	•	•	10 34
Malvern	6 45		•	•	•	10 37
Caulfield	6 48		9 38	9 35	9 58	10 40
Glenhuntly	6 50					10 42
Ormond	6 52					10 44
McKinnon	6 54					10 46
Bentleigh	6 56					10 48
Moorabbin	6 58					10 50
Highett	7 0		•	•	•	10 52
Cheltenham	7 3		•	•	•	10 55
Mentone	7 6		•	•	•	10 58
Parkdale	7 9		•	•	•	11 1
Mordialloc	7 12		•	•	•	11 4
Aspendale	7 14		•	•	•	11 6
Edithvale	7 17		•	•	•	11 9
Chelsea	7 20		•	•	•	11 12
Carrum	7 23		•	•	•	11 15
Seaford	7 27		•	•	•	11 19
Frankston ... arr	7 32		10 5	10 15	10 41	11 24
	Rail Mtr					
Langwarrin ... dep	7 43	9 53	10 21	10 21	10 48	
Baxter ... arr	8 8	10 13	10 39	10 33	11 8	
Moorooduc ... dep	8 12	10 16	10 45	...	11 8	
Mornington ... arr	8 35	10 46	11 15	...	11 33	
Baxter ... dep			10 42	10 42	...	
Somerville ... arr						
... dep			10 48	10 48	...	
Tyabb			10 54	10 54	...	
Hastings ... arr						
... dep			11 1	11 1	...	
Bittern ... arr			11 7	11 7	...	
Balnarring ... dep			...	...	...	
Merricks			...	...	...	
Red Hill ... arr			...	...	...	
Bittern ... dep			11 8	11 8	...	
Crib Point			11 15	11 15	...	
Stony Point ... arr			11 20	11 20	...	

* Not stop for passengers.   P—Pick up only.   C—Passengers change trains.
§ Stop if required.

MELBOURNE TO MORNINGTON, RED HILL AND STONY POINT—Continued.

No. of Train.	No. 8 Ord.	No. 4 Ord. Altered	—	—	No. 10	—	—
Dates to Run.	Dec. 24, 30, 31, Jan. 2 Electric	Dec. 25, 26, 28, Jan. 1 Electric	Dec. 24, 29, 31, Jan. 2 Electric	Dec. 25, 26, 28, Jan. 1, 2 Electric	Dec. 26, Jan. 2 Two Motors & train.	Dec. 24 Empty steam	Dec. 31 Re-laid to No. 72 Electric.
DOWN.	a m	a m	p m	p m	p m	p m	a m
Flinders-st. ... dep	10 29 D	10 29 D	1 10	2 5		2 22	
Richmond	10 32	10 32	1 13	•		2 25	
South Yarra	10 35	10 35	1 16	•		2 28	
Hawksburn	10 37	10 37	1 18	1 20		2 30	
Toorak	10 39	10 39	1 18	1 20		2 32	
Armadale	10 41	10 41	1 23	1 25		2 34	
Malvern	10 44	10 44	1 23	1 27	2 21 pl	2 37	
Caulfield	10 47	10 47	1 28	1 28		2 40	
Glenhuntly	10 49	10 49	1 28	1 30		2 42	
Ormond	10 51	10 51	1 30	1 32		2 44	
McKinnon	10 53	10 53	1 32	1 34		2 46	
Bentleigh	10 55	10 55	1 34	1 36		2 48	
Moorabbin	10 57	10 57	1 37	1 40		2 50	
Highett	10 59	10 59	1 38	1 43		2 52	
Cheltenham	11 2	11 2	1 41	1 45		2 55	
Mentone	11 5	11 5	1 41	1 46		2 58	
Parkdale	11 8	11 8	1 47	1 49		3 1	
Mordialloc	11 11	11 11	1 50	1 52	2 38	3 4	
Aspendale	11 14	11 14	1 53	1 55		3 7	
Edithvale	11 16	11 16	1 55	1 57		3 9	
Chelsea	11 18	11 19	1 58	2 4		3 12	
Carrum	11	11	2 2	2 8		3 15	
Seaford	11	11	2 5	2 12		3 18	
Frankston ... arr	11 31c	11 31c	2 10	2 32	3 56	3 24	Return 3.36
Langwarrin ... dep							
Baxter ... arr	11 55	11 56	2 39	3 39	3 16	3 15	
						3 21	3 37 Then run § 4.5 p.m.
Moorooduc ... dep	11 57	11 57	...	...	3 22		
Mornington ... arr	12 30	12 30	...	...	2 45		
Baxter ... dep			2 39	2 39			
Somerville ... arr			2 45	2 45			
... dep			2 51	2 51			
Tyabb							
Hastings ... arr							
... dep			2 58	2 58			
Bittern ... arr			3 4	3 4			
Balnarring ... dep			3 4	3 4			
Merricks			3 13	3 13			
Red Hill ... arr			3 22	3 22			
			3 35	3 35			
Bittern ... dep							
Crib Point							
Stony Point ... arr							

* Not stop for passengers.   P—Pick up only.   C—Passengers change trains.
§ Stop if required.   A Leaves 2.33 p.m. Jan. 1, 28 and Jan. 2.   D Leaves 10.31 a.m. on Dec. 25,
F—Leaves 2.8 p.m. on Dec. 26.

Above and below: C.23/25 pp 52-55

STONY POINT, RED HILL, MORNINGTON TO MELBOURNE.

FULL PASSENGER SERVICE for Dec. 24, 25 26, 28, 29, 30, 31, Jan. 1 and 2.

No. of Train	No. 1 Ord.	No. 1 Ord. Altd.	No. 2 Ord.				No. 3 Ord.	
Dates to run	Dec. 24, 25, 28, 29, 30, 31, Jan. 2	Dec. 25, 26, 28 Jan. 1	Dec. 24, 25, 26, 28 29, 30, 31 Jan. 1, 2	Dec. 24, 25, 28, 29, 30, 31 Jan. 2	Dec. 26, Jan. 1	Dec. 26, Jan. 1, 2	Dec. 24, 25, 26, 28 29, 30, 31 Jan. 1, 2	Dec. 24 & 31
	Rail Motor.	Rail Motor.	Steam	Rail Motor	Rail Motor	Rail Motor		Electric
	a m	a m	a m	a m	a m	a m		a.m.
Stony Point ... dep			7 15					
Crib Point			7 19					
Bittern ... arr			7 24					
Red Hill ... dep				7 40	7 40			
Merricks				7 51	7 51			
Balnarring				7 58	7 58			
Bittern ... arr				8 6	8 6			
... dep			7 25	8 7	8 7			
Hastings ... arr								
... dep			7 31	8 12	8 12			
Tyabb			7 41	8 19	8 19			
Somerville								
... dep			7 48	8 25	8 25			
Baxter ... arr			7 55s	8 31	8 31			
Mornington ... dep	7 0	7 0	7 47			9 0		
Moorooduc	§	§	§			§		
Baxter ... arr			8 5					
... dep	7 19	7 19	8 10	8 32	8 32	9 20		
Langwarrin	§	§	8 15			§		
Frankston ... arr	7 35c	7 35c	8 25	8 50	8 50	9 37c	Empty
	Electric.	Electric.	2 Motors	Electric.	Electric.	Electric.	11 29
Seaford	7 41	7 47	8 32	9 1	9 13	9 41	•
Carrum	7 46	7 52	8 37	9 6	9 18	9 46	•
Chelsea	7 50	7 56	8 41	9 10	9 22	9 50	•
Edithvale	7 53	7 59	8 44	9 13	9 25	9 53	•
Aspendale	7 56	8 2	8 47	9 16	9 28	9 56	•
Mordialloc	7 58	8 4	8 49	9 18	9 30	9 58	•
Parkdale	8 2	8 6	8 55s	9 22	9 34	10 2	11 49*
Mentone	8 5	8 11	•	9 25	9 37	10 5	•
Cheltenham	8 7	8 13	•	9 27	9 39	10 7	•
Highett	8 10	8 16	•	9 30	9 42	10 10	•
Moorabbin	8 13	8 19	•	9 33	9 45	10 13	•
Bentleigh	8 15	8 21	•	9 35	9 47	10 15	•
McKinnon	8 18	8 24	•	9 38	9 59	10 16	•
Ormond	8 21	8 27	•	9 41	9 51	10 21	•
Glen Huntly	8 24	8 30	•	9 44	9 56	10 24	•
Caulfield	8 27	8 33	9 15s	9 47	9 59	10 27	12 18*
Malvern	8 29	8 37	•	9 49	10 1	10 29	•
Armadale	8 31	8 37	•	9 51	10 3	10 31	•
Toorak	8 33	8 39	•	9 53	10 5	10 33	•
Hawksburn	8 35	8 41	•	9 55	10 7	10 35	•
South Yarra	8 37	8 43	•	9 57	10 9	10 37	•
Richmond	8 39	8 45	•	9 59	10 13	10 39	•
Flinders-street...	8 43	8 49	9 28	10 3	10 15	10 43	12 26

C—Passengers change trains.   *—Not stop for passengers.   s—Set down only.
§—Stop only if required.

STONY POINT, RED HILL, MORNINGTON TO MELBOURNE—Continued.

No. of Train.	No. 5 Ord.	No. 8 Ord.	No. 9 Ord.	No. 9 Ord. Altered	No. 102		
Dates to run	Dec. 24, 25, 26, 28, 29, 30, 31 Jan. 1, 2	Dec. 26, Jan. 2	Dec. 29 30	Dec. 24, 25, 28, 26 Jan. 1	Dec. 26 Jan. 2	Dec. 24 31	
	Steam	Steam	Rail Mtr	Steam	Empty.	Empty. Electric.	
Stony Point ... dep	a m 11 50	p m 12 50	p m	p m	p m	p m	
Crib Point	11 55	12 54					
Bittern ... arr							
Red Hill ... dep							
Merricks							
Balnarring							
Bittern ... arr							
... dep	12 2	1 1					
Hastings ... arr							
... dep	12 8	1 8					
Tyabb	12 15	1 17					
Somerville ... arr							
... dep	12 22	1 24					
Baxter ... arr		1 32c					
Mornington ... dep			1 20	1 40	1 40		
Moorooduc			§	§	§		
Baxter ... arr			1 39				
... dep	12 29	1 40	2 0	2 0			
Langwarrin	12 36	1 45	§	§			
Frankston ... arr	12 45	1 55c	2 17c	2 17c	2 Motors	3 36	
		Electric.	Electric.	Electric.	& Cars		
... dep	12 52	2 1	2 21	2 21	3 2		
Seaford	•	2 6	2 26	2 26	•		
Carrum	•	2 10	2 30	2 30	•		
Chelsea	•	2 13	2 33	2 33	•		
Edithvale	•	2 16	2 36	2 36	•		
Aspendale	•	2 18	2 38	2 38	•		
Mordialloc	•	2 22	2 42	2 42	•	3 57*	
Parkdale	•	2 25	2 45	2 45	•		
Mentone	•	2 27	2 47	2 47	•		
Cheltenham	•	2 30	2 50	2 50	•		
Highett	•	2 33	2 53	2 53	•		
Moorabbin	•	2 35	2 55	2 55	•		
Bentleigh	•	2 38	2 58	2 58	•		
McKinnon	•	2 39	2 59	2 59	•		
Ormond	•	2 41	3 1	3 1	•		
Glen Huntly	•	2 44	3 4	3 4	•		
Caulfield	1 32s	2 47	3 7	3 7	3 35*	4 19*	
Malvern	•	2 49	3 9	3 9	•		
Armadale	•	2 51	3 11	3 11	•		
Toorak	•	2 53	3 13	3 13	•		
Hawksburn	•	2 55	3 15	3 15	•		
South Yarra	•	2 57	3 17	3 17	•		
Richmond	•	2 59	3 19	3 19	•		
Flinders-street...	1 50	3 23	3 48	3 48	4 35 H		

C—Passengers change trains.   §—Stop only if required.   *—Not stop for passengers.
S—Set down only.   H—Forms 4.43 p.m. Williamstown Pier.

No. of Train.	No. 11 Ord.	No. 11 Altd.	S 17	S19	M21	No. 12 Ord.	No. 12 Ord. Altd.
Dates to Run.	Dec. 29, 30	Dec. 25, 28, 31, Jan. 1	Dec. 24	Dec. 26, 28 Jan. 1, 2	Jan. 2	Dec. 25, 26, 28, 29, 30, Jan. 1, 2	Dec. 24 31
	Electric.	Electric. A	Steam	Empty. Steam	Empty	Two Motors & Cars	Two Motors & Cars

DOWN.		p m	p m	p m	p m	p m	p m	p m
Flinders-st.	dep	2 28	2 38	2 32	3 16	3 51	5 5	5 5
Richmond	,,	2 31	2 31	*	*	*	*	*
South Yarra	,,	2 34	2 34	*	*	*	*	*
Hawksburn	,,	2 36	2 36	*	*	*	*	*
Toorak	,,	2 38	2 38	*	*	*	*	*
Armadale	,,	2 40	2 40	*	*	*	*	*
Malvern	,,	2 43	2 43	*	*	*	*	*
Caulfield	,,	2 46	2 46	2 53 P	3 35*	4 11*	5 18 P	5 18 P
Glenhuntly	,,	2 48	2 48	*	*	*	*	*
Ormond	,,	2 50	2 50	*	*	*	*	*
McKinnon	,,	2 52	2 52	*	*	*	*	*
Bentleigh	,,	2 54	2 54	*	*	*	*	*
Moorabbin	,,	2 56	2 56	*	*	*	*	*
Highett	,,	2 58	2 58	*	*	*	*	*
Cheltenham	,,	3 1	3 1	*	*	*	*	*
Mentone	,,	3 4	3 4	*	*	*	*	*
Parkdale	,,	3 7	3 7	*	*	*	*	*
Mordialloc	,,	3 10	3 10	*	*	4 35*	5 34 P	5 35 P
Aspendale	,,	3 13	3 13	*	*	*	5 38	5 38 P
Edithvale	,,	3 15	3 15	*	*	*	5 40	5 40 P
Chelsea	,,	3 18	3 18	*	*	*	5 43	5 43 P
Carrum	,,	3 21	3 21	*	*	*	5 46	5 46 P
Seaford	,,	3 25	3 25	*	*	*	5 51	5 51 P
Frankston	arr	3 30	3 30	3 39	4 18*	4 56	5 57	5 57
	dep	Rail Mtr 3 33	Steam 3 33	3 40	4 30*	5 6	Steam 6 7	Steam 6 7
Langwarrin	,,			3 53§				
Baxter	arr	3 54	3 54	3 58	4 48*	5 26	6 25	6 25
				Steam		—X		
	dep	3 55	3 55	4 5		5 40	6 29	6 29
Moorooduc	,,	§	§	§	...	§	§	§
Mornington	arr	4 20	4 20	4 30	...	6 5	6 45	6 45
Baxter	dep	...	...	4 0	4 50	...	6 37	...
Somerville	arr	...	...	...	—11	...	...	...
	dep	...	...	4 7	5 0	...	6 44	...
Tyabb	,,	...	...	4 13	5 7*	...	6 49	...
Hastings	arr	...	...	...	...	...	...	...
	dep	...	...	—11 w't 4 20	5 16*	...	6 55	...
Bittern	arr	...	...	4 27	5 23*	...	7 1	...
	dep	...	...	...	...	...	...	...
Balnarring	,,	...	...	...	...	...	...	...
Merricks	,,	...	...	...	...	...	...	...
Red Hill	arr	...	...	...	...	...	...	...
Bittern	dep	...	...	4 28	5 23*	...	7 3	...
Crib roint	,,	...	...	4 36	5 30*	...	7 10 B	...
Stony Point	arr	...	...	4 41	5 36	...	7 15	...

* Not stop for passengers.   P—Pick up only.   c—Passengers change trains.
§ Stop if required.
B—On Dec. 26, 28, Jan. 1 and 2 the 5.5 p.m. Down waits at Bittern till 7.18 p.m. to cross 7.10 p.m. Up Special, and arrives Stony Point at 7.25 p.m.
A—On January 1, leaves 2.38 p.m.

No. of Train.	No. 95 Extd.	S 21	S 23	S 25	—	—	—	M53
Dates to Run.	Dec. 24, 31	Dec. 31	Dec. 24	Jan. 2	Dec. 24, 31 Relief to No.124	Dec. 24, 31 Relief to No. 133	Dec. 24, 31 Relief to No. 139	Dec. 24 31
	Electric		Steam A	Empty A	Electric.	Electric.	Electric.	Electric.

DOWN.		p m	p m	p m	p m	p m	p m	p m	p m
Flinders-st.	dep	5 11	5 12	5 12	5 30	7 23	8 22	9 22	9 28
Richmond	,,	5 14	*	*	*	7 26	8 25	9 25	9 31
South Yarra	,,	5 17	*	*	*	7 29	8 28	9 28	9 34
Hawksburn	,,	5 19	*	*	*	7 31	8 30	9 30	9 36
Toorak	,,	5 21	*	*	*	7 33	8 32	9 32	9 38
Armadale	,,	5 23	*	*	*	7 35	8 34	9 34	9 40
Malvern	,,	5 26	*	*	*	7 38	8 37	9 37	9 43
Caulfield	,,	5 29	5 32 P	5 32 P	5 49*	7 41	8 40	9 40	9 46
Glenhuntly	,,	5 31	*	*	*	7 43	8 42	9 42	9 48
Ormond	,,	5 33	*	*	*	7 45	8 44	9 44	9 50
McKinnon	,,	5 35	*	*	*	7 47	8 46	9 46	9 52
Bentleigh	,,	5 37	*	*	*	7 49	8 48	9 48	9 54
Moorabbin	,,	5 39	*	*	*	7 51	8 50	9 50	9 56
Highett	,,	5 41	*	*	*	7 53	8 52	9 52	9 58
Cheltenham	,,	5 44	*	*	*	7 56	8 55	9 55	10 1
Mentone	,,	5 47	*	*	*	7 59	8 58	9 58	10 4
Parkdale	,,	5 50	*	*	*	8 2	9 1	10 1	10 7
Mordialloc	,,	5 53	*	*	6 18*	8 5	9 4	10 4	10 13
Aspendale	,,	5 56	*	*	*	8 8	9 7	10 7	10 15
Edithvale	,,	5 58	*	*	*	8 10	9 9	10 9	10 18
Chelsea	,,	6 1	*	*	*	8 13	9 12	10 12	10 21
Carrum	,,	6 4	*	*	*	8 16	9 15	10 15	10 25
Seaford	,,	6 8	*	*	*	...	...	10 19	10 30
Frankston	arr	6 13	6 18	6 18	6 38	...	...	10 24	Steam
	dep	...	6 28	6 28	6 48	...	...	...	10 35
Langwarrin	,,	...	*	*	*	...	...	...	10 46
Baxter	arr	...	6 46	6 46	7 8	...	...	...	10 52
	dep	...	...	...	...	Ret. 8.26	Ret. 9.19	Ret. 10.29	10 53
Moorooduc	,,	...	...	...	...	...	...	...	§
Mornington	arr	...	...	...	...	...	...	...	11 17
Baxter	dep	...	6 48	6 48	7 15	...	...	...	...
Somerville	arr	...	...	...	7 21 S50	...	...	...	...
	dep	...	6 54	6 54	7 50	...	...	...	...
Tyabb	,,	...	6 59	6 59	...	...	...	...	...
Hastings	arr	...	...	...	...	...	...	...	...
	dep	...	7 6	7 6	*	...	...	...	...
Bittern	arr	...	7 13	7 13	8 10	...	...	...	...
	dep	...	...	Thr Mxd 7 25	—S58	...	...	...	...
Balnarring	,,	...	...	§	...	...	...	...	...
Merricks	,,	...	...	*	...	...	...	...	...
Red Hill	arr	...	...	8 20 Pass	...	...	...	...	...
Bittern	dep	...	7 18	7 18	8 30	...	...	...	...
Crib roint	,,	...	7 25	7 25	*	...	...	...	...
Stony Point	arr	...	7 35	7 35	8 45	...	...	...	...

* Not stop for passengers.   P—Pick up only.   c—Passengers change trains.
§ Stop if required.   A—On Dec. 24 the 5.12 p.m. Down is to be made up in two portions—Leading portion for Stony Point. Rear portion for Red Hill.

Above and below: C.23/25 pp 56-59

No. of Train	M48	No. 11 Ord.	No. 12 Ord.	—	S50	—
Dates to run	Dec. 25	Dec. 24, 25, 28, 29, 30, 31, Jan. 1	Dec. 26, 28, Jan. 2	Dec. 24 31	Dec. 24	Dec. 26, 28 Jan. 1, 2
	Empty Steam	Steam	Steam		Empty Steam	Empty / Steam

		p m	p m	p m	p m	p m	p m
Stony Point	dep	...	3 35	...	...	5 30	7 10
Crib Point	,,	...	3 43	...	...	*	7 16-B
Bittern	arr	...	...	...	...	5 40	...
Red Hill	dep	...	...	...	...		...
Merricks	,,	...	...	...	...		...
Balnarring	,,	...	...	...	...		...
Bittern	arr	...	...	...	...		...
Hastings	dep	...	4 0	...	...	Engine then runs 7.25 p.m. Red Hill	7 22
	arr	...	D	...	...		...
	dep	...	4 18	...	...		7 29
Tyabb		...	4 40	...	...		7 38
Somerville	arr	...	—S 19	...	...		—S 25
	dep	...	5 0	...	...		7 44
Baxter	arr	...	5 30c	...	...		7 52
Mornington	dep	4 50	5 10	5 10	...	...	...
Moorooduc	,,	§	§	§	...	...	...
Baxter	arr	5 9	5 31	5 31	...	...	...
	dep	5 10	5 36	5 36	...	...	7 53
Langwarrin		*	5 41	5 41	...	...	§
Frankston	arr	5 30	5 52	5 52	...	...	8 7
			2 Motors	2 Motors	Electric	Electric	
Seaford	dep	5 40 M	6 5	6 5	6 18	...	8 10
Carrum	,,	...	6 10	6 10	*	8 25	*
Chelsea	,,	...	6 14	6 14	*	*	*
Edithvale	,,	...	6 17	6 17	*	*	*
Aspendale	,,	...	6 20	6 20	*	*	*
Mordialloc	,,	6 2*	6 22	6 22	6 36*	8 38*	*
Parkdale	,,	*	*	*	*	*	*
Mentone	,,	*	*	*	*	*	*
Cheltenham	,,	*	*	*	*	*	*
Highett	,,	*	*	*	*	*	*
Moorabbin	,,	*	*	*	*	*	*
Bentleigh	,,	*	*	*	*	*	*
McKinnon	,,	*	*	*	*	*	*
Ormond	,,	*	*	*	*	*	*
Glen Huntly	,,	*	*	*	*	*	*
Caulfield	,,	6 30*	6 46s	6 46	7 3*	9 2*	8 52s
Malvern	,,	*	6 48s	6 48	*	*	*
Armadale	,,	*	6 50s	6 50	*	*	*
Toorak	,,	*	6 52s	6 52	*	*	*
Hawksburn	,,	*	6 54s	6 54	*	*	*
South Yarra	,,	*	6 56s	6 56	*	*	*
Richmond	,,	*	6 58s	6 58	*	*	*
Flinders-street	,,	6 50	7 2	7 2	7 19	9 19	9 12

§—Stop only if required.   *—Not stop for passengers.   c—Passengers change trains.
s—Set down only.   D—On Dec. 24 and 31 waits at Hastings for 2.32 p.m. Down.
K—Form 7.23 p.m.   L—Form 9.22 p.m.   M—May be used as Goods, or otherwise disposed of as Supt. Melbourne Yards may arrange. Cars may be held at Frankston if required. S.M., Frankston, to consult S.M., Flinders-street, in this regard.

No. of Train	M54	S58	M60	—	—	—
Dates to run	Dec. 26, 28 Jan. 1, 2	Dec. 24 31	Jan. 2	Dec. 24 31	Dec. 24 31	Dec. 24
	Steam	Empty	Steam	Steam	Empty	Empty Steam

		p m	p m	p m	p m	p m	p m
Stony Point	dep	...	...	8 10	...	...	...
Crib Point	,,	...	...	8 16	...	...	...
Bittern	arr	...	...	...	...	...	...
Red Hill	dep	...	...	...	...	...	8 40
Merricks	,,	...	...	...	...	...	*
Balnarring	,,	...	...	...	...	...	*
Bittern	arr	...	...	—S25	...	...	9 20 F
Hastings	dep	...	8 22	...	...	...	9 30
	arr	...	...	...	...	...	*
	dep	...	8 29	...	...	...	*
Tyabb	,,	...	8 38	...	...	...	*
Somerville	arr	...	8 44	...	...	...	*
	dep	...	8 52	...	...	...	10 0*
Baxter	arr						
Mornington	dep	7 55	...	9 0	...	...	...
Moorooduc	,,	§	...	§	...	...	...
Baxter	arr	8 14	...	9 19	...	...	...
	dep	8 16	...	8 53	9 20	...	10 5*
Langwarrin	,,	§	...	§	§	...	§
Frankston	arr	8 32	...	9 7	9 35	...	10 25
					Electric	Electric	
Seaford	dep	8 34	...	9 13	9 41	10 29	10 35
Carrum	,,	*	9 19	*	9 46	*	*
Chelsea	,,	*	*	*	9 50	*	*
Edithvale	,,	*	*	*	9 53	*	*
Aspendale	,,	*	*	*	9 56	*	*
Mordialloc	,,	8 55*	9 26*	9 33	9 58 / 10 2	10 49*	10 56*
Parkdale	,,	*	*	*	10 5	*	*
Mentone	,,	*	*	*	10 7	*	*
Cheltenham	,,	*	*	*	10 10	*	*
Highett	,,	*	*	*	10 13	*	*
Moorabbin	,,	*	*	*	10 15	*	*
Bentleigh	,,	*	*	*	10 18	*	*
McKinnon	,,	*	*	*	10 19	*	*
Ormond	,,	*	*	*	10 21	*	*
Glen Huntly	,,	*	*	*	10 24	*	*
Caulfield	,,	9 15s	9 51*	10 2	10 27	11 11*	11 25*
Malvern	,,	*	*	*	10 29	*	*
Armadale	,,	*	*	*	10 31	*	*
Toorak	,,	*	*	*	10 33	*	*
Hawksburn	,,	*	*	*	10 35	*	*
South Yarra	,,	*	*	*	10 39	*	*
Richmond	,,	*	*	*	10 41	*	*
Flinders-street	,,	9 39	10 6	10 30	10 43	11 26	11 45
			Off				Off

§—Stops only if required.   *—Not stop for passengers.   s—Set down only.
B—Crosses 5.5 Down at Crib Point.
F—Pick up cars off 5.30 p.m. Up Stony Point.

DAY COMBINED RAIL AND BOAT TICKETS.

December 26, 28, and January 1, 2.

Flinders-street and The Tourist Bureau will issue Day and Combined Rail and Boat Tickets to Phillip Island (in addition to ordinary combined tickets) for Boxing Day, December 26, Monday, December 28, New Year's Day, January 1, and Saturday, January 2.

Other stations will issue the usual tickets to Stony Point, and they must inform passengers to obtain the Cheap Steamer Return Tickets on the Boat.

The Boat portion of the Special Day Return Ticket will be AVAILABLE FOR DAY OF ISSUE ONLY, AND WILL NOT BE HONORED AFTER THAT DATE appearing on the ticket. The Rail portion will be available for return till 3rd February, 1925—usual availability.

All unsold tickets to be returned to Auditor of Receips each day after cheap trip.

The Tourist Bureau is to advise S.M., Flinders-street, at closing time on Dec. 25, 26, 31, and Jan. 1 numbers booked for Cheap Day trip, and S.M., Flinders-street, to advise Chief Time Tables Officer immediately 9.20 a.m. leaves, condition and make-up of train and total number of tickets sold for the Cheap Day trip.

GENERAL.

On Dec. 24 one AC car and one B car is to be worked by the 7.12 a.m. Down to Frankston, to be attached to through trains, if required, at that station. If the two cars be so used, they are to be promptly worked back to Frankston for use again if required. If cars are not used on these or subsequent dates, they are to be sent to Mornington for Up traffic by 7.47 a.m on Dec. 28, 29, and Jan. 4.

Any extra cars on 7.47 a.m. Up must be the leading vehicle from Mornington (next to engine) to permit of prompt detachment at Frankston. S.M., Frankston, to arrange for transfer of passengers on arrival at his station.

On Dec. 25, 26 and Jan. 1, the 7.12 a.m. is to take to Frankston two cars (one of which must be a brake vehicle), say B and AC.

S.M's., Frankston and Mornington, to suitably adjust loads of trains. S.M., Flinders-street, to keep these stations amply supplied with cars.

On Dec. 25, 26, 28 and Jan. 1 the Down Mornington train will leave Flinders-street as a Through train at 9.40 a.m., and run separately from the 9.20 a.m. which is to form the Through Stony Point train. S.Ms. to note the order of these two Down trains, and S.M., Baxter, to particularly warn passengers in the 9.20 a.m. that it goes to Stony Point, leaving Baxter 10.42 a.m.

S.M., Frankston, to be prepared to relieve the 11.35 a.m. Down Mornington Rail Motor, using off Red Hill Line Motor for this purpose. Traffic will be heavy on Dec. 24 and 31 on these trips.

On Dec. 24 5.12 p.m. will run to Stony Point, and return from there as Goods Special with spare empty cars. The Stony Point local train is to be despatched from Baxter to Stony Point asearly as circumstances will permit, after arrival of 5.20 p.m. S.M., Baxter, arrange and advise all concerned.

On 31st Dec. the 5.12 p.m. Down will probably be a light train, composed of few carriages, and the crew of 3.35 p.m. Up and 5.12 p.m. Down should change over at Baxter, and the Melbourne crew return from there as Goods Special, and the Stony Point local car worked up by such special.

S.M., Flinders-street, is to promptly advise Baxter load of 5.12 p.m. Down.

S.M., Baxter, to arrange and advise all concerned.

On Dec. 26, 28, and Jan. 1 and 2, good loads to be on 9.20 a.m. for Down traffic.

On Jan. 2 the 5.30 p.m. Down is to take suitable load of cars to Stony Point to provide for return Boat traffic by 7.15 a.m. Jan. 4.

S.M., Stony Point, to keep in touch with the Cowes steamer traffic for return to Melbourne, and advise S.M., Flinders-street and Frankston, in ample time if still further provision should be necessary.

The 5.5 p.m. Down is to take passengers only for stations beyond Frankston on Dec. 24 and 31. S.M., Flinders-street, and other stations to direct passengers for stations Mordialloc to Frankston, inclusive, to the 5.11 p.m.

A standby APL Car is to be placed at Stony Point by Dec. 25, and when used for Up traffic, S.Ms. Stony Point and Flinders-street is to see that it is immediately replaced.

On Dec. 24 and 31 the 5.11 p.m. Electric is extended to Frankston, and returns at 6.18 p.m. The 5.59 p.m. Up Mordialloc is cancelled. The 5.45 p.m. Down Carrum will dock.

S.M., Mornington, to make widely known the running of 7.55 p.m. Up extra train on Dec. 26, 28, Jan. 1 and 2.

S.Ms., Frankston and Baxter, to report daily on P. 167A how all Down and Up Stony Point and Mornington trains are filled leaving their stations on Dec. 23 to Jan. 4 inclusive.

S.M., Bittern, to report to Room 2 numbers in Down and Up Red Hill and Stony Point trains leaving his station on Dec. 23 to Jan. 4 inclusive.

S.Ms., Mornington and Stony Point, to tally passengers and advise Room 2 numbers in trains on Dec. 23 to Jan. 4 inclusive.

Above: C.23/25, pp 60-61

Comment on this article – Letter to the Editor

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Sydney's 160 Bus Service
JAMES T WELLS

Sydney's 160 Bus Service

Is this the weirdest suburban bus service ever?
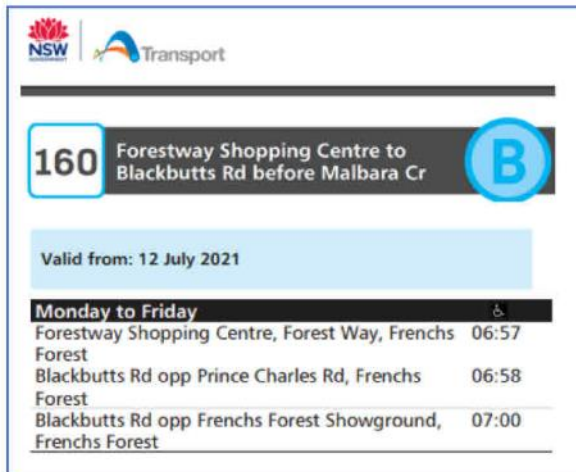
Only one trip a day, no contra direction service. A running time of three minutes. Is this the shortest end to end time in Sydney? In Australia?

Note that the title refers to "before Malbara Cr" while the timetable refers to "opp Fr....". This is not inconsistent.

Do not confuse it with the 160X Dee Why to Chatswood express service.

It must be a school service you say? Probably not as there is no school at the terminus and would the kids want to get there at 7:00 am?

What is at the terminus is a Disability Support organisation
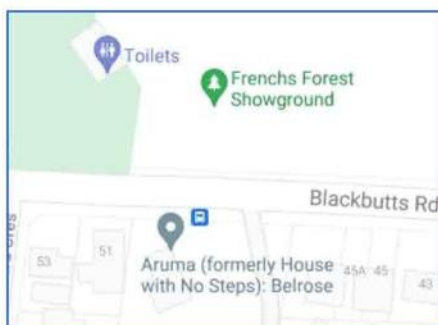
But it is a school service because the pdf timetable etc uses this symbol:

Rather than the normal service symbol with the white ring

The service, as one would expect, is operated by Forest Coach Lines, who have a listing of school services by school. Aruma is not listed.

So how does the 160 fit in with other services on this route at this time of the day? From Trip Planner we have:

This is my first draft of this information. I should have set the walking time (slow) to 5 min max.

The 270 option drops you off on Forest Way and you then have a long walk. Not attractive.

But modifying "refine" in Trip Planner produces this oddity:

B 159 ▸ 112

07:50 - 07:57 7min
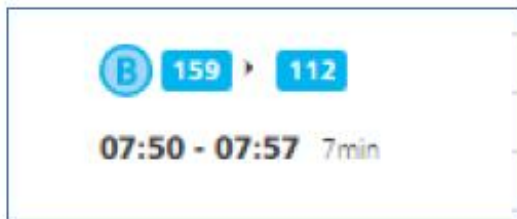
Which involves a five minute transfer at Bambara Reserve on Forest Way between school bus services. The 159 goes to Brigidine College, a girls' school in St Ives; the 112 goes to Davidson High School. How would boys fare on the 159?

Selecting "fewest changes" fixes this.

So the only other service operating direct to Blackbutts rd is the 281 which does a 'loop' around Belrose Davidson. This explains why there is no service along Blackbutts towards Forest Way; the 281 uses Glen st on the other side of the Showground to reach that road.

The 281 PDF timetable is quite weird as the first page of timetables shows only:

Monday to Friday	♿
Chatswood Station	18:10
Smith St at Lower Gibbes St, Chatswood	18:24
Babbage Rd at Park Ave, Roseville	18:30
Warringah Rd after Ferguson St, Forestville	18:38
Forestway Shopping Centre, Forest Way, Frenchs Forest	18:43
Blackbutts Rd opp Frenchs Forest Showground, Frenchs Forest	18:45
Sir Thomas Mitchell Dr before Allworth Dr, Davidson	18:50
Frenchs Forest Bushland Cemetery, Hakea Ave, Frenchs Forest	18:55
Glenrose Village Shopping Centre, Glen St, Belrose	18:57
Glen St near Forest Glen Cr, Belrose	19:00

Which suggests that there is only service outbound from Chatswood M-F

Turn to the next page and one's anxieties are resolved:

281 Davidson to Chatswood					
Monday to Friday	♿	♿	♿	♿	♿
Chatswood Station	-	05:51	-	06:22	-
Smith St at Lower Gibbes St, Chatswood	-	05:58	-	06:30	-
Babbage Rd at Park Ave, Roseville	-	06:04	-	06:36	-
Warringah Rd after Ferguson St, Forestville	-	06:10	-	06:43	-
Forestway Shopping Centre, Forest Way, Frenchs Forest	-	06:13	-	06:48	-
Blackbutts Rd opp Frenchs Forest Showground, Frenchs Forest	05:38	06:16	06:35	06:51	07:00
Sir Thomas Mitchell Dr before Allworth Dr, Davidson	05:43	06:21	06:40	06:57	07:06
Frenchs Forest Bushland Cemetery, Hakea Ave, Frenchs Forest	05:48	06:26	06:46	07:03	07:12
Glenrose Village Shopping Centre, Glen St, Belrose	05:50	06:28	06:48	07:05	07:14
Glen St near Forest Glen Cr, Belrose	05:52	06:30	06:50	07:08	07:17
Forest Way opp Forestway Shopping Centre, Frenchs Forest	05:56	06:34	06:54	07:12	07:22
Warringah Rd at Starkey St, Forestville	06:00	06:38	06:58	07:16	07:27
Babbage Rd at Allan St, Roseville Chase	06:06	06:44	07:04	07:22	07:33
Smith St after Lower Gibbes St, Chatswood	06:10	06:48	07:08	07:26	07:37
Chatswood Station	06:23	07:01	07:25	07:43	07:55

It's strange that it's not called a loop "service". Almost certainly the 07:00 starter from Blackbutts Rd opp. Frenchs Forest Showground is formed by the terminating 160 service.

It is not understood why the odd ball 18:10 could not be shown in this tabulation.

As an aside, a quick comment on a new service - the 141 from Austlink (Belrose) to Manly via Seaforth running past your editor's house. At last Forest Coach Lines has penetrated Manly.

The issue is the rather erratic headways offered. Southbound M-F until midday they are (in minutes:
  62,55,60,60,60,53
And afterwards:
  37,28,60,22,40,60,30,60,60,60,30,60,30.

Saturdays and Sundays are more consistent.

It is understood that the 141 is the only off peak service to use the Wakehurst Parkway between Frenchs Forest and Seaforth.

Comment on this article – Letter to the Editor

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German Railway Timetable Enigma —*The secret that Churchill withheld from Stalin*

GEOFF LAMBERT, STEPHEN BUDIANSKY & THE CRYPTO MUSEUM

IN STEPHEN BUDIANSKY'S book "*Battle of Wits—the Complete story of codebreaking in World War II*", the following text appears:

"Another source that had at first seemed mundane, from both a cryptographic and intelligence view, provided an intelligence coup in March 1941. The German railways in Eastern Europe used their own version of the Enigma coding machine; like the Italian Enigma it was unsteckered, though it did offer one cryptanalytic complication in that the reflector could be set to any of twenty-six positions. But it was still a fairly simple proposition, and within a few weeks of intercepting the first railway Enigma signals in July 1940, GC&CS had broken it. (Once again, it was the sharp eye and mind of John Tiltman at work: he spotted two messages in depth, which went silent for six months, reappearing in late January 1941, with long and *tedious lists of timetables*. But, toward the end of March the railway schedules suddenly began to tell a gripping story. Over the course of several weeks, German amor had been shuttled from Bucharest and Krakow following the capitulation by Yugoslavia's Prince Paul. The Panzers were then hurried back to the south when anti-Nazi Officers in Belgrade seized power in a coup. Winston Churchill was electrified by this intelligence; he realized at once that it meant Hitler intended to invade Russia in May, a move that was now postponed by events in Yugoslavia— but surely not for long. Churchill had had no contact with Stalin since the previous summer. But he immediately sent him a "short and cryptic" message of warning: *I have sure information from a trusted agent that when the Germans thought they had got Yugoslavia in the net-that is to say, after March 20-they began to move three out of five Panzer divisions from Rumania to Southern Poland. The moment they heard of the Serbian revolution, this movement was countermanded. Your Excellency will readily appreciate the significance of these facts.*

Like Churchill, Stalin believed he was his own best intelligence officer; unlike Churchill, his view of the world was so clouded by visions of conspiracy and intrigue that he refused to accept findings at odds with his preconceptions. Stalin was convinced it was irrational for the Germans to attack Russia, especially when Britain lay so close to defeat, and dismissed Churchill's news as a bluff – either by Churchill or by Hitler. Then, Rudolf Hess's bizarre flight to Scotland in May evoked in Stalin's paranoid mind thoughts of a secret British-German conspiracy to join forces against the Soviet Union, which made him still more suspicious of the warnings Britain was sending.

Stalin so refused to heed the signs of massing German troops on the frontier, that it is unlikely he would have responded differently even had Churchill been totally frank about the source of his information. But it did not help that Churchill was so cryptic, and that pointed up a dilemma that would recur again and again, now that signals intelligence was actually beginning to deliver the goods. There was no point in going to all the trouble of breaking enemy codes unless the information derived from them could be put to use. But every time it was put to use, it risked giving away to the enemy the truth - that its codes were being broken."

There are many websites and books devoted to the famous Enigma machine, but few which concern themselves with the machine used by the Reichsbahn. The following is taken from the Crypto Museum website

"During WWII, the Germans used a special Enigma machine for the German Railway (Reichsbahn). It was basically a standard Enigma K with rewired wheels and a rewired UKW. Furthermore, the position of the turnover notches of wheels I and III were swapped [1]. Enigma traffic from the German Reichsbahn was first encountered by the codebreakers at Bletchley Park ("BP") on 25 July 1940 and all messages were decrypted until the traffic ceased a month later, on 27 August 1940.

According to internal BP reports, Colonel Tiltman was responsible for breaking Railway Enigma during this

Wheel	ABCDEFGHIJKLMNOPQRSTUVWXYZ	Notch	Turnover
ETW	QWERTZUIOASDFGHJKPYXCVBNML		
I	JGDQOXUSCAMIFRVTPNEWKBLZYH	V	N
II	NTZPSFBOKMWRCJDIVLAEYUXHGQ	M	E
III	JVIUBHTCDYAKEQZPOSGXNRMWFL	G	Y
UKW	QYHOGNECVPUZTFDJAXWMKISRBL		

period. Early in the next year, on 23 January 1941, railway traffic was intercepted again, originating from Eastern Europe, Russia and the Balkans. Two weeks later, on 7 February 1941, the traffic was broken for the first time.

BP named the railway traffic key Rocket, but later renamed it to Rocket I. Although there are no known images of a Railway Enigma, it is most likely that it was a standard Enigma K with rewired wheels and a rewired UKW.

In his 'Report on E Operations of the GC&CS', US codebreaker William Friedman claimed that Railway Enigma had a moving UKW, but this is highly unlikely [2]. First of all, because the machine only has one notch on each wheel, the UKW would hardly ever step if it could move at all. Secondly, the only machines known to have a movable UKW are the Zählwerk Enigma and Enigma G, both of which have multiple turnover notches that cause frequent stepping of the UKW. It is likely that Friedman meant that the UKW was settable, which is the case with Enigma D and Enigma K.

Rocket I

Breaking Rocket I was relatively easy for BP, and the network provided good intelligence about production and movement of supplies. Nevertheless, problems with Rocket I were reported on 19 September 1944, and it wasn't until 28 October that BP gained entry into the traffic again. The blackout was apparently caused by eccentricities in the cribs during this period [1].

The problems with Rocket I illustrate that even a standard Enigma K, without the Army's plug board

(Steckerbrett) could be hard to break if the contents of the messages were less predictable. It also shows that the Bombes were virtually useless without good cribs.

Rocket II and III

In September 1942, a similar key appeared for Western Europe. The new key was called Rocket II and was only broken once when it was using the Rocket I machines. Apparently, the traffic consisted of practicing messages only. Judging from the characteristics of these messages, the (practicing) traffic continued until May 1944, after which a new key, and possibly, another machine, was introduced. The new key was called Rocket III and remained unbroken for quite some time. For a long time it was unclear whether Enigma was used at all.

After capturing some key sheets in August 1944, some of the older messages were decrypted. It became clear that Enigma was used, but that the contents of these messages were sufficiently 'obscure' so that cribs could not be used easily. It is most likely that Rocket II and III used the (military) Service Enigma (Enigma I). Rocket II was later renamed to Blunderbuss.

Wiring

The table above shows the wiring for the standard Railway Enigma (Rocket I). Only wheels I, II and III were used. Note that the turnover notches are the same as on commercial Enigma K, but that the position of the notches of wheels I and III appear to have been swapped.

In reality, the position of the notches of wheels I and III were not swapped, but were misinterpreted by BP. These

wiring details, are as they were recovered cryptanalytically by the code-breakers at Bletchley Park (BP). This is not the original (physical) wiring used by the Germans. They are equivalent however, provided that appropriate adjustments are made to the ring settings for a given daily key. In the same vein, the turnover positions of wheels I and III are swapped as result of a misidentification by BP, rather than a physical swapping of the alphabet rings by the Germans. BP was aware of both differences, at least by 1944, and knew which corrections were needed. Full details were given by Philip Marks in Cryptologia of 2015/1 [3]."

References

[1] David Hamer, Geoff Sullivan and Frode Weierud, Enigma Variations: An Extended Family of Machines *Cryptologia,* July 1998, Volume XXII, Number 3.

[2] William Friedman, Report on E Operations of the GC&CS at Bletchley Park Signal Security Agency, Washington. 12 August 1943. pp. 39, 67. NARA, RG 457, NSA Historical Collection, Box 1126, Nr. 3620. 1

[3] Philip Marks, Enigma Wiring Data: Interpreting Allied Conventions from WWII *Cryptologia* Volume 39, 2015, Issue 1.

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Some comments on Loop Services in Sydney

Richard C Peck

THE CONCEPT OF A LOOP SERVICE is not new (various city loops have operated over the years) but it is only lately that they are actively promoted, as timetables reflect.

Route 328: Darling Point is a rocky peninsula between Rushcutters Bay and Double Bay, home to the rich and with some very narrow streets. The New South Head Rd tramway ran to the south. Smaller buses were often used.

PB Wall had commenced an unnumbered route from Edgecliff to Darling Point by March 1923, taken over by Mrs Leah Davis and numbered "route 60" in the 1924 numbering, becoming "route 69" in 1925. It was one of the few private routes allowed to continue after October 1931 and was taken over by the Dept. of Road Transport & Tramways on 28 February 1937. In 1925, its route had been Darling Pt Rd at Etham Ave via Darling Pt Rd to New South Head Rd Edgecliff and reverse on return. First trip 8.20am, last trip 7.41pm (11.31pm Sat) and no service Sun. Extra trips Mon Wed Fri nights (theatre trips).

When the DRT&T took over route 69 on 28 February 1937 they extended the route to Eddy Ave, Central Railway. However from 22 August 1937 this became York St, rerouted through Darling Pt in a U shape to terminate at Edgecliff. It was renumbered 369 on 12 May 1940. From August 1937 the route was York St, Druitt St, Park St, William St, Darlinghurst Rd, Bayswater Rd, New South Head Rd, Beach Rd, Yarannbbee Rd, Thornton St, Darling Pt Rd, Etham Ave, Darling Pt Rd, Mona Rd, New South Head Rd to Darling Pt Rd Edgecliff terminus.

During WW2 it was curtailed as a feeder Edgecliff- Darling Point, then restored back into the city (Town Hall, after briefly going to Circular Quay). In the early 1950s it operated via an Edgecliff Loop (Ocean St, Queen St, Edgecliff Rd back to New South Head Rd) and in 1955 was curtailed to Kings Cross, then restored and curtailed again 1961.

With the opening of the Eastern Suburbs Railway on 25 June 1979 it was curtailed from Eddy Ave to the Edgecliff Interchange. In 1982 the city terminus became Circular Quay and was renumbered 327 from 8 February 1987 (with service on Sundays now added and running in both directions through Darling Point). From 4 August 1991 327 was extended to Bondi Junction and from 23 June 2002 this became Gresham St-Darling Pt-Edgecliff-West Bellevue Hill-Bondi Junction replacing 330.

In 2015 as a result of Light Rail work in the city 327 became a feeder service
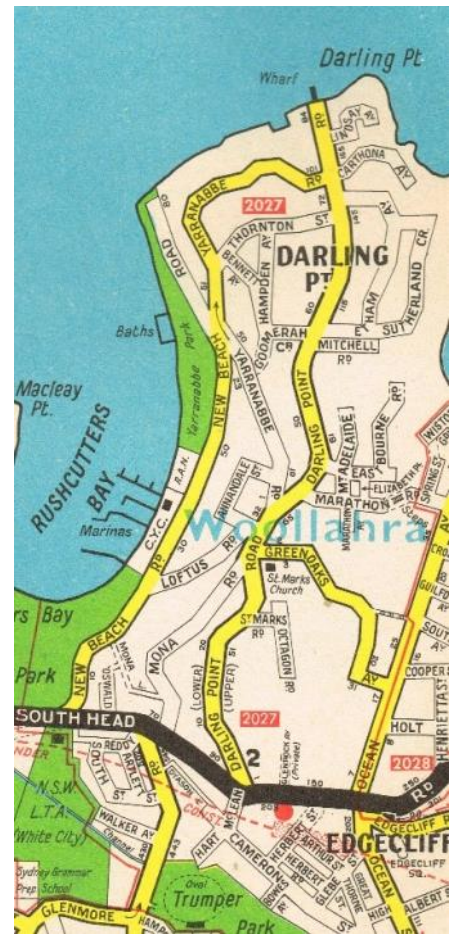
from Edgecliff Interchange via West Bellevue Hill to Bondi Junction renumbered 328 and running in one direction only through Darling Point necessitating removal of half the stops. This operated Edgecliff-Darling Pt in peak hours and Bondi Junction-Edgecliff-Darling Pt off peaks and daytime weekends.

From 4 December 2018 in response to public demand 328 was rerouted via Double Bay in a one way loop, promoted as such and is still current. It is Bondi Jct Interchange, Edgecliff Interchange, Double Bay via Ocean St, Ocean Ave, William St, Edgecliff Int, via Darling Pt to Edgecliff Int then Bondi Jct Int.

Metrobus M50 (Coogee-Drummoyne) which lasted almost 10 years from 3 October 2010 was scheduled to be replaced once the L2 Light Rail began. However COVID put this back and although I lobbied for the retention of its western sector little did I know that the roadworks at the southern end of the Iron Cove Bridge would be so

disruptive to the short running buses from Terry St Rozelle that Drummoyne Oval was a good choice (some used Day St Drummoyne). Route 503 commenced 5 December 2021 as a loop service from Drummoyne Oval to Bathurst St City running in both directions in both peaks though some journeys do not complete the full loop.

Route 358 is another loop service from Sydenham to Randwick which commenced on 5 December 2021 replacing parts of 357 and 418. Route 2L1 is the emergency loop light rail replacement service currently running from Central to The Star and return. All of the above have only one terminus/layover point. Some similar running patterns are used by school specials, in the country and by operators in the other Sydney regions (see list at end).

Perhaps the most interesting is route 373 (Coogee-Museum). Route 373 (Coogee-Circular Quay) had been proposed to be abolished when Light Rail L2 commenced running to Randwick. However after several Covid delays and much opposition from the public it was re-instated as a loop service from 5 December 2021. It is a frequent day and night service with provision in the published timetable to cope with different traffic patterns from Mon-Wed and Thur-Fri. These day restrictions are a little confusing as columns- I would have preferred a separate section for M-W and Th-F just the same as Sat is separate. In the pm peak there is provision for a bus from Randwick-Coogee (connecting with L2) though no attempt such as the 1979 ESR timetables to list L2 times has been made in the 373 timetable. After 10.30pm the service is 20 min frequency till 0.30am then hourly till 4.30am but with provision for a half-hourly bus on Fri. On Saturdays, the Randwick-Coogee also operates at

7.04am 7.24am 7.44am and from Coogee-Randwick at 9.40pm 10.00pm 10.20pm and from Museum at intervals between the regular loop buses till 1.05am. The story is similar on Sun/Public Holidays.

After dropping off at Museum Station, the 373 proceeds via Liverpool, Castlereagh, Goulburn Sts and Wentworth Ave to the first stop in Oxford St. There is no restriction for being on the bus at this stage but Oxford St is a fair way to go to catch the bus back to Coogee. (Of course you could always catch the express X373 or X374 or the regular 374 in the city.)

Some other early loop services included route 414 Strathfield Station via West Strathfield to Strathfield Station loop 1983-2001, route 295 Epping Station to Epping Station via North Epping 2017-current replacing former 295, 547 and 551.

Still officially listed as loops are 100 Taronga Zoo-City, 120 Chatswood-City, 191 Avalon Beach-Taylors Pt, 192 Avalon Beach-Stokes Pt, 256 Chatswood-Fullers Rd, 295 Epping-Nth Epping (occasionally worked by articulated buses between long runs to/from the city and even on Sundays!), 304 Circular Quay-Green Sq, 306 Redfern-Mascot Stn, 307 Eastgardens-Mascot Stn, 308 Marrickville Metro-Eddy Ave, 328 Bondi Jct-Bondi Jct via Darling Pt & Double Bay, 358 Sydenham-Randwick, 373 Coogee-Museum, 375 Eastgardens-Randwick, 381 Bondi Jct-Tamarama, 397 Eastgardens-Sth Maroubra, 399 Little Bay-UNSW, 401 Lidcombe Stn-Birnie Ave, 441 Art Gallery-Birchgrove, 442 QVB-East Balmain Wharf, 469 Leichhardt Marketplace-Glebe, 476 Rockdale-Dolls Pt, 479 Rockdale-Kyeemah, 503 City Town Hall-Drummoyne.

Sydney private operator loops are 278 556 574 576 577 599 595 596 598 599

609 672 675A 675C 676 680 682 686 686G 688 689 690C 690H 692B 692H 692W 692Y 721 722 724 726 738 784 786 701 797 803 618 815 819 822 829 890 892 896 903 953 965 973 974 974 976 977 978 987 989 992 993.

Country loops are Wollongong 10 11 24 3 31 32 33 41 43 6 65 7 72 76 77 8, Gosford/Wyong 20 30 40 41 50 50/3 53 54 55/3 63 68 90 921 92, Camden 4, South Coast 101 102, Lithgow 200 600, Nowra 131 132, Port Stephens 131 132, Cessnock 165 167 168, Rutherford 186 187, Morisset 279, Forbes 586 587 588, Broken Hill 590 591 591A 592 592A 593, Murwillumbah 616 622 623 630, Ballina 665 668 669, Casino 671 672 673 674, Lismore 683, Bowral 808 84 815 816 817, Goulburn 823 825, Queanbeyan 834 838 839, Albury 901 902 903, Echuca-Moama 938 and Griffith 940 942 942 946.

It is of slight interest that some country loop numbers are also used in Sydney and some country numbers are duplicated across towns. Two pages from Sydney 373 follow.

Endnotes

1. This article does not include explorer routes, city loops and pumpkin bus routes, school specials and private routes or round the blocks at termini. Country town buses often have loops as did the free buses (e.g. Penrith, Wollongong) and those run by the STA from 2011 in Sydney.

2. From 1941-1986 two supplementary Sunday church trips were run over 358 from Bondi Junction to St Joseph's Church Edgecliff via Ocean St (using a 31 seater by 1960). Route 330 also operated during 1989-1991 ex Edgecliff Int. via Ocean St, Ocean Ave, William St, New South Head Rd and Manning Rd (reverse on return) but reverted to ex Edgecliff Int. from William St via Bay St, Knox St, New South Head Rd.

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373 Coogee to City Museum (Loop Service) — B

Valid from: 20 Dec 2021

Monday to Friday

Day Restrictions				MTuW	ThF	MTuW	ThF	MTuW	ThF
Arden St opp Coogee Bay Rd, Coogee	04:30	04:50	05:10	05:20	05:20	05:30	05:30	05:40	05:40
Royal Randwick Shopping Centre, Belmore Rd, Randwick	04:37	04:57	05:17	05:27	05:27	05:37	05:37	05:47	05:47
Belmore Rd before Alison Rd, Randwick	04:38	04:58	05:18	05:28	05:28	05:38	05:38	05:48	05:48
Cowper St opp Mulwarree Ave, Randwick	04:41	05:01	05:21	05:31	05:31	05:41	05:41	05:51	05:51
Moore Park Busway at Lang Rd, Moore Park	04:45	05:05	05:25	05:35	05:35	05:45	05:45	05:55	05:55
Taylor Square, Darlinghurst	04:50	05:10	05:30	05:40	05:40	05:50	05:50	06:00	06:00
Museum Station, Downing Centre, Sydney	04:55	05:15	05:35	05:45	05:45	05:55	05:55	06:05	06:05
Flinders St after Oxford St, Darlinghurst	05:00	05:20	05:40	05:50	05:50	06:00	06:00	06:10	06:10
Moore Park Busway after Lang Rd, Moore Park	05:04	05:24	05:44	05:54	05:54	06:05	06:05	06:15	06:15
Belmore Rd after Alison Rd, Randwick	05:11	05:31	05:51	06:01	06:01	06:13	06:13	06:23	06:23
Belmore Rd at Avoca St, Randwick	05:13	05:33	05:53	06:03	06:03	06:15	06:15	06:25	06:25
Arden St near Dolphin St, Coogee	05:21	05:41	06:01	06:11	06:12	06:23	06:24	06:33	06:34

Monday to Friday

Day Restrictions	MTuW	ThF	MTuW	ThF	MTuW	ThF	MTuW	ThF	ThF
Arden St opp Coogee Bay Rd, Coogee	05:50	05:50	05:58	05:58	06:08	06:08	06:18	06:18	06:27
Royal Randwick Shopping Centre, Belmore Rd, Randwick	05:57	05:57	06:07	06:07	06:17	06:17	06:27	06:27	06:37
Belmore Rd before Alison Rd, Randwick	05:58	05:58	06:08	06:08	06:18	06:18	06:28	06:28	06:38
Cowper St opp Mulwarree Ave, Randwick	06:01	06:01	06:11	06:11	06:21	06:21	06:31	06:31	06:41
Moore Park Busway at Lang Rd, Moore Park	06:06	06:06	06:16	06:16	06:26	06:26	06:37	06:37	06:47
Taylor Square, Darlinghurst	06:11	06:11	06:21	06:21	06:31	06:31	06:42	06:42	06:53
Museum Station, Downing Centre, Sydney	06:16	06:16	06:26	06:26	06:36	06:36	06:47	06:47	06:58
Flinders St after Oxford St, Darlinghurst	06:21	06:21	06:31	06:31	06:41	06:41	06:52	06:52	07:03
Moore Park Busway after Lang Rd, Moore Park	06:26	06:26	06:37	06:37	06:47	06:47	06:58	06:58	07:10
Belmore Rd after Alison Rd, Randwick	06:34	06:34	06:45	06:45	06:55	06:55	07:07	07:07	07:19
Belmore Rd at Avoca St, Randwick	06:36	06:36	06:47	06:47	06:57	06:57	07:09	07:09	07:21
Arden St near Dolphin St, Coogee	06:44	06:45	06:55	06:56	07:05	07:07	07:17	07:19	07:31

Monday to Friday

Day Restrictions	ThF	MTuW	ThF	MTuW	ThF	ThF	MTuW	ThF	ThF
Arden St opp Coogee Bay Rd, Coogee	15:08	15:14	15:17	15:23	15:23	15:27	15:33	15:33	15:37
Royal Randwick Shopping Centre, Belmore Rd, Randwick	15:18	15:23	15:27	15:32	15:33	15:37	15:42	15:43	15:47
Belmore Rd before Alison Rd, Randwick	15:20	15:25	15:29	15:34	15:35	15:39	15:44	15:45	15:49
Cowper St opp Mulwarree Ave, Randwick	15:24	15:28	15:33	15:37	-	15:43	15:47	-	15:53
Moore Park Busway at Lang Rd, Moore Park	15:31	15:35	15:40	15:44	-	15:50	15:54	-	16:00
Taylor Square, Darlinghurst	15:38	15:42	15:47	15:51	-	15:57	16:01	-	16:06
Museum Station, Downing Centre, Sydney	15:44	15:48	15:53	15:57	-	16:03	16:07	-	16:12
Flinders St after Oxford St, Darlinghurst	15:51	15:55	16:00	16:04	-	16:10	16:14	-	16:19
Moore Park Busway after Lang Rd, Moore Park	15:58	16:02	16:08	16:12	-	16:18	16:22	-	16:27
Belmore Rd after Alison Rd, Randwick	16:07	16:11	16:17	16:21	-	16:27	16:31	-	16:36
Belmore Rd at Avoca St, Randwick	16:09	16:13	16:19	16:23	-	16:29	16:33	-	16:38
Arden St near Dolphin St, Coogee	16:20	16:23	16:30	16:33	-	16:40	16:43	-	16:49

Monday to Friday

Day Restrictions	MTuW	ThF	ThF	ThF	MTuW	ThF	MTuW	ThF	MTuW
Arden St opp Coogee Bay Rd, Coogee	15:43	15:43	15:47	15:52	15:53	15:57	15:58	16:02	16:03
Royal Randwick Shopping Centre, Belmore Rd, Randwick	15:52	15:53	15:57	16:02	16:02	16:07	16:07	16:12	16:12
Belmore Rd before Alison Rd, Randwick	15:54	15:55	15:59	16:04	16:04	16:09	16:09	16:14	16:14
Cowper St opp Mulwarree Ave, Randwick	15:57	-	16:03	-	16:07	16:13	-	-	16:17
Moore Park Busway at Lang Rd, Moore Park	16:04	-	16:10	-	16:14	16:20	-	-	16:24
Taylor Square, Darlinghurst	16:10	-	16:16	-	16:20	16:26	-	-	16:30
Museum Station, Downing Centre, Sydney	16:16	-	16:22	-	16:26	16:32	-	-	16:36
Flinders St after Oxford St, Darlinghurst	16:23	-	16:29	-	16:33	16:39	-	-	16:43
Moore Park Busway after Lang Rd, Moore Park	16:31	-	16:37	-	16:41	16:47	-	-	16:51
Belmore Rd after Alison Rd, Randwick	16:40	-	16:46	-	16:50	16:56	-	-	17:00
Belmore Rd at Avoca St, Randwick	16:42	-	16:48	-	16:52	16:58	-	-	17:02
Arden St near Dolphin St, Coogee	16:52	-	16:59	-	17:02	17:09	-	-	17:12

Monday to Friday

Day Restrictions	ThF	MTuW	ThF	MTuW	ThF	MTuW	ThF	MTuW	ThF
Arden St opp Coogee Bay Rd, Coogee	16:07	16:08	16:11	16:13	16:15	16:18	16:19	16:23	16:24
Royal Randwick Shopping Centre, Belmore Rd, Randwick	16:17	16:17	16:21	16:22	16:25	16:27	16:29	16:32	16:34
Belmore Rd before Alison Rd, Randwick	16:19	16:19	16:23	16:24	16:27	16:29	16:31	16:34	16:36
Cowper St opp Mulwarree Ave, Randwick	16:23	-	-	16:27	16:31	-	-	16:37	16:40
Moore Park Busway at Lang Rd, Moore Park	16:30	-	-	16:34	16:38	-	-	16:44	16:47
Taylor Square, Darlinghurst	16:36	-	-	16:40	16:44	-	-	16:50	16:53
Museum Station, Downing Centre, Sydney	16:42	-	-	16:46	16:50	-	-	16:56	16:59
Flinders St after Oxford St, Darlinghurst	16:49	-	-	16:53	16:57	-	-	17:03	17:06
Moore Park Busway after Lang Rd, Moore Park	16:57	-	-	17:01	17:06	-	-	17:11	17:15
Belmore Rd after Alison Rd, Randwick	17:06	-	-	17:10	17:16	-	-	17:20	17:25
Belmore Rd at Avoca St, Randwick	17:08	-	-	17:12	17:18	-	-	17:22	17:27
Arden St near Dolphin St, Coogee	17:19	-	-	17:22	17:29	-	-	17:32	17:38

Monday to Friday

Day Restrictions	MTuW	ThF	MTuW	ThF	MTuW	ThF	MTuW	ThF	ThF
Arden St opp Coogee Bay Rd, Coogee	16:28	16:28	16:32	16:32	16:37	16:37	16:42	16:42	16:46
Royal Randwick Shopping Centre, Belmore Rd, Randwick	16:37	16:38	16:41	16:42	16:46	16:47	16:51	16:52	16:56
Belmore Rd before Alison Rd, Randwick	16:39	16:40	16:43	16:44	16:48	16:49	16:53	16:54	16:58
Cowper St opp Mulwarree Ave, Randwick	-	-	16:46	16:48	-	-	16:56	16:58	-
Moore Park Busway at Lang Rd, Moore Park	-	-	16:53	16:55	-	-	17:03	17:05	-
Taylor Square, Darlinghurst	-	-	16:59	17:01	-	-	17:09	17:11	-
Museum Station, Downing Centre, Sydney	-	-	17:06	17:08	-	-	17:16	17:18	-
Flinders St after Oxford St, Darlinghurst	-	-	17:13	17:15	-	-	17:23	17:25	-
Moore Park Busway after Lang Rd, Moore Park	-	-	17:21	17:24	-	-	17:31	17:34	-
Belmore Rd after Alison Rd, Randwick	-	-	17:30	17:34	-	-	17:40	17:44	-
Belmore Rd at Avoca St, Randwick	-	-	17:32	17:37	-	-	17:42	17:47	-
Arden St near Dolphin St, Coogee	-	-	17:42	17:48	-	-	17:52	17:58	-

TANYA'S QUIZ #8

1. Wolla Wolla and Walla Walla were in the same railway systems as Wagga Wagga and Wagga Wagga. Which systems were these?

2. True or false?
Prior to the opening of extension from Noarlunga Centre to Seaford and the concurrent inauguration of the EMUs in Adelaide, normal Adelaide passengers (don't be nasty!) had travelled by electric train on an ordinary run.

3. For most of its existence, the *Silver City Comet* operated 3 return trips per week between Parkes and Broken Hill (*i.e.* to both Crystal Street stations over the years). What section did it serve, also thrice weekly, during the last few years of its life?

4. The abattoirs near Cannon Hill in suburban Brisbane were served by an industrial passenger service. The Edmondson tickets issued to them (it?) showed Cannon Hill Meatworks. What destination did the headboards on these trains usually show?

5. a/ In which Victorian city did battery electric trams provide a somewhat unsuccessful regular service?
b/ What was the only Victorian city to operate conventional steam trams?

6. The station of Newcastle in NSW was disgracefully closed on 26th December 2014. The other Newcastle in Australia was opened on 1st January 1888, was renamed on 1st July 1910 and closed on 13th February 1966 (so it never lived during the decimal currency era), although it was replaced by a nearby station of the same name on a dual gauge route. What was this Newcastle station's 1910 new name?   [Care with its pronunciation!]

ANSWERS TO TANYA'S QUIZ #7

1. a/ Moorlands and Grasslands, 11½ mi and 16½ mi respectively east of Tailem Bend on SAR's Pinnaroo line
b/ Galah , 9¼ mi west of Ouyen on VR's Pinnaroo line

2. Corowa

3. * 1925: Shea's Creek/Alexandria Canal at Mascot on the Cooks River line in suburban Sydney
* 1927: Darling River on the Broken Hill line at Menindee
* 1930: North Arm Canal on the Ballina line
* 1932: Clarence River at Grafton

4. North Arm – Queensland's North Coast Line between Yandina and Eumundi; North Arm Road – South Australia's Dry Creek Loop (*i.e.* the Port Dock – Dry Creek line) between Eastern Parade and Wingfield in suburban Adelaide

5. Edens Landing is beside the Logan River in the southern suburbs of Brisbane and Williams Landing is adjacent to the former RAAF Laverton Airfield in the south western suburbs of Melbourne. Thus, the modal difference is rail *vs.* watercraft *vs.* aircraft. [Or, if you prefer, it's simply the type of fluid.]

6. WAGR's road bus location is Caroling – between Quairading and Corrigin on what is now Transwa's East Perth Terminal to Esperance via Hyden coach route, although it doesn't appear in the current timetable.
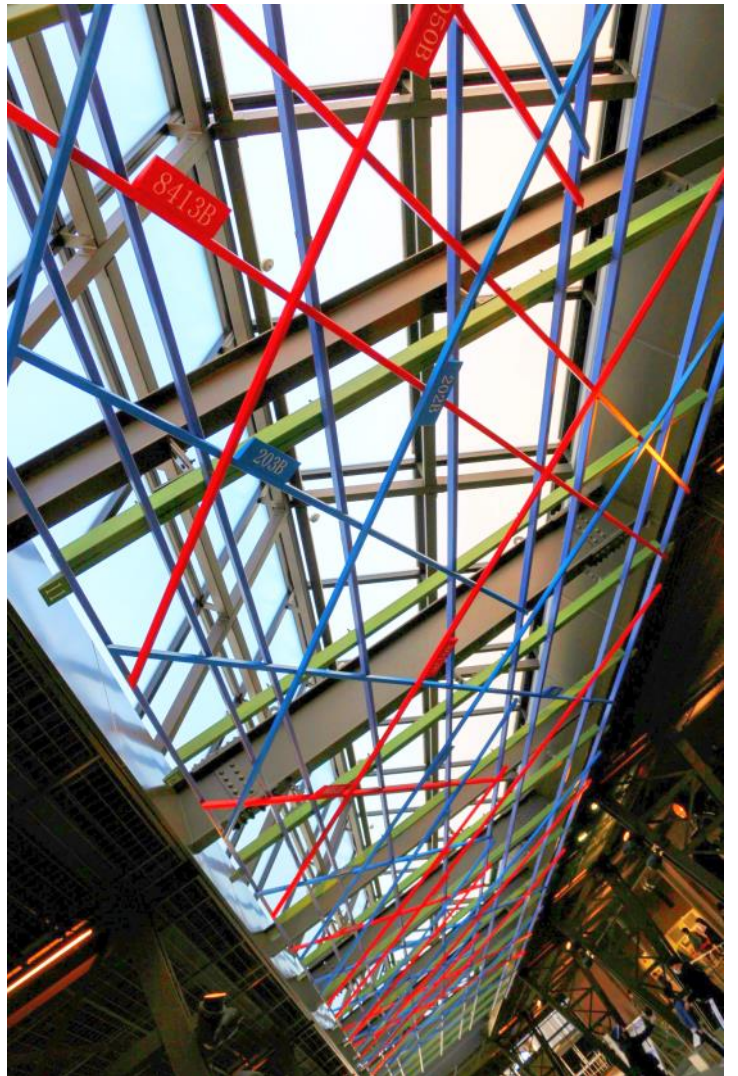
In the early years of AATTC/ATA, Jack MacLean (its founder) wrote a series of articles titled "Where to find railway timetables". He would not have known about the above unusual location — the floor and ceiling of the entrance hall of the Omiya/Saitama Railway Museum. — because the museum was not established until 2007. So the question for you timetable sleuths is "What is the time scale of the Graphical TT on the ceiling which shows the paths of trains 8413B and 203B … and are they Up or Down trains? (remembering that the conventions are not necessarily those of railways with which you are more familiar)