

# The Times

October 2014

A journal of transport timetable history and analysis



**Inside: Bad Hair Day at Wynyard  
Bad Hair Days at Parkes  
Bad Hair Day on the Wingrove Line  
The preparation of Tramway Timetables**

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# The Times

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**Editor, The Times** Geoff Lambert 179 Sydney Rd FAIRLIGHT 2094 NSW G.Lambert@inet.com.au  
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*“Due to late running the 8.20 to the City has been cancelled. The next train is the 8.25, which due to early running has already left.”*



## Bad Hair Days

*The SYDNEY MORNING HERALD'S take on two timetable disasters.*



# The evening chaos reigned at Wynyard

Railway officials threw away their controversial new timetables last night as Sydney's suburban train services became hopelessly snarled.

With trains running an hour or more late, drivers and guards were given hurried new routing instructions as they pulled into stations.

Indicator boards flashed like pinball machines and confused commuters strained to hear muffled announcements before cramming into already packed peak-hour trains.

Many trains left with briefcases, shopping bags and even bodies protruding from the doorways.

At Wynyard, harassed railway police moved up and down the platforms pleading with dense crowds to keep back from the lines.

Drivers inched their trains into the station, blasting their horns continuously while the public address system called for passengers to stay clear.

Several times, officials ordered the gates to all platforms closed when the crush became too great and trains did not arrive.

And when they did come, it was in bursts. At one stage, four all-stations trains to the North Shore went through Wynyard followed by a 19-minute delay before the next.

At 5.09 pm, one eight-car train pulled into

Wynyard, with the guard calling: "This train terminates at North Sydney."

But, a dispatcher ran from the control room with a slip of paper and a change: "No, no. Make it all stations to Hornsby."

Several minutes later irritated commuters on platform four watched the board indicate all stations to Chatswood, then change to all stations to Hornsby, then go blank completely before settling on all stations to Lindfield.

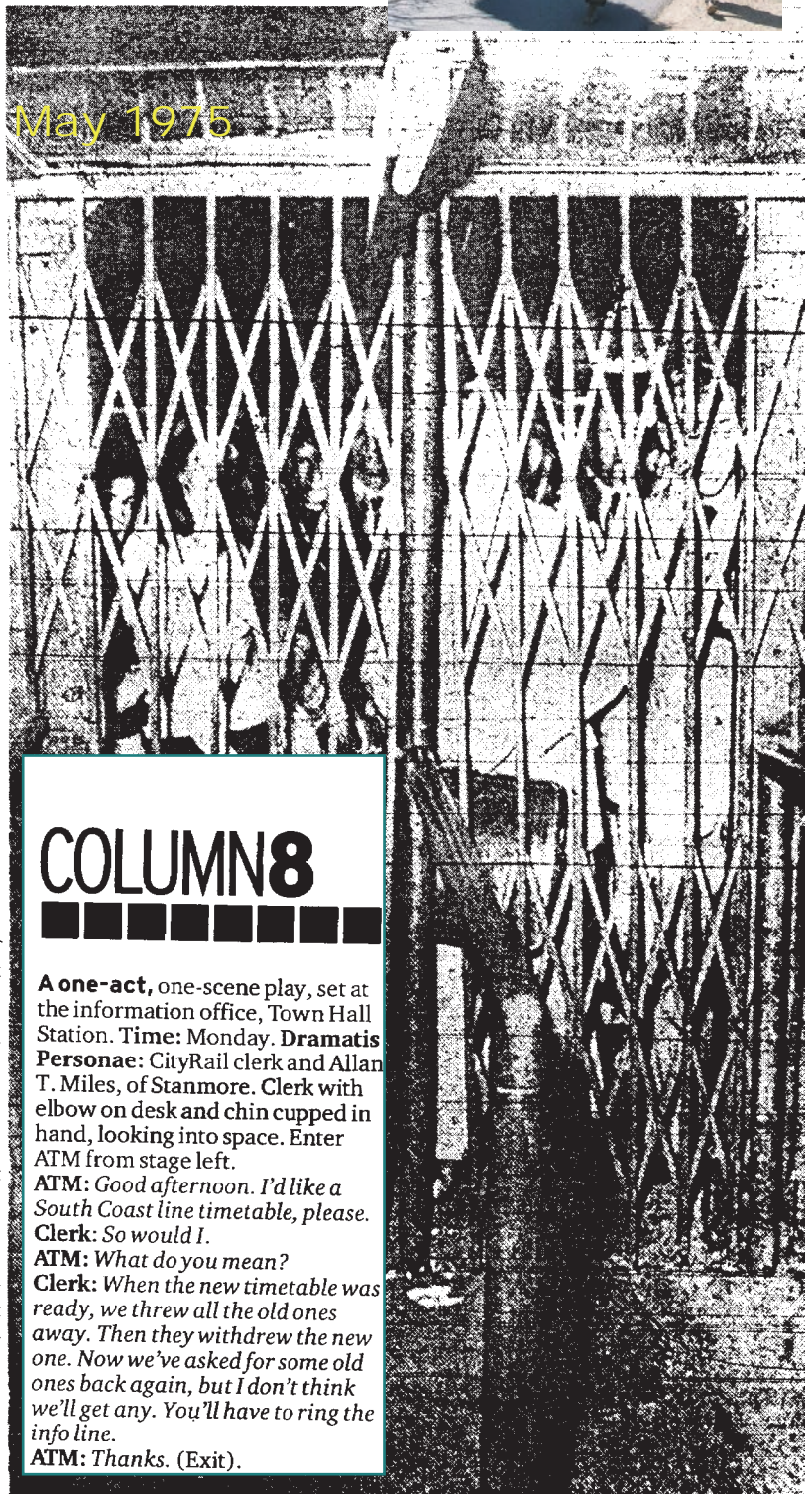
Next door, on platform three, the announcer and the attendant handling the indicator board could not agree on whether the next train was going to Parramatta or Strathfield.

Soon after 6 p.m. as the peak-hour crowds began to dwindle, one of the Public Transport Commission's shiny new double-decker trains came in on platform four.

The guard was handed a piece of paper. He looked at it and laughed. "We were supposed to be going back to Central but it seems we're going to Gordon." And where then? "I don't know."

But he need not have worried. Within a few minutes it was found that the train had developed a brake fault and was going nowhere but the repair shop.

With a few ironic cheers and handclaps, the passengers crowded back on to the platform to await the next Shirley Special.



## COLUMN 8

**A one-act, one-scene play, set at the information office, Town Hall Station. Time: Monday. Dramatis Personae: CityRail clerk and Allan T. Miles, of Stanmore. Clerk with elbow on desk and chin cupped in hand, looking into space. Enter ATM from stage left.**  
**ATM: Good afternoon. I'd like a South Coast line timetable, please.**  
**Clerk: So would I.**  
**ATM: What do you mean?**  
**Clerk: When the new timetable was ready, we threw all the old ones away. Then they withdrew the new one. Now we've asked for some old ones back again, but I don't think we'll get any. You'll have to ring the info line.**  
**ATM: Thanks. (Exit).**

Evening commuters waiting behind locked gates to get on to the crowded Wynyard platforms.

# Bad Hair Days at Parkes

All aboard the *Elvis Express* by **SMH, ABC, NSW TRAINLINK, ARTC and CRN**



**S**YDNEY'S CENTRAL STATION has been enlivened by the spirit of the King with hundreds of Elvis Presley fans preparing to board the "Elvis Express".

Some wore ill-fitting wigs and others wore altered jumpsuits for the day's trip. One Elvis fan showed off her 30-year-old forearm tattoo of Presley's face.

It's the 12th year that NSW TrainLink has organised the express to the Elvis Festival at Parkes in NSW's central west. This year the train was sold out with about 300 fans spending \$179 each on the round trip.

Two Elvis tribute artists will move from carriage to carriage entertaining fans during the seven-hour journey.

They glittered, they crooned, and they swung their hips with relish. Sydney commuters could have been forgiven for thinking they had entered an alternative rock reality when hundreds of diehard Elvis fans and impersonators descended on Central Station on Thursday for the annual Elvis Express to Parkes, where the Elvis Festival is held.

Among the earliest arrivals were first-time festival attendees Michelle Okunzuwa, 51, Denise Johnson, 58, and Debbie Pickstone, 55. "He will always live on in our hearts," Michelle said.

On a pale pink vintage Cadillac stage, Steve Head was one of the performers belting out Elvis' hits as part of the pre-departure entertainment for passengers. He has attended the festival 10 times and has been known to put Elvis stickers on his car "just to get a bit of a reaction", he laughed.

"My hair's done every day of the week, always listen to Elvis every day. It's 24/7 for me."

Despite being outnumbered by old-timers, there were some young faces among the throng of stiff wigs and vibrant '50s costumes. Fifteen-year-old Cherish Sheng-Li Tay is making her way to the festival for the first time this year. Travelling with her mother, who is also an Elvis fan, Cherish grew up listening to Elvis' greatest hits. Their mutual love of the King of Rock inspired them to make the journey together. His music "makes you dance, it makes you happy," Cherish said.

There was even a representative of Gen Z. Five-year-old Katie Cotter is travelling with her parents to the festival for the second time this year. She knows every dance move and has a fondness for the classic

tracks. "I love Blue Suede Shoes and Hound Dog."

This year 300 passengers boarded the Elvis Express, said the events co-ordinator of NSW TrainLink, Cameron Nicholls. NSW TrainLink Promotions Officer and Elvis

fan Cameron Nicholls says the Elvis Express is "just a fun and safe way" of getting to Parkes and he hopes it continues for many years to come.

Parkes will play host to 15,000 visitors during the Festival.



AUSTRALIAN RAIL TRACK CORPORATION LTD

TRAIN ALTERATION ADVISE NO: TAA 0002-2011

DUE TO THE FOLLOWING:

**Country Link Special Elvis Train  
(Sydney)-Wallerawang-Parkes and Return**

THE FOLLOWING TIMETABLES WILL APPLY:

**WT47 on Fri 07/01/2010** will run as tabled by RailCorp to pass Wallerawang 1204, Tarana 1221, arrive Bathurst 1246, depart 1251, pass Newbridge 1310, Murrobo 1324, Blayney 1327, Polona 1333, Spring Hill 1339, arrive Orange East Fork Jct 1345, depart 1355, pass Molong 1435, Manildra 1503, Bumberry 1533, arrive Parkes 1614, d, stable.

**WT48 on Mon 10/01/2010** will depart Parkes 0830, pass Bumberry 0917, Manildra 0939, Molong 1010, Orange East Fork Jct 1106, Spring Hill 1120, arrive Polona 1129, depart 1140, pass Blayney 1146, Murrobo 1148, Newbridge 1201, Bathurst 1227, Kelso 1233, Raglan 1237, Tarana 1259, Wallerawang 1316, thence as tabled by Railcorp.

**Consist: XPT (XP, XFH, XF, XF, XBR, XBR, XF, XF, XL, XP,)**

**Weight: 485.30 tonnes**

**Length: 228.4metres**

**This TAA has been entered into TRIMS**

**Bill Owens phone 08 8217 4269**





# Special Train Notice 0103-2014

THURSDAY, JANUARY 9 TO MONDAY, JANUARY 13, 2014

TRAK Identification Numbers: ST038650 & ST039758.



Train Planning

Phone: 21766 / 21729

Author: DG

Date of issue: 20/12/2013

## NSW TRAINLINK ELVIS EXPRESS MEEKS XPT DEPOT – SYDNEY TERMINAL – PARKES AND RETURN

AND ASSOCIATED ALTERED DUBBO XPT ARRANGEMENTS  
(To be read in conjunction with STN No. 0012-2014 & 0015-2014)

### ELVIS EXPRESS ARRANGEMENTS

#### THURSDAY, JANUARY 9

**HT36** (8XPT) (Additional Empty cars) will depart Meeks XPT Depot 0756 hours **B**, passing Sydenham 0758 **XI**, Erskineville Junction 0800, **XID** Illawarra Junction 0802 **M**, Wells Street 0806, arrive Sydney Terminal 0808 hours, **forms WT47 0935 hours**.

**WT47** (8XPT) (Additional Express passenger train) will depart Sydney Terminal 0935 hours, passing Wells Street 0937 **M**, Illawarra Junction 0938, Macdonaldtown 0939, Ashfield Junction 0943, Ashfield 0943, Strathfield arrive 0946, depart 0948u, passing Homebush 0949, Flemington C.S. Junction 0951, **M** Lidcombe 0952, Auburn East Junction 0953, Auburn 0954, Clyde 0955, Granville 0957 **WS**, **S** Parramatta arrive 0959, depart 1001u, passing Westmead 1003, Seven Hills 1007, Blacktown Junction 1009, Blacktown 1009, Blacktown West 1010, St Marys 1016, Penrith arrive 1021, depart 1023u, passing Emu Plains 1025, Glenbrook 1033, Valley Heights 1042, Springwood 1044, Lawson 1102, Wentworth Falls 1111, **XR** Katoomba 1120 **XDM**, Mount Victoria 1136, Mt Victoria T/B 1136, Newnes Junction 1147, Edgecombe 1150, Zig Zag 1155, Lithgow C.S. Box 1159, Lithgow CSB West T/B 1159, Lithgow Yard Box 1200, Lithgow arrive 1201, depart 1206u, passing Lithgow West T/B 1206, CRN West Boundary 1207 hours, thence run as arranged by CRN to Parkes.

#### MONDAY, JANUARY 13

**WT48** (8XPT) (Additional Express passenger train) will depart Parkes 0830 hours and run as arranged by CRN to pass CRN West Boundary 1305 hours, Lithgow 1308, Lithgow Yard Box 1309, Lithgow CSB West T/B 1309, Lithgow C.S. Box 1310, Zig Zag 1313, Edgecombe 1319, Newnes Junction 1323, Mount Victoria 1335, Katoomba 1351, Wentworth Falls 1358, Lawson 1404, Springwood 1419, Valley Heights 1421, Glenbrook 1430, Emu Plains 1439, Penrith arrive 1441, depart 1442d, **S** passing St Marys 1447, Blacktown West 1454, Blacktown 1455, Blacktown Junction 1455, Seven Hills 1456, Westmead 1501, Parramatta arrive 1503, depart 1505d **WS**, **M** passing Granville 1507, Clyde 1507, Auburn 1509, Auburn East Junction 1509, Lidcombe 1510, Flemington C.S. Junction 1512, Homebush 1514, Strathfield arrive 1516, depart 1518d, passing Ashfield 1521, Ashfield Junction 1521, Macdonaldtown 1525, Illawarra Junction 1526, Wells Street 1528, arrive Sydney Terminal 1530 hours, **forms HT39 1619 hours**.

**HT39** (8XPT) (Additional Empty cars) will depart Sydney Terminal 1619 hours, passing Wells Street 1620 **M**, **XID** Illawarra Junction 1623 **XI**, Erskineville Junction 1628, **XB** Sydenham 1632, arrive Meeks XPT Depot 1634 hours **stables**.



# Model Railway Timetables – Wingrove Style

By JACK MCLEAN & BOB GALLAGHER

The Wingrove Line has never had any scenery and, to a large number of operators over its 26 years, it doesn't seem to have mattered. Perhaps this paper will give some indication of why it doesn't.

When you go out and watch trains, what do you look at? Most modellers, I think, look at engines and rolling stock and then maybe buildings and other railway facilities; and then perhaps scenery, most of which is outside the railway fence. On the other hand, what I watch mostly is the activity of the blokes in their endless attempts to get the trains to their destinations safely and, we hope, on time.

The parts of the railway which primarily interest me are the stations, and the designing of the tracks there, which are tangle.

Then I come to the intangibles, which I also attempt to model; the methods of operating trains at stations, and between stations, and the timetables and the instructions which tell the blokes what has to be done and how.

## What is a Railway?

As I see it, the railway is a system whose management expects to make a profit after transporting passengers and goods from origins to destinations and making a charge for the service.

The railway consists of stations, origins and destinations and other places like junctions, marshalling yards and loco depots. These places are often quite separate from each other and trains are passed from station to station by signalmen. The signalmen allow the trains to move:

- (a) at the appropriate time shown in the timetable or when directed by the train controller; and
- (b) when it has been ascertained that it is safe to do so.

In the event of breakdowns, late-running etc., the signalmen, under the directions of the train controller, do their best to maintain some sort of service and get the trains back on time. The continuous solving of problems on a real railway is fascinating to watch, and to think about afterwards. Unfortunately, it is not always known where something interesting is going to happen, even if we are well-informed and it is not always convenient to be at the right place at the right time. Moreover, the railway, for very good reasons, discourages the amateur from trying his hand at the problem solving.

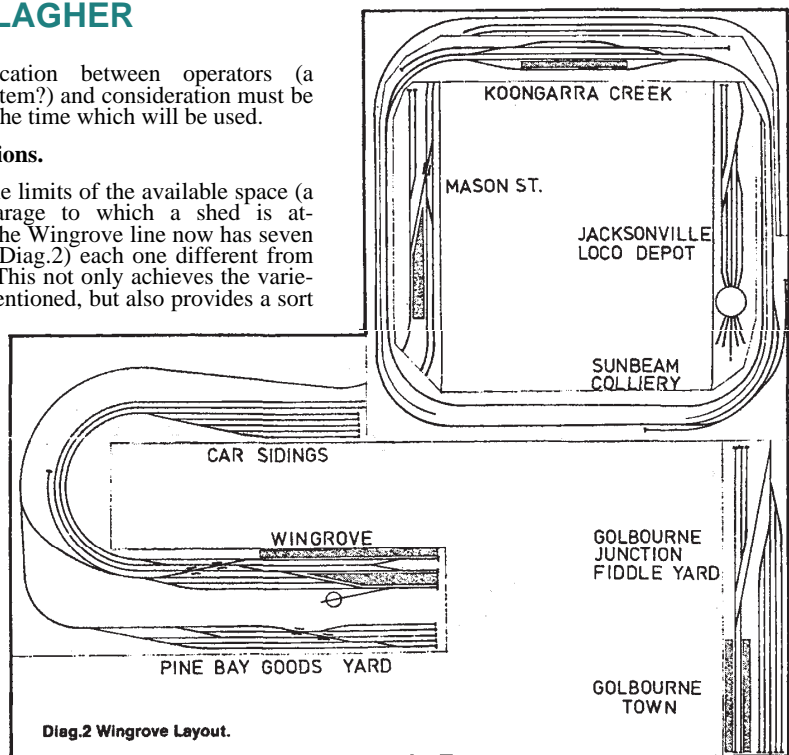
And so, in order to watch when I want to, to participate in and solve railway problems of my own, I build my own model railway. It is really a very small railway, but it has quite a selection of different sorts of railway places which provide variety in normal processes, and even more variety when things go wrong.

Now, this article is supposed to major on timetables on model railways, but before we can satisfactorily run timetables, there are a number of prerequisites. Stations must be designed so that they can be operated (as distinct from looking good); there must be definite stretches of 'main line' between them. There must be some sort of

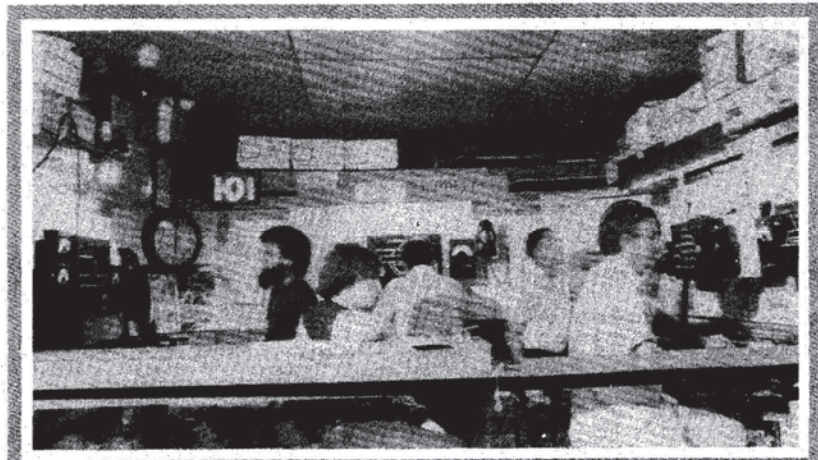
communication between operators (a block system?) and consideration must be given to the time which will be used.

## The Stations.

Within the limits of the available space (a single garage to which a shed is attached), the Wingrove line now has seven stations (Diag.2) each one different from the rest. This not only achieves the variety just mentioned, but also provides a sort



Diag.2 Wingrove Layout.



of seniority system. At the lowest level of this, the newcomer can learn to operate, or the owner to quietly subside 'after a hard day at the office'. At the highest level, masochists can enjoy themselves.

Wingrove itself is a dead-end passenger station with three platforms and two groups of passenger car sidings. It is connected by a double line to Mason Street

## Wingrove in action

A visit to Wingrove is, in itself, an experience. Entry is via the side passage and on a dark moonless night there was a need for care as there was little light and arid the ground was rough, Rounding the side of the house, there was a light emitting from the garage and from within there was a murmur of voices. There was cheery welcome by the host at the door and only a second or two to observe surroundings before all Hell broke loose. Bells rang, voices cried out, trains moved - some slowly - some at breakneck speed. Wingrove was in action. As the night grew, voices became heated, some trains travelled faster, curses were heard, more bells rang and then it happened: disaster. A crash. A collision. For a second, silence ruled. The clocks stopped. A Court of Enquiry was called. Witnesses were heard. Tempers became heated. Arguments were qualified. The jury retired and the verdict was given. Trains were re-railed, the clock was re-started, bells began to ring again. The night drew to a close became silent. Trains become stationary and the events of the evening were analysed.

The layout, is simple, basic track and boards. The models were standard proprietary equipment and train speed was generally very fast. Operators included modellers from all avenues of the hobby and included the host's family, male and female.

Yes- they enjoyed themselves and maybe that is why Wingrove has been in action for over 29 years  
—Bob Gallagher



where the double line ends and three single lines converge. One line is from Pine Bay goods yard, one from Jacksonville Loco Depot and the third is the single main line to Koongarra Creek. The Creek is a crossing station, with island platform and three loop sidings. It is also the terminating point of a number of local passenger and goods trains. The single main line continues on through Sunbeam Colliery Siding which has only meagre crossing and goods facilities and terminates (in fact) at Golborne Junction which is:

- (a) a Fiddle Yard to accommodate the long distance trains which, in imagination, originate at, or continue on to, distant parts; and
- (b) a small outer suburban terminus.

Each station has its own built-in difficulties, some intentional and some accidental. For example, Wingrove has three platforms, at which occasionally four trains need to be accommodated. Sunbeam Colliery Siding should not accept two opposing trains, as the total length of both will be too long for the siding. Jacksonville must send out engines appropriate for the rostered trains, with the driver's cab of single-enders at the right end. Also, the operator of Jacksonville must ensure that he gets engines back from one task **before** they are needed for the next. Mason Street is referred to as Maschonest Junction. I wonder why?

### The Trains.

Quite a large variety of trains is possible even on such a small railway because, of course, it joins on to other railways by way of the Fiddle Yard. Express, mail, country passenger, express goods and fast goods trains start and finish at Golborne Junction (Fiddle Yard). Local passenger, rail motor and local goods trains start and finish at Golborne

(Town) Station. Golborne Junction (Fiddle Yard) is normally the only place where the 0-6-0 shunter is permitted. The 'workmen's trains' run only between Wingrove and Koongarra Creek. Light engines join the main line at Mason Street and then take up duty at Wingrove, Pine Bay or Koongarra Creek and return to Jacksonville when finished.

### The Essentials.

As model railways go, the Wingrove Line is larger than average, but the essentials were all contained in the first line we built 26 years ago. If you are starting out from scratch **now** to build a railway for timetable operating, you will probably find that a terminus, a crossing station and a fiddle yard (the latter may be consisting only of a piece of straight track) will suffice, as it did for us. I remember when it only had five pairs of points but I have forgotten the track layout at that time. It was something like the one shown in Diag.3 but you will note that even here there was a variety of stations with an implied seniority system and definite stretches of main line between them.

As for trains, at that time we only had a Hornby Duchess which ran the express and a Gem 57xx Pannier Tank which ran the passenger and the goods. But we still had a lot of fun.

### The Block System.

Earlier, I said that the railway carried out its work by sending trains from station to station by signalmen when it was safe to do so. A real signalman can rarely see as far as the next station to which he is sending a train and so he must ensure, by other means than sight, that the line IS clear when the train is sent. This is most important on a single line where an error could result in a head-on collision. The process by which a train is only sent when

the line is **positively** known to be clear is often referred to as the block system, the section of main line between the two stations being known as the block.

The equipment used on real railways to establish that the line is clear ranges from telephones to electronics but it is the telephone end of the scale with which I am dealing here.

A very simple block system can be maintained by signalmen exchanging messages over the telephone such as:

- Is line clear for train?
- Yes, line is clear for train.
- Train departing (which is acknowledged); and
- Train arrival (which is acknowledged).

However, a party line telephone (or spoken block messages in a crowded garage) has proven unworkable on a line as busy as the Wingrove Line, even as it was 20 years ago. In any case, some sort of indicator is needed to show the state of the block as to the presence or absence of trains. A 'Train Register' book is not completely satisfactory on a real railway and of no value at all on a model. The necessary messages can be sent by tappers and single stroke bells. The indicators, which on a real railway only **show** the state of the block can, on the model, direct the flow of traction current to the block, so we have a nice situation where the train **can't** go through the block unless the block procedures have been observed.

Of course, it is possible to extend the area controlled by one operator half-way to the next station, making an end-on junction with the area controlled by the next operator. But such an arrangement requires both operators to have their controllers in the same direction **at the same time** to get a train through from one station to the next without stopping. A further disadvantage of this mid-section junction arrangement is that, when crossing two trains, the train in the siding will have to wait there until the train 'on the main line' is halfway to the next station before it can leave. On a short line this wouldn't matter but on the present Wingrove Line the resulting delays would be intolerable. At present, as shown in Diag.7, we are using five-position two-pole wafer switches to:

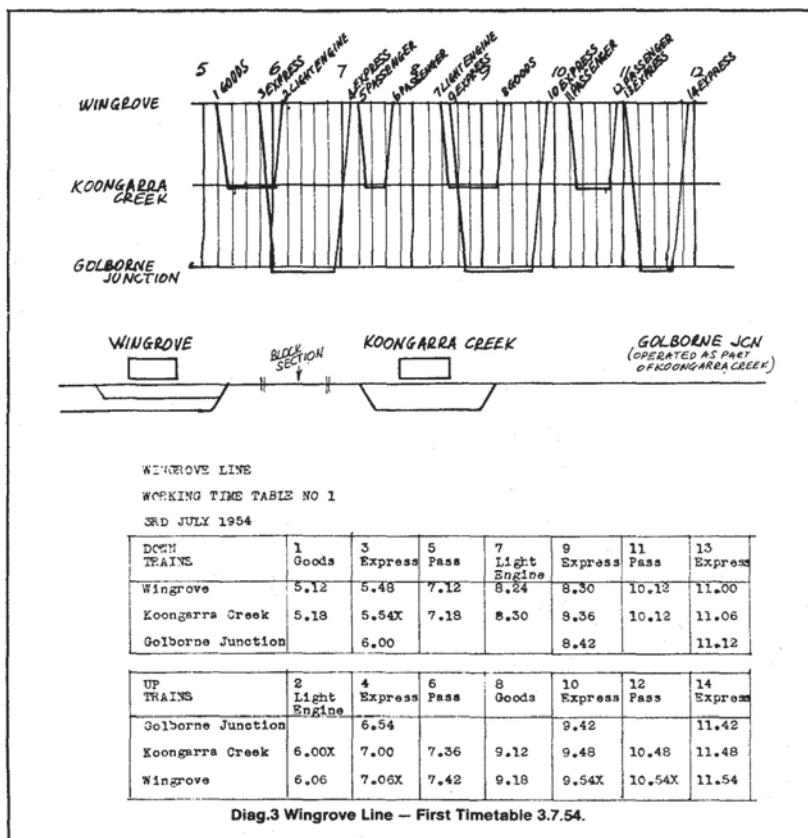
- (a) indicate the five conditions of the block; and
- (b) direct current of the appropriate polarity to the rails of the block.

The five positions of the block instrument on the 'Up' side of a station are as follows:

- Up train going
- Up train offered
- Line closed
- Down train accepted
- Down train coming

and *vice versa* for the block instrument on the Down side. The block indicator at the Up end of the section puts, say, positive current onto the rail of the block, while the indicator at the Down end of the block, when in the same relative position, puts negative onto the other rail. The block instrument for the double line must have two indicators, one for the Down line and the other for the Up line but they are in fact wired up identically to those on the single line. They can therefore be used for a single line when, for instance, there is a derailment on one line. Diag.1 shows the complete arrangement at one station.

Of course, when a train hits the block it



will get the full 12-volt power but we don't notice it any more as the station limits are mostly a train length out of the station. By the time the train enters the block, the controller at the station is probably full on anyway. Once again, this is all very well for a long established railway but how can this be done on a small line 'with the minimum of fuss'? A simple block instrument can be made with a telephone key working sideways and wired as shown in Diag.7.

Therefore, if both block keys are pointing, say, in the Up direction, one of them will put positive current onto one rail and the one at the other end negative onto the other rail. When the keys both point in the Down direction, the first one will put negative onto the relevant rail and the other key will put positive onto the other rail.

Single stroke bells would be nice. A long time back we used spoken block messages and it was good fun, particularly when we had a Lancashire accent at one end and a Nottingham accent at the other: (*'Train waiting? Well Train can't! \*?—\*!/? well wait ...'*). Even further back, I remember experimenting with saucers hit with tea spoons.

Real railways have an incredible number of bell codes but we have managed with those shown on Table 1.

TABLE 1

**Wingrove Line Code of Bell Signals**

Call Attention	1
Is line clear for:	
Express/mail	4
Passenger	3 pause 1
Workmen	1 pause 3
Rail car	2 pause 1 pause 2
Empty cars	5
Fast goods	5
Goods	1 pause 4
Light engine	2 pause 3
Train departure	2
Train arrival	3
Train waiting	3 pause 2 pause 1
Opening signal box	3 pause 3 pause 3
Closing signal box	3 pause 4 pause 3
Obstruction danger	6

**Time.**

Unless the timetable is an attempt to be run against some form of **time**, it degenerates into a sequence table. In such a case, any operation at all has all the time in the world in which to be completed and therefore poses no challenge to the operators' ability or ingenuity, particularly in the idea of 'getting back to timetable running'.

In addition, a sequence table often poses difficulty in co-operation between operators. This occurs when one has a simple

task and is ready to send a train long before another, who has a difficult task, is ready to receive it. I am sure that working against time is the only way to gauge whether your railway works well or otherwise. In addition, for several reasons, I consider that some form of fast time is warranted

The actual distance, end to end, on the Wingrove Line is about 40 metres and, at a scale of 1:87, this represents no more than three kilometres. Yet, in this distance, we have managed to build five (compressed, admittedly) stations. Can you name any real railway with five consecutive stations in three kilometres? Even if we slow down the motive power either mechanically or electrically, a train will still run from one end to the other in less than two minutes. Therefore, if we use real time, we will have to use minutes and seconds in the timetable which will certainly be unrealistic and possibly even confusing. Instead, we use clocks that are speeded up so that an hour is covered in 7½ minutes, or a minute in 7½ seconds. As a result, not only can the timetable be expressed in realistic hours and minutes, but the line will appear to be eight times as long because the clock will cover 16 minutes instead of two during the running of a train from end to end.

An extra bonus of this is that a day's work on a real railway (say from 6 a.m. to 10 p.m.) can be modelled in two real hours. This is probably a reasonable real time for the average operating session. In these '16' hours you can have the whole gamut of operations: the overnight sleeping car train; the mail; the country passenger; the workmen's trains which arrive in the morning and leave in the evening; the 'day express' which leaves Wingrove at 10.30 a.m., after the morning peak which is quite busy, and so on. The Wingrove Railway these days has four strategically placed electric wall clocks powered by a 24 volt transformer. Their 'impulse' operation is provided by the impulse given every 7½ seconds by a windscreen wiper speed adjuster.

If you are just starting this timetable business, you might like to do what we did when we started - use any ordinary clock, with no alterations at all. Ignore the hour hand and regard the minute hand as if it were the hour hand. In this way you will get a five-minute hour and you can use half-minutes to show six-minute intervals. You must be careful only to use multiples of six minutes in your timetable.

**The Graph.**

Between the seven places on the Wingrove Line, the movements of trains are, at least in the first place, directed by the timetable. The timetable is easily derived by means of a 'train running graph' on which 'distance' lines, representing the stations, are shown horizontally; 'time' lines, representing hours and minutes, are shown vertically. This is the conventional way of drawing them. The timings of trains are shown by diagonal 'theory' lines. In the timetable you will see that a light engine, No.502, leaves Jacksonville at 6.30 a.m., passes Mason Street at 6.32 and arrives at Wingrove at 6.34. It goes to No.2 Platform to attach to the passenger cars, which incidentally have been there since the 'day' before. On the train graph, you will see the number 502, near which is a diagonal line (the theory line of the light engine), which joins the intersections of Jacksonville-6.30, Mason Street-6.32 and Wingrove-6.34.

Again on the timetable, you will see that No.21 Passenger leaves Wingrove at 6.43 (after the engine has arrived as No.502), passes Mason Street at 6.45 and arrives at Koongarra Creek at 6.51. It waits at the Creek until 7.10 and then it returns to Wingrove as No.22 Passenger. The diagonal lines representing these two trains can also be seen on the graph. At 6.50, No.150 fast goods leaves Golborne Junction (Fiddle Yard) and, after passing Sunbeam Colliery Siding at 6.55, goes through Koongarra Creek at 6.56 on its way to Pine Bay. At 6.56 the passenger train is, of course, at Koongarra Creek as well (safely tucked away in the back platform road) and the two theory lines for these two trains also cross there. The horizontal line for the passenger train between 6.51 and 7.10 shows that, while time marches on, the passenger train doesn't. The line is shown slightly above the Koongarra Creek Station line, so that it can more readily be seen.

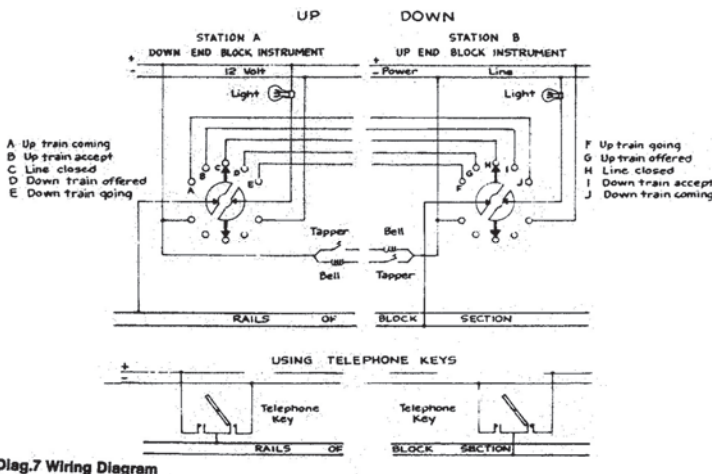
Incompatibilities are soon apparent on train graphs, such as an error in a proposed timetable which has two trains in opposite directions in a single line section at the same time. This is shown up by the theory lines meeting at a point which was neither a crossing station nor a double line.

In addition, the graph is readily interpreted to show that there is (or is not) a balance of engines and rolling stock; in other words, what goes Down must come Up. At any given minute, it will show the whereabouts of all trains and light engines etc. Following on this, the compiler of the timetable can ensure that the timetable does not call for more equipment than the railway actually has.

**The Tabulated Timetable.**

Signalmen, train controllers and others need to know the times of all trains at all stations. They need, also, information such as type of train (passenger or rail motor) and where trains are to meet on the single line. This information is contained in the working timetable. Whereas I have described the graph as following on from the timetable, in actual practice, the reverse is true. The whole service is planned on the graph and later translated into a tabulation.

Of course, we prepare our tabulation on a computer (big deal) but it wasn't always as elaborate. Our first timetable was written out on a page of a note book and carboned through onto the second page. In these days of computer paper and one-time carbon, it is quite easy to type the required seven copies of a special train notice at one strike.



Diag.7 Wiring Diagram



Down Trains

No. Class Formed By	21 PASS 502	581 LEP 159	23 PASS 22	593 SPL 508	583 MOTO 16	585 LEP 58	61 RC 60	181 GDS 518	587 LEP 6	589 LEP 40	25 PASS 24	511 LEP 152	183 GDS 512	1 EXP 5122	63 RC 62	513 LEP 26	27 PASS 26	11 MAIL 516	545 LEP 182	151 FGD5 518	65 RC 64	517 LEP 2	29 PASS 28	519 MOTO 12	5199 LEP 1044	153 FGD5 520	111 TGD5 522	521 LEP 154	67 RC 66	185 GDS 524	
Wingrove d	6.43	-	7.33	-	8.07	8.35	8.48	-	9.10	9.15	9.30	-	-	10.30	10.40	10.50	11.54	12.05	-	-	12.40	12.50	1.25	-	-	-	-	-	-	2.40	-
Pine Bay d	-	7.25	-	-	-	-	-	-	9.05	-	-	-	9.33	9.55	-	-	-	-	-	-	-	-	-	-	1.54	2.00	2.20	2.35	-	3.05	
Mason St a	-	-	-	-	8.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.44	-	-	-	-	-	-	
Jacksonville a	6.45	7.27	7.35	7.58	8.25	8.37	8.44	9.07	9.12	9.17	9.32	9.35	9.57	10.32	10.44	10.52	11.58	12.07	12.09	12.27	12.44	12.52	1.27	1.54	1.56	2.02	2.22	2.37	2.44	3.07	
Koonqarra Ck a	6.51	-	7.41	8.04	-	-	8.52	9.13	-	-	9.38	-	10.03	-	-	12.04	12.13	-	-	-	-	-	-	-	-	-	-	-	2.52	3.13	
Sunbeam Col. a	-	-	7.49	-	-	-	8.59	9.51	-	-	-	-	-	10.39	10.54	-	-	-	-	-	-	-	1.34	-	-	2.09	2.29	-	2.59	-	
Golborne Jn a	-	-	7.54	-	-	-	9.05	9.50	-	-	-	-	-	10.44	11.00	-	-	-	-	-	-	-	1.39	-	-	2.14	2.34	-	3.05	-	

Up Trains

No. Class Formed By	502 LEP on	504 LEP on	158 FGD5 on	22 PASS 21	16 MAIL on	506 LEP on	508 SPL on	60 RC on	58 CP on	6 EXP on	510 LEP on	40 WKMH 593	24 PASS 23	152 XGDS on	512 LEP on	62 RC 61	5122 LEP on	26 PASS 25	102 GDS 193	514 LEP on	516 MOTO on	64 RC 63	104 GDS 101	518 LEP on	2 EXP 1	28 PASS 27	12 MAIL 11	1044 GDS 104	520 LEP on	522 LEP on	
Golborne Jn d	-	-	6.50	-	7.21	-	-	7.38	8.00	8.16	-	-	8.28	8.49	-	9.38	-	-	-	-	-	-	11.38	11.50	-	12.11	-	1.02	-	-	-
Sunbeam Col. a	-	-	6.55	-	7.26	-	-	7.44	8.05	8.21	-	-	8.33	8.54	-	9.44	-	-	-	-	-	-	11.44	11.55	-	12.16	-	1.07	-	-	-
Koonqarra Ck a	-	-	6.56	7.10	7.27	-	-	7.46	8.06	8.22	-	8.29	8.34	8.55	-	9.46	-	10.24	11.20	-	-	-	11.46	11.56	-	12.17	12.37	1.08	1.15	-	-
Jacksonville d	6.30	6.55	-	-	7.43	7.47	-	-	-	-	8.31	-	-	9.25	-	10.12	-	-	-	11.30	11.32	-	-	11.58	-	-	-	-	1.35	1.47	
Mason St a	-	-	-	-	-	7.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.34	-	-	-	-	-	-	-	-
Pine Bay a	6.32	6.57	7.02	7.16	7.33	7.45	-	7.54	8.12	8.28	8.33	8.35	8.40	9.01	9.27	9.54	10.14	10.30	11.20	11.32	11.44	11.54	-	12.00	12.23	12.43	1.14	1.21	1.37	1.49	
Wingrove a	6.34	-	-	7.18	7.35	7.47	-	7.58	8.14	8.30	-	8.37	8.42	-	9.58	10.16	10.32	-	-	11.34	11.46	11.58	-	-	12.25	12.45	1.16	-	-	-	

Diag.4 A section of current Wingrove working timetable.

You might think, and my wife still does, that the regular running of the same timetable might be monotonous, and at one time I did too. I thought it would be necessary to have a pack of cards to introduce incidents to relieve the monotony, such as 'The rail motor won't be available tonight'. But, in practice, this is not so, as the frailties of the track and the rolling stock, not to mention the vicissitudes and general unpredictability of the operators, vary the programme sufficiently for a whole range of new problems to be solved each session. On one occasion, the rail motor wasn't available because my then young son, who owned it, was using it on his own railway and so we couldn't find it. Twenty years later, on one of his frequent visits, he said in amazement, "That's the first time I've ever seen you run all your passenger trains on time!" Regretfully, I must admit that his remark was justified.

Train Control.

One of the reasons that we know that our trains are indeed running late is a train graph maintained by the Train Controller. He has a copy of the timetable graph, showing on it the timetable times of all trains and he is kept informed of what is actually happening by messages from individual stations. The train controller does the plotting of the actual line (usually in red, so that they show) and a comparison with what should have happened is thus available. For a long time, the messages have been shouted across the garage, but the telephone system is working again and train control has a nice cosy corner where he knows (we hope) what is going on without actually seeing any trains. It is, however, another job for a masochist.

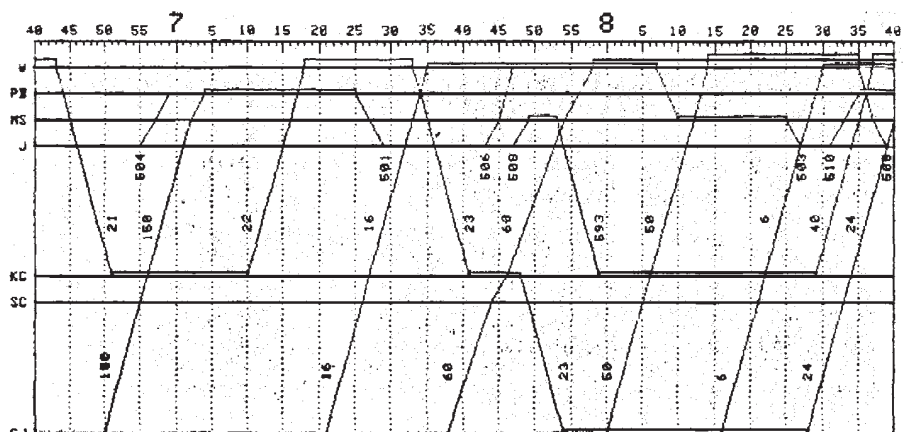
Conclusion.

This not the only way to run a model railway. It is not even the only way to run one by timetable. Bearing in mind the rather drab garage, the complete absence of scenery and the generally decrepit rolling stock (some items were second-hand 27 years ago), we've really belted out a lot of man-hours of enjoyment for a particularly small outlay. Someone said that there are a lot of railways that are beautiful to look at, and perhaps even more that run well, but precious few, in both categories. I have been told often enough that the Wingrove Line runs well; it certainly has been running a long time. When some of the operators have been coming here for ten and fifteen years, this timetable business must have something.

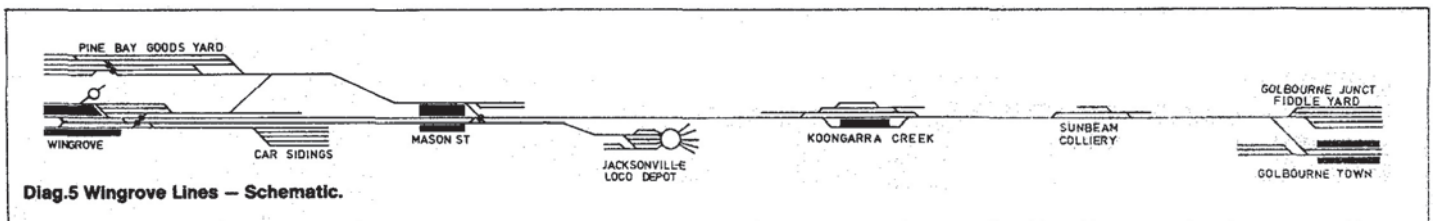
A model railway is inevitably a compromise. There is never enough money or time or space or ability or help or wifely sympathy, or something. So to do some of the things you would like to do, you will almost certainly leave out some of the things which you don't want quite as much. There are a lot of things missing on the Wingrove Line but there sure is a lot of operation and, as my neighbour once asked,

*Who else has entertained thirty people in a garage for three hours without a niner?"*

This article is a reproduction of an article from the Australian Model Railway Magazine—see citation at the end of the following article. Bob Gallagher was the editor of AMRM.



Diag.6 A section of current Wingrove working timetable graph.



Diag.5 Wingrove Lines — Schematic.

# Bad Hair Day on the Wingrove Line

GEOFF LAMBERT *and* ROD SMITH

**T**HE NEIGHBOURS HEAR ALL the bells dinging and assume it's a nest of puffers in here. It's not surprising really- it's about as far removed from ordinary life as it is possible to get.

Jack McLean to Geoff Lambert, circa 2004

**Timetables.** As can be seen in the illustration of the Folly Lake block instruments (right) and from the previous article, tabular timetables were created for the Wingrove, but it has proved impossible to track down an entire example. I have thus re-created one from the graphical timetable shown here (the same one discussed in the previous article) and used it to analyse both timetabling and the "badness" of the bad hair day.

According to Roderick Smith, Rob Weiss built a plotting interface for this Apple-based graphical timetable—although this chart says "Produced on a Monsanto VDU/Computer". There was automatic inputting of time and location, and the output was a graph of the session's actual operation. This, it might be noted is the end product of the probable hand-drawn graphical→ tabulated→ computer-drawn graphical sequence.

## Timetable 1/81

This WTT had paths for 57 Down and 60 Up trains. The first train started at 06:34 and the last arrived at 20:15. Trains with 1 or 2-digit codes seem to have been Express passenger trains and it can be seen that they run somewhat faster than the others and are not put into the loops for crosses.

In the previous article Jack discussed how to cram a 16-hour day into two hours and talked about running times. Below is a table showing the sectional running times in both directions— these are averages calculated from the timetable and assume all places have a timing point on the main line, even when they are on a branch. In real life, as Jack says, these times would still be very short— the average train running time would be about 2½ hours.

**A typical Bad Hair Night (?)** The chart reproduced on these pages was given to me



The Block Instrument (and loco. control rheostat) at Folly Lake, a station not present in the 1981 WTT. It replaced Sunbeam Colliery at some unspecified date.

by Jack McLean many years ago, with a comment that it was "pretty typical". The date of operation was 19-June-1981 and the chart carries a notation "Observed, not Controlled", so one might be able to assume it was a bit of a free-for-all. I would not be at all surprised if this night was the one described by Bob Gallagher in the previous article.

The chart contains both the normal working timetable (neat computer lines) and the actual running (wobbly lines: red in the original). A considerable number of actual trains- mostly Up light engine movements- have not been shown in red on the Train Controller's graph. One must assume that they ran because the trains which they formed or from which they came **did** run. One hundred and eighteen trains were scheduled, but we have red lines for only 84, including a couple of "extras". However we cannot tell how late the "missing" trains might have been.

Where a train runs so late that its real path is far to the right of its tabled path, a red

arrowed line points out the link. This was the way real train controllers treated their timetables. But the latter had it easy—half as many trains at one eighth the speed of the Wingrove line "bloke". When things went pear-shaped later this night, this practice fell by the wayside.

The day started well and things did not begin to deteriorate until about 12:30 when train 11, the Down Mail became derailed between Jacksonville and Koongarra Creek. This held up train 28 at Koongarra. No 11 was re-railed and reached Golborne 20 minutes late. Returning on time as train No 12, it appears to have become uncoupled *en route* at about 13:30. From this moment, the red lines just vanish for about 90 minutes (top chart on page 8). The reason for this is not clear but, if it really were the night described by Bob Gallagher, then time out was taken to hold the *Official Enquiry*.

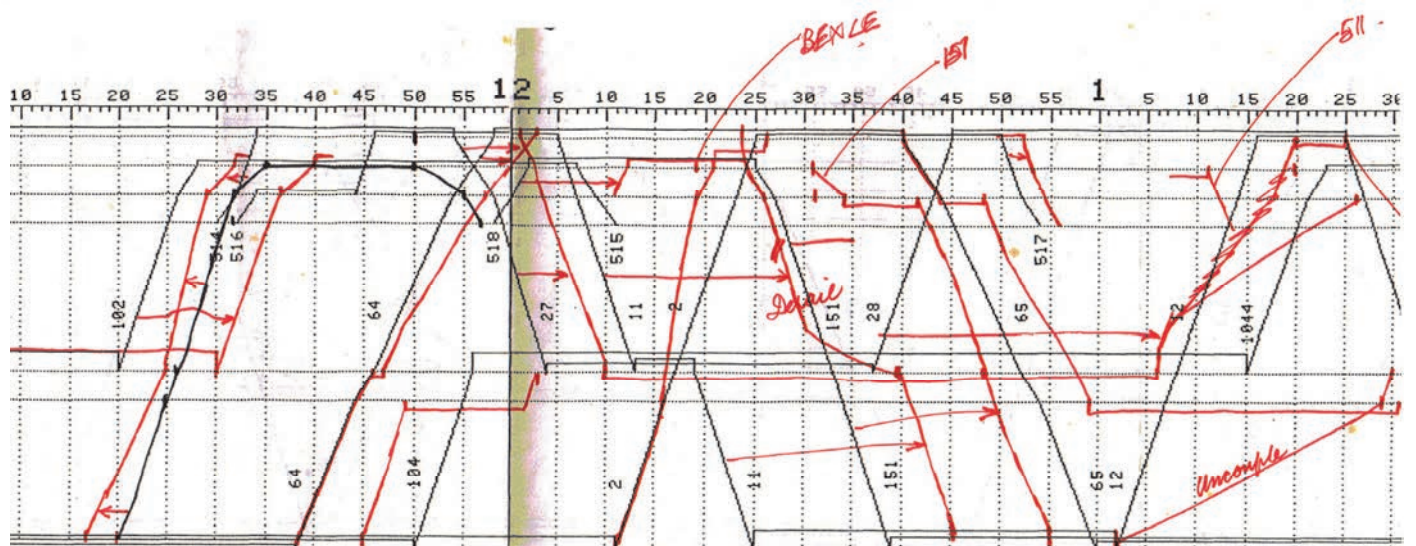
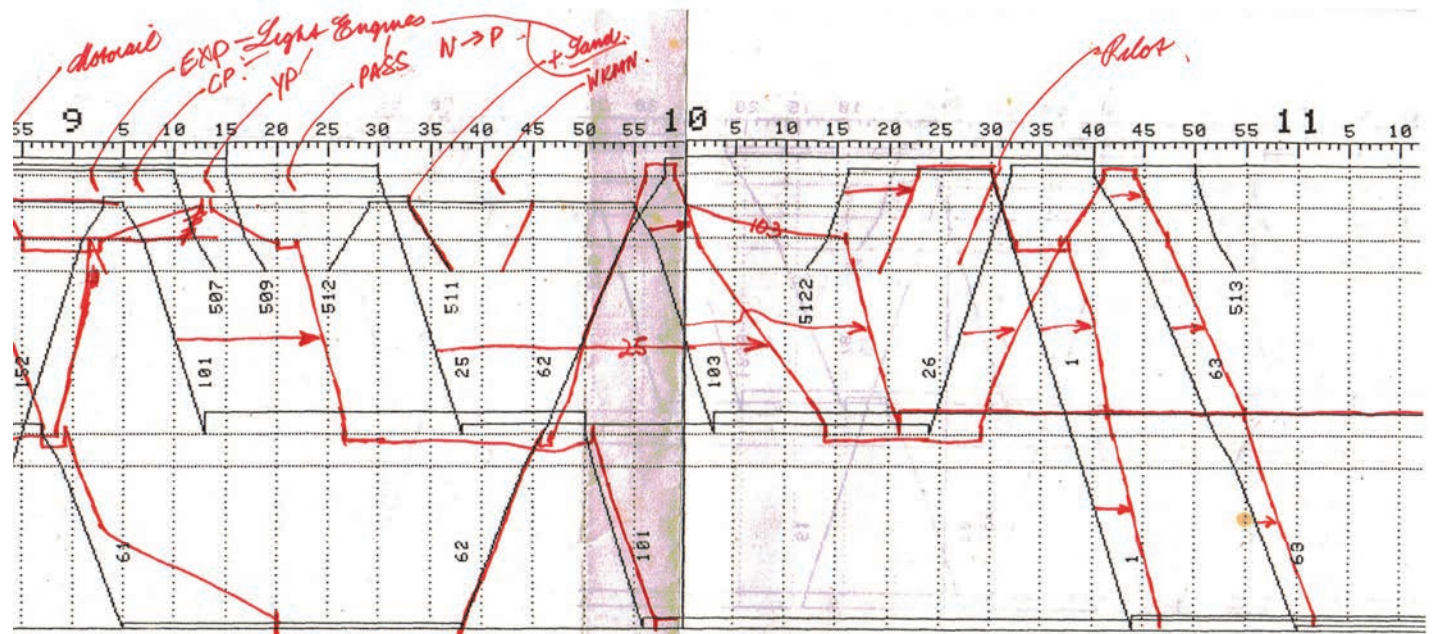
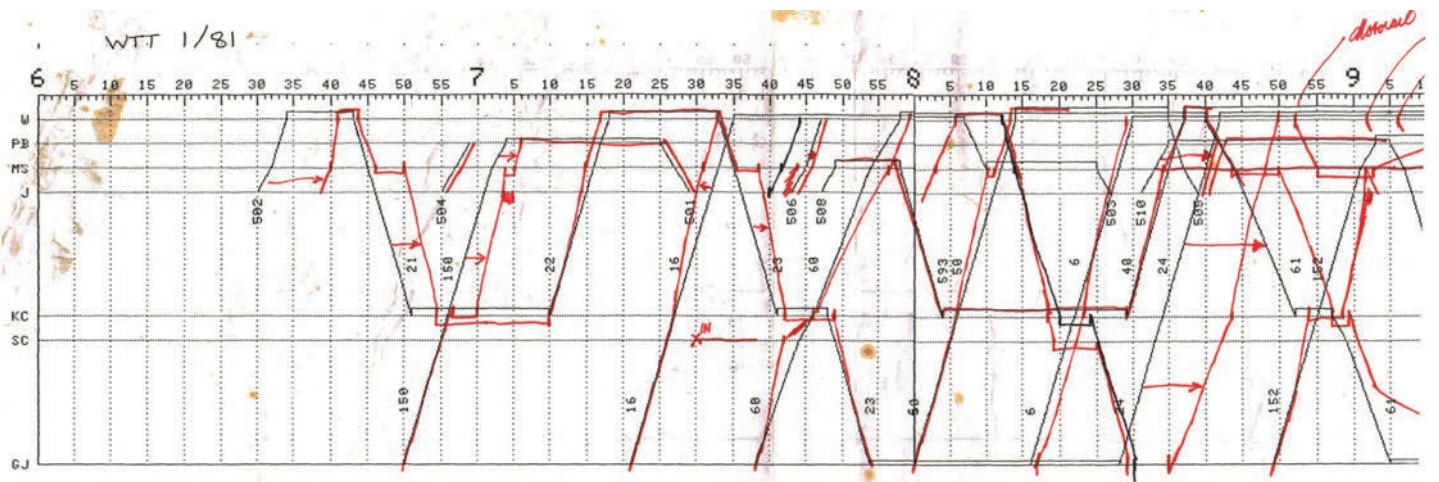
Until this point most trains had arrived on time, the average lateness had been about 5 minutes. Trains resumed running at about 3 PM. Thereafter lateness rose to 25 to 30 minutes. The worst trains ran nearly 3 hours late.

The interaction between late-running trains and trains which might have started on time ("knock-on delays") grew worse and worse. Furthermore, the timekeeping

### Average Scheduled Running Times (minutes:seconds)

WINGROVE-PINE BAY GOODS	01:18	GOLBOURNE JUNCTION-SUNBEAM COLLIERY	05:36
PINE BAY GOODS-MASON STREET	01:54	SUNBEAM COLLIERY-KOONGARRA CREEK	01:12
MASON STREET-JACKSONVILLE LOCO	01:18	KOONGARRA CREEK-JACKSONVILLE LOCO	05:20
JACKSONVILLE LOCO-KOONGARRA CREEK	05:24	JACKSONVILLE LOCO-MASON STREET	01:24
KOONGARRA CREEK-SUNBEAM COLLIERY	01:33	MASON STREET-PINE BAY GOODS	01:28
SUNBEAM COLLIERY-GOLBOURNE JUNCTION	04:54	PINE BAY GOODS-WINGROVE	02:20
<b>TOTAL</b>	<b>16:22</b>	<b>TOTAL</b>	<b>17:20</b>





of many trains progressively worsened as they travelled down the track. At its worst (at about 19:30), Down trains were losing an average of 40 minutes *en route*. The performance “trough” for Up trains came earlier (3 PM) and was smaller (15

minutes). The last train did not pull into the station until 21:15, more than an hour after the railway was scheduled to close for the night.

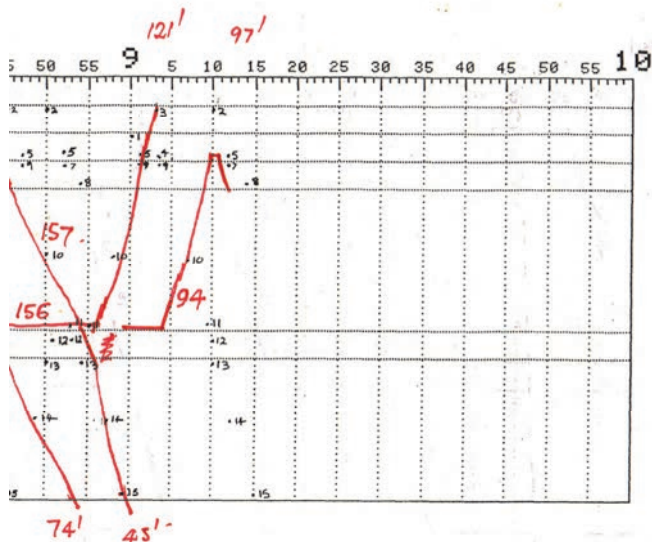
A summary of how the trains ran appears

on our page 13 in the Train Performances tables. This doesn’t look too flash. However this was not a “bad hair night.” by Rod Smith’s estimate (see below). Let us judge this in the same way that ARTC judges things—by its Key Performance Indicators









minutes of the *Official Enquiry*.

The earliest departure on the night was 4 minutes ahead of schedule and the latest arrival was 157 minutes behind time—probably equivalent to about 10 hours on ARTC's Sydney Melbourne line. The ARTC's statistic for minutes delay per hour of scheduled transit is pretty bad at nearly 11 minutes—but Wingrove on the Bad Hair Night was significantly worse

than this. Of course, ARTC's statistics are averaged per quarter of about 120 days. They surely have many days per quarter very much worse than Wingrove's "once-off". Or *was* it a "once off"?

#### Anecdotes

1. [Geoff Lambert] On one of my visits, Jack told me that they tried to run the railway with telephone train control from

Stephen's bedroom, but that caused so much argy-bargy that they had to give it up.

2. [Rod Smith] I acted as train controller on several occasions; IIRC always on a high chair, never remote. The railway matched the real one in so many ways. Jack wrote once: *When I started, I thought that I would need a set of random problem cards to create a situation around which the timetable had to be resolved. I never did that; there were always sufficient real problems.* There was a random element introduced later: the boat train ran according to the draw of a card or toss of dice. Amongst the problems which I can remember: short circuits, equipment failure and derailments.

Jack once wrote an article on the Serviceton railmotor being replaced with a loco. and brakevan after a failure; I can't recall what we used at Wingrove, but there were times with no railmotor. The timetable needed two, and there was often only one present; the second was brought in by one of the regulars.

As with the real railway, we measured the punctuality of a session by the time at which train 34 got in, and the session was over. On VR [Victorian Railways], 34 was the notoriously unpunctual afternoon up Dimboola pass. It was scheduled to be put away at Bacchus Marsh for the evening Adelaide Express Goods, No. 139, to cross it.

The only real bad-hair night was the time we attempted to overlay the main timetable with scout specials (matching the Adelaide jamboree in 74-75, with trains from Sydney and from Melbourne). It was frenetic, even by Wingrove standards, and ran badly late. Jack spat the dummy: *"This is supposed to be fun; all you young 20s hot-heads are now banned."*

#### Closure.

The line was "officially closed" only in 2014, in association with the sale of the house.

#### References

Model railway timetables-Wingrove style: Jack Mclean, *Australian Model Railway Magazine* Aug 1983, issue 121, page 38-41 (reproduced in the previous article)

Timetable Performance:- Departures				
	# of trains	Min	Max	Mean
Timetabled/Ran	118	84		
Early	3	-5		
Late	45		155	18.3
Not late	70			
Timetable Performance:- Arrivals				
	# of trains	Min	Max	Mean
Timetabled/Ran	118	84		
Early	7	-3		
Late	56		157	26.6
Not late	55			
Timetable Performance:- Transits				
	# of trains	Actual		
Timetabled	118	84		
On time	76			
Delayed en route	42			

#### KPIs

	Wingrove	ARTC (S-M)
Percentage of trains departing "on time"	46%	87%
Percentage of trains arriving "on time"	50%	56%
Percentage of trains transiting "on time"	33%	47%
Delay (minutes per hour)	14.9	11.6

(On time means within 1 minute for Wingrove, 15 minutes for ARTC)

# The Preparation of Tramway Time-Tables

By E. J. DORAN, in the *NSW RAILWAY BUDGET* 1-Jul-1905

**A**T THE LAST MONTHLY MEETING of the Tramway Officers Association, held at the Railway Institute, Mr. E. J. Doran read a very interesting paper on "The Preparation of Time-Tables."

Mr. Doran pointed out that when the present Superintendent of Tramways, Mr J. Kneeshaw, joined the tramway service about ten years ago [circa 1895], the track mileage was 61 and the revenue £289,181, as against 125¾ track miles and £802,985 revenue for the year ended 30<sup>th</sup> June, 1904,

The preparation of the railway time-table differs somewhat from that of the tramway. In the former, the "express" and "through" passenger trains must get first place, followed by the local passenger and "through" goods trains, etc. A simple "pick-up" goods train, with perhaps 100 or so miles for its day's work over a single line, will often entail days of labor to fit it into place.

The running time of each class of train varies. Difficulties and differences of opinion also crop up in connection with the putting on of certain trains, and it is somewhat necessary for an officer to travel long distances to confer with the Superintendent and time-table staff for final determination,

These difficulties, however, do not present themselves in such a large measure in the tramway service. The running time is practically uniform throughout, and the convenience of the travelling public is the first consideration.

Prior to Mr. Kneeshaw assuming control of the tramways, time-tables were prepared without the aid of diagrams, but they were introduced shortly after. Their adoption, which necessitated the whole of the motors in the service running round on the various lines, brought to light the fact that quite a number of drivers and conductors who were years in the service had been continuously employed on one particular line, and when the service was brought into operation it was amusing to see the awkward position the running staff were put into by having to ask passengers and others where the stopping places were, and although it caused some little inconvenience to the public for the first day or two, it was an object lesson to the outside staff. The system today is very much different and it is quite safe to say that there is not one driver in the service who would not be quite at home on any one of the lines. The system of training now in force is responsible for this decided improvement in safe working.

The diagram is brought into use after the necessary information has been received

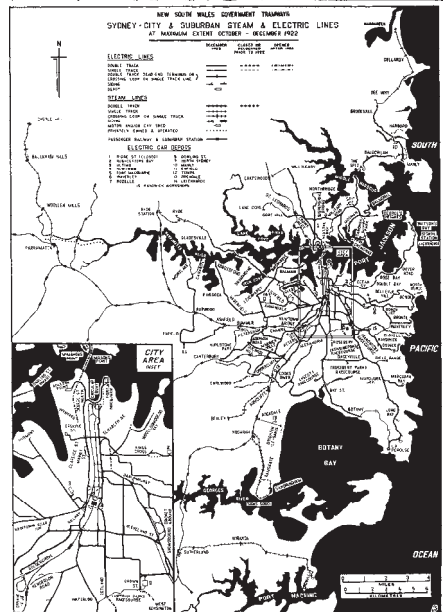
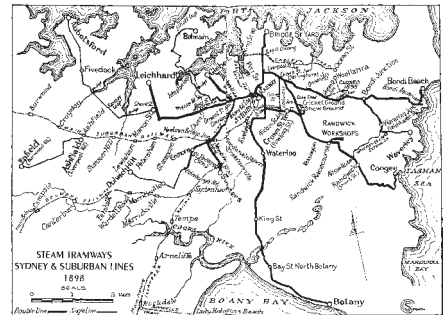
from the district officers, and a service of cars comprising whole-day, part-day and special cars is arranged for after a careful study of the traffic requirements.

The traffic day commences about 5 a.m., and finishes at about 11.30 p.m., leaving out, of course, all-night trams, care being exercised to see that sufficient accommodation is provided at particular times for the convenience of business people to and from the city.

After the time-table has been fixed on the diagram and received the approval of the Superintendent, the figures are transferred to the working and public timetables, but unlike the railway service the time-table once prepared is subject to alteration at any time. In the Railway Department, however, no matter what alterations are made in between, there is a definite summer and winter time-table. The reason for this must be apparent to everybody, as the ordinary winter service cannot be expected to cope with the rush of people out of the city during the hot weather; whilst the tramway service is practically the same all the year round; the only difference being that the "part day" trams vary according to traffic requirements, but this is not noticed by the public.

There are many things to be considered in compiling a time-table, matters of vital importance to the well-being of the system, and the arranging of which effects not only the convenience of the travelling public but the comfort and morale of the men concerned.

The governing forces, however, are the limitations by which it is surrounded, and, in this connection, the question of speed is perhaps the most essential feature. In considering this particular phase of the time-table work it is interesting to note the figures quoted by Mr. A. R. Fearnley, General Manager of the Sheffield tramways, in which it was stated that in the year 1901 the tramways in England only made a maximum speed of 8 miles per hour, and this appears to have been the standard maximum speed allowed by the Board of Trade since the seventies or early eighties, but in 1903 the maximum speed allowed on the British tramways was in a few cases increased from eight to 20, miles per hour, but in the majority of cases eight miles per hour was the ruling speed. Through representations to the Board of Trade later on in that year the maximum speed allowance was increased, and now, in some cases, 15 miles per hour have been allowed. Among the companies who are enjoying this high maximum are the Leeds Corporation—one



of the largest of British Companies, the Hartlepool, and also the Dublin and Lucan Companies. A speed of 14 miles per hour appears to be frequently granted, no less than 10 tramway companies stating, in answer to enquiries by the same authority, that this was their maximum allowance. It was also found that 12 miles per hour was the average maximum speed of 37 companies, while of another 25, the average was 10 miles per hour; and again, there were six companies who had to be content with a maximum speed of eight miles per hour, the speed, of course, being controlled by the Board of Trade.

In Sydney there is practically no fixed speed, but the average rate is approximately 10 miles per hour.

In taking the general average of speeds (not the maximum speeds) of 81 British Tramway Companies, it was also found by the same authority that this worked out at 7.24 Miles per hour. This includes stopping times and the time allowed at the various termini.

Comparing these speeds with those of the tramway system it is found that the Sydney are well up with the British companies.





Taking the running time for a round trip, including stopping and standing time at the termini, the average in Sydney is 7.58 miles per hour, or 0.34 miles per hour faster than in England, and 0.38 miles per hour (as will be shown later) than on the Continent.

Mr. Doran had not been able to procure definite figures with regard to the American Tramway Companies, owing to the difficulty of separating the interurban lines running in conjunction with the city traffic. Many of these trams run at a low speed within the city limits but work up to 40 miles per hour outside.

The average speed given by the American companies for urban routes is 8.13 miles per hour, but he could not ascertain whether this is inclusive or exclusive of stopping or standing time.

The comparison shown concisely is, according to the latest figures available, as follows:-

Continent	7.2 mph
England	7.24 mph
Sydney	7.58 mph
America	8.13 mph

If the high rate of speed attained in America is responsible for the large amount of compensation which has been paid by the American tramways, and which it is understood is never less than three, and often five per cent. of the gross earnings, then it can be safely said that the *safety of the public* is fully attended to by the speeds maintained in this city, and if these figures are to be taken as authentic it shows very clearly that there must be a leakage or a deal of unproductive work in some of the tramway systems referred to. In the first place, the speed allowed is admittedly higher in the places named than in Sydney, but, taking the average speeds as quoted by Mr. Fearnley, it shows that we are getting more running out of our cars than is the

case in England. This may be due to various causes, such as additional time at the various termini, etc.

As an illustration of the speed, stopping and standing time, the following will give some idea of what they are doing in England. It is an extract from Mr. J. B. Hamilton's remarks in discussing Mr. Fearnley's paper, previously referred to.

"This round trip was just over 14 miles, and it illustrated the point he had just been mentioned. The run was from the centre of the city to the extremity of the city, and back again. On the first one they had an average speed of 7.59 miles per hour. On the next day they ran an average of 7.6 miles per hour. On the third run they had an average of 7.64 miles per hour. On another run, on a portion of which the driver did not know that anyone was taking his time (so it was normal running, whilst in the other case the driver knew that the time was being tested), the average speed was 9.1 miles per hour. This was a suburban part of the route. The whole run of 14 miles had 72 stops; the average length of stops was 9.16 seconds. The whole time occupied by the round trip was 1 hour about 45 minutes. The time allowed on the schedule (which had existed some time), was 2 hours 10 minutes. The car had 13 minutes 10 seconds standing time at one end, and 10 minutes at the other."

In actual working, the trial made by the above company showed that the average time for stops was 9.16 seconds. This is the nearest approach to anything of a definite statement on this question which had come under Mr. Doran's notice. It was only recently that a similar check was made on the average time consumed at stopping places on the various lines in Sydney. From 20 to 25 journeys were tested and the average time occupied was 9 seconds. But we cannot approach the figures quoted as the standing time; Mr. Hamilton states that

the car had 13 minutes 10 seconds at one end, and 10 minutes at the other, or 23 minutes 10 seconds standing time for the round journey.

Taking this as a fair illustration of the conditions prevailing it shows that there is a distinct loss of 26 per cent, in standing and stopping time, and in comparing this with the Sydney system it is found that the average loss is from 18 to 20 per cent. This, however, should show up to better advantage on our side for this reason; taking the above figures as a basis it shows that the number of stopping places average 33 per hour in England, whilst in Sydney the average stops are 45 per hour, showing clearly that better facilities are given to the travelling public. The point here worth considering is whether the excessive number of stopping places on the Sydney tramways is not responsible for a deal of the wear and tear and consequent heavy expense. There has always been a difference of opinion as to what time should be allowed for stopping places, and Mr. Doran thinks that the comparison herein made will justify the time allowance as provided by the Department.

It has been stated that on the American tramways on busy parts of the lines at certain times of the day the stoppages are brief, and in many cases cars do not come to a stand where there are no passengers; but this is not the case in Sydney. Twelve seconds are allowed in the busy parts and in sections in the outlying parts of the city, and from personal experience, Mr. Doran is satisfied that this is more than ample. In fact, from a record recently taken of the number of trams throughout the system, and during the busy portion of the day, the average was well within this allowance. In the old steam days, however, additional time was allowed, owing to the difficulty in starting with a long train of three and sometimes four cars. To give some idea of the time allowed for stoppings, a few instances are given [in the table below].

From this it will be seen that there is an average of 55 seconds between each stop. On the Dulwich Hill line alone the running time is 49 minutes, and there are, as has been stated, 56 stops. The travelling public very rarely take this into consideration; they merely look at the distance and the time taken for the journey, without making any allowance for stoppages on the way.

Line.	Running Time	No. of Stops.	Average Stops		Total Time occupied at Stopping Places.	
			per hour	per mile	min.	sec.
Botany . . .	57	58	61	7	8	48
Bondi Beach . . .	44	45	61	7	7	16
Leichhardt . . .	41	46	67	8	7	46
Balmain . . .	45	51	68	8	8	56
Dulwich Hill . . .	49	56	68	8	10	10

While cheapness of fares, speed and safety of transit have combined to promote the popularity of the tramways, frequency of service has certainly contributed very largely to the results achieved in Sydney. Punctuality is, of course, essential in any well managed institution, be it great or small. Accurate timekeeping will readily be recognised as a prime necessity on the tramways, otherwise the whole system would quickly become disorganised. There is probably no enterprise in which it is so difficult to maintain unflinching regularity as in a tramway undertaking on a big scale. A railway has its own private track, but a tramway is subject to the thousand and one obstructions of all sorts and conditions of traffic in the public streets, and with the huge traffic of today, it should be considered very creditable indeed that such good time is kept, that so few accidents occur, and that so little ground is given for *bona fide* complaint.

A paragraph appeared in one of the Sydney papers the other day from a correspondent who complained of the "veritable chain of cars which carried him link by link, or rather inch by inch," to that particular suburb. There is no doubt that, in certain periods of the day, slight congestion takes place, due, as stated before, to various causes, but as the time-table staff are in a position to know the actual running of every tram throughout the system, and, as a matter of fact, have a record of such running, they are in a position to answer complaints of this sort by saying that the time-table throughout the service is well maintained from early morn to late at night. The records of the recently established "Bundy" on two lines clearly prove this, and to show that the Sydney trams keep fairly good time, I find that from a record recently taken the percentages of delays were as follows:-

3 minutes and over	5.8%
4 ..	5.2%
5 ..	1.7%

This return was taken from normal day's work on two of the heaviest lines in the service. The total number of trips run being approximately 6,000.

Regarding the volume of traffic and the number of cars passing a given point during the business hours, and for sake of comparison, Mr. Doran quoted the figures recently published in the Light Railway

and Tramway Journal, in connection with the New York and Brooklyn systems. There are about 375 cars passing one way on the surface of the Brooklyn Bridge between the hours of 5 and 6.30p.m., which carry an average of 17,495 passengers. This does not of course include the elevated system. If a break-down occurred on the surface system and the line was blocked for, say, 30 minutes, it would delay the progress of 5,982 passengers.

Comparing these figures with the traffic in Sydney between 5 and 6.30 p.m. there is an average of 195 cars passing a given point in George Street (King and George streets junction), and 68 cars in King Street going one way, making, a total of 263 cars passing on the down road during one and a half hours with seating capacity for 12,855 passengers, though it is safe to assert that during the hours mentioned the cars would be carrying over their seating capacity. Assuming, however, that they only carry 12,855 passengers, if this traffic were blocked for 30 minutes the progress of 4,285 people would be delayed.

The headway on the New York Bridge surface with 375 cars for one and a half hours would be equal to 14 seconds, whilst the headway in George St is about 28 seconds and on the King St crossing 25 seconds.

In addition to this there is, of course, the Elizabeth St line. A block on this line for 30 minutes would delay the progress of 2,800 passengers.

The distance travelled by cars running over the Brooklyn Bridge is one mile. The average running time of cars travelling over this section is about nine minutes, which is at the rate of 6 miles 53 chains per hour. There is no obstruction throughout the section referred to, the tram track being in the centre of the bridge, whilst the vehicular traffic is on either side, and there is no cross tramway or vehicular traffic of any description to interfere with its progress.

There is no doubt that the Sydney system compares very favorably with this record, more especially when it is taken into consideration that these trams rarely stop to pick up male passengers [sic], but keep moving the whole time.

In most places where electrical tramway systems are in vogue, it is not customary to

issue time-tables on such a complete scale as is done here. In Melbourne, Brisbane, and in certain principal places in America, there are no time-tables issued to the public at all, except a printed slip showing the first and last cars from the various termini; but in Sydney the department issues large sheet time-tables which are exhibited at various places throughout the system, and small pocket printed timetables. In the old steam days there were also printed working time-tables for the running staff; this was necessary owing to the long stretches of single line, but since the inauguration of the electric system, printed working time-tables were abolished, working time-tables being issued in manuscript form to the depot masters and starters, from whom the running staff obtain all the information required, in addition to which they are supplied with a copy of the public time-table, which gives additional information with regard to stopping places, fares, etc.

Mr. Doran compared and illustrated the diagram in use in the railway and tramway services, and whilst the former was more intricate, both proved very interesting to members, and from a glance at the diagram at present in operation it must be admitted that the accuracy with which the timetables are compiled, speaks volumes for the great care and close attention bestowed on them by those who undertake this duty; special fitness in this branch of the service only being attained by years of careful training. It is true that occasional errors creep in, but when the thousands of figures dealt with are taken into consideration, coupled with the pressure brought to bear on those engaged in the work, the marvel is that they are compiled with so few mistakes.

*"Mr. Edward John Doran has been appointed Superintendent of Tramways, in succession to the late Mr. Kneeshaw. The appointment dates from today. Mr. Doran was formerly Assistant Tramway Superintendent, and he has acted in the capacity of Superintendent since Mr. Kneeshaw's resignation. For nearly 20 year's Mr. Doran has been in the service of the Tramway Department. Previously he served 16 years in the Railway Department.*

SMH 1-Apr-1914

Thanks to Ross Willson for providing this interesting paper.





# Selectric Rules OK?

How IBM changed the VR S-notice forever

Geoff Lambert

**H**OW TO MAKE QUICKLY, multiple copies of an ephemeral and low-volume notice—that was the question. That is to say—how to circulate circulars.

## The S-Circular

In Victorian Railways parlance, an *S-circular* was a notice of, and timetable for, the operation of a special train, or a number of them. The practice of issuing notices of various sorts (*A-circular*, *C-circular*, *S-circular*) dates back to well before the beginning of the 20th Century and continues unchanged to this day. Before the days of easy replication, such circulars were typeset— an expensive process for a evanescent and low-circulation document like an *S-Circular*.

## Typesetting

Typesetting is the composition of text by means of arranging physical type. Stored letters and other symbols are retrieved and arranged on a printing block, which is inked and impressed into the paper with a printing press. When railroads were invented this was the only feasible way to produce circulars— although the first train running circular in America was written by hand in as many copies as needed.

**Use by VR:** This method predated all others on the VR. A sample of such a circular is shown at upper right. This was, perhaps, a special case because it was for the opening of a line.

One way to circulate circulars was to make a "master" copy and to replicate it as needed. Typesetting was therefore not needed.

## Methods for hand-drawn notices

Many of the early duplicating process were invented before the typewriter. As such, they were used to duplicate hand-written and hand-drawn documents— in many instances by drawing or writing directly on to the master.

## Jelly Roll Morton

The Hectograph, gelatin duplicator or jellygraph is a printing process which involves transfer of an original, prepared with special inks, to a pan of gelatin or a gelatin pad pulled tight on a metal frame. The Hectograph was invented in Russia in 1869 by Mikhail Alisov. While the original use of the plate has faded, it has recently been revived for use in the art world.

**Use by VR:** I am unsure to what extent VR used Jellies, but Jack McLean said that they were used in the 1800s.

## Spirit Duplicator

I don't know what you think of when you smell Methylated Spirits, but I recall the classroom and the myriads of documents which flowed out of my school's "Spirit Duplicator". Bill Bryson, in his "*Thunderbolt Kid*" says its "literally intoxicating aroma" was the reason he went to school. My wife has a contrary opinion.

A spirit duplicator (also referred to as a Ditto machine in North America, Banda machine in the UK or Roneo in France and Australia) was a printing method invented in 1923 by Wilhelm Ritzerfeld and commonly used for much of the rest of the 20th century. The term "spirit duplicator" refers to the alcohols which were a major component of the solvents used as "inks" in these machines. Spirit duplicators were used mainly by schools, churches, clubs, and other small organizations because of the limited number of copies one could make from an original, along with the low cost and consequent low quality of copying.

**Use by VR.** VR definitely used this device for S-notices, especially when they had to be run off in a hurry. The first spirit-duplicated "S-notice" I ever saw was actually produced by Jack McLean, for his regular "Black Thursday" train-watching sessions at Spencer St.

## Cyclostyle and Gestetner

The Cyclostyle duplicating process is a form of stencil copying invented by David Gestetner in London in 1890. A stencil is cut with the help of small toothed wheels on a special paper underlaid with carbon paper (to serve as a printing form). Gestetner named the Cyclostyle after a drawing tool he used. In 1875 Thomas Edison received a patent for the "electric pen", which a decade later became the basis for the mimeograph machine. Gestetner's cyclostyle was similar and provided more automated and faster reproductions.

**Use by VR:** The use by VR of Gestetner machines for replicating hand-done Special Train Notices is unknown.

## Methods for replicating typescript

The first typewriter to be commercially successful was invented in 1868 by Americans Christopher Sholes, Carlos Glidden and Samuel W. Soule in Milwaukee, Wisconsin. This enabled easy production of typeset-like replicates.

**Use by VR:** It is unclear when VR acquired its first typewriters nor when it began to use them for preparing the masters for circulars.

S. 2770 H.

VICTORIAN RAILWAYS.

## S. 2628/11. Opening of Extension Beech Forest to Crowes.

Instead of the 1.30 p.m. Down Mixed on Mondays, Tuesdays, Thursdays and Saturdays from Colac to Beech Forest, the train will run as hereunder ON THESE DAYS:

DOWN	Mon. Tues.	Thurs. Sat.
Colac	Dep. 3.06	5.06
Falkb.	.. 3.27	.. 5.27
Corran	.. 3.48	.. 5.48
Barongarook	.. 3.49	.. 5.49
(Water)	.. 4.12	.. 6.12
Levat	.. 4.22	.. 6.22
(Water)	.. 4.31	.. 6.31
Gellibrand	Arr. 4.36	.. 12.45 p.m. Up
	Dep. 4.50	.. 5.40
Hanoel	.. 5.38	.. 6.28
Wimba	.. 5.55	.. 6.45
MacDevitt	.. 6.19	.. 7.09
Wesprotnah	.. 6.31	.. 7.21
Mitchley	.. 6.45	.. 7.35
Beech Forest	Arr. 6.45	.. 7.35

The 12.45 p.m. Up ex Crowes will run as hereunder daily :-

UP.	Daily 6.30
Crowes	Dep. 12.45
Beech Forest	Arr. 2.15
	Dep. 3.15
Mitchley	.. 4.15
Wesprotnah	.. 4.41
MacDevitt	.. 5.07
Wimba	.. 5.33
Hanoel	.. 6.09
Gellibrand	Arr. 6.42
	3 p.m. Down
	Dep. 4.50
Colac	Arr. 6.26

Stop when required to pick up or set down passengers.  
A crane for goods will not be provided at Crowes at present.  
Please strike out paragraph relative to this on S. 2628/11.

T. B. MOLOMBY, Supt. Pass. Train Service.  
C. MACAW, Gen. Supt. Transport.  
Spencer-street, Melbourne, 16th June, 1911. 1502.11



## Mimeograph

The stencil duplicator or Mimeograph machine, often abbreviated *mimeo* and often mistakenly muddled with the Gestetner, is a low-cost printing press that works by forcing ink through a stencil onto paper. Mimeographs were a common technology in printing small quantities, as in office work, classroom materials and train notices. My enduring memory of them is the correcting fluid. It looked and smelled like fingernail polish—which it probably was.

**Use by VR:** The use of mimeographs for replicating Special Train Notices was very common in Australia throughout the 20th Century. I have copies from all states except Victoria.

## Photocopying

George C. Beidler founded the Rectigraph Company in about 1906, producing the first photographic copying machines. In my day, photocopies were very poor quality, needing special paper and developing fluids and producing “grey-on-grey” outputs. Xerox cured all that.

**Use by VR.** Whether VR was ever tempted to use photocopying for S-circulars I do not know.

### Non-replicative methods

A number of “non-copy” methods of circulating notices were used, including telegraphs, telegrams telexes and facsimiles.

## Telegraph

The telegraph was used extensively to arrange the running of special trains put on at short notice. The Radstock accident on the Somerset and Dorset occurred to a Special notified only in this way. The lack of a written notice was one of the many contributing factors to this smash

**Use by VR:** Whether VR used this method is probably immaterial— one could not say that such a notice was “genuine” in the way that a paper notice was.

## Telegrams and Telexes

VR used “Service Telegrams” for train running information, (bottom right) but whether S-circulars were issued this way is unknown. Telexes began to be used by VR in the 1960s but, again their use for issuing train running notices is not well-documented.

## Fax

Scottish inventor Alexander Bain worked on chemical-mechanical fax type devices in 1846. The *Pantelegraph* was invented by the Italian physicist Giovanni Caselli. He introduced the first commercial telefax service between Paris and Lyon in 1865, some 11 years before the invention of telephones. The Pantelegraph was relatively slow; a sheet of paper with about 25 handwritten words, took nearly two minutes to transmit. The most common use of the Pantelegraph was for signature verification in banking transactions. It was a ridiculous way to reproduce S-circulars but a good way to distribute them— if you didn’t mind transmitting one per station.

**Use by VR:** VR came to the world of fax quite late and I do not know whether they ever used it to distribute S-circulars.

## Offset printing.

Offset printing or web offset printing is a common printing technique in which the inked image is transferred (or “offset”) from a plate to a rubber blanket, then to the printing surface. Development of the offset press came in two versions: in 1875 by Robert Barclay of England for printing on

tin, and in 1904 by Ira Rubel of the United States for printing on paper. The image was placed onto the plate by a photographic process. An advantage of offset printing was that one could use bond paper instead of the old rough-fibred, ink-absorbing “duplicator paper”. Copies were now high contrast, sharp and readable.

But, this was not the sort of printing that a railway like VR would use to print off a limited number of single-page train advices. It was not until a method of using a paper-plate for the master that this became feasible. In 1974, I had 10 copies of my 400-page Ph.D. thesis typed on a Selectric and replicated this way— at a cost of less than 5% of doing it on metal plates— and much more readable than making copies with carbon paper. I suspect, but I do not know, that VR quickly leapt upon it.

## Enter the Selectric

The IBM Selectric typewriter was a highly successful electric typewriter introduced in 1961. The Selectric keyboard layout was so influential that two decades later non-IBM personal computer keyboards slavishly imitated it. Mechanically, the Selectric borrowed some design elements from a toy typewriter produced earlier by Marx Toys. Type balls were available in many fonts, including symbols for science and mathematics. Popular fonts were sans-serif fonts described by IBM as “Elite”, “Adjutant” “Courier” (a VR favourite) and “Orator”. The Elite font was very similar to the Arial font of today such as Arial— the most common font used in V/Line circulars now—it retains the “look”. The ability to change fonts, combined with the neat regular appearance of the typed page, was revolutionary and marked the beginning of desk-top publishing.

The original Selectric had to be ordered to use either cloth reusable ribbon or one-time carbon film ribbon. With a carbon ribbon, any typist could produce a polished manuscript ready to go to print.

**Use by VR:** It was the combination of the type-ball with its interchangeable type-faces and the sharp “ready-to-print” quality of the carbon ribbon that so appealed to VR for its S-circulars. It is unclear when VR acquired its first Selectrics, but they appear to have been used from the mid-1960s. These were a great hit, as were the

S-circulars they produced. Remember that VR was still using steam locomotives and oil lamps in those days— it was good to have a circular one could read by the flickering yellow light from the firebox. S. 1522/65, for the Weedex train, shown at top left on page 19, is the earliest such that I have.

The VR S-circulars were a unique design and instantly recognisable. It was this unique appearance that probably led to the ingraining in peoples’ minds of “what a good S-circular should be”— a classic example of a “House-Style” - albeit probably a *de facto* one. One cannot help but notice that VR’s notices are a work of art compared with the pakapu tickets put out by ARTC and NSW RailCorp today—as illustrated on our pages 4 and 5.

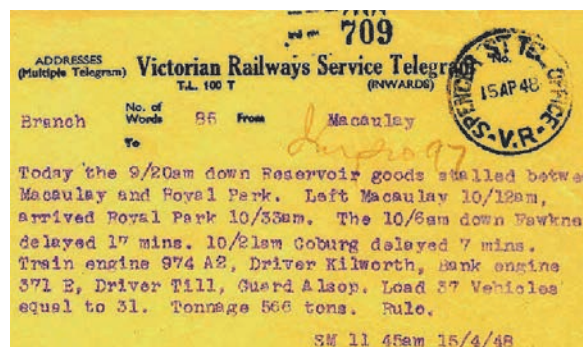
## Selectric at Puffing Billy

Puffing Billy has used traditional VR layout for ‘S’ Circulars since the 1980s when STNs were rebadged as ‘S’ Circulars. Since then the typeface used in the WTT has also changed to reflect an older VR WTT style. A more recent reversion to historic style has been in the last couple of years when the typeface used for ‘S’ Circulars was changed to that used by old manual typewriters (see our page 19— this is Courier).

## Post-Selectric

Desk-top computers, laser printers and distribution of S-notices by e-mail have revolutionised the production of S-Notices, but they have not altered the style at all. The style has persisted for half a century and was transferred intact to the computer age. You can’t get a much better endorsement than that. At top right on page 19 appears S.14/4006 for a Bunyip Test Train.

*Thou shalt not use Comic Sans* is the title of a design book which I own. It is a font devised by Microsoft for children’s computer toys. Its use on the front page of the Sydney Morning Herald in September 2014 caused a storm of controversy. S-notice S.14/6332 shows that Comic Sans is alive and well at V/Line. These days, S-Circulars are distributed as PDFs rather than paper copies. The fonts that come out of the end-user’s printer may not be the same fonts the compiler used- **Comic Sans** included!





S.152/65 VICTORIAN RAILWAYS S.1522/65

Office of Chief Traffic Manager,  
Room 71A, Phone 2126,  
23rd July, 1965.

MELBOURNE YARD - BACCHUS MARSH - BALLARAT - SKIPTON - ARARAT  
HAMILTON - COLEHAINE - CASTERTON - RENNICK - PORTLAND - HAMILTON -  
PORT FAIRY - MORTLAKE - TIMBOON - GEELONG - MELBNE YARD

S.1491/65 is cancelled instead a special weed poisoning train  
consisting of the following vehicles will operate as under:-

LOAD: 1 'Z' Brakevan, 1 'HW' Workmens Sleeper, 5 'WA' Poison Tankers  
(loaded), 1 'WZ' Spray Car Brakevan. Approximate weight 375 tons.

NOTE:- Speed of train whilst performing spray operations must not exceed  
20 M.P.H.

**MONDAY, 2nd AUGUST, 1965.**

DOWN -		A.M.
Melbourne Yard	dep	8.00 - T' Loco.
Sth. Kensington		8.18 - Spray to Ballarat
Tottenham Yard		8.33
Sunshine		8.38
Deer Park	arr	8.51 - 22; 192 Wk. Clr.
	dep	9. 2
Rockbank	arr	9.25
	dep	9.58 - Pol. 25
Melton		10.12
Farwan		10.33
Bacchus Marsh		10.45
Bank Box Loop		11.12
Ballan	arr	11.55 - 38; 24. Take water. P.M. (Meal)
	dep	1.20
Gordon		1.50
Bungaree		2.22
Warrenheip		2.48
Ballarat East		3. 3
Ballarat	arr	3.10 - 49; Take water. Detach (2 tankers.)

**TUESDAY, 3rd AUGUST, 1965.**

DOWN -		A.M.
Ballarat	dep	9.00 - 32; Spray to Skipton
Linton Junction		9.15
Newtown	arr	10.10 - E.R. Take water
	dep	10.40
Linton	arr	11.00
	dep	11. 5
		P.M.
Skipton	arr	12. 5 - Meal; E.R.
UP -		
Skipton	dep	1. 5 - Not spray to Ballarat
Linton	arr	2.20
	dep	2.25
Newtown	arr	2.50 - E.R.
	dep	3.00
Linton Junction		3.55
Ballarat	arr	4.10 - Take water; Attach 2 (tankers.)

(CONTINUED ON SECOND PAGE) *JW*

S.13/6446 S.13/6446

Network Planning  
Level 1  
Southern Cross Station  
Ph 9619 2197 GC  
9th December 2013

**SPECIAL VLOCITY TRANSFER TRAIN  
SOUTHERN CROSS - BOMBARDIER SIDING - BUNYIP -  
SOUTHERN CROSS  
THURSDAY 12TH DECEMBER 2013**

A Special Vlocity Transfer Train will operate as follows.

**DOWN 8591**

Southern Cross Yarddep		10 00 - Via No. 8A Track. - (Consist; VL 03)
Southern Cross		10 04*
		BV
Flinders Street	arr	10 08 - D (Platform No. 4)
	dep	10 09
		BL
Richmond Jun		10 13*
		CL
Caulfield		10 24* - Via No. 4 Plat
Oakleigh		10 33*
Westall		10 40*
Dandenong		10 51* - 4746
Bombardier Sdg	arr	10 54 - Stable

**UP 8592**

Bombardier Sdg		12 28 - (Consist 3VL 41)
Dandenong (Plat No. 3)		12 31 - 4239

**DOWN 8493**

Dandenong		12 36
Berwick		12 44*
Pakenham		12 53* - (Via Plat 1)
		N
Bunyip	arr	13 12 - 8420

**UP 8494**

Bunyip		13 17
		S
Pakenham		13 33* - (Via Plat 2)
Berwick		13 41*
Dandenong	arr	13 51 - D
(Platform No. 2)	dep	14 01 - 4008
Westall		14 09*
Oakleigh		14 16*
Caulfield		14 24* - Via Plat 3
		CL
Richmond Jun		14 33* - via BL
Flinders Street	arr	14 36*
(Platform No. 4)		

S.14/6322 S.14/6322

VLine Network Planning  
POD A Level 1  
Southern Cross Station  
Ph 9619 2512 AC  
29 August 2014

**3VL43 FOR WHEEL PROFILE AND RETURN"  
SOUTHERN CROSS - NEWPORT WORKSHOPS - SOUTHERN CROSS**

In connection with the above, Empty Vlocity's will operate to the schedules shown below:

**SATURDAY 30th AUGUST 2014**

**DOWN: 8581 3VL43**

Southern Cross Yard	Dep	07 03
Franklin St		07 05*
		TS
North Melbourne		07 06*
South Kensington		07 10*
Newport		07 17*
Newport Workshops	Arr	07 20 - Lathe

**UP: 8588 3VL43**

Newport Workshops	dep	15 15
Newport		15 20*
		TS
South Kensington		15 29*
		RRL
Spion Kop		15 32*
		F
North Melb Flyover		15 33*
Franklin Street		15 34*
Southern Cross Yard	arr	15 36

LOAD: Sat 8581 = 3VL43  
Sat 8588 = 3VL43

TRAIN CREW: TO VERIFY CONSIST WITH PASS YARD FOREMAN PRIOR TO DEPARTURE  
PLEASE NOTE: CONSIST OF LOCOMOTIVES OR CARRIAGES. MAY ALTER PENDING AVAILABILITY  
ON DEPARTURE.

RESOURCE CONTROL OFFICER TO ARRANGE FOR THE ABOVE TRANSFER. WORKFORCE  
CONTROL OFFICER TO ENSURE THE TRAIN CREW RECEIVE A COPY OF THIS CIRCULAR.  
All concerned to note and arrange.

JUDITH STURMAN  
EXECUTIVE GENERAL MANAGER SERVICE DELIVERY  
PER:

S.178/2013 PUFFING BILLY RAILWAY S.178/2013

Distribution: Belgrave to Lakeside & Admin. Office of Traffic Manager 24th December 2013

**BELGRAVE - LAKESIDE  
TUESDAY 31<sup>ST</sup> DECEMBER 2013  
OPERATION OF A CHARTER TRAIN**

On the above date, in addition to the Working Time Table (Time Table G),  
a Charter Train [L3127/B3128] will operate for the Puffing Billy  
Preservation Society, as shown below.

**DOWN**

Train No.		L3127
Class		Pass.
Time		P.M.
Belgrave	dep	7.15
Menzies Crk	arr	7.43
	dep	7.46-SW
Emerald	arr	-
	dep	8.04*
Nobelius Sdg.	arr	8.08
	dep	8.20
Lakeside	arr	8.28

**UP**

Train No.		B3128
Class		Pass.
Time		P.M.
Lakeside	dep	8.50
Nobelius Sdg.	arr	9.00
	dep	11.15
Emerald	arr	-
	dep	11.19*
Menzies Crk	arr	11.34
	dep	12.20
Belgrave	arr	12.45

NOTE SW: Train only stops for safeworking purposes and may depart  
earlier than shown if all safeworking requirements are  
complete.

Charter Train Consist: 5NED, 1NAL, 3NAL, 2NAL, 4NAL, 2NBC-Loco.

All concerned to note and arrange.

Prepared by: Belinda McKenzie  
Reviewed by: Jean Clowes

B. McKenzie,  
Traffic Manager

# No need for a timetable?



## Services are so frequent that you just need to turn up and go, the light rail doesn't run to a timetable

Sydney Light Rail is a frequency based service.

- Services operate between Central and Dulwich Hill from 6am to 11pm Sunday to Thursday, and 6am to midnight on Fridays and Saturdays.
- Services operate every 10 minutes at peak times (7am to 10am and 3pm to 6pm). Services operate every 15 minutes at non-peak times (10am to 3pm and after 6pm).
- Services between The Star and Central operate 24 hours a day.

For next service information, simply check the passenger information displays for details of next service to arrive at your stop. Alternatively to pre-plan your trip, use the **trip planner** for approximate service times.

For current service status information including details of any service disruptions, visit [transportnsw.info](http://transportnsw.info).

For light rail fare information including zone details, visit [transportnsw.info](http://transportnsw.info).

**From 1 September**

**14 tickets  
no longer sold**



[View our travel policy »](#)

