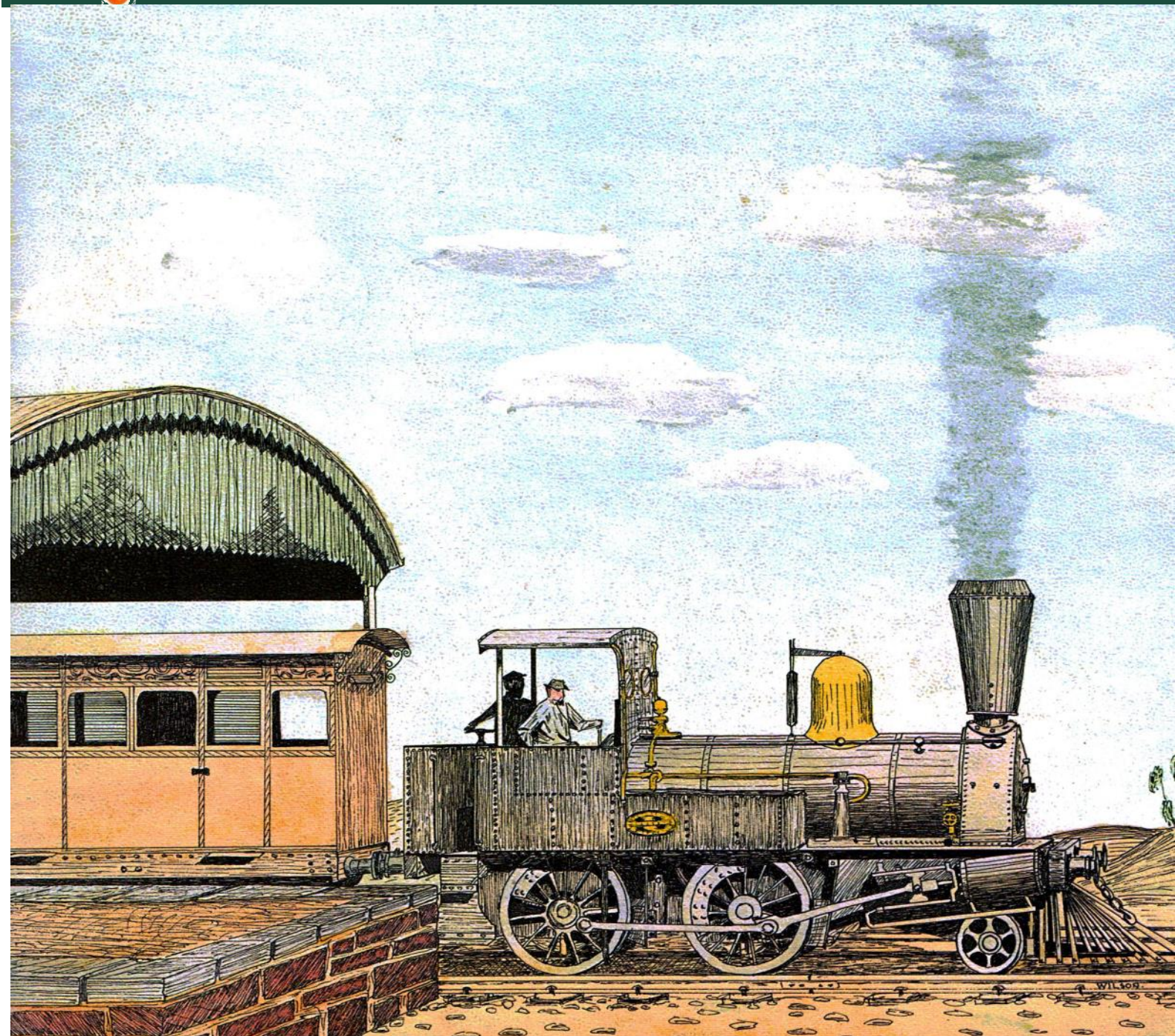


The Times

February 2017

A journal of transport timetable history and analysis



**Inside: Australia's earliest railway timetables
615 Delays**

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Australia's First Railway Timetables

GEOFF LAMBERT

IT WAS NEARLY THIRTY YEARS hence when steam railways arrived in Australia. In that thirty years, Mr. Bradshaw had invented the idea, and had then established the practice, of “*railway timetables*”. Hence, by 1854, when the first train ran to Port Melbourne, the newspapers of the day felt no need to define the words “time table”. They had even come to grips with the terms “Up train” and “Down train”.

As far as can be ascertained, the only surviving copies of Australia's inaugural railway timetables are to be found in newspapers. We know from these newspapers (digitized by the National Library of Australia*) that printed copies of time tables were usually produced from the start— both as handbills and wall-sheet timetables. In at least one case, special memento timetables, “printed on satin” were presented to high officials, such as Governors and their ladies.

This month, I take a look at the first timetables for the first passenger-carrying railways in each state except Western Australia. [Of the latter state, we know that such timetables were produced, because a bout of criticism of them broke out even before the first train chuffed away. However, no copies seem to exist, nor did the newspapers of the day see fit to reproduce one. The WA Government Gazette quite later

published timetables, but the only scanned copy I have seen is totally unusable.]

For each opening timetable, I have tried to give also the timetabling of the trains on Opening Day. Vast crowds turned up at the origin station (usually at the city terminus) and all wanted to travel to the other terminus, where the festivities took place. Where reports can be deciphered, the extent of the opening day timetables is shown in the text.

The festivities, it need hardly be said, were worth attending— not least for the never-ending toasts that were drunk to the new railway (at least a dozen in some instances). All of these Merry Gentlemen needed to be returned to their starting points but the timetables for these seem hazier, doubtless they were so in the minds of the reporters. In Tasmania, however, heads remained clear from the befuddling effects of the demon drink.

While the toasting was going on, the hoi polloi were allowed to travel back and forth on shuttle trains, but the number of these was not always recorded because the newspaper reporters were themselves busily taking notes and participating in the festivities.

* A note on newspaper digitization.

The National Library of Australia (NLA) was one of the first major libraries in the world to begin digitizing and indexing historical paper copies of newspapers. The NLA process goes by the name of Trove and now involves a lot more than newspapers.

The NLA consulted widely when this process was being set up. I was part of the testing team and am still one of those correcting the Optical Character Recognition (OCR) translations of the images. Unfortunately, for reasons that are not clear to me, Trove chose to capture images as low resolution colour images and to store the images in JPEG files. It still does so, despite the feedback from we in the testing team. This is just about the worst possible combination one could have chosen. Other libraries (and Google News) scan in black and white and use lossless formats such as GIF and TIFF.

For this reason, the timetables shown here had to be translated by eye. A classical case is our first timetable— the Melbourne and Hobson's Bay initial timetable, as it appeared on Trove after digitization of *The Argus*. Google has digitized *The Age* and the first timetable they have digitized appeared alongside the Trove version.

For each Trove version, I show also my hand-translation on the page opposite the Trove version.



MELBOURNE AND HOBSONSBAY RAILWAY.
 The Company intend to open the line to the
 Melbourne wharf, the 17th day of September inst.,
 for the conveyance of Passengers and their Luggage
 between Raglan Street and Sandridge, at the following
 hours, viz. —

From Raglan Street at		From Sandridge Station at	
P. M.	A. M.	P. M.	A. M.
8 45	9 15	8 30	9 00
9 15	9 45	9 00	9 30
9 45	10 15	9 30	10 00
10 15	10 45	10 00	10 30
10 45	11 15	10 30	11 00
11 15	11 45	11 00	11 30
11 45	12 15	11 30	12 00
12 15	12 45	12 00	12 30
1 45	7 15	1 30	7 00
9 15	7 45	9 00	7 30
9 45	8 15	9 30	8 00

On Monday no trains will run between 10 15 a.m. and 1 30 p.m.

The fare for every adult passenger will be one shilling, the same in each way. Children 3 years of age and under 10 years, travel at half price, and under 2 years free.

Every exertion will be made to obtain rapid punctuality in the time of departure of each train. The door of the booking office will be closed 5 minutes before the hour named for starting, and no person can then be admitted until that train has left.

Printed time tables will be exhibited in the booking office, and copies can be had on application there, containing the hours of starting, the fares to be paid, and the bye laws, rules, and regulations under which the traffic will be conducted, and which will be strictly enforced.

By order of the Directors,
 J. H. WATSON, Manager.

MELBOURNE TO RAGLAN STREET AND SANDRIDGE.

Melbourne, departure: 8.15, 8.45, 9.15, 9.45, 10.15, 10.45, 11.15, 11.45, 12.15, 12.45, 1.15, 1.45, 2.15, 2.45, 3.15, 3.45, 4.15, 4.45, 5.15, 5.45, 6.15, 6.45, 7.15. Saturdays only: 11.30.

Raglan street, departure: 8.20, 8.50, 9.20, 9.50, 10.20, 10.50, 11.20, 12.20, 12.50, 1.20, 1.50, 2.20, 2.50, 3.50, 4.20, 4.50, 5.20, 5.50, 6.20, 6.50, 7.20. Saturdays only: 11.35.

Sandridge, arrival: 8.25, 8.55, 9.25, 9.55, 10.25, 10.55, 11.25, 11.55, 12.25, 12.55, 1.25, 1.55, 2.25, 2.55, 3.25, 3.55, 4.25, 4.55, 5.25, 5.55, 6.25, 6.55, 7.25. Saturdays only: 11.40.

SANDRIDGE AND RAGLAN STREET TO MELBOURNE.

Leave Sandridge at 8.0, 8.30, 9.0, 9.30, 10.0, 10.30, 11.0, 11.20, 12.0, 12.30, 1.0, 1.30, 2.0, 2.30, 3.0, 3.30, 4.0, 4.30, 5.0, 5.30, 6.0, 6.30, 7.0. On Saturdays only a train will leave, at 11.45, p.m.

Leave Raglan street at 8.5, 8.35, 9.5, 9.35, 10.5, 10.35, 11.5, 11.35, 12.35, 1.5, 1.35, 2.5, 2.35, 3.5, 4.5, 4.35, 5.5, 6.35, 6.5, 6.35, 7.5. On Saturdays only a train will leave at 11.50 p.m.

Arrive at Melbourne at 8.10, 8.40, 9.10, 9.40, 10.10, 10.40, 11.10, 11.40, 12.10, 12.40, 1.10, 1.40, 2.10, 2.40, 3.10, 3.40, 4.10, 4.40, 5.10, 5.40, 6.10, 6.40, 7.10. On Saturdays only a train will leave at 11.55 p.m.

MELBOURNE AND HOBSONSBAY RAILWAY



MELBOURNE AND HOBSON'S BAY RAILWAY.

The Company intend to open the line to the Public on Wednesday, the 13th day of September inst., for the conveyance of Passengers and their Luggage between Flinders St and Sandridge, at the following hours, viz. :—

From Flinders street at		From Sandridge Station at	
H M	H M	H M	H M
8 45 A M	3 15 P M	8 30 A M	3 0 P M
9 15 ———	3 45 ———	9 0 ———	3 30 ———
9 45 ———	4 15 ———	9 30 ———	4 0 ———
10 15 ———	4 45 ———	10 0 ———	4 30 ———
10 45 ———	6 15 ———	10 30 ———	5 0 ———
11 15 ———	5 45 ———	11 0 ———	5 30 ———
11 45 ———	6 15 ———	11 30 ———	6 0 ———
12 15 P M	7 45 ———	12 0 ———	6 30 ———
1 45 ———	7 15 ———	1 30 P M	7 0 ———
2 15 ———	7 45 ———	2 0 ———	7 30 ———
2 45 ———	8 15 ———	2 30 ———	8 0 ———

On Sunday, no trains will run between 10 15 a m. and 1 30 p m.

The fare for every adult passenger will be one shilling and sixpence each way. Children, 3 years of age and under 10 years, travel at half price, and under 3 years free.

Every exertion will be made to obtain rigid punctuality in the time of departure of each train. The door of the booking office will be closed five minutes before the hour named for starting, and no person can then be admitted until the train has left.

Printed time tables will be exhibited in the booking office, and copies can be had on application there, containing the hours of starting, the fares to be paid, and The Bye-law, rules, and regulations under which the traffic will be conducted, and which will be strictly enforced.

By order of The Directors

J. B. WATSON, Manager.

Melbourne and Hobson's Bay Railway

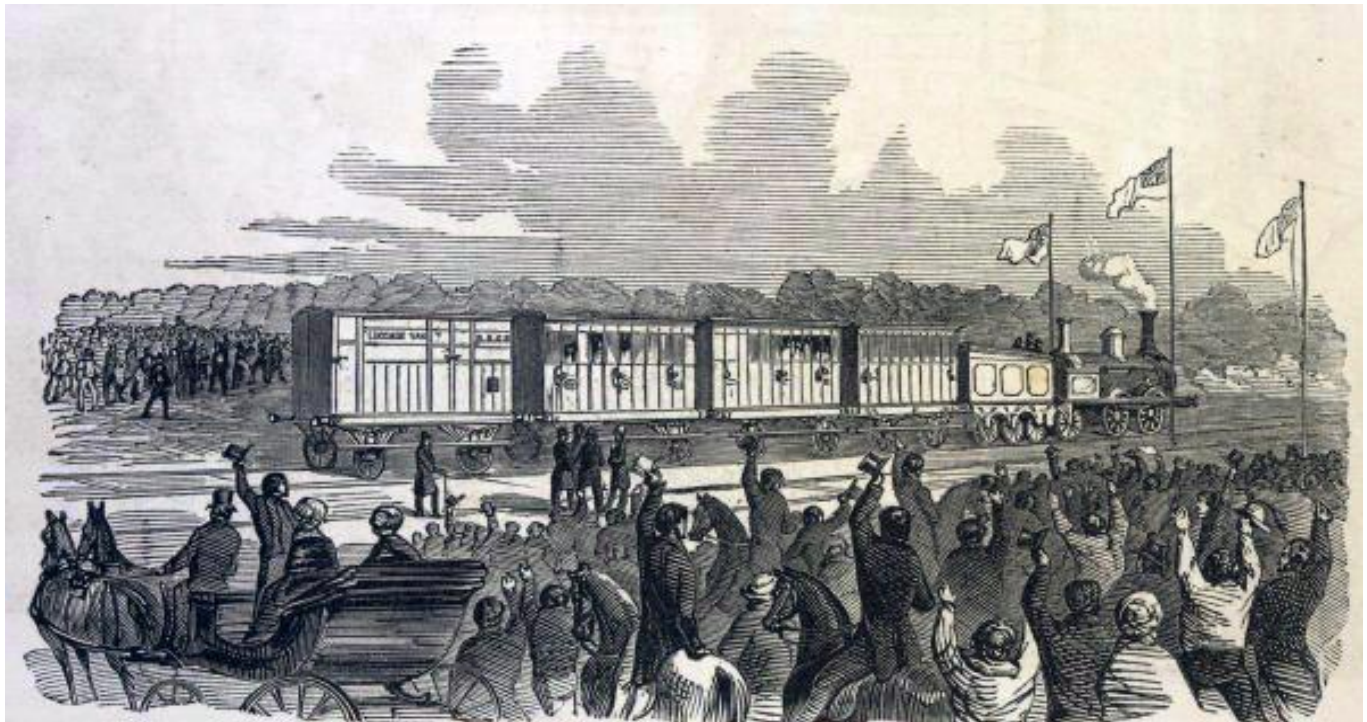
ON OPENING DAY, guests were conveyed to the Engine Shed ("an enormous hall of zinc") at the startling speed of 15 miles per hour by the "first locomotive ever constructed in the Southern Hemisphere."

Copies of the bye-laws and of the time table printed upon satin were presented to His Excellency. Sir Charles and

Lady Hotham were then conducted to one of the carriages and all the three carriages were speedily laden with their full complement. An open third class carriage, next to the locomotive, contained the band of the 40th regiment. The first train on the new railway started at twenty minutes past twelve, amid the music of the band and the cheering and waving of hats of the innumerable spectators.

It took three trips to assemble all the guests for the banquet. Well lubricated by nearly a dozen toasts by the end of the festivities, it took three more trips to get them all back to Flinders Street.

Regular services commenced on the 13th September, 1854. The first known timetable for this service had appeared two days earlier in *The Argus*.



RAILWAY FROM SYDNEY TO PARRAMATTA.—Notice is hereby given that the railway from Sydney to Parramatta will be opened to the public **THIS DAY, the 16th September.**

Special Trains will leave Sydney on that day
 At 9 11 12 a.m., and
 At 1 4 5 and 6 p.m.
 And Parramatta
 At 10 2 3 4 and 5 30

Fares :
 First class 6s. (four shillings)
 Second class 4s. (three shillings)
 Third class 2s. (two shillings).

The Trains of this day will not stop at any of the intermediate stations.
 No person will be admitted upon the platform except passengers for train.

By order of the Commissioners,
CHARLES J. HEALING, Secretary.

SYDNEY and PARRAMATTA RAILWAY.—

The following hours have been fixed for the starting of the trains on the Sydney and Parramatta Railway, from **THURSDAY, 17th instant, to WEDNESDAY, 6th October next.**

From Sydney	6	From Parramatta	7
	8		9
	10		11
	12		1
	2		3
	4-11		6-15

O: Sundays trains will leave
 Sydney 9 Parramatta 10
 11
 12

For times of starting from the intermediate Stations see printed Time Tables.
 By Order of the Commissioners,
CHARLES J. HEALING, Secretary.

Sydney-Parramatta Railway

A FEW YEARS AGO, the ARHS contacted me asking whether I had access to a copy of the handbill timetables that were handed out on the opening of the Sydney-Parramatta railway. I did not and, so far as I can determine, none have turned up since.

The official timetable for opening day appears below. Notice the use of “12 AM” for midday. On the day, according to the *Sydney Morning Herald*, trains were “despatched” at 9AM, 11:20AM (the official opening train; it started 20 minutes late) and then “at intervals”. On the return journey, trains left at about 10AM (this was the return of the 9AM down), at 3PM (for the Governor General to return to “town” and then again “at intervals”,

most such trains running about an hour late. There is no mention in the report of a 2pm Up train. There were obviously two train sets in use because the crowd pushed on to the 10 am return service from Parramatta. They had mistaken this for the Official Train and had to be “cleared out”, in the words of the SMH. The real thing came along shortly thereafter.

The total number of tickets issued on the day was 3554 (1874 from Sydney; 1680 from Parramatta), reaping an income of £220.

Regular passenger service, as shown in the second panel below, consisted of a train every two hours from either terminal. It would seem that this was a “shuttle” requiring only one car set and one locomotive. The other locomotive could be—and possibly was—used for goods train services, although

there appears to be no mention of this in contemporary reports. There were, as can be seen from the footnote, “Printed Time Tables”. These are probably the same as the ARHS’ “handbills”.

No “Working” Timetable for this railway, earlier than 1874, appears to have survived, so it is impossible to get a clear picture of the line. The Government Gazette appears not to have bothered with “time tables” until about 1858, at which time the line was open to Campbelltown. The service to Campbelltown was then:

- 4 Passenger
 - 1 Mixed
 - 1 Mixed Goods, and
 - 1 “Passenger Mail”
- per day.

RAILWAY FROM SYDNEY TO PARRA- MATTA—

Notice is hereby given that the railway from Sydney to Parramatta will be opened to the public THIS DAY, the 26th September.

Special Trains will leave Sydney on that day

At 9 11 12 a.m., and

At 4.45 and 6 p.m.

And Parramatta At 10 2 3 4 and 6.50

Fares :

First class;..... 4s. (four shillings)

Second ditto3s. (three shillings)

Third ditto2s. (two shillings).

The Trains of this day will not stop at any of the intermediate stations.

No person will be admitted upon the platform except passengers per train.

By order of the Commissioner,
CHARLES J. NEALDS, secretary.

SYDNEY and PARRAMATTA RAILWAY.-

The following hours have been fixed for the starting of the trains on the Sydney and Parramatta Railway, from THURSDAY,

27th instant, to WEDNESDAY, 31st October next.

From Sydney 6 From Parramatta 7

8 9

10 11

12 2

3 4

5.15 6.15

On Sundays trains will leave

Sydney 9 Parramatta10

2 3

4 5

For times of starting from the intermediate Stations see printed Time Tables.

By Order of the Commissioners
CHARLES J. NEALDS Secretary

TIME TABLE OF ARRIVAL AND DEPARTURE OF TRAINS FROM IPSWICH TO BIGGERS' CAMP.

PASSENGERS, AND MAIL TRAINS, AND PARCELS.

Leave Ipswich, at 10 a.m.

Arrive at Walloon, at 10.40 a.m.

Arrive at Biggers' Camp, at 11.20 a.m.

Leave Biggers' Camp, on arrival of Mail from Toowoomba, at 1 p.m.

Arrive at Walloon, at 1.40 p.m.

Arrive at Ipswich, at 2.20 p.m.

MIXED TRAIN (PASSENGERS AND GOODS.)

Leave Ipswich, at 7 a.m.

Arrive at Walloon, at 7.40 a.m.

Arrive at Biggers' Camp, at 8.30 a.m.

Leave Biggers' Camp, at 4.30 p.m.

Arrive at Walloon, at 5.20 p.m.

Arrive at Ipswich, at 6 p.m.

A. O. HERBERT,

Commissioner for **Railways.**

Railway Department, 17th June, 1885.



TIME TABLE OF ARRIVAL AND DEPARTURE OF TRAINS FROM IPSWICH TO BIGGES' CAMP.

PASSENGERS, AND MAIL TRAINS, AND PARCELS.

Leave Ipswich, at 10 a.m.

Arrive at Walloon, at 10.40 a.m.

Arrive at Bigges' Camp, at 11.20 a.m.

Leave Bigges' Camp, on arrival of Mail from Toowoomba, at 1 p.m.

Arrive at Walloon, at 1.40 p.m.

Arrive at Ipswich, at 2.20 p.m.

MIXED TRAIN (PASSENGERS AND GOODS.)

Leave Ipswich, at 7 a.m.

Arrive at Walloon, at 7.40 a.m.

Arrive at Bigges' Camp, at 8.30 a.m.

Leave Bigges' Camp, at 4.30 p.m.

Arrive at Walloon, at 5.20 p.m.

Arrive at Ipswich, at 6 p.m.

A. O. HERBERT,

Commissioner for Railways.

Queensland Railways, 1865

ON THE SATURDAY AFTERNOON before the opening (which was on Monday 6th August), the weight-bearing properties of the bridge at Ipswich were tested, in the presence of a large number of spectators. Between three and four o'clock, an engine and tender came over for the first time, conveying the Minister for Lands and other gentlemen. Shortly afterwards, the real test was applied, an engine with trucks attached, carrying a weight estimated at eighty tons, the results showed that the deflection was only five-eighths of an inch. A train also ran that day to carrying navvies to the scene of their future labors—the tunnelling work at the Little Liverpool Range. A large number of persons unconnected with the works also accompanied the train, which was very long and heavy. On Sunday evening, a train from Bigges' Camp conveyed a large number of persons who had arrived during the

day from Toowoomba and other parts of the Darling Downs, and the intermediate stations.

On Opening Day, four trains were scheduled:

- The first one left the terminus at the appointed hour, ten o'clock, and arrived at Bigges' Camp at six minutes past eleven;
- The second left Ipswich at twenty minutes past ten, and arrived at twenty minutes to twelve;
- The third left at twenty-one minutes to eleven, and arrived at a quarter past one;
- The fourth, which conveyed his Excellency the Governor, Lady Bowen, the Ministry and the Members of both Houses of Parliament, and Sir W. Manning, of New South Wales, left at 11 o'clock, and arrived at Bigges' Camp at 20 minutes past 1.

With charity, one might describe train #3 as a "Pilot Train" for the "Vice-Regal Train" which followed uncomfortably closely behind.

The opening ceremonies occupied several hours and at least a dozen toasts. A goodly proportion of the speeches addressed the still-festering sore of the gauge of the line, which several speakers suggested was too narrow at 3'6". The opponents of this notion pooh-poohed the idea of a Standard Gauge line on the basis of cost and of difficulty of working the planned extension to Toowoomba. This is still a hot topic in 2017.

At the conclusion of these toasts, the well-sozzled party was poured into the carriages and the company returned to Ipswich, the whole of the trains arriving in that town before 6 o'clock in the evening.



ADELAIDE CITY AND PORT RAILWAY. TIME TABLE.

ON and after the 21st April the Trains will be despatched, until further notice, as follows:—

DOWN TRAINS.	1.	2.	3.	4.	5.	6.
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Adelaide, Departure	7 45	9 15	10 45	12 30	3 0	5 30
Bowden, ditto	7 52	9 22	10 52		3 7	5 37
Woodville ditto	8 3	9 33	11 3	Exp.	3 18	5 45
Alberton ditto	8 11	9 41	11 11		3 26	5 56
Port, Arrival.....	8 15	9 45	11 15	12 55	3 30	6 0

UP TRAINS.	1.	2.	3.	4.	5.	6.
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Port, Departure	8 30	10 0	11 30	2 30	4 0	6 15
Alberton ditto	8 34	10 4	11 34		4 4	6 19
Woodville ditto	8 42	10 12	11 42	Exp.	4 12	6 27
Bowden ditto	8 53	10 23	11 53		4 23	6 38
Adelaide, Arrival....	9 0	10 30	12 0	2 55	4 30	6 45

THE OPENING OF THE PORT Railway in Adelaide on Saturday 19th April 1856 was accompanied by such a gushing of words in so many newspapers, that it is difficult for the researcher to tease out what trains ran on the day. It was recorded however, that 15,000 people had already used the trains out of curiosity before the line had opened officially.

There appears to have been but one train on Opening Day, which, after a false start, ran satisfactorily to and from Port.

The papers, however, gave excruciating details of the running of trains in the following days. A sample follows.

“It would be ungracious to commence finding fault so early; reasonable time must be allowed for the numerous persons engaged upon the Railway to become perfectly au fait at their duty, and some little experience may be requisite even for “heads of departments”— using a courtly phrase—to test and complete their arrangements.

It is impossible, however, to pass by the fact that most of the trains were lamentably behind time—not five or six minutes, but in some cases as much as fifteen and even forty-five minutes.

For the first day, and even if needful for a day or two more, every allowance will be made by the public, but it must not be forgotten that one principal object of the Railway is the economy of time, and this cannot be effected without perfect punctuality. It matters little to a passenger whether he has been forced into the breach of an appointment by the train having travelled slowly or by its not having left the station at the proper time. The delays, we believe, were partly occasioned by each train having to await the feeding of the engine, which had just arrived with the carriages from the other end. Thus, as only a quarter of an hour is allowed for the operation, the arrival of one train a few minutes too late must of course throw out the arrangements of the whole for the day. If a second engine were kept in readiness, this difficulty would be removed.

One erroneous arrangement which had

crept into the time-table we need only mention, as it is corrected in this day’s advertisement. The up train, No. 4 (express) was appointed to start from the Port at 2.30., arriving in Adelaide at 2.55. The time for the down train, No. 5, is 3 o’clock, allowing only five minutes for the feeding of the engine. In future the express train will leave the Port at 2 o’clock, and arrive in Adelaide at 2.25.

The travelling on Monday was open to no particular comment. The trains mostly performed their journeys within the time allowed, and the express train neither down nor up occupied so much as 20 minutes. It was found necessary to send down an extra train on Tuesday evening with goods, consisting, for the most part, of flour for shipment to Melbourne *per* Havilah. A nearer approach to punctuality was made than on the previous day. A very small commencement appears to have been made in the carriage of goods. There were, however, several waggons brought to town in the course of the day, and three, very heavily laden, formed part of the last train.”

ADELAIDE CITY AND PORT RAILWAY TIME TABLE

On and after the 21st April the trains will be
despatched, until further notice, as follows:-

DOWN TRAINS	1.	2.	3.	4.	5.	6.
	h m	h m	h m	h m	h m	h m
Adelaide, Derparture	7 45	9 15	10 45	12 30	3 0	5 3
Bowden, ditto	7 52	9 22	10 52		3 7	5 37
Woodville ditto	8 3	9 32	11 3	Exp.	3 18	5 45
Alberton ditto	8 11	9 41	11 11		3 26	5 56
Port, Arrival.....	8 15	9 45	11 15	12 55	3 30	6 0
UP TRAINS	1.	2.	3.	4.	5.	6.
	h m	h m	h m	h m	h m	h m
Port, Departure.....	8 30	10 0	11 30	2 30	4 0	6 15
Alberton ditto....	8 34	10 4	11 34		4 4	6 19
Woodville ditto....	8 42	10 12	11 42	Exp.	4 12	6 27
Bowden ditto....	8 53	10 22	11 53		4 23	6 38
Adekaide, Arrival....	9 0	10 30	12 0	2 55	4 30	6 45

SUNDAY TRAINS

CALLING AT ALL INTERMEDIATE STATIONS

To leave Adelaide at9 15 a.m. and 5 0 p.m.

To leave Port Adelaide at ..10 0a.m. and 5 45 p.m.

TIME TABLE

LAUNCESTON & WESTERN RAILWAY.

FIRST AND SECOND CLASS PASSENGERS AND GOODS,
DOWN.

STATIONS.	Miles.	1	2
Launceston		A.M.	P.M.
Launceston		8.0	4.30
St. Leonards	4	8.5	4.39
Broadbent	7½	8.19	4.49
Evandale Road	11½	8.31	5.1
Ferth	14	8.43	5.19
Longford	17½	8.55	5.29
.....		8.10	5.39
Bishopscleeve	24½	9.15	5.45
Oaks	26½	9.25	5.55
Glenore	28½	9.35	6.05
Hagley	31½	9.45	6.5
Westbury	35	9.59	6.19
Exton	41½	10.5	6.35
Deloraine	45	10.15	6.45

UP.

STATIONS.	Miles.	1	2
Deloraine		A.M.	P.M.
Deloraine		7.30	4.5
Exton	4½	7.44	4.14
Westbury	10	8.1	4.31
Hagley	13½	8.15	4.45
Glenore	16½	8.24	4.54
Oaks	18½	8.30	5.5
Bishopscleeve	25½	8.35	5.5
Longford	27½	8.55	5.25
.....		9.0	5.30
Ferth	29½	9.9	5.38
Evandale Road	33½	9.19	5.49
Broadbent	37½	9.30	6.0
St. Leonards	41	9.40	6.10
Launceston	45	9.50	6.20



TIME TABLE LAUNCESTON & WESTERN RAILWAY

FIRST AND SECOND CLASS PASSENGER AND GOODS DOWN.

STATIONS	Miles	1	2
		A.M.	P.M.
Launceston.....Dep		8.0	4.30
St. Leonards.....A	4	8.9	4.39
Breadalbane.....A	7¼	8.19	4.49
Evandale Road.....	11¼	8.31	5.1
Perth.....	14¾	8.42	5.12
Longford.....Arr.	17¼	8.50	5.20
“.....Dep.		8.55	5.25
Bishopsbourne.....A	24¼	9.15	5.45
Oaks.....A	26½	9.20	5.50
Glenore.....A	28¾	9.26	5.56
Hagley.....A	31¼	9.35	6.5
Westbury.....	35	9.49	6.19
Exton.....A	41½	10.6	6.26
Deloraine.....	45	10.15	6.45

UP.

STATIONS	Miles	1	2
		A.M.	P.M.
Deloraine.....Dep		7.35	4.5
Exton.....A.	3½	7.44	4.14
Westbury.....	10	8.1	4.31
Hagley.....A.	13¾	8.15	4.45
Glenore.....A	16¾	8.24	4.54
Oaks.....A	18½	8.30	5.0
Bishopsbourne.....A	20¾	8.35	5.5
Longford.....Arr.	27¾	8.55	5.25
“.....Dep.		9.0	5.30
Perth.....	30¼	9.8	5.38
Evandale Road.....	33¾	9.19	5.49
Breadalbane.....A	37¾	9.30	6.0
St Leonards.....A	41	9.40	6.10
Launceston.....	45	9.50	6.20

Launceston & Western Railway, 1871

ON OPENING DAY, 10th February 1871, two trains ran from Launceston to Deloraine on the following (approximate) timetables

Launceston dep	10:15am	10:30am
Deloraine arr	12:15pm	1:00pm
Deloraine dep	1:55pm	2:05pm
Launceston arr	3:55pm	4:25pm

The first train was nominally an Express, but had to stop several times for water. The second train was described as

stopping at all "stations on the route". A train later ran from Launceston back to Deloraine at 5:30pm, to return travellers who had arrived from the latter by Train No.2.

At the opening, it was planned to run a service of three double-headed services per day each way. A timetable for this—to serve a three-day Launceston Race Meeting—was the first Public Time Table that I can find and was published on Opening Day. It was quickly realised that this was a tad excessive and so the service soon settled down to two services per day (number of engines not specified). The timetable

shown opposite was published in the Launceston Examiner of 25th February and I have taken it to be the first "regular" service to appear in a printed time-table.

Trains on this single line started (more or less) simultaneously from each end in the morning and late afternoon. These services crossed at Longford.

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How a minor problem led to 615 delays

From *New York Magazine* February 2016

EVERY WEEKDAY MORNING, in a triumph of hope over experience, Alphonso Reyes, a 34-year-old patient-services representative at NYU College of Dentistry, leaves his apartment in the Bronx extra early to allow himself an added cushion of time to make it into the city. His office frowns on lateness—he's found it's often better just to take an impromptu personal day if he can't make it in on time—and on Fridays, when his day starts at 8:30 a.m., he boards the 4 train at 183rd Street in Fordham as early as 6:30 a.m. The platform is already filling up by then with people who, like him, know that a one-hour trip into the center of town can sometimes take double the time. On a good day, if he's early enough, he takes himself out for breakfast.

Friday, October 16, was not a good day. "The 4 was running fine till it got to like 149th, then a little slow," he says. "Then at 125th, it just shut down. It sat there at the station with the doors open for like 15 minutes." The 6 was across the platform. "I thought, Maybe I'll take that." Wrong choice. The 4 train left, and the 6 train just stayed there.

What Reyes didn't know was that a cascade of problems beginning at 14th Street was about to affect the mornings of hundreds of thousands of passengers, delaying, canceling, or redirecting 625 different trains and making October 16 the worst day, in terms of the longest cumulative delay, that the MTA had last year. But while the day may have been exceptionally bad, in many ways it was all too typical: subway workers file some 250 incident reports each day — broken tracks, failed equipment, sick passengers, fights. They're in a constant race against not just aging infrastructure but climbing ridership. So far, they've been able to stay one step ahead, doing repairs and installing new technology just fast enough for the trains to stay in motion. But it's a precarious system, one that can — and does — break down.

By virtually any standard, we're in the midst of a delay crisis. During the dark ages of the subway — the late '70s, before a capital program rescued it from crumbling entirely — the system had about 320,000 recorded delays a year. From March 2013 through March 2014, according to the New York State Comptroller's most recent audit, that number was 498,889. On bad days, the delays add up to a point of no recovery. On good days, it's just plain bad.



There are a few parts of the New York City subway that can literally chew you up alive, and the 14th Street–Union Square station is one of them. From above, the downtown Lexington-line platform in Union Square is a long, flat, metal-mouthed monster: A train pulls in, the steel jaws of a moving platform extend to close a gap between it and the platform; the jaws retract, a train leaves. The "gap fillers," as they're called, were devised after a 1910 renovation of the Union Square station lengthened the curved downtown platform to accommodate longer trains. They've been updated over the years, but like much of the subway system, they're a little hinky. In 2010, a man fell in the gap just before the metal jaws extended, and his torso was crushed by the grates. (He survived.)

On October 16, just before 7:05 a.m., a downtown 6 train—the 0620, named for its departure time from Parkchester station, ten miles away—pulled into Union Square. The jaws extended, closing the gap; the doors opened; some passengers got off and others got on. But when the doors closed, one set of jaws—"gap filler No. 6"—did not retract, which meant the train was stuck.

The train's operator called in to the Rail Control Center, the MTA's mission control, located on a high floor of a skyscraper in midtown. Unlike much of the MTA's century-old infrastructure, it's modern looking, with a bit of a Star Trek vibe,

ludicrously high ceilings, and lots of people on computer consoles staring at large screens. RCC dispatchers are essentially the air-traffic controllers of the subway system, and their challenge is often as complex. When faced with an incident, they must decide—in consultation with four levels of supervisors—whether to hold a train while the problem is resolved, allowing other trains to stack up behind it, or begin rerouting trains, which can prevent a backup but only by throwing thousands of commuters off their routes. And the dispatchers must choose in which way they'll inconvenience commuters as quickly as possible.

Most delayed lines on an average weekday:

- "4" 51% late: 194 delays
- "5" 49% late: 165 delays
- "2" 49% late: 163 delays
- "F" 34% late: 130 delays
- "6" 33% late: 192 delays

"If we can't get a train moving in five minutes, we are going to start impacting other lines," says Barry Greenblatt, the MTA's chief officer for service delivery. Dispatchers often face a series of bad tradeoffs. For instance, the MTA's train schedules are set to minimize crowding at platforms at crucial merger points, such as where the F shares track with the E, M, and G. Each delay, therefore, has ripples throughout the system. "Let's say an F train has a problem at Lexington Avenue—

63rd Street,” says Greenblatt. Assuming the problem is with the inbound F, coming to Manhattan from Queens, one option would be to reroute all F trains to the E line, where they can at least continue going downtown. But if it’s rush hour, that section of the E line includes M trains, and both the E and F lines are already running 15 trains an hour. The line can’t handle more than 30 trains per hour. “There’s too many trains,” says Greenblatt. “It just won’t fit. We’d probably hold trains back.” But if they don’t move enough trains through, there will be fewer trains at the end of the line to start the trips back the other way. “We’re not only moving the passengers on that train, but just like the airlines, we’re repositioning the equipment to make its next trip out,” says Tom Calandrella, the MTA’s senior director for advanced service initiatives.

To make matters even more complicated, the RCC has to order service changes without being able to detect precisely where every train is at any given moment. Calandrella calls that “the shocking part” of the place. “For 67 percent of the railroad” — that is, every lettered train line except the L — “we don’t actually see train movement or control any signals and switches from the control center.” Instead, they do it the same way they’ve been doing it for decades: train crews communicating by radio with a dispatcher. If there’s a delay, the dispatcher phones it in on the “6 wire,” an open party line, and awaits instructions.

A few minutes after the train operator at Union Square contacted the RCC, the dispatcher on duty called in a maintenance crew and diverted downtown local trains to the express track. While train 0620 sat idly in the station, trapped in place by the non-retracting gap filler, all the 6 trains behind it, from Union Square to Grand Central, were stuck at their stations with no place to go. Those north of Grand Central were able to reroute through the Union Square express track, sharing the line with the regular 4 and 5 trains, which meant the 6-train delays would soon ripple down all three East Side lines.

7:15 a.m. 125th St

On a good day, 40 downtown 6 trains pass through the Lexington line’s 125th Street station during the morning rush. On October 16, just 23 trains made it through between 7 and 9 a.m. For miles, all downtown trains were queuing to get through the same logjam at Union Square. When Reyes’s 6 train finally left, it crawled, sitting open at each station for minutes at a time. That’s when at least a few passengers on trains up and down the Lexington line started to lose it.

Including Reyes. He looked at the time — 7:45, 8:00, 8:15. “I said, ‘This is not gonna work.’” He left the station at 68th Street

and texted a co-worker who’d just got to the office. “She was on the train for two hours, and she lives even closer to the city.” Fuming, Reyes tweeted the governor: “@NYGovCuomo we have families to feed, rent to pay, we can’t afford to be late for work because of train delays by the @mta!”

The subway is New York City’s pulmonary system; the great class-leveling engine of urban life; the main reason, perhaps, that such an extraordinary concentration of innovation and power and culture happened here and not somewhere else. Thirty-five percent of the metropolitan area’s workforce commutes via subway, bus, and commuter rail; the national average is 5 percent. Nearly half a million children use MetroCards to get to school, and 65 percent of international tourists use mass transit, contributing \$18 billion to the local economy annually, which is why delays aren’t just a matter of inconvenience; they pose a fundamental threat to the functioning of the city. This new era of delays has already taken a toll, starting with people late for work: Last year, commuters asked for delay-verification slips more than 100,000 times.

It took 20 minutes for a work crew to arrive to look at the gap filler. It wasn’t immediately clear why the jaws were jammed. The sensors that control the gap filler could have failed, or the jaws were maybe just stuck, or one of the pistons that power the jaws could have conked out.

7:52 a.m. 14th St Union Sq

By 7:52 a.m., workers finally were able to retract gap filler No. 6, and train 0620 went on its way, “discharged” without any passengers. Testing out the gap filler with trains loading and unloading was a non-starter, so the RCC ordered 6 trains to resume on the local track but to skip Union Square, going from 23rd Street straight to Astor Place for the rest of rush hour. Workers would have to wait to fix the problem.

A recent audit by the state Comptroller’s office found that the system’s weekday on-time record in 2014 was 74 percent, meaning one out of every four trains New Yorkers took during the workweek that year was late. The MTA responded by saying it preferred to measure effectiveness by the amount of time people wait for a train. But that measurement, too, known as “wait assessment,” fell short of the agency’s stated goals. Our standards are now lower than those of San Francisco, Philadelphia, and Washington, D.C., none of which have self-imposed on-time performance goals below 85 percent. New York’s goal, reset last year by the MTA, is now 75 percent.

Lateness, too, is defined pretty loosely by the MTA; any train that completes its route

within five minutes of the schedule is considered on time. Which trains are delayed the most? The C and L lines, it may surprise you, are doing all right. The F, not so much. It recorded six times as many delays as the C and more than four times as many as the L. The citywide heavyweight champs of weekday delays, though, are the East Side 4, 5, and 6 trains — the Lexington [Avenue] line — each with more than 40,000 delayed trains from March 2013 through March 2014. The train with the lowest on-time percentage of all was the 4, just shy of a 50 percent on-time record.

8:50 a.m. Grand Central 42nd St

Justin Marks remembers the moment when he and hundreds of others on the platform heard an announcement that the next train would arrive in five minutes. “The whole platform kind of let out an exasperated groan at once,” he says. “It was sort of a communal misery.” Rush-hour 6 trains are supposed to come roughly every two minutes. Each minute during rush hour sends hundreds of new passengers to the platform, which means a five-minute delay could add as many as a thousand new people trying to fit on the next train when it does eventually arrive — often more than can safely exit before the next train comes in and dumps hundreds more onto the platform. That crowding slows down the unloading of passengers of the train that comes next, which — in a vicious cycle — creates even more delayed trains.

Even on an ordinary day, “the unevenness is the biggest thing,” says Wynton Habersham, the MTA’s senior vice-president of subways. The crowds create longer “dwell times” for the trains in the station. “You never want dwell to be more than 45 seconds,” he says. “Dwells of a minute and a half can wreak havoc on a rush hour. It’s hard to evenly-space the trains, because it just cascades up the line.” (The focus on maintaining even spacing is also why some trains sit on platforms for minutes on end with the doors open and others come to a screeching halt between stations.)

At 8:50 a.m., Marks photographed and tweeted a packed express train at Grand Central. (“*Thanks for the horrific delays on the 4/5 @MTA. Second train that’s this full with 10 min gaps between trains.*”) What made the delay so bleak was not how distinctive it was but how routine. “Slowness between stations,” he says, “is pretty much a daily thing.”

MTA executives are naturally defensive about the criticism. They argue that, unlike in the ’70s, the current problems are a result of their own success — the subways are more popular than ever and therefore more crowded. Six million people use the subways on a busy day now; since 2010 the system has added nearly half a million daily users. The 6 line alone is up by

200,000 daily riders compared to a few years ago. “It’s like the sponge is soaked and we’re adding more water,” says Calandrella. Rush-hour crowds can start at six; the evening rush extends past nine.

Fifteen of the subway system’s 21 lines (not including the shuttles) have maxed out the number of trains that can ride safely on the routes, and ten of those 15 lines are at peak riding capacity, which means when something goes wrong, the dispatchers have no wriggle room. The MTA has blamed some 40 percent of delays on the system’s high ridership numbers, and the agency has few good options for tempering the crowds, including converting the train-car stock to “open gangway” cars, which annex the dead space between cars and convert it into usable space for passengers, increasing capacity by perhaps as much as 10 percent. Other cities have taken to rationing access to crowded stations or jamming passengers into cars Tokyo style.

“Their nightmare scenario,” says Gene Russianoff of the Straphangers Campaign, the venerable subway gadfly group, “is there are these people who are like bouncers who are standing in front of the staircase at Grand Central and put up a felt line and say, ‘You can’t go down for 15 minutes, because it’s too crowded down there.’ And it’s not an insane, paranormal phenomenon. It happens in London. And it would be terrible.”

Draconian crowd-control measures aside, another option to accommodate the hordes would be to expand — to build. But even that is just playing catch-up. When the first phase of the Second Avenue Subway opens, scheduled for December 2016 [opened 1-Jan-2017], an estimated 225,000 people will shift over from the Lexington line. That’s a mere 12 percent of its 1.95 million riders. And now phase two is in limbo. Tunneling for it can’t logistically begin until 2019, and the MTA cut \$1 billion of the project budget from its capital program. After a public outcry, MTA chairman Tom Prendergast said the agency would look for ways “to deliver the project faster.”

The MTA has also explored private partnerships to help fund subway upgrades. Russianoff recently sat in on meetings with both the MTA and the developer SL Green to create more space on the platform at Grand Central. SL Green, in return for bankrolling the effort, would be allowed to erect a larger building nearby. “The MTA made it pretty clear that they thought they could get one more train an hour by doing \$220 million worth of repairs,” Russianoff says. “And they were doing things like — this is my favorite one — shave a pillar, so you can walk around it more easily on the platform. It’s a cautionary tale — \$220 million here gets you just one extra train



Track workers fixing the “gap filler.”
7:05 a.m. 14th St Union Sq.

an hour! It’s desperately needed, it’s the right thing to do, but it’s discouraging.”

9:03 a.m. Lexington Ave 59th St

The cycle of crowds and delays has had other ancillary effects that themselves have contributed to even more delays, like an increase in sick passengers. If the trains had more room, the MTA contends, fewer people would have anxiety attacks or nausea or get overheated and faint.

At 9:03 a.m., while the track workers at Union Square were still trying to get gap filler No. 6 moving again without having to shut down the line and replace parts, a downtown 5 train reported a sick passenger at 59th Street. As the train sat idle in the station, the 4 and 5 trains of the Lexington line stacked up behind it. It was the line’s second sick passenger that morning; another was reported on a northbound 5 at Fulton Street at 8:02 a.m., delaying a dozen trains for the next 15 minutes.

That afternoon, a passenger who ultimately refused help caused a ten-minute delay on a 5 train at 59th Street at 3:34 p.m., affecting eight separate trains. Then there was a nonresponsive passenger on a 6 train at 4:58 p.m. at 77th Street who eventually was taken to Lenox Hill Hospital (it sat for 17 minutes, affecting 25 different trains); a sick passenger who refused assistance on a downtown 6 at 59th Street at 5:21 p.m. (nine minutes, six late trains); and a drunk passenger who fell on the southbound 6 platform at Hunts Point Avenue at 9:11 p.m. (25 minutes of delays, 16 late or diverted trains).

The section between 86th Street and Grand Central is a particular hotbed for sick passengers. “The p.m. rush hour is always more hectic than the a.m.,” Calandrella tells me. “The a.m. rush hour, nobody’s

been to happy hour yet.” But the morning has its own challenges. “It’s very difficult to judge what is comfortable in your walk from your house to the train and what’s going to be comfortable to wear on a crowded train,” he says. “And people don’t eat breakfast, you know. A lot of sick customers are people who pass out just because they don’t eat breakfast.”

System-wide, sick passengers were the cause of about 3,000 train delays each month in 2015, nearly double the amount in 2012. But at least part of the sick-passenger problem is also a resource problem. The MTA’s policy is not to move a train out of a station until the sick passenger is receiving help on the platform. Most of the significant delays resulting from a sick passenger are a train waiting for EMS to come. What if an EMS crew were waiting during rush hour at every high-traffic train station? “We had EMTs at Grand Central,” says MTA spokesman Adam Lisberg. “I think it was moderately successful and it got cut in budget cuts.”

By the time the downtown 5 train resolved its sick-passenger problem and moved on, 19 different trains had been delayed or rerouted — a calculus the RCC operators must make for the good of the whole system. “There’s 2,000 people on the train behind that, 2,000 on the train behind that, and 2,000 on the train behind that,” Calandrella says. “The quicker we could redistribute the load, the better it is for the 6,000 as opposed to the 600.”

9:38 a.m. 14th St Union Sq

High ridership aggravates other sorts of problems. Overall, the subway is much, much safer than it was even a decade or two ago. From 1990 to 2014, there was an 87 percent drop in felonies, from 17,500 incidents per year to 2,200. During that

same period, annual ridership climbed from 1 billion to 1.7 billion. In the past year, though, there's been an uptick in subway crime: a 20 percent increase in robberies and 16 percent increase in felony assaults in 2015, compared to the same period in 2014. Certainly the crowds don't help matters. Mid-morning on October 16, a male passenger was walking backward to let other customers off on an uptown 6 train and was pushed, he said, tripping in the space between the train car and the platform.

EMS responded, and the customer refused assistance. It took 15 minutes for normal service to resume, holding up four 6 trains and five 4 trains.

The MTA is currently embracing a new set of small strategies — a third way between muscular crowd-control tactics and expensive capital projects — to slowly change the behavior of New York subway riders to fit the new, crowded normal. The MTA casts this as cultivating civility — a strategy that maximizes the system's efficiency. "The public has a large role here, and I hate to say it," says Wynton Habersham.

The MTA has introduced platform controllers equipped with wireless microphones at Grand Central, 51st Street, and 125th Street, who make announcements and coax people onto platforms. "It's a different voice than just hearing the automated announcements, so it gets people's attention if they're not plugged in with their earbuds," he says. "If the platform controller can assist them in getting to the platform, just getting off the train, we can move the train along." He's also a fan of the step aside boxes, large rectangles painted on the platform of some stations exactly where the train doors open that are meant as a visual cue for riders to make way for passengers as they leave each train car. "That's the biggest problem," Habersham says excitedly. "People really do stand right at the doorways when the trains are coming in, and people can't exit the train."

10:50 a.m. Astor Place

Crowd control may be the MTA's main focus because crowds seem controllable, at least by comparison with its other big problem: propping up the ancient, enormously complicated subway system. There are 865 miles of track, enough to connect New York to Chicago, and an amazingly complex intermingling of the tracks and stations once built and run by separate private train companies and now crudely jammed together, carrying 6 million people a day, sometimes on train cars that date back to when the Beatles played Shea Stadium. So it's not all that surprising that track and signal problems, along with other unplanned events and scheduled maintenance, account for about 48 percent of all delays,

more than what can be attributed to overcrowding.

It was a track circuit that caused the 10:50 a.m. delay on a southbound 6 train. The train was passing Astor Place when it suddenly came to a stop. The emergency brake had activated. The RCC dispatcher held all trains behind it and instructed the train operator to go see what the problem was.

A little credit, first: The track-and-signal system is by far the most essential holdover from the early years of the subway system, and, in its time, it was revolutionary. The problem is, that time was almost 150 years ago. When rapid transit was first envisioned, it was impossible to track the precise location of a train.

Instead, in the 1870s, William Robinson devised an ingenious work-around that made it physically impossible for one train to collide with another. Every few hundred feet of the system would compose its own circuit. Whenever a train tripped a circuit, an operator could assume the train was occupying a specific section of track, until the train had moved completely to the next circuit of track, and so on down the line.

Every time a circuit breaks, the signal goes red, and a foot-long metal rod flings upward from the track. This is the stop arm; any train coming past would hit it, flicking on the train's emergency brake. It's a fool-proof method of preventing collisions, but it tends to overreact. "Any slight impediment, if you will, on the roadbed, on the track, the track circuit has to possibly see it as a train," says Habersham. "It doesn't know."

We just know that energy is not getting to that electromechanical relay. We have to assume it's a train. So the signal system has to react accordingly, and signals have to go red." This is exactly what happened at Astor Place; a stop arm was in the "up" position, and no one knew exactly why.

Track circuits break constantly — system-wide, signal failure occurs once every 11 hours on average. "Probably 70, 80 percent of signal-related failures are caused by the track circuit," Habersham says. Sometimes it's a piece of garbage or debris that gets caught in the wrong place — Habersham recalls the time, not long ago, when they had to shut down the East Side trains at Bowling Green during the afternoon rush hour. "We had teams out there. Forty-five minutes to set up, because the approach to Bowling Green is in an under-river tube. We got down there to find out it's just a bottle of water in between the switch point that was causing the switch to fail."

Sometimes it's metal plates bolted to the track that have come loose over time.

Sometimes it's the worn-away insulator of a "turnbuckle" — a short metal rod inserted across the width of the rails to help it maintain the proper distance of 56 and a half inches. Sometimes it's a shaving of metal from the brakes or the wheels or the rail itself. Whatever the reason, the signal can't go green again and trains can't run until the cause of the failure is determined. The good news is that this is why you never hear about a collision in the New York City subway system. The bad news is that during rush hour, a track-circuit failure means game over for your commute. A team might even have to set up "flagging," with track crews manually signaling trains through at slower speeds. (This is what's happening when you see workers waving lights along the track.)

Sixteen minutes later, at 11:06 a.m., the 6 train at Astor Place was back in service. The cause of the glitch remains a mystery. Four trains were made late in that time — or later than they already were — and three others were canceled. This was a good outcome, compared to the norm: The MTA's data shows that in 2014, each weekday incident based on signal problems caused an average of 17 separate delayed trains.

11:02 a.m. 14th St Union Sq

As soon as rush hour ended, the maintenance workers at Union Square had tried to get gap filler No. 6 up and running for good. To do so without interruption, service on the downtown 6 line was completely suspended between 14th Street and Brooklyn Bridge. With the line shut down, the workers were finally able to assess the problem, which appeared to be a single loose bolt. They tried to bring the trains back online, restoring service on the local 6 track at 11:02, but seven minutes later, the gap filler failed to retract again.

That train and all the trains behind it were held in place.

The MTA has a reputation for being slow, deliberate, and plodding — sometimes out of necessity, other times just because. "It takes them 21 days to open an envelope in the MTA," Governor Cuomo said in January. The latest bitter pill — at least for the 225,000 people, on average, who commute between Brooklyn and Manhattan each weekday on the L train — are the reports that the MTA may have to close the train's tunnel for repairs related to damage caused by Hurricane Sandy. If train crews are limited to working nights and weekends it could take seven years, and so the MTA is considering closing the tunnel entirely to expedite the project, which would mean no cross-river train service for as long as 18 months. Sure, some of the sluggishness may be warranted — keeping track workers and passengers safe is, of course, job No. 1.

But as an instructor in the MTA's mandatory track-safety courses told me last fall, "Here in New York City Transit, we say, 'There's no such thing as a simple shortcut, only quicksand.'"

12:00 p.m. Manhattan's West Side Lines

By midday, the cascading delays were no longer confined to the Lexington line. Trains were so backed up on the East Side that the RCC dispatchers made the decision to send some 5 trains up in the Bronx down the 2 line. They had no choice, really—those trains needed to get to Brooklyn somehow or the evening commute would be toast, too. But they knew the decision would mean more traffic on the West Side's 2/3 express line — which, in turn, would mean more delays. By the end of the day, 30 downtown 2 trains and 29 downtown 3 trains would be made late by East Side trains that had been diverted because of the gap filler.

Back on the Lexington line, delays on the downtown line had rippled onto uptown trains, stalling 59 uptown 6 trains, 15 uptown 5 trains, and 25 uptown 4 trains. But the Lexington-line passengers were luckier than most in at least one way: At least everyone waiting knew when the next train would arrive. The countdown clocks are the subway system's great triumph, the one thing that customers love without question. But right now, only seven lines have them — the 1, 2, 3, 4, 5, 6, and L. The numbered lines are tracked by a program called Automatic Train Supervision, or ATS, which adds a digital overlay to the existing, century-old track-circuit setup so that trains can be monitored remotely.

Most crowded platforms, October 2015

- Downtown 4 at 86th Street 104% Capacity (31,027 riders)
- Uptown 5 at 14th Street – Union Square 103% Capacity (27,320 riders)
- Downtown 2 at 72nd St. 99% Capacity (25,013 riders)

The long-promised Holy Grail of system upgrades, for some people, is called Communications-Based Train Control (CBTC) — a whole new technology, already being used on the L line, that, once it's fully rolled out, probably a generation from now, would largely replace the musty track

-and-signal system. Under that system, trains sometimes keep thousands of feet apart from one another, when the minimum safe braking distance between trains is just 325 feet. But CBTC's signaling equipment radios its position so that a central control knows the exact speed that train should be at to make it through the next step on the route. More trains could run on the existing lines safely. CBTC also supposedly all but eliminates the need for a person to drive the train. "Don't call it a robo-train!" Calandrella says. "There's always a train operator on it. Don't be the New York Post." (But it basically is. On the L, the train operator's job is largely limited to pushing a ready-to-go button, staring out the front of the window, and every 20 seconds pushing another button to let the RCC know he's still there in case of any problems.)

CBTC won't be coming to the whole subway for decades. It's not just about replacing the track-circuit system. It requires remodeling or replacing the entire fleet of subway cars. Even when it does come, it's an open question whether CBTC really will keep up with the demands on the system. On the L line, Habersham says, the MTA thought it would need 18 trains per hour, so it equipped 22 trains. "By the time we went live with the system," he says, "we needed at least 25 trains. The ridership just ballooned by like 500 percent." The L's end-to-end travel time has gone down just 3 percent with CBTC. Yet without it, the crowding, and the delays caused by that crowding, would have exploded.

Money is naturally behind all the system's shortcomings. Last year, after the MTA leadership declared a funding crisis, the city committed a record \$2.5 billion to the agency's capital plan, and the state committed \$8.3 billion. Even with that new \$29 billion budget, only 68 percent of stations will have countdown clocks by 2020.

2:30 p.m. 14th St Union Sq

With the 6 line still shut down, the crew asked for the RCC to send a test train empty of passengers to make sure the gap filler would work, and at 2:30 p.m., all seemed well. But when the next train came a few minutes later, the gap filler once again failed to retract. At 2:56 p.m., the RCC

ordered southbound 6 trains to bypass 14th Street until further notice. Crew members would wait until after the evening rush to try again to fix the problem.

7:35 p.m. RCC

At 7:35 p.m., the maintenance-of-way division issued an emergency general order. If they had to wait anyway, they decided, they might as well replace the piston, too, which would be sent from the MTA's Tiffany shop in the Bronx, where the structural steel used throughout the system is fabricated. The problem wouldn't be completely resolved until the next morning. Before it was fixed, that one loose bolt in the gap filler delayed or redirected 625 different trains — 132 on the 4 line, 119 on the 5 line, 306 on the 6 line, and the remaining 68 on West Side 2 and 3 trains.

There's another argument that the real problem behind the increase in delays isn't the culture of subway ridership or even a budget shortfall but the culture of the MTA. When the agency lowered its on-time goals, was it being realistic or accepting defeat? I'm reminded of the recent Comptroller's report and its condemnation of the MTA's dysfunction. "Transit officials," the report concluded, "had no formal corrective action plans or programs to minimize the chronic underlying problems that caused delays." Instead, the delay problem is being picked apart by more than a dozen task forces, studies, and initiatives.

It's like they say in track-safety school: *There's no such thing as a simple shortcut. Only quicksand.*

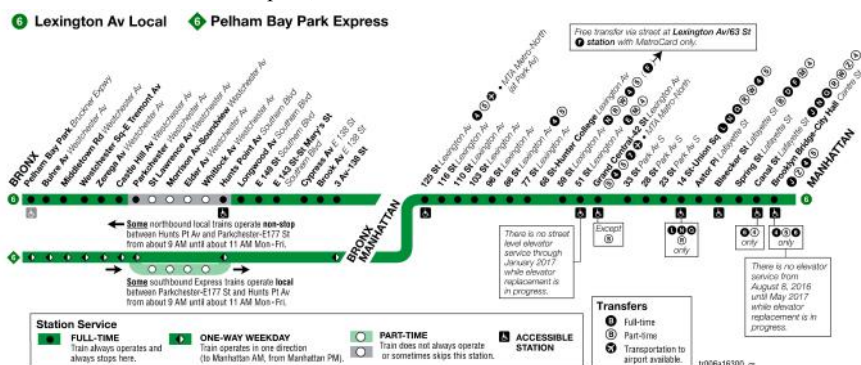
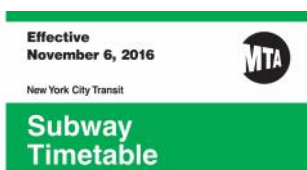
Additional reporting by Edward Hart and James D. Walsh.

*This article appeared in the February 22, 2016 issue of New York Magazine.

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MS found in a WTT – answered.

TONY MCILWAIN, GEOFF LAMBERT, STUART KEAN AND BILLY LEWIS *answer the question posed in the January issue –when was the scrap of paper written?*

THE SLIP OF PAPER WAS written by a rail-fan or driver on #31 Mixed, Central to Goulburn on the night of Friday 9-May-1969 [bottom right, page 2]. The cover photo was taken by Billy Lewis at 11:03 the next morning.

The winner of the competition is Tony McIlwain, who receives a years free membership of ATA.

Tony reasoned as follows:

I disagree; the photos are the solution to the problem. The cover image looked familiar; I recognised the location as Wingello on the NSW Southern Line and I was sure that the image or one taken alongside the photographer had been previously published. A quick trawl through my scans of old railway enthusiast calendars found a colour reproduction of an almost identical image published in the NSW Rail Transport Museum calendar for 2001, April. The photographer was J Miller, and the image was described as No. 430 Goods hauled by 3643 & 3645 on 10 May 1969. J Miller is not a familiar name to me from those times; was he the Victorian school teacher? [no– see below– Ed]

May 10th 1969 was a Saturday and the first week of May was usually school holiday time then in NSW and, I think, Victoria. It's afternoon sun, and being May, the time is around 3 pm. I don't have the WTT to confirm.

The plot thickens a little. The scrap of paper shows the Southern Division down and up train numbers and the allocated locomotives, obviously supplied to the scribe by someone in Train Control or Loco who was friendly to enthusiasts. But did these allocations all occur?

Train No. 430 is shown as having 3652 + 5902, but the caption says 3643 + 3645, so it seems there's been a change. Well, there's more evidence. There's another calendar photo from the same day, taken at Bargo, showing two Up trains side by side [bottom left, page 2]. There's 256 Goods headed by 3825 on the Down track, and 430 Goods headed by 3645 on the Up track. You see, there's track-work going on and single line working, so the goods trains are stacking up awaiting a pilot for the single line working ahead, probably to Exeter or perhaps all the way to Moss Vale. I can only surmise on the operational detail; I have the date but not the Special Train Notice. But there's 3645 leading No. 430, not 3643; what's going on? Well, I think the simple explanation is that 3643

has uncoupled and pulled forward to take water. This image was published in the NSWRTM 1996 calendar, for the month of May. The photographer was Mick Morahan, long time editor of the NSWRTM Roundhouse, and author of books on NSW steam locomotives.

So far, the scrap of paper confirms that 3825 hauled 256 Goods, but 430 Goods had engines provisionally assigned to 376 & 342 Goods.

The third image on that day appears in the NSWRTM Calendar for 1993, April. It shows the familiar 430 Goods at Werai, just to the south of Moss Vale, with 3643 + 3645. Mick Morahan is again the accredited photographer. On the Down line is 5905, on No. 331 Goods, which the scrap of paper suggested would be hauled by 3638.

Of course, the scrap of paper could be for another day, but the March to June 1969 period was particularly busy for goods traffic on the Short South to Goulburn, and 10 May had the double attraction of steam-hauled trains plus the complications of some single line working because of track-work, which would bring out the photographers. Also, the photo match with The Times cover illustration is so exact that it must be this date.

Was the note found in a Southern Division WTT for the 1969 period? [it was in a pristine copy of the May 1968 WTT– Ed.]

So, we have a locomotive allocation list compiled from various friendly railway sources, perhaps days prior, before mobile phones and emails and instant information, on what to expect for a Saturday in the school holidays in the NSW Southern Highlands. Minis were reasonably common cheap first car transportation in those times, with a willingness to go anywhere - I had one from 1970 to 1972 - and the blue EPU 840 was probably one belonging to one of the enthusiasts following the trains, and someone worth getting to know.

Further information came from Tony:

Here is an extract from ARHS NSW Division New South Wales Digest for May 1969, Item D7.44 Southern Line Notes:

On 10/5 single line working was in force between Picton and Bargo while re-ballasting of the up main was in progress. At Bargo there was a concentration of steam power which is not likely to occur again. Standing in the down refuge was 5914 in charge of No. 335. 3825 on 256

arrived from the south and reversed its train through the crossover to the down main and then 3643 on No. 430 arrived on the up line having watered at Yerrinbool (now a very rare sight). 3825 and 256 proceeded to Picton and then the section was occupied by No. 21 Southern Highlands Express which was running rather later than it should. Next train to traverse the section was No. 14 Goulburn 2 car diesel and at last when single line working was cancelled 3643 and load departed for Enfield.

This doesn't seem to be the complete story as no mention is made of assistance given to 3825 on 256 by 3645 (could it have been 3643, missing from the front of 430 in the Bargo image) or that 430 was photographed double headed at both Wingello and Werai Hill.

These details were confirmed by Our Man On The Ground, Billy Lewis, who kept a log-book of the day [Editor's comments are in square brackets]:

- Bill arrived at Goulburn "Loco." at 3AM on 10th May, after an overnight drive from Coimadai.
- At that hour, Goulburn loco contained 3643 [NOT off "#321"?], 3230, 3825 [for #256 Up Pickup], 3827 [for Up], 5112, 5903, 5240. Loco 5920 and a Standard Goods were shunting in the yard.
- Shortly thereafter, 3825 left Loco, to couple up to 256 Goods [unusual for a 38 on a Pick-Up; 3652 had been rostered and presumably broke down].
- At Tallong, at about 4AM, 3645 was on a Down Goods [presumably 335 and destined to work 340?].
- At Marulan, #256 pickup was refuged for the Up Southern Highland Express (SHE) with 3827 [due at 07:50].
- No. 430 Goods, with 3643 and 3645 departed Goulburn 10 AM [information Bill garnered from other rail-fans on the day].
- ◆ The cover photograph is of this train coming up the Wingello Bank into Wingello Station at 11:03AM.
- ◆ No. 256 and No. 31 Mixed with 3810 "passed" each other at Bundanoon.
- No. 309 goods with 3638 and 5902 (which was running in) "passed" No. 256 Pickup at Bundanoon [No. 309 was due here 05:52; No. 256 due to pass here at 05:26, so both a bit late].
- No 430 Goods, "passed" No. 336 Goods (5905) at Werai [Neither the train nor its loco appear in the WTT or on the slip of paper].

