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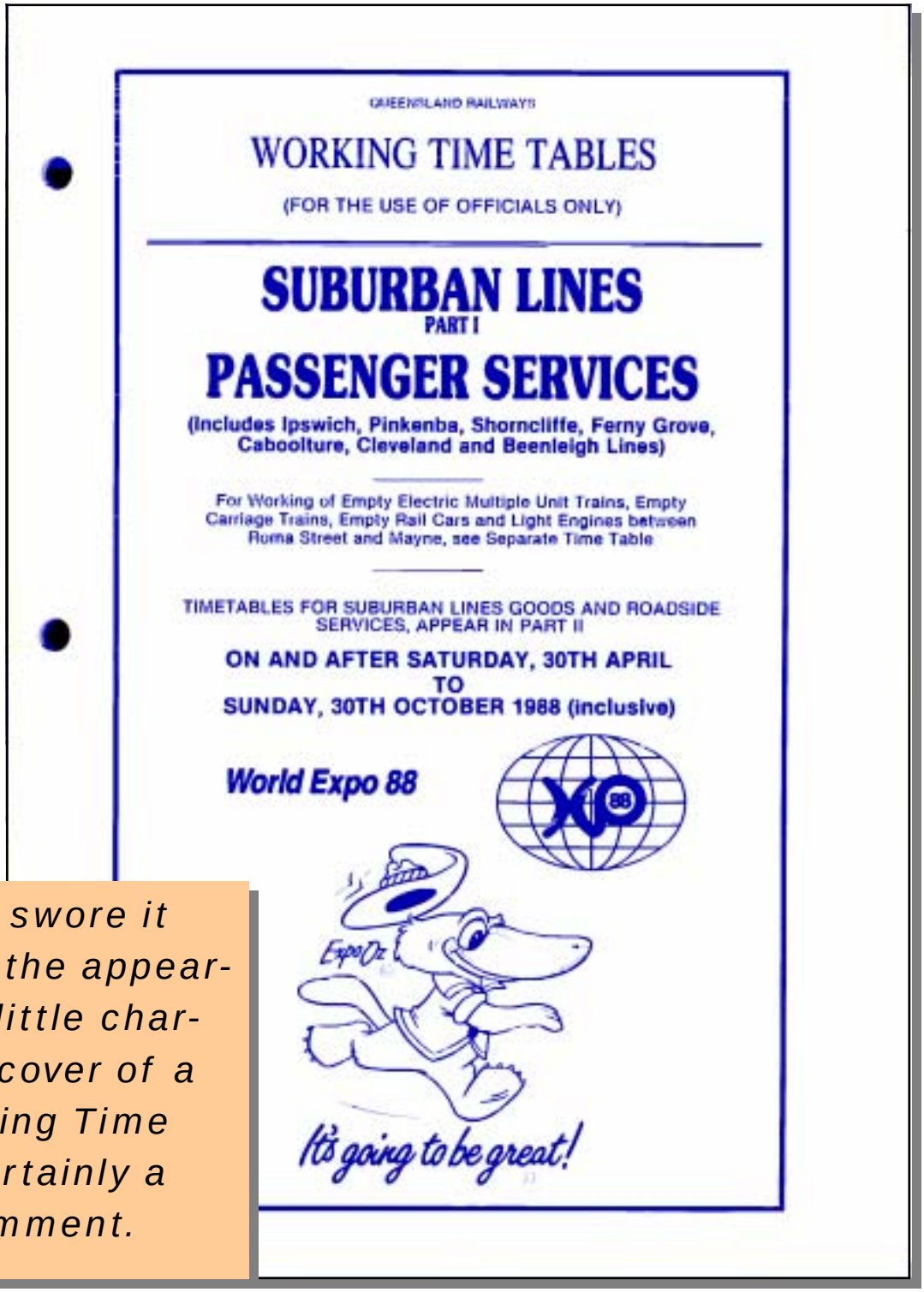

Some people swore it was Joh, but the appearance of this little character on the cover of a railway Working Time Table was certainly a cause for comment.

The Times

About The Times The Times is published monthly by the Australian Association of Time Table Collectors (AATTC) as our journal, covering historic and general items. Current news items are published in our other journal, *Table Talk*.

The Times on-line AATTC's home page: http://www.aattc.org.au

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Put away your timetable, get out your calendar

A month of Sundays is a very long time to wait for a train, but **VICTOR ISAACS** *has spent many of them sitting on Western Australian railway platforms waiting, waiting, waiting..*

This is a page from the Public Timetable of the Western Australian Government Railways dated 25 November 1929. By coincidence, it shows three railways that are in remote, sparsely populated areas. All three have extremely infrequent services hardly like the present doctrine of "Railways for mass transport." To add further interest, services on two of these lines are arranged by very unusual descriptions of the days of operations.

WHEN TRAVELLING ALWAYS CARRY PLAISTOWE'S SWEETS.

Table 40.

SANDSTONE BRANCH.

Height above Sea.	Miles from Geraldton.	STATIONS.	Alt. Sat. only.					STATIONS.	Alt. Sun. only.				
Feet.			a.m.						p.m.				
1400	216	MT. MAGNET R ... dep.	12 30	...	...	...	...	SANDSTONE ... dep.	10 30	...	...	...	...
1404	230	Allen's Sdg. ... ,,	a	...	...	...	...		Alt.				
1482	289	Warrambu ... ,,	2a10	...	...	...	...		Mon.				
1443	259	Paynesville ... ,,	4a 5	...	...	...	...		a.m.				
1588	281	Anketell ... ,,	5a25	...	...	...	...	Anketell ... ... ,,	12a25	...	...	...	...
1755	309	SANDSTONE ... arr.	6 50	...	...	...	...	Paynesville ... ,,	2a 5	...	...	...	...
								Warrambu ... ,,	3a25	...	...	...	...
								Allen's Sdg. ... ,,	a	...	...	...	...
								MT. MAGNET R ... arr.	4 40	...	...	...	...

Saturday's train will run on Dec. 7, 21; Jan. 4, 18; Feb. 1, 15; March 1, 15, 29; April 12, 26; May 10, 24.
Sunday's train will run on Dec. 8, 22; Jan. 5, 19; Feb. 2, 16; March 2, 16, 30; April 13, 27; May 11, 25.

Table 41.

PORT HEDLAND-MARBLE BAR RAILWAY.

Height above Sea.	Miles from Pt. Hedl'd.	STATIONS.	See note.			STATIONS.	Fri. only.				
			a.m.				a.m.				
30	...	PORT HEDLAND dep.	8 30	This train will run on Wed. only from April to September inclusive, and on Thursday only from October to March inclusive.	... ...	MARBLE BAR ... dep.	8 30	...	...	...	...
64	12	Pippingarra ... ,,	9a11		... ...	Eginbah ... ... ,,	9a44	...	...	...	...
124	20	Pundano ... ... ,,	9a48		... ...	Coongan ... ... ,,	10a22	...	...	...	...
220	31	Strelley ... ... ,,	10a25		... ...	Gorge Creek ... ,,	11 16	...	...	...	...
240	53	Carlindi ... ... ,,	11a39		... ...	Warralong ... ,,	11a49	...	...	...	...
			p.m.				p.m.				
268	59	Shaw River ... ,,	12a 8		... ...	Shaw River ... ,,	12a15	...	...	...	...
274	64	Warralong ... ,,	12a29		... ...	Carlindi ... ... ,,	12a39	...	...	...	...
345	73	Gorge Creek ... ,,	1 2		... ...	Strelley ... ... ,,	1a53	...	...	...	...
406	89	Coongan ... ... ,,	2a11		... ...	Pundano ... ... ,,	2 35	...	...	...	...
438	94	Eginbah ... ... ,,	2a38		... ...	Pippingarra ... ,,	3a 7	...	...	...	...
603	114	MARBLE BAR ... arr.	3 42		... ...	PORT HEDLAND arr.	3 43	...	...	...	...

PASSENGER AND GOODS RATES.

PASSENGER FARES.—First Class, 3d. per mile; second class, 2d. per mile. Children under 14 years of age, half-fare; under 5 years of age, free.
Only single tickets are issued.
PARCELS.—Double the ordinary Parcels Rates.—Minimum charge, 1s. per parcel.
LIVE STOCK.—Double Ordinary Rates.
Goods and Parcels must be consigned under Platform and Siding Conditions and freights prepaid.

Table 42.

HOPETOUN RAILWAY.

Height above Sea.	Miles from Hopetoun.	STATIONS.	See note.			STATIONS.	See note.		
Feet.			a.m.				p.m.		
34	...	HOPETOUN ... dep.	8 0	...	Runs on the following day boat arrives at Hopetoun from Albany.	RAVENSTHORPE dep.	3 0	...	
109	10	Kuliba ... ... ,,	8 45	...		Desmond ... ... ,,	3 55	...	
440	21	Kundip ... ... ,,	9 40	...		Kundip ... ... ,,	4 25	...	Runs on the day before the boat is due from Esperance.
842	26	Desmond ... ... ,,	10 15	...		Kuliba ... ... ,,	5 17	...	
634	34	RAVENSTHORPE arr.	11 0	...		HOPETOUN ... arr.	6 0	...	

These trains are subject to alteration at short notice.

DRINK HARPER'S "EMPIRE" COFFEE AND CHICORY.

How to build a timetable

The **RAILWAY TECHNICAL WEB PAGES** *at http://www.trainweb.org/railwaytechnical/ contains a wealth of information on the technical side of railways. In this month's issue of The Times we reproduce as Part 1 of 2 parts, the pages' explanatory material on Train Operations- putting together a train service and, as we shall see in September, a timetable. By* **MUSTAFA COVA.**

Introduction

This page contains some articles about the planning, crewing, movement and control of trains. It is not concerned with the type of trains except as how this might affect operation. It is based on modern practice around the world, showing some examples where suitable. It is not concerned with signalling except where it is used to control trains.

Definitions

First, it is important to set out some definitions. A train is defined here as one or more railway vehicles capable of being moved. It may consist of a locomotive (sometimes more than one) to provide power with various unpowered vehicles attached to it. It may consist of a multiple unit, i.e. several vehicles formed into a fixed formation or set, which carry their own power and do not require a locomotive. A train may be only a locomotive running light (deadheading) to a point elsewhere on the railway. A train may be passenger carrying, freight or, rarely nowadays, mixed.

A train may be manually driven (by a driver, operator or engineer) and may have other crew members (assistant driver, fireman, conductor and catering staff) to assist the driver and/or the passengers.

The Objective

A train is an expensive piece of kit. A locomotive now costs about US$ 5 million and a coach up to US$ 1 million depending on the type. A multiple unit (i.e. a self-powered train without a locomotive) can cost an average of US$ 1.5 million for each vehicle, depending on type and size of order. This is a lot of capital to invest and it is essential to make sure it earns its keep. Trains sitting in stations and sidings may look nice but they don't earn money.

Crews are also expensive. They too, must be used efficiently and safely, which means regulating their hours but they will be needed to match the times that they are required on the trains. Allocation of crews is a scientific skill just as important as train control. For more information see Train Crews.

The infrastructure of a railway is its most expensive asset. A new railway can cost US$ 25 million per kilometre and this price will double to US$50 million for an elevated urban line. An underground metro or subway can cost up to US$200 million a kilometre in a country where protection against typhoons and earthquakes is required. See Railway Finance for more information on costs. Maximisation of the use of the line of route is essential and train operations management will play an important part.

The objective of good train operations management is to use the route, the rolling stock and crews in the most effective way. This is what this page attempts to explain.

Locomotive Hauled Trains

The traditional train comprises a collection of coaches (or freight wagons) with suitable motive power attached in the form of a locomotive. The train is made up of sufficient vehicles to carry the traffic offering and provided with enough power for the job. For passenger operations, one locomotive is usually sufficient. In heavy freight operations, this number might go up to four locomotives on the front and at some other places along the train.

A good deal of flexibility is possible with locomotive haulage. As long as the train weight remains within the capacity of the locomotive(s), any number of vehicles can be attached, although limits will be imposed by platform or siding lengths. Locomotives themselves can also be flexible, many being designed to cover a range of duties.

The advantages for locomotive hauled trains mean they are the best option for many railway operators around the world, particularly freight but, where traffic is dense, i.e. where a large number of trains are required, a more rational approach is necessary, particularly at terminals. In addition, in very predictable operations like commuter services or metro lines, fixed formation trains will be the most efficient.

Terminal Operations

One disadvantage of traditional locomotive haulage shows up at the end of the line. When a train arrives at a dead end terminal, the locomotive is trapped between the train and the buffer stops. The only way to release the locomotive is to remove the train and for that, a second locomotive is required. This second loco is attached to the other end of the train and will be used to provide power for the return trip. When the train has been removed, the first locomotive is released, moved away from the platform to a "loco siding" near the terminus and stored until used for the return trip of another train. This problem can be solved, if space is available. The train stops a distance from the buffer stops and a crossover to a run-around track is provided. This is sometime referred to as a "locomotive escape" and is used as shown in the diagram below.

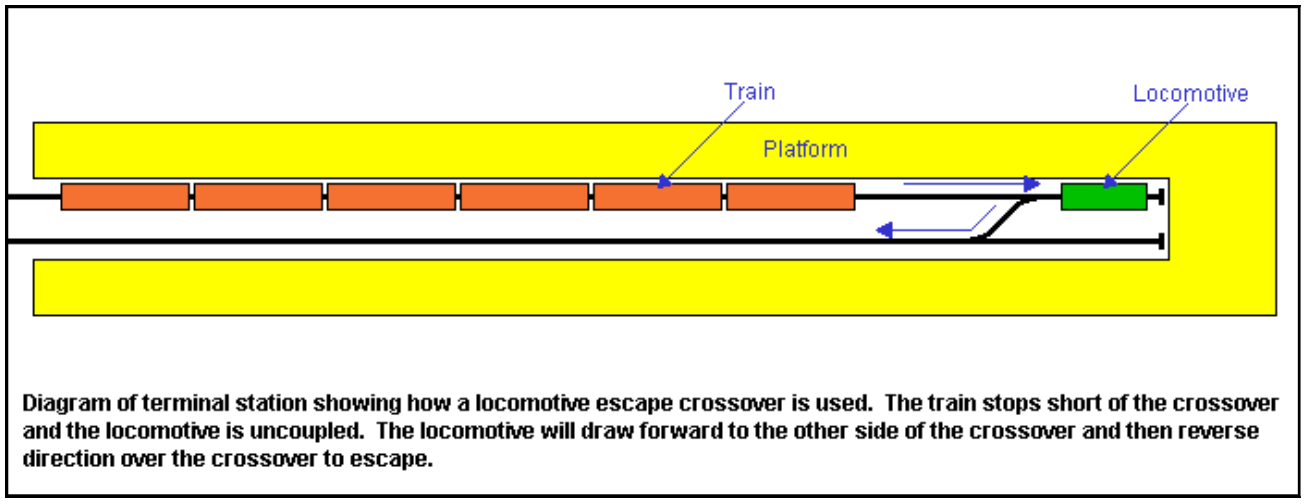


Diagram of terminal station showing how a locomotive escape crossover is used. The train stops short of the crossover and the locomotive is uncoupled. The locomotive will draw forward to the other side of the crossover and then reverse direction over the crossover to escape.

Often, the adjacent platform track is used but it must be kept free of other trains. Sometimes a scissors crossover is used. Of course, the arrangement would not nowadays be suitable for a major city terminus where space is at a premium and land is very expensive, so efforts are made to use tracks to the optimum. So, although locomotive changing operations at terminals were, and still are commonplace, where there is intense traffic, additional movements for loco changing can restrict the terminal capacity. Also additional locomotives are required to cover these terminal operations. To overcome all these limitations, the Multiple Unit was introduced.

Multiple Unit Operation

Locomotive operation of intensive services was rapidly phased out when electric traction, using "multiple unit" operation, was introduced late last century for US urban railway lines. Within ten years the idea had spread to Europe. The facility for the electric traction system to be spread out along the train, compared with cramming it all together into a bulky locomotive, allowed a number of small power units to be distributed underneath the floors of several vehicles in the train. They were all simultaneously controlled by the driver in the leading car through wires running the length of the train. Thus was born the electric multiple unit or EMU. In later years, DMUs (diesel multiple units) were developed using the same principles.

A modern passenger multiple unit train is now made up of a number of inter-dependent vehicles which cannot operate unless all the vehicles are of the right type and are coupled in the correct position in the train. Power and auxiliary equipment is usually distributed under more than one vehicle and is all controlled from the driving position. Vehicles in multiple units are usually referred to as "cars" and are known as "motor cars" if powered and "trailer cars" if not.

Multiple unit trains are formed into "units" or "sets" of two or more cars. They are often semi-permanently coupled together, only being uncoupled inside a workshop for heavy maintenance. Units can operate singly - providing driver's cabs are provided at both ends - or coupled to form longer trains. Some operations require two (or more) multiple units to be coupled together to provide sufficient capacity for a particular service. This also allows trains to be lengthened or shortened whilst in service by adding or cutting units.

Some multiple unit trains are designed so that a unit has a full driver's cab at one end only. At least two units, coupled back to back, are required to make up a train for service. In the US, a development of this type of formation, known as "married pairs", has been popular since the 1960s. Two cars, coupled together and electrically dependent on each other, form a unit and a number of these are coupled to form trains of four, six, eight etc. cars. Similar formations have since appeared elsewhere, e.g. London Underground's Central Line.

Multiple unit trains are mainly used for high density suburban operations where traffic levels are easily predicted and form constant patterns which allows fixed train formations. In recent years, long distance traffics have shown the same tendency and many railways are now adopting the multiple unit formation for these routes - e.g. the French TGV, the UK HST, the Japanese Shinkansen.

Other advantages of the EMU are that it doesn't have to carry its own fuel, it takes it from overhead wires or an additional (third) rail and it is quick and simple to reverse at terminals. All you have to do was provide drivers controls at both ends of the train, connect them to the train wires and give the driver a key to switch in the controls at the end he wants to use. Locomotive changing is instantly eliminated, terminal space is released and trains can be turned round more quickly. All the driver has to do now is change ends.

Another form of multiple unit operation was adopted in the early 1960s when a new concept appeared called push-pull.

Push-Pull Operation

Push-pull operation was really only an adaptation of the multiple unit principle but applied to a locomotive powered train. Assuming a regular level of traffic and an even interval service was required, trains could be formed with a locomotive at one end and a driving cab on the coach at the other end. If you could find a way of doing it cheaply by converting existing coaches, it could represent a big step forward. See Development of Push Pull Operation in the UK by Chris Grace.

The idea has now been adopted world-wide in two forms. One, as stated above, uses a locomotive at one end and a coach equipped with a driver's cab at the other end. The number of vehicles in between them may be varied seasonally if required but the formation is not normally varied on a train by train basis. In the UK, the coach at the rear has become designated a Driving Van Trailer (DVT). It is used to carry luggage and passengers are not permitted to ride in it at speeds over 160 km/h.

The second push-pull form uses two locomotives, one at each end of the train. This was applied to the Channel Tunnel "Le Shuttle" trains and has also appeared elsewhere, notably in Taiwan. The two locomotives are necessary in these cases to provide sufficient power.

High Speed Multiple Units

The modern two-locomotive concept for push-pull operation first appeared in 1959 with the UK's Blue Pullman series of trains. A diesel power car was provided at each end of a six- or eight-coach set. The concept was further developed in the 1970s with the UK High Speed Train (known as the HST) and in

France with the TGV (Train à Grande Vitesse). The former is diesel powered, the latter electric but the concept is the same. Both these trains employ a power unit at each end with a set of passenger carrying coaches in-between. The Germans have joined the club with their ICE train. The only real difference between these trains and the original push-pull concept is that the newer trains were purpose built.

Not forgetting the Japanese high speed train concept; they were the first to introduce over 200 km/h running on a regular basis and have kept at the forefront of high speed train technology with their German and French counterparts. However, the Japanese HSTs have always been multiple units in the original sense, having many power cars distributed along the train.

The HST name was first used for diesel multiple unit passenger train developed in the UK for 125m/hr running. It is now generally accepted as the definition for any passenger train scheduled to run at over 200 km/h. For more information on the different types, see our High Speed Train Page.

Headway

This is the name given to the elapsed time between trains passing a fixed point in the same direction over the same track. It is usually expressed in minutes e.g. "trains were running at a 4-minute headway". Another way of expressing it is as trains per hour (tph).

A well run railway will conduct research to determine how many fare paying customers are likely to show up at various times of the day and will operate their trains to suit. See Train Service Planning below. In many instances the patronage numbers will show that it is possible to run trains at even intervals or at a given "headway". This may be at two hours for a long distance, main line route or two minutes for a metro.

Once established, the headway is used in calculating the number of trains required for a particular service, the train performance requirements and signalling requirements.

Terminals, Loops and Turn backs

There are three ways of turning a train requiring to reverse its direction at the end of a trip. First a simple change of direction where a locomotive is placed at the other end of the train or, where driving cabs are available at both end of the train, can be achieved in a train in a single terminal platform with a track on

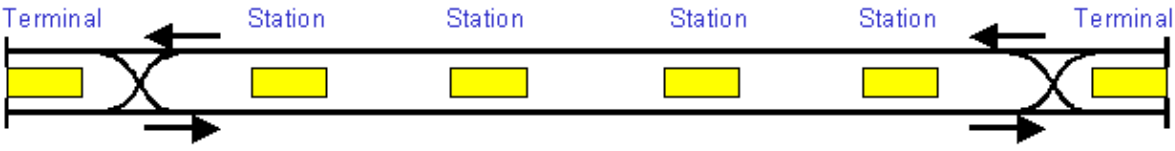


Diagram showing a simple end to end metro line with two platform terminals at each end

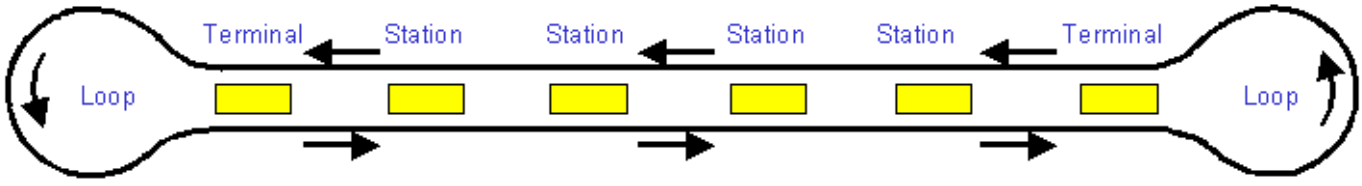


Diagram showing a simple metro line with terminal loops at each end

either side as shown below:

Second, you can drive the train around a loop track beyond the terminal station - provided you have the

space to build the loop (above):

Finally, you can provide a reversing track (or turn back, as it is called in the US). The train deposits arriving passengers in one platform and goes forward to the siding where it changes direction and then proceeds into a departure platform. In the diagram below, a single reversing track is shown at the left

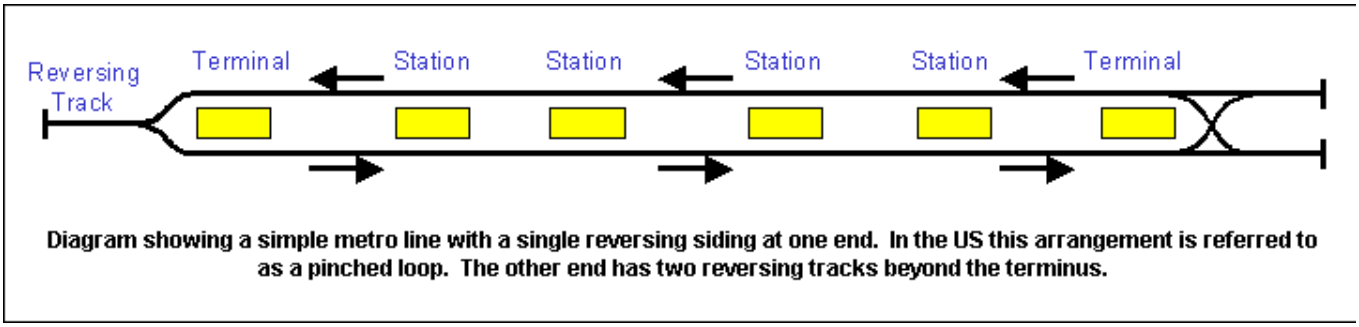


Diagram showing a simple metro line with a single reversing siding at one end. In the US this arrangement is referred to as a pinched loop. The other end has two reversing tracks beyond the terminus.

hand end while the double set of reversing tracks are shown at the right hand end. The latter is the usual option and can be seen in such places as Paris Metro and Tokyo Underground and London.

The first option - a simple reversal procedure - is the most popular since it uses least space and is reasonably quick. For the second option, tram or light rail operators who equipped their trains with a cab at one end only favour the loop. Some metro operators also use it, notably Paris and New York.

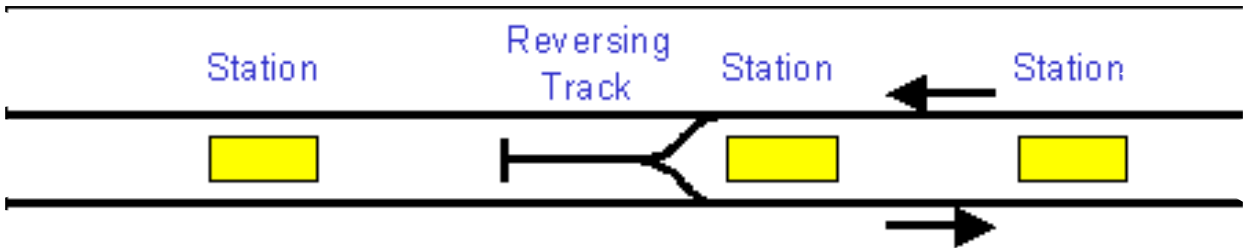


Diagram showing a reversing track between two running tracks. This is variously known as a centre siding, pocket track, or turnback.

The third option is a reversing or turn back track as shown above (left hand end) but it is often used also when turning trains at a location mid-route. The siding is provided beyond the station between the main running lines and is connected to both, as shown below.

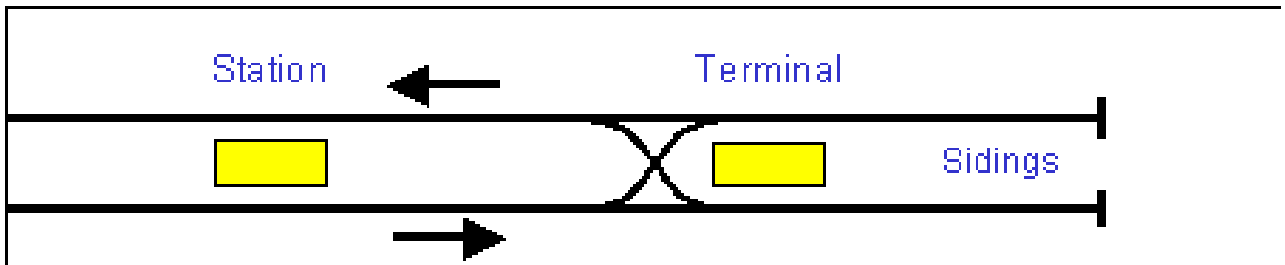


Diagram showing a terminal with the crossover in front of the platform and sidings behind. The sidings can be used to store trains between peak hours or at night.

This solution is popular for urban and suburban systems where the inner section of a route has a requirement for a higher frequency service than the outer section.

An alternative layout is where a two-track terminus has its tracks extended beyond the station:

This arrangement allows trains to be stored between the peak hours or at night. A defective train can be stored there until it can be repaired or sent back to the depot.

Train Service Planning

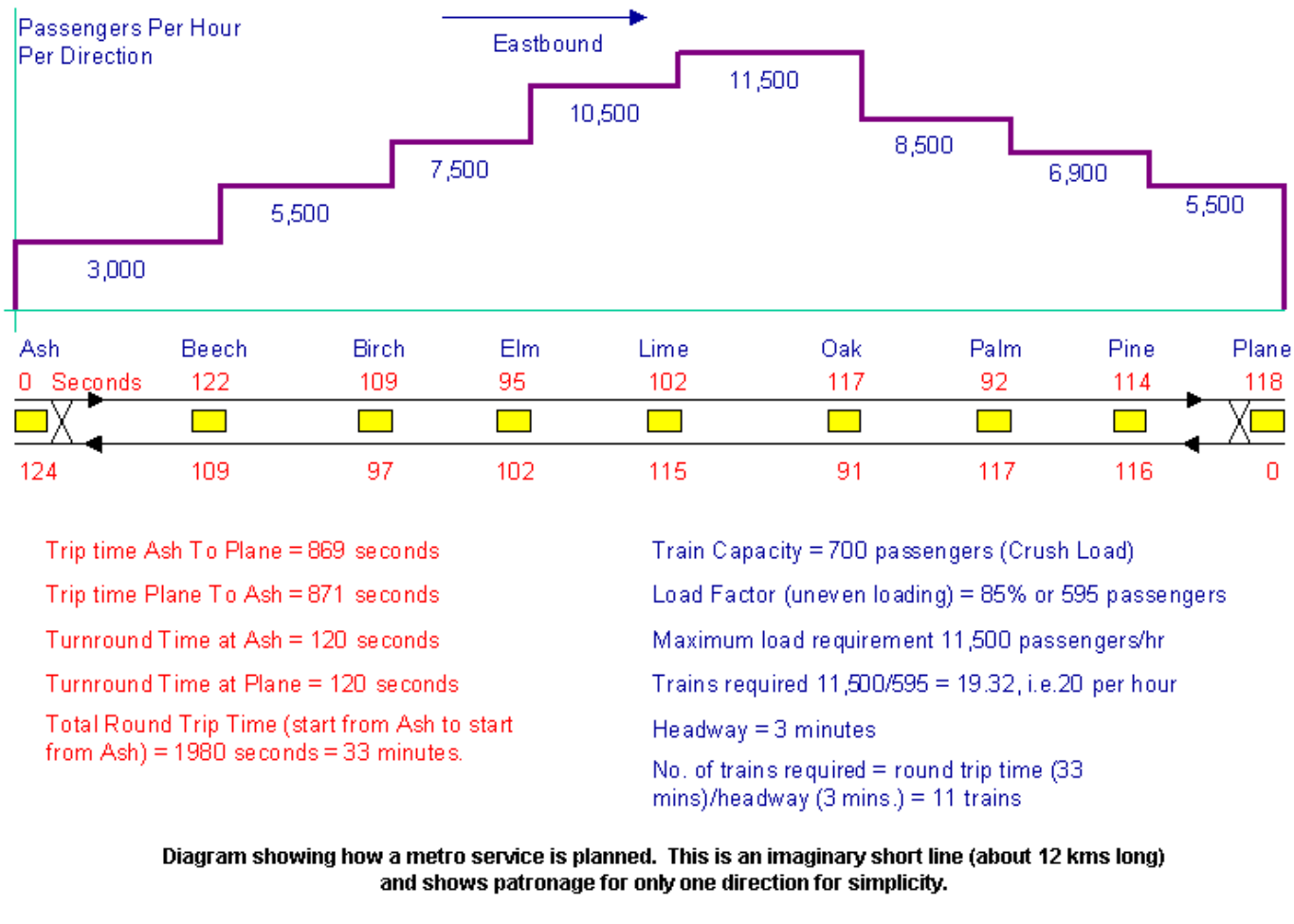


Diagram showing how a metro service is planned. This is an imaginary short line (about 12 kms long) and shows patronage for only one direction for simplicity.

Here is an example of how a train service is planned for the peak hour of a short metro line. I suppose we could call it the Forest Line. The diagram below shows the elements involved in planning the train service.

First, you have to find out how many passengers will use the service. This involves assessing the numbers of people in a given area who will come to the station during each hour of the day and how they will get there. Some will walk, some will use a bus service (if there is a good connection) and some will drive, if there is cheap parking. For walkers, 500 to 800 metres is about the limit. Bus users will usually prefer to get a direct route and good integration of transport will allow bus routes to be organised to feed rail stations. Often, this process requires political commitment - essential if the resources are to be used properly.

The next stage is to determine where the people want to go and when. For planning a new railway, this will be critical in deciding the best route. For existing lines, the development of the city may already have resulted from the routing of lines as it did in New York and London.

All of this "origin and destination" patronage data is fed into a computer program and the numbers for each station, each direction and during each hour are derived. Such programs are usually owned by consulting companies who are engaged to do the work or who licence the operator to use the software. The end result is a set of numbers for each station which show:

- Passengers boarding trains in each direction
- Passengers alighting from trains in each direction
- Passengers riding on trains between stations for each direction
- Passengers transferring from line to line at interchange stations (if any)

To allow the train service to be planned, the patronage study generates "passengers per hour per direction" (pphpd) as shown at the top of the diagram above. In our case, we see the passenger numbers travelling between each station but, for simplicity, only the eastbound direction. The "curve" generated will not necessarily look like the one above on a suburban route, where there is often a build up starting at one end of the line which carries on building up until the terminus is reached and the train is full (to bursting sometimes).

Round Trip Time

Once the patronage is determined, the train service has to be planned to carry the people who turn up. During the peak hours, this can be a lot of people. The frequency and number of trains required has to be calculated to match. First the run times are worked out, again by a computer program which includes the profile of the line (curves, gradients, station locations, dwell times at stations etc.) and the performance of the trains to be used. On heavily used lines, the program may incorporate the patronage figures to estimate the number of seconds each train has to stand or "dwell" at each station while loading and unloading takes place.

The diagram of our imaginary Forest line above shows the computer generated arrival times, in seconds, for a train running in each direction. Added together and with allowances for terminal standing times, the program will eventually provide a "round trip time", i.e. the time it takes to run from one end of the line to the other, wait at the terminus, run back to the starting place and wait for the next round trip departure time.

In our example above, the run time from Ash to Plane is 869 seconds and the time back from Plane to Ash is 871 seconds. There is a 120 second dwell at each terminus to allow the train to change direction and load/unload passengers. This is actually longer than needed but we usually leave in a bit of extra time for delays - known as "recovery time". This time is also used to give a round trip time to balance the service interval. The end result - our round trip time - is 1980 seconds or 33 minutes.

Train Loading

The next step is the train loading. First we determine the train capacity - in our example above, I have used a capacity of 700 passengers. This is a fairly small number for a modern metro line but it is used in London for some lines and for those places which have short trains. At the other end of the scale, in Hong Kong, the Kowloon Canton Railway uses over 4000 passengers per train as the planned capacity of its 12 car trains. On one occasion, 363 passengers were counted travelling in one 24 metre car.

The density of passengers also determines the total capacity. In Western countries, the standing capacity of a train will often be calculated at 4 or 5 passengers per sq./m. In the Asian context, this number rises to 8 per sq./m. Europeans want lots of space, Asians don't seem to mind so much. The standing area is the free floor area of the car, i.e. where there are no seats.

We also decide on a load factor. No train will fill with passengers equally from end to end and passengers will not arrive at stations in steadily flowing numbers throughout each hour. So, a load factor is applied. In our case, it is 85%, a relatively small allowance used in Hong Kong because of the density of traffic. Larger allowances may be appropriate in other countries.

Now we know the capacity of the train (700 * 85% = 595), it is a relatively simple sum to use the patronage data to determine the number of trains required each hour. You divide the numbers of passengers travelling along the busiest section of line (11,500) by the train capacity (595) to get trains per hour (19.32). We have to call it 20 trains per hour as we can't run 0.32 of a train. Twenty trains per hour is equivalent to a train every three minutes or a 3-minute headway.

Rolling Stock Calculations

We are now ready to calculate the rolling stock requirements. To find out how many trains are required to operate a regular interval passenger service, the following simple formula is applied:

Round trip time divided by the headway.

In our Forest Line example above, the round trip time is 33 minutes and the headway is 3 minutes, so we need 11 trains to operate this service during the hour when there are 11,500 passengers travelling over the busiest section of line. Some railways keep a "service spare" train on standby, in case a service train becomes defective or a disruption to the service leaves a gap in the headway which needs to be filled temporarily. In this case we might plan to have 12 trains available for service and we will have to add one or two extra to cover maintenance requirements.

After the peak hours, the numbers of passengers will drop so the train service can be reduced to match. This will often mean, for a metro line, about a 40% or even a 50% reduction in the number of trains required. The planned train loading will usually be reduced during off-peak hours to allow a greater percentage of passengers to get seats, so the number of trains operating in off-peak hours may not match the patronage exactly as it does during the peak. Thus the load factor may be 50% or less.

Rolling Stock Operation

The stock required to operate a regular passenger service will be calculated as we have seen above and then a series of "diagrams" or working paths for each train will be designed. These will take into account:

- the location of the depot
- the location of other stabling points
- the frequency of exterior washing required
- the frequency of maintenance inspections
- other routes where the trains can be used

A train will have to be given time to move from its stabling point to the first station where it is required to pick up passengers. Time will also be allowed for its return to a stabling position, its "dispersal". Trains used to cover a weekday metro or commuter service present complicated patterns of use which look like this:

All day use: AM start to night finish

Peak only: AM start to AM finish; PM start to PM finish

Peak and evening: AM start to AM finish; PM start to Night finish

From a 1939 VR PTT

TELL US HOW WE CAN IMPROVE YOUR TIME-TABLES.

Submit suggestions, accompanied by your name address, to the Secretary for Railways, Spencer Street, Melbourne, C1.

T. Rider, Government Printer.

Bus service to the Southwest of Chatswood Station

Late again! Yes, the editor got his timetable time table wrong. The following article by **JIM O'NEIL** *was originally scheduled to appear in November 2001—but it somehow disappeared down a rat-hole in the editor's office. Jim has already commented on this long-lost article– see the August 2001 Times! With apologies to Jim, it finally makes its appearance.*

Bus service on the western side of the North Shore Line has always been difficult, not just because of the high car ownership, but also due to the broken geography. For example, the bus route described here, originally the route 52, drops westwards down a steep hill in Centennial Ave, Chatswood, then turns south, then east and climbs up Dalrymple Ave to the ridge at Beaconsfield Rd, where it goes west again. At Greville St, which was planned to run from Mowbray Road north across Fullers Rd, these connections are blocked by the gullies of Swayne's Creek, and the Route 52 turned back on its tracks there and went to Artarmon. For most of its history, its owners have tried to make the 52 profitable by combining it with another run.

The earliest timetable I have is the one below and overleaf. It is undated, but was current around 1960. The 52 has already been combined in off-peak hours with the 192, from Whiting St, Artarmon to Crows Nest. The unwary reader might think the services are also combined in peak hours, but careful perusal will show that the 52 and 192 services on the same line are separate. If you follow the 7.15 from Chatswood, it runs, missing out Beaconsfield Road, to Artarmon at 7.29. The bus leaving Artarmon at 7.06 must be a different bus. In fact, it commenced at Whiting St at 7.00, but this entry

CHATSWOOD STN. — ARTARMON STN. — ST. LEONARDS STN. — CROWS NEST

ROUTE 52 No Service on Sundays, Holidays, Good Friday or Christmas Days. **ROUTE 192**

ARTARMON RED BUS SERVICE Proprietor: W. Threlfall Price 3d.

Depart Chatswood Station	Arr. & Dep. Carr St. & De Villers Av.	Arr. & Dep. Lone Pine & Eddy Avenues	Arr. & Dep. Dalrymple Avenue & Beaconsfield Rd.	Arr. & Dep. Grenville St. & Beaconsfield Rd.	Arr & Dep. Mowbray Road & Goodchap Street	Arrive Artarmon Station	Depart Artarmon Station	Arr & Dep. Whiting Street & Clarendon Street	Arr & Dep. Artarmon Station	Arr & Dep. Clegg Street	Arr & Dep. St. Leonards Station
A.M.	A.M.	A.M.	A.M.	A.M.	A.M.	A.M.	A.M.	A.M.	A.M.	A.M.	A.M.
7.05	TO AND	FROM	WYVERN	——	——	——	——	——	——	——	——
7.15	7.18	7.20	——	——	7.23	7.28	7.29	——	7.06	7.10	7.13 arr
7.45	TO AND	FROM	WYVERN	——	——	——	——	7.00	——	——	——
7.55	8.05 arr	——	——	——	——	——	——	——	——	7.25	7.28
8.15	via Carr St	8.19	——	——	——	——	——	7.45	7.25	7.55	7.58
8.25	——	8.28	8.30	——	8.35	8.40	——	8.15	8.24	8.26	8.29
8.55	——	8.58	9.00	9.03	9.06	9.10	9.11	To school	——	8.45	8.48
——	——	——	——	——	——	——	——	9.15	9.20	9.22	9.25
10.15	10.19	10.20	10.23	——	10.25	10.30	10.30	10.35	10.40	10.42	10.45
11.20	11.24	11.26	11.28	11.30	11.32	11.38	——	——	dep 11.38	11.40	11.43
P.M.	P.M.	P.M.	P.M.	P.M.	P.M.	P.M.	P.M.	P.M.	P.M.	P.M.	P.M.
12.20	12.24	12.26	12.28	12.30	12.32	12.38	12.38	12.43	——	——	——
——	——	——	——	——	——	——	——	——	——	——	——
2.20	2.23	2.24	2.26	2.28	——	2.35	2.35	2.40	2.45	2.48	2.50
2.50	2.54	2.56	2.58	3.00	2.30	——	——	——	——	——	——
——	——	——	——	——	——	——	——	——	——	——	——
3.20	3.23	3.24	3.26	3.30	——	Arr.	——			Via	Arr.
3.35	3.38	3.42	3.45	3.48	3.35	3.40	——	——	——	3.55	4.08
4-16	4.20	4.23	4.28	4.30	3.50	3.55	——	——	——	4.15	4.15
					Arr.	——	——	——	——	4.40	4.50
4.46	4.50	4.52	4.56	4.58	——	——	——	——	——	4.55	5.03
5.16	5.20	5.22	5.25	5.28	5.35	5.40	——	5.50	6.00	6.02	6.06
6.01	6.05	6.07	6.10	6.12	6.17	6.20	——	——	——	——	——
——	——	——	——	6.30	6.35	6.40	——	——	——	——	——
7.01	7.05	7.07	7.10	7.12	——	——	——	——	——	——	——
					SATURDAY						
8.00	8.04	8.06	8.08	——	8.10	8.13	8.13	8.19	8.25	8.27	8.29
9.20	9.24	9.25	9.28	9.30	11.02	9.38	9.38	9.46	8.51	9.52	9.55
10.45	10.48	10.50	10.53	11.00	9.32	——	——	——	11.05	11.07	11.10
				p.m.	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.
11.50	11.53	11.55	11.58	12.00	12.05	12.10	12.10	12.16	12.21	12.22	12.25
1.00	1.03	1.05	1.08	1.10	——	——	——	——	——	——	——

W. Threlfall, Routes 52 & 192. No date, but c. 1960. Front side.

Arr. and Dep. Crows-Nest	Arr. and Dep. St. Leonards Station	Arr. and Dep. Clegg Street	Arr. and Dep. Artarmon Station	Arr. and Dep. Whiting Street & Clarendon St.	Arr. and Dep. Artarmon Station	Arr. and Dep. Mowbray Rd. & Goodchap Road	Arr. and Dep. Grenville St. & Beasonsfeild Rd.	Arr. and Dep. Dalrymple Ave. & Beaconsfield Rd.	Arr. and Dep. Lone Pine & Eddy Ave.	Arr. and Dep. Carr St. & De Villiers Ave.	Arr. and Dep. Chatswood Station
A.M.	A.M.	A.M.	A.M.	A.M.	A.M.	A.M.	A.M.	A.M.	A.M.	A.M.	A.M.
——	Dep. 6.50	6.53	6.55	7.00	——	——	6.50	6.53	6.55	6.56	7.01
——	——	——	——	——	——	——	——	——	——	——	7.15
——	Dep. 7.20	7.23	——	——	7.29	7.32	7.35	7.38	——	——	7.45
——	——	——	——	——	——	——	——	——	——	——	7.55
——	7.32	7.35	7.39	7.45	——	——	——	8.05	8.10	——	8.15
——	8.00	8.03	8.07	8.12	——	——	——	——	8.19	8.20	8.25
——	8.40	8.43	——	——	8.41	8.44	——	8.48	8.49	8.50	8.55
——	8.55	8.58	9.01	9.08	——	——	——	——	——	——	——
9.30	9.35	9.38	9.41	9.45	9.50	9.54	10.00	10.03	10.05	10.07	10.12
10.50	10.55	10.57	11.00	——	11.00	11.04	11.10	11.13	11.15	11.18	11.20
11.48	11.53	11.56	11.58	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.
p.m.	p.m.	p.m.	p.m.	12.03	12.08	12.10	——	12.03	12.05	12.18	12.20
——	——	——	——	——	——	——	——	——	——	——	——
1.40	1.45	1.48	1.50	1.55	2.00	2.04	——	2.08	2.10	2.15	2.20
2.55	3.00	3.03	3.05	3.10	——	——	——	——	——	——	——
——	——	——	——	——	——	——	3.00	3.03	306	3.08	3.13
——	——	——	——	Dep. School	3.15	3.18	3.23	3.26	3.28	——	3.33
	Dep.	Arr.	——	——	——	——	——	——	——	——	——
——	4.08	4.15	——	——	——	——	——	——	——	——	——
4.30	4.35	4.38	——	——	3.55	3.59	——	4.03	4.08	4.10	4.13
——	4.50	4.53	——	——	——	——	Dep. 4.31	4.34	4.36	4.40	4.45
Dep. 5.20	5.25	5.28	Dep. 5.41	Arr. 5.47	——	——	5.00	5.03	5.05	5.07	5.10
——	——	——	——	——	5.41	5.45	5.48	5.50	5.55	——	6.00
——	——	——	——	——	6.23	6.26	6.30	——	——	——	——
——	——	——	——	——	6.45	6.49	——	6.53	6.55	6.58	7.00
——	——	——	——	——	——	——	7.12	7.15	7.19	7.22	7.25
					SATURDAY						
——	——	——	——	——	——	——	7.50	7.52	7.54	7.55	8.00
8.35	8.40	8.43	8.46	8.51	8.55	9.00	9.05	9.07	9.10	9.12	9.17
10.00	10.05	10.08	10.11	10.16	10.20	10.25	10.30	10.33	10.35	10.36	10.40
11.15	11.20	11.23	11.26	11.31	11.35	11.37	11.42	11.42	11.45	11.48	10.50
12.30	12.35	12.38	12.40	——	12.40	12.45	12.50	12.53	12.55	12.58	1.00
——	——	——	——	——	——	——	——	——	——	——	——

W. Threlfall, Routes 52 & 192. No date, Reverse side.

has dropped down a line. (A further set of dropped entries can be found under Goodchap St at 2.39, 3.35 and 3.50, with two of the arrivals at Artarmon continuing on the wrong line.) The same thing can be found for almost all peak hour services.

But while many lines have two different services on them, others are to be read from the front of the timetable around onto the back. Take the 7.05 and 7.45 TO AND FROM WYVERN. Follow the blank spaces, turn over the page and there are more blank spaces, one line down, with the bus arriving back at Chatswood at 7.15 and 7.55. Wyvern Avenue is to the north of Fullers Rd, and the original 52 service had alternated between Wyvern Ave and Artarmon. Only these two morning runs remain. How did the mornings' passengers return in the evening? Off-peak services must also be read around the page. They do not terminate at St. Leonards, as one might think, but they continue to Crows Nest. The first column on the reverse is marked Arr. & Dep. Crows Nest and the times are (apart from the last one: dep. 5.20) five minutes after leaving St. Leonards on the front side.

Some of the 52 runs start at Beaconsfield and Greville, while some of the 192's run only to Clegg St. In the more crowded morning service, we find the 52, after its second Wyvern run, commences at Dalrymple at 8.05, misses De Villiers, returns via Carr to Lone Pine at 8.19 and runs via De Villiers to Chatswood. All these short workings involved a three point turn in the street, and the timetable gives no time for recovery if there were any delays.

This general plan continued, with modifications, for twenty years. The Denholm timetable of Monday 2nd June 1980 on p14 has been simplified. In the 52, there are no Wyvern Ave service, and only one intermediate timing point is listed: Colwell Crescent, two short blocks past Greville. Peak hour services run to Colwell more often than to Artarmon. On the 192, peak hour services do not go beyond Clegg St to Artarmon, but some buses are extended to C & W (Clegg & Whiting), or start from Hotham Pde (a block beyond Whiting), so there are still services into the Whiting St area, but no longer from Artarmon. Moreover, it now takes two buses to operate the 192. There is off-peak service every hour Mondays to Fridays to Crows Nest, but Saturday service runs only to Colwell Cres., but every half hour. So there had even been some improvements, as well as diminutions in service.

In the mid-sixties, the Artarmon service and the Longueville bus routes were taken over by Macquarie Towns of Windsor, who sought economies by combining the two routes out of Chatswood. They also sought to expand into the east side of the railway between Artarmon and St. Leonards, where the 128 had once run. Their timetable of May 1987, on p15 shows the various runs out of Chatswood. The primary service was to Longueville via Colwell Cres. Five Longueville buses operated direct from the East Side of Chatswood Stn, at 8.35 & 10.25 a.m. and 2.45, 3.55 & 4.15 p.m.. All other buses operated from the East to the West Side and thence via Colwell Cres. There were some additional buses to Colwell Cres only, which did not return to the East Side (the old 127 stand). These runs were identified as 127, soon to be renumbered 264.

Two services ran to St. Leonards and TCN 9, leaving Chatswood at 8.15 and 2.30, and also serving Artarmon P.S. These were the remains of a more ambitious service, and kept the number 52. They were never to be renumbered and ceased within a few years. Two services on the 192 are listed from St. Leonards at 8.35 and 8.50. No evening return services are listed, but presumably they ran at factory knock-off times. These runs were eventually taken over by the STA as route 260, but did not last long.

TIMETABLE ROUTE Nos. 52 & 192

Chatswood Station to Artarmon Station (Route 52)

Artarmon Station to Crows Nest via St. Leonards (Route 192)

MONDAY TO FRIDAY

Depart Crows Nest	St. Leonards Station	Clegg Street	Artarmon Station	Colwell Crescent	Arrive Chatswood Station	Depart Chatswood Station	Colwell Crescent	Artarmon Station	Clegg Street	St. Leonards Station	Arrive Crows Nest
a.m.	a.m.	a.m.	a.m.	a.m.	a.m.	a.m.	a.m.	a.m.	a.m.	a.m.	a.m.
—	6.50	6.55	—	—	—	—	—	—	6.55	6.57	—
—	—	—	—	6.40	6.50	6.50 ER	6.55	—	—	—	—
—	—	—	—	7.00	7.10	7.10 ER	7.15	—	—	—	—
—	7.00	7.03	to C & W	—	—	—	—	—	—	—	—
—	7.08	7.13	—	—	—	—	—	—	7.13	7.15	—
—	—	—	—	7.20	7.35	7.35	7.40	7.50	—	—	—
—	7.22	7.25	—	—	—	—	—	—	7.25	7.28	—
—	7.30	7.33	to C & W	—	—	—	—	—	—	7.45	—
—	7.40	7.43	—	—	—	—	—	—	7.43	7.47	—
—	7.50	7.53	to C & W	—	—	—	—	—	—	8.05	—
—	—	—	7.50	8.00	8.15	8.15	8.20	—	—	—	—
—	8.00	8.03	—	—	—	—	—	—	8.13	8.16	—
—	8.10	8.13	to C & W	—	—	—	—	—	—	8.25	—
—	—	—	—	—	—	—	—	—	8.51	8.54	—
—	—	—	—	8.20	8.35	8.35	8.40	8.55	8.58	9.01	—
—	8.22	8.25	—	—	—	—	—	—	8.25	8.28	—
—	8.30	8.33	to C & W	—	—	—	—	—	—	8.45	—
—	8.40	8.43	8.46	8.55	9.05	9.25	9.35	9.45	9.48	9.51	9.54
—	8.48	8.51	to C & W	—	—	—	—	—	—	—	—
—	9.00	9.03	9.06	9.15	9.25	—	—	—	—	—	—
9.55	10.00	10.03	10.06	10.15	10.25	10.25	10.35	10.45	10.48	10.51	10.54
10.55	11.00	11.03	11.06	11.15	11.25	11.25	11.35	11.45	11.48	11.51	11.54
p.m.	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.
11.55	12.00	12.03	12.06	12.15	12.25	12.25	12.35	12.45	12.48	12.51	12.54
12.55	1.00	1.03	1.06	1.15	1.25	1.25	1.35	1.45	1.48	1.51	1.54
1.55	2.00	2.03	2.06	2.15	2.25	2.25	2.35	2.45	2.48	2.51	2.54
—	—	—	—	—	—	S3.20	3.30	—	—	—	—
2.55	3.00	3.03	APS3.10	3.20	3.30	3.30	3.40	3.50	4.03	4.07	—
—	—	—	—	3.35	3.45	3.50	4.00	—	—	—	—
—	—	—	—	4.00	4.10	4.10	4.20	—	—	—	—
—	4.10	4.15	—	—	—	—	—	—	4.15	4.20	—
—	4.20	4.25	—	—	—	—	—	—	4.30	4.35	—
—	—	—	—	—	—	—	—	Noyes Bros.	4.33	4.38	—
—	—	—	—	4.20	4.30	4.33 SGE	4.43	—	—	—	—
—	—	—	—	—	—	—	Hotham Pde.	4.28		4.38	—
—	—	—	—	4.43 SGE	4.53	5.05 SGE	5.15	—	—	—	—
—	—	—	—	—	—	—	Hotham Pde.	4.45	4.50	4.53	—
—	—	—	—	—	—	—	Hotham Pde.	5.00	5.05	5.10	5.13
—	—	—	—	5.15 SGE	5.25	5.35	5.45	5.55	—	—	—
5.20	5.25	5.28	5.35	5.45	5.55	6.00	6.10	—	—	—	—
—	—	—	—	6.10	6.15	6.20	6.30	—	—	—	—
—	—	—	—	6.30	6.35	6.36	6.45	6.55	—	—	—

SATURDAY

a.m.	a.m.	a.m.	a.m.	a.m.	a.m.	a.m.	a.m.	a.m.	a.m.	a.m.	a.m.
—	—	—	—	7.30	7.40	7.45	7.55	—	—	—	—
—	—	—	—	8.00	8.10	8.15	8.25	—	—	—	—
—	—	—	—	8.30	8.40	8.45	8.55	—	—	—	—
—	—	—	—	9.00	9.10	9.15	9.25	—	—	—	—
—	—	—	—	9.30	9.40	9.45	9.55	—	—	—	—
—	—	—	—	10.00	10.10	10.15	10.25	—	—	—	—
—	—	—	—	10.30	10.40	10.45	10.55	—	—	—	—
—	—	—	—	11.00	11.10	11.15	11.25	—	—	—	—
—	—	—	—	11.30	11.40	11.45	11.55	—	—	—	—
p.m.	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.
—	—	—	—	12.00	12.10	12.15	12.25	12.35	—	—	—

Route 127/52: Northwood, Longueville, Lane Cove St. Leonards, Artarmon and Colwell

TO CHATSWOOD

Bus Number	Northwood	Longueville	Blaxlands Corner	Lane Cove	St. Leonards	T.C.N. 9	Artarmon Station	Colwell Crescent	Arrive Chatswood
				MONDAY TO FRIDAY					
4	..	7.00	7.03	7.05	..	..	..	7.15	7.25
6	7.15	7.20	7.23	7.25	..	..	..	..	7.45
6	..	..	..	..	..	..	..	7.55	8.05
3	7.50	7.55	7.58	8.00	..	..	..	..	8.15
6	..	..	..	..	..	..	..	8.20	8.30
1	8.10	8.15	8.18	8.20	..	..	..	..	8.30
8	..	..	..	..	8.35	Industrial	..	..	..
8	..	..	..	..	8.50	Industrial	..	..	..
6	..	..	..	..	..	..	..	8.50	9.00
4	8.35	8.40	8.43	8.45	..	..	..	..	9.00
3	..	..	..	..	9.00	9.15	9.20	V. Orch.	9.25
5	9.25	9.30	9.33	9.35	..	..	..	..	9.50
4	..	..	..	..	..	..	..	9.40	9.50
1	10.40	10.45	10.48	10.50	..	..	..	11.00	11.10
5	11.40	11.45	11.48	11.50	..	..	..	12.00	12.10
6	12.40	12.45	12.48	12.50	..	..	..	1.00	1.10
6	1.35	1.40	1.43	1.45	..	..	..	..	2.00
6	..	2.30	2.33	2.35	..	..	..	..	2.45
7	..	..	Via Hampden Rd.		3.00	..	3.05	3.10	3.20
7	..	..	..	..	..	..	..	3.40	3.50
8	3.25	3.35	3.38	3.40	..	..	..	..	3.55
5	3.45	3.50	3.53	3.55	..	..	..	..	4.10
7	..	..	..	..	..	..	..	4.05	4.15
7	..	..	..	..	..	..	..	4.30	4.40
5	4.35	4.40	4.43	4.45	..	..	..	..	5.00
8	5.25	5.30	5.33	5.35	..	..	..	..	5.50
				SATURDAY SERVICE					
				COLWELL CRES., COMBINED WITH LONGUEVILLE SERVICE					
13	..	..	..	..	..	..	..	8.15	8.25
12	8.40	8.45	8.48	8.52	..	..	..	9.05	9.15
13	9.50	9.55	9.59	10.03	..	..	..	10.15	10.25
12	10.50	10.55	10.59	11.03	..	..	..	11.15	11.25
13	11.50	11.55	11.59	12.03	..	..	..	12.15	12.25
12	12.45	12.50	12.54	12.58	..	..	..	..	1.10
12	..	1.40	1.44	1.48	..	..	..	..	2.00

Certain services from Colwell Cres. terminate west side of Chatswood Stn.

NOTE
V. Orch.: Via Orchard Rd. to Chatswood Stn.
S: School days only.
No service on public holidays.
All times subject to traffic conditions.

Route 127/52: Cowell Cresent, Artarmon, St. Leonard lane Cove Northwood and Longueville

CHATSWOOD STATION / FROM CHATSWOOD

Bus Number	Depart East Side	Depart West Side	Colwell Crescent	Artarmon Station	T.C.N. 9	St. Leonards Station	Lane Cove	Blaxlands Corner	Northwood	Longueville
					MONDAY TO FRIDAY					
4	7.25	..	..	..	..	..	7.40	7.43	7.45	7
6	7.45	7.48	7.55	..	..	..	..	..	..	
6	..	8.10	8.20	..	..	..	..	..	..	
3	8.15	8.18	8.40	8.50 Artm. Sch.		9.00	Via Hampden Rd. con't to Chatswood			
1	8.35	..	..	..	..	..	8.50	8.53	..	8
6	..	8.45	8.55	..	..	..	..	..	..	
4	9.05	9.08	9.15	..	..	..	..	..	..	
4	..	9.30	9.40	..	..	..	..	..	..	
4	10.25	..	..	..	..	..	10.40	10.43	10.45	10
9	11.35	11.38	11.45	..	..	..	11.55	11.58	12.00	12
6	1.10	12.15	12.25	..	..	..	12.35	12.38	12.40	12
6	1.15	..	..	..	..	..	1.30	1.33	1.35	1
6	2.00	2.05	2.15	..	..	..	2.25	2.28	..	2
7	2.30	..	..	2.40	2.45	3.00	Sets down Hampden Rd. from Chatsw			
6	2.45	..	..	..	..	..	3.05	3.08	3.10	3
7	..	3.25	3.35	..	..	..	..	..	..	
7	..	3.55	4.05	..	..	..	..	..	..	
8	3.55	..	..	..	..	..	4.10	4.13	4.15	4
5	4.15	..	..	..	..	..	4.30	4.33	4.35	4
7	..	4.20	4.30	..	..	..	..	..	..	
7	4.40	4.43	4.50	..	..	..	5.00	5.03	5.05	5
5	5.05	5.08	5.15	..	..	A/R	5.25	5.28	5.30	5
8	5.50	5.53	6.00	..	..	A/R	6.15	6.18	6.20	6
				SATURDAY SERVICE						
				COMBINED WITH LONGUEVILLE SERVICE						
13	8.30	8.33	8.40	..	..	..	8.50	8.53	8.55	9
12	9.20	9.23	9.30	..	..	..	9.40	9.43	9.45	9
13	10.30	10.33	10.40	..	..	..	10.50	10.53	10.55	1
12	11.30	11.33	11.40	..	..	..	11.50	11.53	11.55	12
13	12.45	12.48	12.55	..	..	..	1.05	1.08	1.10	
12	1.15	..	..	..	..	..	1.30	1.33	1.35	
12	2.05	..	..	..	..	..	2.20	2.23	2.25	

NOTE
O: Via Orchard Rd. to Chatswood.
S: School days only.
A/R: As required to last passenger beyond Lane Cove.
No service on public holidays.
All times subject to traffic conditions.
Certain services to Colwell Crescent commence west side of Chatswood Station.

Lane Cove Bus Service, May 1987. Routes 127/52 (also includes 192).

Lane Cove Bus changed owners and timetables, but did not come up with a satisfactory operation. In August 1989 the 264 was sold to North & Western, who combined the Colwell Cres run with their 53 to Riverview, renumbered as 264, but later as 532. Their last timetable on the 532, that of 5 May 1997, is on page 16. Service has been further reduced. The off-peak services run only in the morning, and peak services skip Colwell Cres, when running against the flow. There are some afternoon school and peak services to Colwell Crescent only, at 3.10, 3.40 and 5.10. On Saturdays we have a two hourly service interworked with the 261 to the Queen Victoria Building, and hence, with their journey broken at Lane Cove.

We were promised new and improved service when Sydney Buses took over, but not all the way to Colwell Cres. That's too difficult a terminus, so they told us. Instead the buses would run as far as Dalrymple and Beaconsfield and return in a loop service along the Pacific Highway. But there must have been protests, as in the new 255 timetable, dated 4 March 2001, buses run along the back streets to and from Colwell Crescent. They run half-hourly in peak hours and on a clock face hourly timetable in between. In the off-peak hours one bus operates both the 255 and the new 256 to Chatswood West (Hawthorne Avenue or Fairyland), formerly diversions from the 550 to Parramatta.

(Another) Error! Error! Error!

In the June issue of The Times, a letter commenting on one of Jim O'Neil's previous articles appeared under the name of Robert Henderson. Robert expressed mystification at this—as well he might, because the letter actually came from Lourie Smit. You should pencil in a correction or an amended version of the newsletter can be had by e-mail from the editor at the e-mail address given on page 2.

In last month's Lough Swilly article, Paul Kelly was inadvertently omitted as a contributor. His L&LS website is at http://www.sjp.clara.net/nibus/lswilly.htm.

The Times web version will contain these corrections.

Apologies to each of them.

North & Western. 5 May 1999. Route 532 Chatswood to Riverview.

RIVERVIEW AND LANE COVE TO CHATSWOOD

Yallambee Rd & Wangalla St	Warruga Pl. & Riverview St	Lane Cove Post Office	Nundah St & RalstonSt	Colwell Crescent &Beaconsfield Rd.	Chatswood station
	WEEKDAYS	MORNING			
		6:35	6:41	6:50	7:05
6:54	6:58	7:05	7:11	7:20	7:35
7:24	7:28	7:35	7:41	7:50	8:10
8:05	8:09	8:19	8:27	8:36	8:56
8:40	8:44	8:53	8:59	9:06	9:20
K9:30	9:35	9:43	9:49	9:57	10:07
10:37	10:41	10:49	10:55	11:03	11:13
K11:42	11:47	11:55	12:01	12:09	12:19
		AFTERNOON			
1:59	2:03	2:11	QVB		C2:28
				S3:20	S3:30
				3:50	4:00
4:36	4:40	4:47			5:02
5:06	R5:15	5:21			5:36
				5:20	5:30
6:06	6:10	6:17			C6:30
	SATURDAY	MORNING			
9:03	9:06	9:14	QVB		
		9:15	9:21	9:30	9:40
	QVB	L10:15	10:21	10:30	10:40
11:03	11:06	11:14	QVB		
	QVB	L11:15	11:21	11:30	11:40
		AFTERNOON			
1:03	1:06	1:14	QVB		
	QVB	L1:15	1:21	D	1:32
2:21	2:24	2:32	2:38	2:47	2:57
4:21	4:24	4:32	4:38	4:47	4:57

CHATSWOOD AND LANE COVE TO RIVERVIEW.

Chatswood station	Colwell Crescent &Beaconsfield Rd.	Nundah St & RalstonSt	Lane Cove Post Office	Yallambee Rd & Wangalla St	Warruga Pl. & Riverview St.
		WEEKDAYS	MORNING		
7:10			7:20	7:24	7:28
7:40			7:50	R8:05	8:09
8:10	M	8:20P	B8:30	8:40	8:44
9:10	D	9:20	9:26	K9:30	9:35
10:10	10:20	10:27	10:33	10:37	10:41
11:15	11:25	11:32	11:38	K11:42	11:47
			AFTERNOON		
12:21	12:31	12:38	12:44		
C1:30			1:55	1:59	2:03
S3:10	S3:20				
3:40	3:50				
4:10	4:20	4:27	4:32	4:36	4:40
4:40	4:50	4:57	5:02	5:06	R5:15
5:10	5:20				
5:40	5:50	5:57	6:02	6:06	6:10
6:10	6:20	6:27	6:32		
		SATURDAY	MORNING		
C [8:30]			9:00	9:03	9:06
9:50	10:00	10:07	10:14	QVB	
10:41	D	10:54	11:00	11:03	11:06
11:50	12:00	12:07	12:14	QVB	
			AFTERNOON		
C [12:30]			1:00	1:03	1:06
1:50	2:00	2:07	2:14		
C [2:00]			QVB 2:18	2:21	2:24
2:59	3:09	3:16	3:23		
C [4:00]			QVB 4:18	4:21	4:24
5:10	5:20	5:27	5:34		

Another month of Sundays

We finish as we started, with infrequent trains. Below is an extract of the Victorian Railway Country public timetable of December 11, 1939, showing the route of Sunday Excursion Trains—which were later curtailed as a wartime measure. On some lines, such as Ballarat, such trains used to run also to intermediate stations– such as Bacchus Marsh. Note that Lang Lang is a terminus!

For

TRAIN SCHEDULES

see

Table 1a for Bendigo and Daylesford,

Table 25 for Ballarat,

„ 39 for Geelong,

„ 75 for Warragul and Traralgon

„ 83 for Lang Lang

in this Folder.

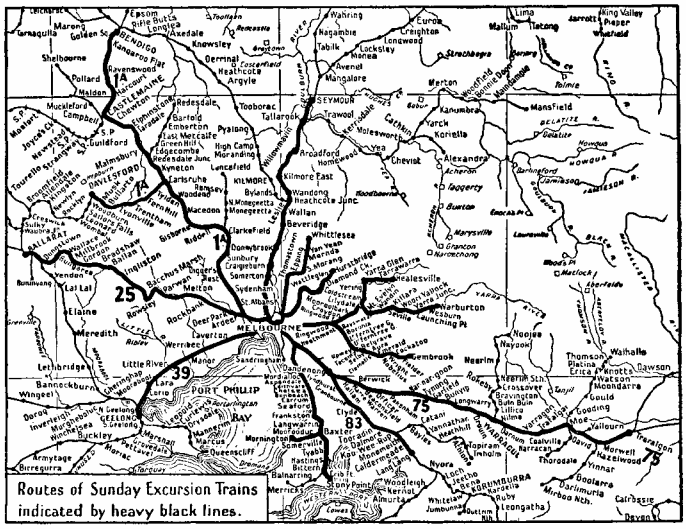
For

Stations on Other Lines shown in Fares Table above

see

the Suburban Folder.

Map Showing Routes of Sunday Excursion Trains.



SUNDAY EXCURSION TICKETS

to the above-mentioned Stations are obtainable at all Metropolitan and Suburban Stations on the preceding Saturday or on the day of travel.

REFRESHMENT ROOMS

are open on Sundays at

Ballarat, Geelong, Bendigo, Warragul, and Woodend.