

## The Times

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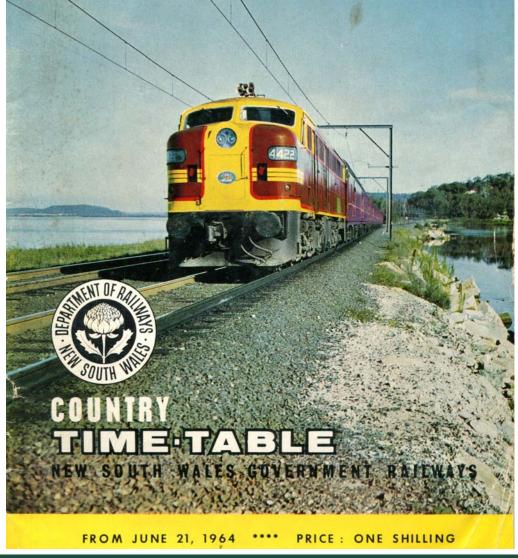
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# Tripe Planners? GEOFF LAMBERT

N THE JUNE ISSUE I RELATED how I had begun travelling from Fairlight to the University of Western Sydney Macarthur Campus and how I decided to resort to TfNSW's Plan Your Trip (PYT) website.

In the railfan world, there is sometimes an outbreak of the fad of trying to cover an entire suburban railway system in a single day. Timetable collectors are good at planning such excursions. There are also mileage collectors - those who try, as life's ambition, to cover every inch of the transport routes available to them. The most famous Mileage Collector on the planet was E.M.Frimbo, who wrote for us in 2014. Frimbo recounted how he planned his trips by endlessly poring over masses of timetables. This can be a pleasure, but if one has to do it in a hurry, to do it for a real travel purpose or to do it for a living, wouldn't it be easier to use a Trip Planner?

Amongst timetable aficionados, Trip Planners are often deprecated not least because they sometimes produce Tripe instead of Trips. GPS route finders, including those on phone apps, are also sometimes deprecated because they sometimes lead drivers into active volcanoes. Nonetheless, both Trip Planners and Route Finders are used enthusiastically by about 80% of normal people.

#### **Route Finding**

Route finding or planning software is computer software designed to find an optimal route between two geographical locations using a journey planning engine, typically specialised for road networks as a road route planner. A route finder is timeindependent- it merely finds the best way to go. It can typically provide a list of places one will pass by, with crossroads and directions that must be followed, road numbers, distances, etc. It also usually provides an interactive map with a suggested route marked on it. Many online mapping websites offer road route planning as an additional feature of their mapping functions. GPS navigation devices typically contain such software. Because route planning software is prone to mistakes if one tries to get directions from destination A to B, the use of common sense is also required. Otherwise one might find oneself inside Mt Etna,

#### **Journey Planners**

A journey planner is a specialised electronic search engine used to find the best journey between two points by some means of timetabled transport. Journey planners

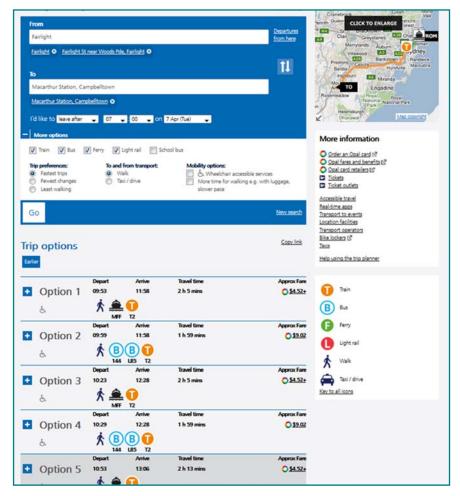
began to be used in the travel and airline industry in the 1970s. They were a favourite of booking agents who accessed them via a terminal linked to a mainframe computer or by phoning a central office that had such a computer. With the advent of the internet, self-service browser-based or smart phone-based on-line journey planner interfaces are available to any end-user. A journey planner may be used in conjunction with ticketing and reservation systems, or just to provide schedule information. Typically Journey Planners use an efficient in-memory representation of the network and timetable to allow the rapid searching of any number of legs between nodes. Database queries may also be used where the number of nodes needed to compute a journey is small, and to access ancillary information about the journey. A single engine may contain an entire transport network and its schedules. It may allow the distributed computation of journeys using a distributed journey planning protocol such as JourneyWeb or Delfi Protocol.

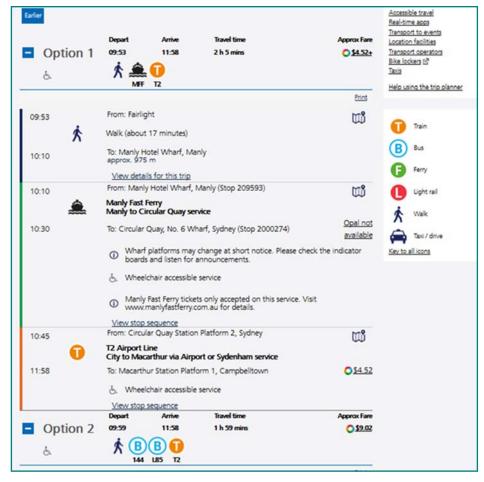
The development of Journey Planning engines has gone hand in hand with the development of data standards for representing the stops, routes and timetables of the network, such as TransXChange (TXC), General Transit Feed Specification (GTFS), NaPTAN and engines such as Transmodel that ensure that these fit to-

gether. Journey planning algorithms are a classic example of problems in the field of computational complexity theory. Real-world implementations involve a trade-off of computational resource between accuracy and completeness of answer, and speed of the results. They use heuristic methods to tackle what is known in the trade as an NP-Hard problem.

A *Public Transport Journey Planner* is a type of web application journey planner designed to provide information about available public transport journeys. The application prompts a user to input an origin and a destination, and uses a journey planning engine to find a route between the two using a specified Public Transport service. The choice of routes is more constrained than for a road route planner, and since it is not only about choosing a route but also about choosing a service on that route, it is termed a journey planner instead of a route planner.

An *Intermodal Journey Planner* (IJP) is an advanced form of route planner that supports journeys with legs using different modes of transport, such as rapid transit or metro, railways, buses and ferries, private cars, taxis and walking or cycling. Some IJPs support door-to-door planning, others only between stops on the transport network, such as stations, airports or bus stops. Time of travel may be constrained to





either time of departure or arrival. Other routing or mode preferences may be specified as well. Fundamental to an IJP is a journey planner engine with public transport timetable and road routing information, with knowledge of the stops and connections. It may also be able to supply maps. An IJP will also have one or more user interfaces optimised for different purposes, for example, online self-service use with a Web browser, for call centre agents, for use on mobile devices, or special interfaces for visually impaired users. An IJP will provide specific journey plans made up of one or more legs. It may also support other representations such as full timetables, stop departures boards, etc.

Fully featured IJPs are capable of incorporating real-time information along with the planned timetable, to provide live departures from a particular stop, to include incident information about situations that may affect a journey, or to compute journeys that take into account predicted delays. These allow the user to perform journey repair to recover from a disruption to

normal services. IJPs may also cover road real-time data. They may be considered part of an Intelligent Transportation System. An IJP calculates the "best" overall journeys between origin and destination for the user's preferred modes and priorities. For public transport routing, the engine will consider journeys that combine different public transport modes, constrained by times of arrival or departure. It may support different optimisations - for example, fastest, least changes, with constraints to go via or to avoid specific waypoints. An IJP integrates timetable information from all relevant transport operators, with a Geographic Information System (GIS) database to produce an optimal schedule for the user. This is greatly facilitated if all the timetables are in some standard format such as that specified by TXC, GTFS or other similar system. An IJP's algorithms are used to construct timetables with optimised *connections*, but are not necessarily search engines which can find optimal connections from a set of pre-existing timetables of different modes. Most engines cannot optimise costs (e.g. cheapest, or most flexible) but may be able to advise fares for a single leg or the entire trip. This will be a crucial factor where successive legs of a journey are charged as separate trips, especially where fares are uncapped.

#### **Databases**

Any journey planner needs a database upon which to draw. Data in the database needs to be in a consistent form especially where more than one operator or mode has to be integrated. A number of standards exist, including. TransXchange (TXC) and General Transport Feed Specification (GTFS). These (and particularly the moving map derivatives) were described in the July issue of Table Talk.

TXC is a UK-created XML-based data standard for the interchange of bus route and timetable information between bus operators, authorities, passenger transport executives, and others involved in the provision of passenger information. The format is a UK national de facto standard sponsored by the UK Department of Transport. The standard is part of a family of coherent transport related XML standards that follow UK GovTalk guidelines and are based on the CEN Transmodel conceptual model. Although TransXChange is currently used mainly to exchange bus timetables, it may also be used for schedules for rail and other modes.

GTFS was originally developed by and for the Portland (Oregon) "Trimet" Transit Authority and Google (the G originally stood for Google). As well as being used by transit organisations; it is also passed on to developers who write and provide transport apps for smartphones. GTFS output a comma-separated text file containing a number of internationally agreed fields such as agency, routes, stops, trips and trip times. The latter is essentially the detailed timetable. There is also a less well -known real-time version of GTFS, particularly directed at management and app developers. GTFS is produced by hundreds of transit operators around the world (http://www.gtfs-data-exchange.com/

agencies/astable) and by all Australian State transport authorities. Usually these databases are open access, but that for NSW requires users to register.

**NSW.** Transport for NSW (TfNSW) produces both TXC and GTFS databases. These draw their information from a backend scheduling system, which in turn

Start	Departure legs	Intermediate legs	Arrival legs
Fairlight	Manly (walk/bus)	Circular Quay (Ferries x2)	Macarthur (T2 train)
Fairlight	Wynyard/Town Hall (buses/walk)		Macarthur (T2/T4 trains)

Starting Hour	4:00	5:00	6:00	7:00	8:00	9:00	10:00	Summary
# of Options	5	6	6	13	11	8	6	55
Fastest	1:56	1:56	1:50	1:53	1:54	1:55	1:57	1:50
Slowest	2:19	2:09	2:00	2:10	2:12	2:12	2:02	2:19
Least modes	3	3	2	3	3	3	3	2
Most modes	3	3	4	3	4	4	3	4
Least legs	3	3	2	2	3	3	4	2
Most legs	6	6	7	8	6	5	5	8

derives is database from data supplied by transport operators to TfNSW in different forms (PDF, Excel, other data formats). Several of the operators already use software to produce their own internally-optimised timetables. Sydney Buses has been using the Canadian-based HASTUS scheduling tool since about 1993. HASTUS has the ability, for instance, to minimise waiting times for a bus-to-bus transfers. TfNSW specifies in Service Contract what data must be supplied and what conventions must apply to the data e.g. names and numbers of "stops".

Both TXC and GTFS in turn feed forward to the TfNSW website <a href="http://tp.transportnsw.info">http://tp.transportnsw.info</a> (formerly <a href="http://tp.transportnsw.info">www.131500.com.au</a>). This website contains both static timetable information and TfNSW's trip planner – "Plan your trip". The TXC database is used to update static timetables on Tuesday and Friday and to create fresh versions of the GTFS on Fridays. GTFS carries forward-looking timetable information for up to 90 days in advance. Plan your Trip is updated less frequently (7 to 14 days?).

Both GTFS and TXC are available to registered users from the TfNSW website. The exact nature of the software which transforms the backend database into TSC and GTFS and onward to the end product is unknown, but may be commercial software

The NSW databases are huge. Until mid-May 2015, TfNSW made available GTFS in three levels of detail:

Sydney Buses (State Transit) only, but including school buses.

Greater Sydney (All Sydney data except Sydney Buses)

Full Greater Sydney (everything)

Now, only the Full Greater Sydney feed is provided. As of 1st July, 2015 the databases behind PYT have been expanded to cover rural and regional NSW trains and buses. Some of its indicative statistics (5<sup>th</sup> May 2015 version) were:

- 123 agencies
- 1,616 routes
- 161, 191 trips

- 38, 932 stops
- 6.5 million timetable times
- School Buses are no longer included

When special events have to be catered for (especially in advance), the database may be several fold larger.

#### "Plan your Trip"

The Trip Planner is easily accessed over the Web from PCs, smartphones and other mobile devices. Most Public Transport apps (there are about a dozen for Sydney) will give access to the Trip Planner or have their own.

TfNSW, in partnership with Deloitte, held a Codeworks hackathon (see <a href="http://en.wikipedia.org/wiki/Hackathon">http://en.wikipedia.org/wiki/Hackathon</a>), on 20-21 September 2014 for App developers Nearly 100 hackers participated in the event, with 29 teams tinkering away to build customer-facing apps- mostly for apps for road drivers but also for public transport app developers. TDX was the main source for static public transport data for the hackathon. TripGo was one of the winners.

My observations are based solely on the "static" Trip Planner application available on the web via a PC. The reality probably is that this method is used these days only by the specialist to analyse (e.g. to produce this article) rather than plan. Most people would be happy to flick their touch screen a few times to go straight to their at-themoment answer. They would not be Frimbos

The Planner has a search engine and presents a drop-down list of possibilities after a few definitive entries have been made. The radio buttons allow one to specify one's priorities- "fastest", "less walking", "fewer changes", etc. Selecting and deselecting these will produce a radically different set of results. The Planner can remember what each user's recent choices have been and offer them up as defaults.

#### The trip

A screen shot from the web-based NSW Trip Planner for my proposed trip from Fairlight to Macarthur in the 10-11 AM starting time period, looks like that shown

on page 3.

This the screen I see after filling in the boxes, drop-down info and radio buttons. It takes a few seconds to produce results. Every transit location in Sydney (bus-stop, railway station, ferry wharf) has a transit stop number which can be entered in lieu of entering names of places. On the bus network, stop numbers are usually created from the local postcode. Names can be vague generalisations (such as "Fairlight" in the above example), or the names of bus stops which, in this instance might be "Sydney Rd near Cohen St", or even a street address.

Viewing the screen is probably enough for most people who use a PC. Some might like to print a copy to take along with them. A printed version will look different from our illustration because the background (including the map) will not be printed. The above is thus necessarily a screen shot, rather than a download, so that both background and foreground graphics can be read - "WYSISYG". Trip Planner can also present data in a very spare, graphics-free B&W text-only version. Such a version is useful because it can be fed to "read out loud" software to give spoken instructions. It also will speed up download time and cost for those with small download limits on their phones.

The screen shot on page 3 is the simplest, "entry" screen. Clicking a"+" button will reveal greater details of a trip, such as that on page 4.

At the bottom of the entry screen is a button to expand every trip. In turn, further details of each leg of the journey—for instance, walking directions and the stop sequence of the service—can be displayed by clicking the appropriate hyperlink on the screen. A fully expanded display for a Fairlight-Macarthur trip with 13 options, is the equivalent of 16 A4 pages in length.

#### Published timetables.

It was fairly clear, even without a Trip Planner, that my best bet was to step onto a pre-peak period E70 Wynyard-bound bus at my front gate and then onto an Airport Line (T2) train to Macarthur at Wynyard. I

had done something like this in a past life when work logistics demanded at 5AM start at Prince Henry Hospital at Little Bay. This could be achieved by catching a 151 bus at 4AM; scuttling down from York St to Pitt St to catch a Coogee bus to Moore Park and there making a guaranteed end-on connection with a 394 bus which originated there.

For my purposes, a minimal travel time, with a low number of convenient transfers, to arrive in the 8AM-9AM bracket seemed the preferred option. I wondered whether there were "better" options. This depended on what my definitions of "better". My investigations into finding something better led me down many interesting byways.

#### The Trip

Common sense and the trip planner suggest the following broad possibilities for a Fairlight to Macarthur trip (Table 1)

From Fairlight, this means heading east or west respectively. Primarily because ferry, bus and train timetables are not (and theoretically cannot be) synchronised in anything but an imperfect sense, the Trip Planner will switch between these broad options with only a minor change in the desired departure time. The switch will be driven by the user preferences. Where the travel times are the same, both broad options will be offered, even where there is a price advantage to one of them. In the 7AM to 8AM slot, options involving ferries are outnumbered ten to three. Ferry trips are generally more pleasant that bus trips, but there is no "Ambiance" button on Plan My Trip. One can always exclude the bus as a choice.

I chose to examine 7 "starting" times from 4 AM to 10 AM. After ticking the "Fastest" radio button, I had 55 options from which to choose. Set out in the Table on page 5 is summary data on what the Trip Planner had to offer for each hour. My preconceived choice of the E70 bus was confirmed as "best". My desire for "early, fast and simple" boiled down to the 06:40 bus at Cohen St then straight onto the Macarthur train at Wynyard. This, therefore, is what I do. I didn't really need the Trip Planner to figure this out. Examining other Options and times then became a matter of idle curiosity. Some of them were both interesting and revealing.

The number of modes is the number of **different** vehicle modes on offer – a selection from Walk, Bus, Ferry and Train. The number of legs is the number of times one most change modes (plus 1 for to account for departure). The number of options was greater during the peak hour, as was the number of segments for the trips. This was logical.

The 07:00 hour gave the maximum of options (13), one of which involved eight

legs with seven mode changes. The number of Options suggested for this hour for each of the three "Preferences" was:

Fastest 13
Fewest Changes 7
Least walking 5

The second and third lists of options are different subsets of the first list, which might therefore be more properly regarded as "All common sense Trips". As we shall see, common sense can be rather rare in the Trip Planner world. The range of travel times for "fastest" was from 1h50m to 2h19m. The lower limit blew out to 2h12m when I unticked the "Fastest" button.

#### The Ferries

Until March 31<sup>st</sup> 2015, there were three ferry services available for my trip and some of my testing of the Planner took place before the change. The three services were provided by:

- Sydney Ferries (F)
- Sydney Fast Ferries (SFF)
- Manly Fast Ferries (MFF)

SFF was selected some years ago to replace the troubled Jetcat services. It held this contract for only a short while; the contract was then awarded to MFF. SFF, however, refused to lie down and die and continued to run a service. Even though it was unsanctioned by TfNSW, this service was recognised by its Trip Planner. Both fast ferries ran only in peak period, as did the Jetcat service in its dying days. The travel time is 18 minutes, 12 minutes faster than a standard ferry. From a trip-planning point of view this gave both an edge over Sydney Ferries during the peak. Now MFF runs all day as frequently as every 10 minutes in the peaks and has the edge over Sydney Ferries from dawn to dusk, and beyond. It is buying 4 new ferries for this service, which already requires 5 boats in the peaks. MFF is more expensive than the slow ferries and is not part pf the Opal system.

#### The T2 train

If you can bring yourself to give credit where credit is due, you would have to say that Gladys—like Mussolini—made the trains run on time. "A remarkable woman", as one of the platform attendants at Wynyard said to me the other day. In my experience, the Airport line train rarely misses a beat. Recent peak-period transport statistics confirm it- 96.3% on time. This equates to about 2 trains late by more than 5 minutes on an average day. Most of the "jitter" and uncertainty in making the Fairlight-Macarthur trip can be blamed on the bus, so I shall concentrate upon it.

#### The E70 Bus

The E70 service was described in detail in our June issue – this description will not be repeated here

#### Where's the Tripe?

How much tripe was there among my 55 options? The two tables on pages 8 and 9 give a selection of 6 of the options, illustrating good advice and bad advice, as well as the merely weird.

## Trip 1: Tripe or brilliance? – an attempt to split hairs.

We start out on the E70 due out of Manly at 07:17, but get off this bus at the "setdown only" stop at Spit Rd near Spit Junction at 07:38, wait one minute, then walk 1 minute to Spit Jct itself, to catch a 257 bus at 07:40. I have never seen an explanation for set-down stops, but it appears to be for this exact purpose. This stop (at least) seems to have an aberrant number compared with its neighbours and was probably a post hoc decision after all the "normal" stops had been allocated a number. In the GTFS, this stop has a timing 15 seconds earlier than the next (Spit Junction) stop. The 257 takes us only as far as Rangers Rd at Neutral Bay. From there we pick up an L90 to the QVB two minutes later. From the QVB we are advised to wait at the bus stop for three minutes and then walk to Town Hall station, where we arrive in the nick of time at 08:07 to jump on a T4 line train as far as Wolli Creek, from where we pick up our "usual" Macarthur train at 08:25.

Could I not stay on the E70 and catch the same Macarthur line train at Wynyard? Indeed I could. Why was I not offered this option? It seems to me that the problem here was the 4 minute connection at Wynyard, which was below the Trip Planner's safety margin (although not mine nor, possibly, of many an agile commuter). One has to admire the cleverness of the planning engine to winkle out such a bus juggle in the blink of an eye. Ostensibly a valid reason, it nevertheless introduces three extra vehicle changes and 2 lots of walking to achieve its clever answer. If the algorithms were clever enough to model the unreliability of services at this time of day and to take into account possible fare blow-outs, this trip might never have been offered or, if it were offered, it could have come with a "Let the Buyer Beware" mes-

#### Trip 2. Going backwards to go forward

This is a suggested trip involving a ferry – in this case the Sydney Fast Ferry (SFF). As it happened I downloaded this trip about a week before SFF vanished off the face of the Harbour. This option required me to catch a bus into the centre of Manly, then walk to the wharf. Were the trip to be half an hour later, the advice would have been to walk all the way to the ferry wharf, because there is no convenient bus. Bus stop signs which say "Ferry Link", to the contrary, there is no guaranteed connection between the two modes.

The ferry trip is really swell and is 20 minutes faster (18 minutes) than is the E70. An added advantage is that the walk time between the SFF (No. 2) wharf at Circular Quay and the T2 train is a mere one minute. The replacement MFF ferry arrives at No. 6 wharf- arguably an extra minute's walk to the train. This is a "premium fare" trip — as was the predecessor Jetcat and the hydrofoil before it.

#### Trips 3&4. Last lap by bus or SHL

Trip 3: There are two rather different starting options on offer around 9AM – one which uses the Sydney Fast Ferry and another which uses "bus juggling" along Military Rd. I illustrate the former, simpler, option here. The attraction is the use of an Express T2 train, 13 minutes quicker but which, terminates at Campbelltown. It is a connecting service for the SHL services, but only meets every second SHL service. For the other services, a bus is recommended. There are local bus services out of Campbelltown Station in all directions, not least via the 895 to Macarthur which is here recommended.

#### Trip 4: By bus, train and railcar

This is somewhat similar to Trip 3, but uses bus juggling instead of a ferry and has the last lap by railcar instead of bus. The connection is only implied and not guaranteed because the two legs appear in different columns in the PTT. Going home in the afternoon, this is an attractive option which I often use.

#### Trip 5. Fast Ferry or slow ferry?

This is a trip I forced upon the Planner by eliminating buses as an option. There were two options for an 07:43 departure from Fairlight. Option 4 of 6 involved the fast ferry and Option 5 involved the slow ferry. These services depart Manly in unison at 08:00, but MFF arrives at Circular Quay while the Slow Ferry is still rounding Bradley's Head. MFF thus catches the 08:33 train out of the Quay with fifteen minutes to spare. Just as this train pulls into the Quay station, the Slow Ferry arrives downstairs - too late! This illustrates something of a sore point - that the published ferry time for the slow ferry are not quite kosher. The departure times cannot be interpreted as being the last time that one can jump on board. In the days of

manual gangways they could be. Now gates close two minutes before departure. The Trip Planner warns thus—but in an unobtrusive footnote. Furthermore, it always seems to take more than two minutes to get the boat underway. The scheduled arrival time is really the time the boat ties up, not the time that the passengers leap ashore. This too can take two minutes or more. The consequences are that Slow Ferry arrival times are almost always about 5 minutes behind the advertised.

The allowance the Planner makes for the ferry-train walk seems to be greater than 3 minutes — or perhaps it is allowing for habitual lateness of arrival. The luckless Slow Ferry passenger has to wait for the following train at 08:48, even though she can see the train rumbling down into the tunnel as she tops the escalator. This is the trip I illustrate here.

#### Trip 6. Way to go!

Trip 6 is my preferred option and one that even Blind Freddy would have picked. I use it so often that I am accumulating a database of performance which has given me some of the insights needed to write this story. It's a pity I do not have a smart phone to record all of this, but I do take along my bushwalking GPS to log the travel times for later analysis.

#### Wait then walk?

For many trips that involve changing segments, where walking is required to make the connection, the Trip Planner advises a short time to draw breath before setting out on the connecting walk, so that one will arrive at the next departure point at the exact departure time. No rational person would make a connection in this manner. They would adopt a "Walk then Wait" strategy, so as to join the inevitable queue at the next stop. Why Trip Planner suggests the obverse of this is baffling.

#### Walking with Opal

As an inveterate walker, I am somewhat miffed that the Trip Planner does not offer a "More Walking" option. I have been known to commute by walking up to 56 km per day- but the UWS round trip is about twice this and somehow does not appeal. It is arguable though, that an Express to Campbelltown followed by a 15-

minute walk would be a quicker than waiting for a bus or an SHL train.

In an interesting take on this, a recent SMH story ("Opal Miners", 16-Apr-2015) detailed how Opal Card uses get their exercise on a Monday morning by tapping on/ off successively at one Light Rail station and then at an adjacent station 200 yards away until they have accumulated 8 "trips". Each shuttle contributes about onequarter of a trip. Accumulating 8 trips therefore requires 27 shuttles by foot, skateboard or bicycle or about 10.8 km of exercise. After the 8 "trips" (in reality no trips at all) have been accumulated at a cost of \$15, all subsequent travel by Opal in that week is free. While it seems a tad excessive, the combined benefits of exercise and money saving seems so worth having that hundreds of people do it every week. The new Minister is baffled. That "remarkable woman", Gladys would have understood.

#### While the City sleeps

Trip Planner doesn't offer it but, if I am prepared to catch a 151 bus to the QVB at 03:11 and walk to Central (or persuade the driver to take me there - I have seen it done more than once), there I can catch an originating semi-Express to Macarthur via Sydenham. This is no faster than any other option - but it has ambience. The interesting night people are going to and from work and there is a special sort of camaraderie between them.

In my train-photographing days in the Big Apple, I would occasionally catch a Hudson Line train at this hour to travel with and chat to, a nice bunch of older chaps who invariably got off together at Ossining. It took me a while to realise that they were warders at the dreaded Sing Sing prison - but nice chaps to travel with just the same. Night people are like that. I have had a lot of experience with the 151 bus at all hours of the night. The "night people" here are of a different ilk to a Sing Sing warders, usually drunk, but just as entertaining. In past days I would commute by foot from UNSW at dawn, to catch the first Jetcat of the day. It was common for my fellow passengers to bleat at the commuters waiting at Manly for the return trip. You don't see much of that in the daytime. I might try that 4 AM bus one day!





Optons1		Most C	omplicated	d "Segme	nts"=9	M	ost Modes (4	4)		Fast	est, Simplest	t	
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		Mo	odes = WBV		=3		es = WBWFT				des = BT =2		
		-	07:00 Op	tion 7		0	7:00 Option	4		06:	00 Option 4		
Location		Mode	Schedule	Travel Time	Wait Time	Mode	Schedule	Travel		Mode	Schedule	Travel	
Cohen St	dep		7:12		1		7:05			Wode	Saicaaic		
Fairlight Shops	arr	Walk	7:17	0:05	0.01	Walk	7:08	0:03	0.01				
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	dep		7:40										
Cremome Junction	arr	057		0.05									
cremonie jancion	dep	257		0:06									
						MFF		0:18					
Rangers Rd Neutral Ba			7:46		0:02								
	dep	-	7:48										_
Watson St Neutral Bay	arr	-											
watson st wed all bay	dep												
	·												
North Sydney	arr												
	dep	100		0.11									
Wynyard	arr	190		0:11	-						7:09		
wynyaru	dep										7:15		0:06
	-												
Circular Quay	arr						7:38		0:10				
	dep	-					7:48						
QVB	arr	-	7:59										
w	dep		8:02		0:03								
	( not	Walk		0:05								1	
Town Hall	arr		8:07		0:00								
	dep		8:07									1,15	
Central	arr	10000		200000			-			T2		1:15	
	dep	T4		0:14		T4		1:13					
Wolli Creek	arr		8:21		0:04								
	dep		8:25										
Canpbelltown	arr	-											
compoentown	dep	T2		0:50									
Macaurthur	arr		9:15				9:01				8:30		
TOTALS			2:03	1:53	0:11		1:56	1:40	0:16		1:50	1:44	0:06

Options2			Using S	HL			Using Private Bu	ıs		Fast Fe	rry - Not so f	ast	
		E	Elapsedtim	e = 2:01			Elapsed time = 2	:06		Elaps	ed time = 2:1	2	
			Modes = B				Modes = WFTB =				des = BT =2		
			09:00 Opt	ion 10			09:00 Option 1	L		09:	00 Option 2		
				Travel	Wait			Travel	Wait			Travel	Wait
Location		Mode	Schedule	Time	Time	Mode	Schedule	Time	Time	Mode	Schedule	Time	Time
Cohen St	dep	Walk	9:55	0:05		Walk	8:56	0:04	<u> </u>	Walk	8:58	0:04	<u> </u>
Fairlight Shops	arr		10:00		0:01		9:00		0:01		9:02		0:01
	dep		10:01				9:01				9:03		
Cohen St	arr		-										
	dep												
		143		0:09									
Balgowlah	arr												
	dep												
4000400000						Walk		0:07					
Seaforth	arr		10:10		0:03				12 22	WALK		0:15	-
	dep		10:13										
Manly Gilbert St	arr												
	dep											1	
Manly FF wharf	arr						9:08		0:02				
	dep						9:10						
Manula CI IF and and											0.10		<u> </u>
Manly SHF wharf	arr dep										9:18 9:20		0:00
	иер										9.20		
Spit Rd (upper)	arr												
	dep												
Spit Junction	arr	169		0:26									_
	dep	103		0.20									
Cremorne Junction	arr												
	dep					MFF		0:20					
Rangers Rd Neutral Bay	200					1411		0.20		23.0			-
naligers nu Neutral ba	dep									SHF		0:30	
Watson St Neutral Bay	arr												
	dep												
North Sydney	arr												-
	dep										-		
Wynyard	arr		10:39										0:00
,.,	dep		10:45		0:06							1	5.50
Circular Quay	arr						9:30		0:18		9:50		0:13
	dep						9:48				10:03		
QVB	arr												
4.0	dep												
Town Hall	arr	T2											
	dep	12											
Combrel						T2		0:59					
Central	arr									T2		1:12	
	dep												
Wolli Creek	arr												
	dep												
Canpbelltown	arr		11:47	1:02	0:06		10:47		0:06				
	dep	7/0	11:53		1000000		10:53		100000				
	5000	T(SHL)	11:56	0:03		859	10:59	0:06			11:15		
Macaurthur	arr												

# Freight Trains on the Wild West... or...Where is Hermitage? JIM WELLS

WAS BROWSING COUNTRY Rail Network's (John Holland) timetable to be intrigued that the West Main Line has 'Hermitage' as the commencing point for down services.

The header does show Lithgow — which is what one would expect.

The Country Rail Network manages minor rural railways in NSW. The West Main Line is by far their busiest operation. The other main lines in NSW are managed by the ARTC or Sydney Trains (once Railcorp).

Enter "Hermitage, NSW" into Google Maps and nothing relevant comes up. Enter this into Google itself and it becomes clear that "Hermitage Flat" is a locality in the Lithgow district, and that it is adjacent to the railway west of the station but east of Bowenfels. So Hermitage is the change-over point for train operations with Sydney Trains which describes this point as CRN West Boundary. This is a little peculiar as from CRN's view point it's an East Boundary.

The running time between Lithgow and Hermitage is only one minute. One would think it would be helpful to all concerned if CRN showed proper Lithgow times in its timetable.

Now to the services themselves. CRN uses the ARTC format for its timetable which is frustrating with the excessively small print. It takes 20 pages for the west Main line. I have managed to condense it down to one page so that service patterns are clearly evident

This cannot be achieved without some compromises. In addition to the exclusion

of passenger trains (Dubbo XPT, Bathurst Explorers, and the Indian Pacific), (Kandos) Charbon Colliery line services are not shown nor local Lithgow area coal services.

For trains on more than one day of the week the times shown are for a typical day – there are variations by day.

Only M for Mandatory services are shown but this is of no consequence as all the services shown are M anyway. But what does M really mean? I suspect it means that the operator advises CRN when the service is not to run, whereas for a C for a conditional train the reverse applies. CRN is advised when they do run.

Purists will be horrified that my timetable for the down services doesn't start at midnight. Why should it? All the down services leave Lithgow at night so why not commence the timetable with the first of these services (actually one out of Bathurst at 9 pm).

One looks to balance in a timetable such as this. It is clearly not balanced in that there is no opposite direction working for JHR's Sunday work train between Orange and Bathurst. This is a slow train for reasons not known. It takes one hour 4 min to traverse the last section in from Newbridge.

The Sydney - Perth Pacific National intermodals feature but only in the down direction; the Ups run via Cootamundra. This may be because they are allowed to run up to 1500m in length which means they cannot be refuged in ordinary crossing loops in this area.

Balancing these are the Whyalla to Newcastle trains shown here being for general freight but in practice for steel. Leaving Parkes in the mid afternoon they have no crosses with any train except for the Indian Pacific on Wednesdays on double track on the Tarana to beyond Kelso section.

Double track also runs from Spring Hill into Orange, from Newbridge to Murrobo, near Blayney, and from Lithgow to Wallerawang.

Wallerawang to Tarana was singled some years ago. It's surprising that more of this hasn't been done.

One wonders why the Manildra grain services to Nowra don't run via Cootamundra and Goulburn. Maybe reversing them in the Wollongong area would be a problem. I saw one the other day at Loftus 2 x 81 class locos and about 25 wagons.

Of note is that service 1821 out of Lithgow (Mo/We/Fr) actually terminates at Kelso, a suburb of Bathurst on the other side of the Macquarie river. The return trips (8122) run from Bathurst. It is understood that the traffic carried is timber from the Oberon area for export to China. This appears to be the only use of the Kelso intermodal terminal

My conclusion is that the freight business in the west is healthy. Not as healthy as it could be with the loss of the Blayney intermodals some years ago and hopefully there will be some revival.

[Note from Editor: The boundary of the "CRN West" Division is at km 156.800 (95M6C), where the Hermitage (Colliery) siding once existed—see picture below. The name derives from a a property held by the Reverend Colin Stewart from about 1832. Hermitage Siding closed some time between 1915 and 1932, judging from my WTT collection.]



25th Jan 2015

Lithgow - Parkes - Dubbo

(excl Passenger Trains, Parkes Sub Terminal trips)

	(exci i	Passenge	i iiaiiis	, Parkes	Sub lell	minai mp	)S)							
DOWN		8844	6SP6	1847	1811	1867	1863	1863	1881	1881	1837	1821	2SP7	1821
	Len(m)	250	1500	1280	600	750	800	900	650	650	600	650	1500	640
	20.1(111)			We/Fr/										
		Мо	Fr	Su	Tu/Th	Мо	Th/Sa	Мо	Tu	Th	Tu/Th	We/Fr	Tu	Мо
		PNIN	PNIN	SSH	Qube	QUBE	QUBE	QUBE	FLA	FLA	PNRB	PNRB	PNIN	PNRB
		GenFr	GenFr		GenFr	GenFr	GenFr	GenFr	GenFr	GenFr	GenFr	GenFr	GenFr	GenFr
1:45														
Lithgow (	H)	04.00	22:29	23:01	23:29	00:39	00:54	01:04	01:07	01:07	01:34	01:34	02:42	02:44
Bathurst		21:00	23:46	00:41	01:01	02:08	02:21	03:00	02:24	03:54	03:06	02:56		04:19
Blayney		22:37	00:45	01:52	02:12	03:19	03:38	04:32	03:23	05:07	04:19		04:58	
Orange E		23:08	01:14	02:23	02:43	03:50	04:11	05:07	03:49	05:38	04:56		05:36	
Manildra	а	00:05	02:03	•••							05:57		06:25	
Parkes		01:05	03:17			•••	•••	•••					07:18	
Dubbo				05:20	05:11	06:38	06:48	07:52	06:36	08:24				
									Warren	Warren				
Forms or	Dest.		Perth	Term	AGR	8168	DFI	8164	Sth	Sth	Term.	Term.	Perth	
		9835	1801	9837	1811									
	Len(m)	575	301	520	600									
		Mo-Fr	We/Th	We/Fr	Sa									
		PNRB	RCP	PNRB	Qube									
		Minerals	GenFr	Grain	GenFr									
Lithgow (	H)	04:03	04:52	06:50	16:47									
Bathurst		05:37	07:02	08:34	18:15									
Blayney		07:05		09:45	19:26									
Orange E	F Jcn			10:22	19:57									
Manildra	а			11:24										
Parkes														
Dubbo					22:40									
Forms or	Dest				8112	•								
1 011113 01	Dost.				0112									
UP		8934	8138	8934	8102	*YN2	8122	BHRW2	8843	8164	8148	8938	8112	8182
٥.	Len(m)	575	600	575	301	1100	640	5	250	800	1280	850	600	650
	Lon(m)	Tu/Th/		Mo/We			Mo/We	_		Tu/Th/		We/Fr/		
		Sa/Su	Tu/Th	/Fr	We/Th	/Th/Su	/Fr	Su	Мо	Sa	Sa	Su	/Fr	Tu/Th
		PNRB	PNRB	PNRB	RCP	PNIN	PNRB	JHR	PNIN	Qube	SSH	PNRB	Qube	FLA
				Minerals		GenFr		WkTr	GenFr	GenFr	GenFr	Grain	GenFr	GenFr
Dubbo										15:00	16:00		17:30	23:16
Parkes						13:19			15:45					
Manildra			12:11			14:26			16:54			17:55		
Orange E			13:44			16:10		16:45	18:18	18:22	19:34	19:22	21:04	02:34
Blayney		13:23	14:21	14:18		16:47		17:51	18:53	19:09	20:10	19:59	21:40	03:07
Bathurst		14:31	15:17		15:50	17:49	18:40	19:40	19:55	20:15		20:57	23:28	03:57
Kelso		14:41	15:26	15:31	16:00	17:58	18:50	. 5. 10	. 5.50		21:17	21:06	23:37	04:05
Lithgow (	H)	16:32	17:05	17:05	17:45	19:45	21:10				23:02	23:04	01:25	05:50
Litigow (	,	10.02	. 7 .00	.7.55	17.40	10.40	_1.10	-			20.02	20.07	01.20	00.00
		PKB	ENF	PKB	CIB	MDO	BTG			BTG	BTG	NOW	BTG	Botany
		LVD		LI/D	CID	MDO	פום			פום	DIG	NOVV	DIG	Botany

Operators: PNIN Pac. National Intermodal, PNRB PN Regional/Bulk, SSH Southern Short Haul Railroad, Qube Qube, FLA FreightLiner Aus., RCP (Sydney TMS)?????, JHR John Holland Rail

Destinations: ARG AgriGrain Narromine, DFI Dubbo Freight Industries, MDO Morandoo, ENF Enfield, PKB Port Kembla, BTG Botany Gate, CIB ???, NOW Nowra

## Runs in Three Continents—Australia

#### J.T. BURTON ALEXANDER

OU MAY ASK "Whatever happened to The Times competition to find the fastest trains in Australia.?" Well may you ask. Here is the winning entry. This has been extracted from a book published in 1900.

#### Melbourne-Benalla

From the figures at the side of the table [right] showing how the line rises it will be seen how severe the grades are. The load for this engine is six coaches, and Fitzgibbon would have been perfectly within his rights if he had had a second engine to help him; but he resolved to take it alone himself. This load was too much for his engine, and it was all that he could do to make the hill to Kilmore Junction, and he told me at one point that if he were to be stopped there he would not be able to restart the train. Before this will be published [1900] there will be a new class of engine working, with a much bigger boiler and fire-box, the boiler to have about 1,500 ft. of heating surface, or 3 to 400 more than No. 322, with identical cylinders and wheels; this ought to prove quite up to the grades and heavy traffic. The Premier of South Australia was in this train, going to attend the Premier's meeting which drafted the Federation Bill [Charles Kingston, 2nd from left in that Premiers' Conference in the photo below].

<ul> <li>Running time booked</li> </ul>	188m 0s
<ul> <li>Running time taken</li> </ul>	186m 25s
• Stops	3m 0s
• Net	183m 25s
• Gain	4m 35s
• Speed	39.6mph

#### **Benalla-Albury**

The cause of our double heading from Benalla was due to the fact that coming down next day, the Sidney train would have from Albury one extra mail-car for the English mail-boat direct through to Adelaide *via* Melbourne, and the Governor's private saloon. In this country the pilot couples on to the train, and the regular engine and crew go on in front. The delay at Woodonga was caused by the



Melbourne-Benalla RAILWAY RUNS 157 AUSTRALIA. VICTORIAN RAILWAYS. INTERCOLONIAL EXPRESS. JANUARY 23, 1900. Height above Mile-sea, fl. age. Due. Running. h. 111. o Melbourne (Spen-32 5 16 0 cer Street) ... 5 15 11 North Melbourne 5 17 5 19 15 18 Essenden 146 5 5 27 26 9 Glenroy ... 311 5 35 0 617 161 Craigieburn, p. ... 21 Donnybrook, p.... 731 5 57 32 26 Beveridge, p. ... 6 7 50 989 6 13 0 980 30 Wallan, p. ... 6 7 1145 33 Kilmore Junct., p. 6 18 55 Wangong, p. ... 6 20 30 1050 34 908 40 Kilmore East, p. 6 26 30 725 47 Broadford, p. ... 6 35 50 56 Tallarook, p. ... 585 6 48 20 Goulburn Bdge., p. 6 51 6 52 40 60 459 Seymour, arr. ... 6 55 6 56 0 464 dep. ... 7 15 7 15 45 68 Mangalore, p. ... 476 7 27 0 72 Avenel, p. 491 7 34 50 Monea, p. 550 76 7 39 0 7 43 20 79 Burnt Creek, p.... 549 85 Longwood, p. ... 7 50 578 7 51 48 (tablet stop, 3 8 0 0 613 Creighton, p. ... Euroa arr. ... 8 3 8 6 20 574 ... 8 4 8 8 55 ,, dep. Balmathum, p. ... 565 98 8 16 0 Violet Town, p.... 8 18 585 105 8 23 40 Baddaginie, p. ... 8 32 611 114 8 34 40 559 121 Benalla, arr. ... 8 43 8 44 45 Loco. 422 (Fitzgibbon), piston valve, 4-coupled bogie express engine, 72-inch wheels, built at Ballarat. Load: to Seymour, 7 = 13½ cars, or 200 tons, on to Benalla, 6 = 12 cars, or 185 tons.

pilot going off, as the sheds are there. In Victoria they number all the passenger engines with even numbers, and the goods engines with odd numbers.

#### Albury-Benalla

The stop outside Benalla was caused by a branch train not being clear of the station. Ryan told me that he could have taken this train alone, though he would have been very hard put to do it, as his boiler only carried 100 lhs. of steam. It is entirely a single line, and is laid with light rails, which are being rapidly replaced by 80lb ones, which will make it very much better riding.

#### Benalla-Melbourne

This run was very good up the hill from Seymour to Kilmore Junction,

#### Benalla-Albury

#### VICTORIAN RAILWAYS. INTERCOLONIAL EXPRESS. JANUARY 23, 1900.

Heigh above sea, f	Mil Mil t. age.	Renalla dan	k	Due.	K h.	anni m.	ng.
559	121	Benalla, dep	. 8	48	8	53	0
562	127	Winton			9	2	30
747	136	Glenavon, p	. 9	13	9	14	55
493	146	Wangaretta, arr	. 9	24	9	27	0
,,	,,	" dep	. 9	29	9	35	45
		Beechworth June		34	9	42	30
		Springhurst, arr		53	9	58	0
11	17	", der	. 9	55	10	I	45
691	169	Chiltern, arr	. 10	10	10	13	50
,,	,,	" dep	. 10	11	10	16	20
		Barnawatha, p			10	24	8
538	184	Woodonga, arr	. 10	40	10	40	0
		,, dep Albury, N.S.W.				45	
		arr	. 10	50	10	51	20

Loco. 72, old 4-coupled outside frame, no bogie; built by Bayer, Peacock and Co., Manchester.

Pilot 408, bogie express engine, same type as 422, only without the piston valves.

Load: 6 = 12 cars, or 185 tons.

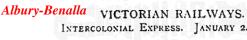
				****	
Running	time	booked	 	 112	0
"	1)	taken	 •••	 97	50
Gain			 •••	 14	10
Speed, n	n.p.h.,	40'4.			

Loco. 50, same type as 72. Pilot 10 (Paterson), standard bogie express. Load: 8 = 16 cars, or 240

tons. Running time booked 185 0 Running time taken 171 53 Signals

170m 53s Net Gain 141m 7s 42.7 mph Speed

just under 40 m.p.h.; downhill there was no hurry at all. Our best start to stop was Euroa to Seymour, 44 m.p.h. I fancy Paterson could have taken them from Benalla to Seymour alone without any very great difficulty. No. 50 had her left-hand leading axle-box run very hot by North Essendon, and we ran in very easy. One great trouble in Australia in double heading is that the dust kicked up by the first engine gets into the bearings and motion of the second, and makes them run hot.



INTERCOLONIAL EXPRESS. JANUARY 24, 1900.

Height above	Mile					ue.	R	unni	ng.			
sea, ft.	age.	V11				m.	h.	m.	5.			
0		Albury,	-			10	7	10				
538	3	Woodon						_	30			
11	17	,,,		dep						(putt	ing	on pilot)
589		Barnawa			7	38	7	40	7			
691	18	Chiltern,			. 7	48	7	49	20			
"	"	21	dep		7	49	7	51	5			
627	27	Springht	ırst,	arr	8	3	8	2	35			
11	11	,,		dep	8	5	8	5	20			
493	42	Wangare	etta,	arr	8	27	8	24	30			
17	"	,,		dep.	8	31	8	31	15			
747	51	Glenavo	n, p.					46	20			
562		Winton,						56				
539	66	Benalla,	arr.		9	8						m. 45 s. out
										sid	e ii	yard)
	I	Loco. 72.										
	ı	'ilot 424	(Ry	an), bo	gie	exp	ress	, st	and	ard ty	pe.	
	I	Load: 8=	= 16	cars, o	r 2	40 to	ons.					
											m,	5.
	1	Running t	ime	booke	ď	50				1	109	0
		"	,,	taken							99	50
	5	Signals									I	45
	1	Vet									98	5
	(	Gain									10	55
	•	Speed, m.	n.h.	4014								

#### Benalla-Melbourne

#### VICTORIAN RAILWAYS. INTERCOLONIAL EXPRESS. JANUARY 24, 1900.

leight bove Mile-	Due.	Running.
ta, ft. age,	Benalla, dep 9 14	h. m. s.
		9 15 30
55 D - 550 -	Baddaginie, p 9 25	9 27 40
	Violet Town, p. 9 38	9 38 35
	Balmattan, p	9 46 30
574 93	Euroa, arr 9 54	9 52 43
11 21	" dep 9 55	9 55 10
613 98	Creighton, p	10 2 50
578 102	Longwood, p 10 10	10 8 15
549 108	Burnt Creek, p.	10 15 0
550 110	Monea, p	10 19 30
491 115	Avenel, p 10 29	10 24 27
476 119	Mangalore, p 10 35	10 29 40
	Seymour, arr 10 45	10 40 0
,, ,,	" dep 10 50	10 52 35
459	Goulburn bdge,p. 10 53	10 56 30
	Tallarook, p	11 3 5
	Broadford, p	11 16 8
	Kilmore East, p.	11 27 15
	Wandong, p	
		11 34 37
	Kilmore Junct., p.	11 36 10
	Wallan, p	11 42 15
	Beveridge, p	11 47 50
	Donnibrook, p	11 54 0
	Craigieburn, p	12 0 10
	Somerton, p	12 3 40
408 177	Broadmeadows, p.	12 7 10
311 178	Glenroy, p	12 9 0
123 180	Pascoe Vale, p.	12 11 5
118 181	North Essendon, p.	12 12 10
146 182	Essendon, p 12 15	12 14 4 (slow)
	Newmarket, p	12 17 47 (slow)
	N.Melbourne, arr. 12 22	12 20 15 (slow)
	,, dep.12 27	12 25 15
		J - J
32 187	Melbourne(Spen-	

# Bus queues, work queues - technology is breaking them down Waiting in line is not something the Insta-tweet generation are always prepared to do - Jim Bright

BUS QUEUE CAN TELL ONE a lot about the future of work. Traditionally work was arranged around rigid hierarchies of landowners and peasants. Everyone knew their place, which for the overwhelming majority of us was wherever our overlords told us to be. There were stations in life that we arrived at, and it was simply not done to get above our station. There were lines determined by our masters and woe betide those that stepped out of line. By the time buses were invented, we had already had thousands of years of practice at keeping in line. Buses were simply a response to our need to form orderly queues.

The simple principles of time-honoured social etiquette ensured that the bus queue was a marvel of our capacity to form self-organising systems. The unspoken rule was that tenure determined precedence. I got here first so I am at the front of the queue. Organisations reflected this fundamental law by operating a last in, first out policy when downsizing. Generally it also worked in the other direction, with first in, first promoted as well.

Try telling that to your contemporary bus traveller and you'd most likely receive a momentary flicker of confusion before they reimmersed themselves in their Instatweets and Facebook chat. The social rules of bus stops have broken down. Technology draws us into a world of virtual social cohesion. We are so busy learning the new rules of netiquette that the old rules of IRL interactions have been lost. Bus stops now resemble chaos! There is no sense of community at the bus stop, because the commuters are immersed in their own online social worlds. Thus freed from any social ties - often even eye contact, and with the advantage of knowing almost to the second when their own bus will arrive, there is a continual jockeying for position with little sense of relationship or consideration of others.

There is a bus stop on George Street that should be avoided by anyone with a sentimental attachment to the joys of an orderly queue. It is not just Sydney, commuters at Parliament tram stop in Melbourne make the evacuation of Saigon look like a military tattoo. Naively one might think that standing closest to a sign marked bus stop afforded the refined traveller certain privileges. But this would be a fatal miscalculation. For lurking behind the bus shelter are chancers ready to pounce when their travel apps alert them

to an incoming bus. Blindsided and distracted by using old school methods of looking down the road for the approaching vehicle, traditional travellers suddenly find themselves at the end of the technology-driven and opportunistically reorganised swarm.

As work becomes more technologically immersed and enhanced, virtual relationships can appear to matter more than real ones. Groups and teams form, reform and dissipate as circumstances dictate. The concepts of being at the front of the queue, of hierarchy and predictability, are rapidly diminishing. However, in the bus queue all is not lost. Unlike the hapless modern worker, the antediluvian commuter still has one devastating weapon: the well furled umbrella with a sharp point is just the thing to fight off the IT bus throng.



This article and Cathy Wilcox's cartoon appeared in the Sydney Morning Herald of 30-May-2015.

Jim Bright is professor of career education and development at ACU and owns Bright and Associates, a Career Management Consultancy. Follow him on Twitter @DrJimBright



## Meanderings on the North Coast MAX MICHELL

HAVE BECOME SOMETHING of a commuter on the NSW North Coast (NC) Line of late. In 15 days recently I had five trips - four Fassifern -Grafton and one Fassifern - Kendall. It would be nice if freight frequencies were more like those of the pre 1990's but nevertheless they have been interesting if not somewhat slow trips. All trips were on the 07.11 down Casino (09.17 or 09.18 at Fassifern depending on the day of the week) and the 05.15 up Grafton. All were current configuration XPT sets (five cars between two motors). All but one were on time (give or take a minute or so) although up to 20 minutes or so early or late en route. Anyway some observations:-

**Robust Timetables?:** The 07.11 down (NT33) and 05.15 up (NT36) are tabled to cross at Craven - NT33 at 11.22 while NT36 pauses from 11.14/11.27. Craven is one of two double loops on the North Coast with the old much-lengthened original loop 950 metres long around a km south of the new 1500 metre loop at Craven North - the latter has the Stratford coal loader line branching within its length. The timetable for the cross NT33 and NT36 looks to be fairly soft but in fact works quite well - in the same way that AN pioneered with the up Mt Gambier mixed in the days of broad gauge on the main South line.

On the first occasion on NT33 we were around 5 mins late (crossing a freight earlier) which left NT36 a minute or so down.

On the second occasion on NT36 it seems that NT33 was running around 20 minutes late so we went straight through to Stroud Rd - we finished up 16 minutes early while NT33 would have left around 28 minutes late

On the third occasion on NT33 we were close to time so NT36 would have got away around 4 mins early.

On the fourth occasion on NT36 we were running around 18 minutes late so NT33 was advanced to Craven North - we finished up on time by Dungog while NT33 would have left around 8 minutes down.

On the last occasion on NT33 we were around 46 minutes late (an "operational issue" in Sydney) so NT36 came through to Stroud Road - while we got no benefit we finished up delaying the up by only around 4 minutes

Overall, despite the long section either side of Craven, it seems that the cross rarely if ever compounded any delays that already existed and in most cases actually improved timekeeping.

Curve Easing: Despite diversion of the curve easing funds to Melbourne-Sydney line remediation it seems quite a few such works on the North Coast were actually completed. There are clear signs of new alignments at Martins Ck, Wirragulla (as well as an even older one), Telegraph Point, Herons Ck (visible on Google Earth), Valla, Urunga and Sawtell. There may be others which I have missed.

Line Capacity: In other places ARTC have been known to suggest that the Coastal line will be at capacity in a decade. This may be a throw back to the 2010 Inland Route study but nevertheless if anything the line has been actually losing trains rather than gaining them over the last ten years or so. As a matter of note on the five trips I did meet the following trains *en route* between Telarah (excl) and Grafton - roughly 7 hours of XPT running and half the total line length.

- NT33 Sat: 2 before Dungog Nth, 1 after and overtook the weekly cement train
- NT36 Tue: 1 north of Dungog Nth and none after
- NT33 Fri: 1 before Dungog Nth and none after
- NT36 Wed: 2 north of Dungog Nth and none after (but 1 at Telarah)
- NT33 Sat Kendall only): 2 before Dungog Nth and overtook 6MB2 after.

Not a busy railway by any stretch and on present indications will never reach capacity.

**Loop Configuration:** Anyone who remembers the North Coast back in electric staff days will remember the succession of 400 metre loops, all (at one stage) manned by often lonely signalmen. Completion of CTC (in stages) opened the door to longer loops but in typical NSW style that was initially to around 550m then 700m then 950m and only when One Nation (NR) came on the scene did it actually get a standard of 1500 metres. Nowadays as far as Johns River there are only two operational original length loops left -Monkerai and Bundook, while Dungog South (767m), Craven South (956m), Gloucester (590m) and Mt George (793m) remain as 'half length' loops. Weismantels, Berrico, Yumbunga, Kimbriki, Wingham, and Coopernook have simply disappeared.

North from Johns River there are a few more short loops - Kendall, Wauchope (which has cement traffic so has a reason to exist as a loop), Kundabung, Tamban, Raleigh and Grafton City (which has freight, main line fuelling and stabling for XPT's) are the survivors, with the Raleigh loop having the distinction of being the shortest loop of all (384m). The only half length loops remaining are Coramba (770m), Glenreagh (767m), Grafton (various to 1220m) and Casino (also around 1200m). Short loops that have gone in this section are Macksville, Coffs Harbour (replaced by Boambee just around corner), Landrigans, the Lanitza. Gurranang, Banyabba, Camira Ck, Leeville, Fairy Hill, The Risk, Border Loop, and Kagaru (a couple of others have been replaced by 1500m loops nearby with the same or similar names). As a generalisation 1500m loops are at roughly 30 minute (freight train) intervals north of Craven although the spacing is far from

I feel sure that Jack McLean would have had a simple and lucid analysis of the slow but by now quite significant change in the crossing facilities on the NCL - not perhaps as clinically clean as the Vic NE broad gauge line but with some similarities .

**Odd and Interesting:** Kendall was host to a rail set (but no locos) on Sat 23/8 unloading what looked to be long lengths of used rail in the yard (for what purpose or has it been sold to someone?).

NT36 crossed the Speno rail flaw detector at Telegraph Point on Wed 20/8 - since the Speno had a specific task to check the main line in this case we had to take the loop, but then ran into a section signal failure which required slow running through to Wauchope.

Craven siding is host to the spare AZ loco for the Duralie coal shuttles (Craven loco depot!!!). On different days 6001, 3215 and 3221 were resident there while 3209 was seen stabled on the train at the Duralie loader on more than one occasion. The Duralie loader runs as a push-pull shuttle to Stratford coal washery.

NT33 on Sat 23/8 stopped at Adamstown to pick up a pilotman then ran via the down relief line through Broadmeadow yard before returning to the Broadmeadow platform 1 (up platform) - a somewhat convoluted route to avoid some urgent track repairs (rail welding). Hunter set 7 (2707/2757) was noted in the DMU depot repainted in the red, yellow and grey colours that are apparently the new TrainLink corporate train colours. It will be interesting to see if the Endeavours follow suit



Meanderings on the North Coast (Flickr photos by James Brook)



