The Times

May 2016

A journal of transport timetable history and analysis

Railroadiana

Souvenir Catalogue of Books, Documents, Manuscripts, Pictures and Prints.

Timetables

NORMAN KERR
(Incorporating Cotterell & Co.)

Inside: How a visit to Norman Kerr went wrong Speed Survey Results, Australian Express Trains Who operates what? RRP \$4.95 Incl. GST

The Times

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"Ada or Ardor", by Vladimir Nabokov, 1969.

The last paragraph and a half of part 2 chapter 2:

As a boy of fifteen (Eric Veen's age of florescence) he had studied with a poet's passion the time-tables of three great American transcontinental trains that one day he would take—not alone (now alone). From Manhattan, via Mephisto, El Paso, Meksikansk and the Panama Chunnel, the dark-red New World Express reached Brazilia and Witch (or Viedma, founded by a Russian admiral). There it split into two parts, the eastern one continuing to Grant's Horn, and the western returning north through Valparaiso and Bogota. On alternate days the fabulous journey began in Yukonsk, a two-way section going to the Atlantic seaboard, while another, via California and Central America, roared into Uruguay. The dark-blue African Express began in London and reached the Cape by three different routes, through Nigero, Rodosia or Ephiopia. Finally, the brown Orient Express joined London to Ceylon and Sydney, via Turkey and several Chunnels. It is not clear, when you are falling asleep, why all continents except you begin with an A.

Those three admirable trains included at least two carriages in which a fastidious traveller could rent a bedroom with bath and water closet, and a drawing room with a piano or a harp. The length of the journey varied according to Van's predormient mood, when at Eric's age he imagined the landscapes unfolding all along his comfortable, too comfortable, fauteuil. Through rain forests and mountain canyons and other fascinating places (oh, name them! Can't—falling asleep), the room moved as slowly as fifteen miles per hour but across desertorum or agricultural drearies it attained seventy, ninety-seven, night-nine, one hund, red dog—



Why Collectors Corner was banned from selling WTTs Part two of The Hunting of the Snark, by GEOFF LAMBERT

STABLISHED IN CARTMEL, was the Cumbria in 1933, the Kerr family have traded in second-hand and the country to t

antiquarian books for 83 years. The business originally specialised in transport and engineering books under the husband and wife partnership of Norman and Paddy Kerr (pictured, page 4). As a small boy Norman Kerr journeyed from Hexham to Darlington to see the railway centenary procession in July, 1925. He well remembered standing with his father and brother in a lineside field, watching the locomotives go by, and had a small medal to commemorate the event. Eventually, while still in his teens, he began bookselling~ specialising, of course, in books on railways. In August 1935 he was fortunate in being able to purchase the magnificent collection of material relating to the Stockton and Darlington Railway formed by John Creswell Brigham of Darlington, who had worked long and hard to preserve relics and mementos of the line that might otherwise have disappeared.

Norman started to wind down at the end of the Seventies with the main part of the railway stock going to Paul Edwards (another seller of timetables, of whom more *anon*). These days the stock is largely natural history, literature, Lakeland history and topography, rather than the transport history of past years.

I learned of Norman Kerr from Paul Edwards who gave me a copy of Kerr's Catalogue #224 for the sesquicentenary of the Stockton and Darlington (our cover). Although this particular issue was not a sales catalogue, Paul assured me that Kerr's regular catalogues always featured interesting and ancient WTTs.

Kerr's shop was at Cartmel in Cumbria, not far from Grange-over-Sands, a station on the Cumbrian Coast lines. I had planned my trip for 9th November 1990 but, to my chagrin, discovered just beforehand from Paul Edwards that he had acquired all of the timetable stock from Norman in about 1985. I decided to go anyway because there was something else—something sinister—which I wished to see on the Cumbrian Coast.

The timetable summary for my trip appears on page 4. The WTT times for the trip came from a superseded Passenger WTT which I had bought at Collectors' Corner near Euston station, a day or so beforehand. These were slightly out of whack by a year, but were pretty close to reality. The Cumbrian Coast WTT is shown on our page 5.

The train I chose to travel on from London

was the Royal Scot— nearly as famous as the Flying Scotsman on the other side of the country. It started running in 1862 and had long been the premier train on the West Coast Route, running express as far as Preston, where there was a crew change.

This train pretty much ran to time as far as Preston, where I hopped out to find the usual gaggle of anorak-clad train-spotters clustered at the ends of the platforms. I joined a rather shabby 47.492-hauled train, No 2P41. Shabbiness was to my companion for most of the rest of the day.

It was a dull grey and depressing day as we left Preston on the way to Carlisle *via* Grange-over-Sands and Barrow-in-Furness. We turned off the West Coast route at Carnforth, home to a significant railway museum operation. Sections of the line beyond Carnforth seemed to have been temporarily singled, so we had the unusual experience for this line of crossing other trains on the "double line".

Much of the line lies immediately to the west of the fabled Lake District, arguably one of the most beautiful landscapes on the planet. The southern part of the line wanders around the shores and inlets of Morecombe Bay on what would, in fine summery weather, be a most comely journey. The LMS obviously thought thus but, on the day I visited, the view at Grange-over-Sands could not have been more different from the LMS postcard view below. Grange has been declining ever since the

notion of a seaside holiday vacation in Britain was replaced by that of a packaged tour to the Continent. The tide was in, so the extensive and treacherous sands that gave Grange its name were not visible. Nor was Norman Kerr's railway bookshop of course.

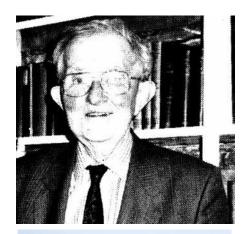
There was again double track from Grange to Barrow in Furness. There is a double-track by-pass line across the peninsula (the "Dalton Loop") from Dalton Junction to Park South Junction, which enables freight trains to avoid Barrow. My loco-hauled train terminated at Barrow, where the train engine had to run around to take the train on its return trip.

One could hardly declare with conviction that Barrow in Furness was anything other than "ghastly". Once called the "English Chicago", it had many of the attributes of the real Chicago—grim, grey and smoky with the world's largest steel works and naval shipyards. It seems not to have recovered from this blight and indeed is said by Bill Bryson to have gone menacingly downhill in the 25 years since my trip.

I changed at Barrow to a DMU, train 2P40, which took the now-singled coastal line circuit to pick up the bypass at Park South Junction—a single line junction, presumably to save on expensive point-work. Double track was soon picked up again.

Scenery went even further downhill from here, the climax being at Sellafield, home







of British Nuclear Fuels (BNF), the most scary place I have ever seen.

Described in the Ordnance Survey Atlas, merely as "Works", Sellafield lies on the face of the world like a malignancy. More than four and a half miles in circumference, surrounded by chain wire and anti-tank ditches, it is the most poisonous place on Earth. It contains 13 large nuclear plants including Calder Hall (the world's first nuclear power station) and Windscale, scene of a major disaster in 1957. The £80 billion clean-up for Windscale has barely begun. It looks and feels sinister and dangerous, like something from Quatermass II. Here, BNF blithely piped more nuclear waste into the Irish Sea than all other sources combined—including Chernobyl.

The nuclear flask trains arrive regularly several times daily to bring their hellishly toxic cargos for reprocessing. Regular flask trains also take away to power stations elsewhere some of the thirty tons of plutonium from the stores at Sellafield. On the day that I travelled (a Friday) flask train, No 7M53, had arrived at Sellafield from the Hinkley Point Nuclear Power station at Bridgwater [sic] in Somerset—at 13:37 according to my WTT.

In 1990, it was still possible to buy from Collectors' Corner, the Freight WTTs that showed the schedules of the nuclear



		WTT	Actual	Notes
Euston	dep		10:25:15	The Royal Scot
Rugby	pass	11:18		·
Stafford	pass	11:49	11:49:20	
Crewe	pass	12:07:3	0 12:04:45	
Weaver Jct	pass	12:17	12:13:55	
Euxton Junction	pass	12:37:3	0 12:38:25	
Preston	arr	12:42:3	0 12:38:25	Busy station
47.492 on 6 cars		1991W		-
Preston	dep	13:32	13:33:00	
Lancaster	arr	13:51:3	0 13:52:15	
	dep	13:52:3	0 13:53:20	
Carnforth	arr	13:59:3	0 14:00:55	
	dep	14:00	14:04:40	
Grange-over-Sands	arr		14:17:30	No sign of Norman Kerr
	dep	14:16	14:18:05	
Cark & Cartmel	arr		14:25:15	
	dep	14:19:3	0 14:25:30	
Barrow in Furness	arr	14:52:0	00 14:49:30	"ghastly and depressed"
		1989W	ΓT	-
Barrow in Furness	dep	14:52	14:58:25	
Park South	dep	14:59:3	0 15:05:05	
				"The station clock
Bootle	dep	15:37:3		went wildly"
Ravenglass	dep	15:44	15:50	"The perfect place for
Sellafield	arr	15:56		"The perfect place for a nuclear reactor"
Semanera	dep	15:58		
St Bees	dep	16:10:3		"staff station"
Maryport	dep	16:50		otajj otation
Carlisle	arr	17:33		
				-
Carlisle	dep	18:21:0	0 18:23:10	"Several Down expresses"
Lancaster	arr	19:22:3		cererar zerrin expresses
	dep	19:24:3		
Preston	arr	19:43		
	dep	19:47		
Crewe	arr		20:33:45	
	dep		20:37:00	
Watford Jct	arr		22:06:30	
	dep		22:07:35	
Euston	arr		22:29:50	
				_

		2P95		2P43	2P45	2P27	2P41	2P31	0D41		2P33	2P35	6A40	2P43	6P14
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ncaster st Bank	dep						12 592				14 051			15 13	15 5
rnforth D&U.G.L	arr	8													
rnforth D&U.G.L	arr 1	9					13 08				14 13			15 21	
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inge-Over-Sands.	¶ 1	6 12a41 7	25 53 1				13a27½ 13 31½				14a28			15a41 15 45	
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ton Jn	¶	3				Whitehaver arr 15 24		Whitehaver arr 16 20						16 14	
thouse Jn		5	201010			Workington arr 15 45		Workington arr 16 39						[2]	
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ARROW-IN-FURI	VESS dep 2	9		13 20		14 00		14 52				16 05			·
Barrow C.S	dep 3														
rk South	dep 3	2		13 27		14 07		14 591				16 12			
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xfield een Road	¶ 3	5		13R41 13R46		14R211 14R26		15R131 15R18	15 39			16R261			
llom	¶.arr 3	7		13 50		14 30		15 22				16 35			
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rkickle rkickle	¶.arr	3			‡ - Workingto	15R22		16R16							
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mby	¶	36			14R32	15R51		16R45							.
ryport		67 68			14 36 14 37	15 55 15 56		16 49 16 50							
patria		9			14R48	16R07		17R01							
Iston	¶	71			15R08			17R21							
rrock Jn	dep	72			15 13			17 26							
Bog Jn		74			[2]	[2]		[2]							
Upperby Jn		76	7.			1	1					1		1	1.
ARLISI F	arr	77			15 20	16 39		17 33							

Hartlepool to Sellafield

	Wednesday*		
	Hartlepool power station	dep	13:20
	Seaham	dep	13:50
١	Sunderland	dep	14:00
	Heworth	dep	14:10
	Newcastle	dep	14:15
	Dunston	dep	14:20
	Metro Centre	dep	14:30
	Blaydon	dep	14:40
	Prudhoe	dep	14:45
	Stocksfield	dep	14:50
	Riding Mill	dep	14:57
	Corbridge	dep	15:04
	Hexham	dep	15:10
	Haydon Bridge	dep	15:20
	Bardon Mill	dep	15:30
	Haltwhistle	dep	15:45
	Brampton	dep	16:00
	Wetheral	dep	16:10
	Dalston	dep	16:15
	Wigton	dep	16:25
	Aspatria	dep	16:30
	Maryport	dep	16:32
	Flimby	dep	16:37
	Workington	dep	16:40
	Harrington	dep	16:50
	Parton	dep	17:00
	Whitehaven	dep	17:10
	Corkickle	dep	17:20
	St Bees	dep	17:35
	Nethertown	dep	17:45
	Braystones	dep	17:55
	Sellafield	arr	18:00

flask trains as they converged from all over the U.K. That was where I had bought mine (for £1). Amongst the WTT customers were a number of Local and County Councils, who used the timetables to organise protests-and even line blockades—to try to stop these trains. This led to a Government directive that Collector's Corner was to withdraw freight WTTs from sale. This was fairly ineffectual because WTTs were fairly easy to come by in any case, so the ban was soon reversed. In later years, following the demise of Collectors Corner, Greenpeace made the relevant tables from the WTTs available to the public over the Web-and these are still available. I reproduce those for the Sellafield trains on page 6. These days, the Network Rail WTT is a public document, The Greenpeace timetables are no longer needed and the Sellafield trains can be found in Section CZ14.

In the fading afternoon stormy light Sellafield cast a sobering pall over all those on

Crewe to Sellafield

Any day from Tuesday to Friday* (arriving from Hinkley, Wylfa and Willesden)

William	Ú	
Crewe	dep	06:30
Winsford	dep	06:45
Northwich	dep	06:50
Warrington	dep	07:00
Wigan	dep	07:20
Leyland	dep	07:30
Preston	dep	07:45
Lancaster	dep	08:00
Carnforth	dep	08:30
Oxenholme	dep	09:00
Penrith	dep	10:00
Carlisle	dep	10:45
Dalston	dep	10:55
Wigton	dep	11:05
Aspatria	dep	11:10
Maryport	dep	11:12
Flimby	dep	11:17
Workington	dep	11:20
Harrington	dep	11:30
Parton	dep	11:40
Whitehaven	dep	11:50
Corkickle	dep	12:00
St Bees	dep	12:15
Nethertown	dep	12:25
Braystones	dep	12:35
Sellafield	arr	12:40

Heysham to Sellafield							
Wednesday*	1	T					
Heysham P S	dep	16:00					
Morecambe	dep	16:30					
Carnforth	dep	17:00					
Oxenholme Lake	dep	17:30					

dep

dep

arr

18:30

19:15

17:55

Penrith

Carlisle

Sellafield

the train. No passengers spoke—they gazed numbly; were silent and thought-ful—thinking perhaps (as did I) of the folly of placing the world's most dangerous object into one of the world's most beautiful places. The somber mood persisted until long after Sellafield disappeared behind a distant curve of the coast.

It was hard to take an interest in anything after Sellafield and the commentary in my log book dries up to a large extent. I had enough wit left, however, to notice that the track north of Sellafield had been singled between there and Whitehaven and at one or two stretches beyond.

At Whitehaven, another steel city that had seen better days, it began to rain just as

Carlisle to Sellafield

Wednesday and/or Thursday* (arriving from Hunterston, Heysham and Torness) The trains run to two different

The trains run to two different timetables.

Carlilse	dep	06:45
Dalston	dep	06:55
Wigton	dep	07:05
Aspatria	dep	07:10
Maryport	dep	07:12
Flimby	dep	07:17
Workington	dep	07:20
Harrington	dep	07:30
Parton	dep	07:40
Whitehaven	dep	07:50
Corkickle	dep	08:00
St Bees	dep	08:15
Nethertown	dep	08:25
Braystones	dep	08:35
Sellafield	arr	08:40

Hunterston to Carlisle Tuesday* Hunterston P S 12:30 dep Fairlie dep 12:40 West Kilbride dep 12:45 Ardrossan dep 12:50 Saltcoats dep 12:55 Stevenston dep 13:00 Kilwinning dep 13:15 Dalry dep 13:20 Glengarnock dep 13:30 Lochwinnoch dep 13:40 howwood dep 13:50 Milliken Park dep 13:55 Johnstone dep 14:00 Elderslie dep 14:10 Paisley 14:20 dep Hillington West dep 14:22 Hillington East dep 14:24 Cardonald dep 14:28 Rutherglen dep 14:35 Carstairs dep 15:00 Lockerbie dep 16:45 Carlisle 17:35

dusk was falling—desolation was complete.

And so to Carlisle with another clutch of anoraks, I caught the 1821 to London, propelled smoothly and quickly from a locomotive at the rear, while I enjoyed (a relative term) a meal in the dining car, pausing only to scribble a few notes in my log-book at the most major stations

I never did buy a WTT from Norman, but I did at least get the extracts for them from Greenpeace.

Results of ATA's first annual rail speed survey

GEOFF LAMBERT

ND THE WINNER IS!

Actually it was very easy to pick a winner because we had only one entry, that from Michael Vale, who receives one year's free membership in consequence.

The whole thing was triggered by the following e-mail from Max Michell:

Based more on experience than detailed study I would suggest the fastest start to stop (in fact probably start to start) CityRail EMU schedule is weekday expresses Wyong to Morisset -22.24 km in 14 mins, at an average of 95.3 kph. In fact if 30 seconds are allowed for the stop at Morisset the average speed becomes 98.8 kph. Experience indicates this is achievable and on rare occasions can be bettered enough to average ≥ 100 kph. As indicated below my fastest start to stop DMU schedule is each way between Singleton and Muswellbrook - 49.9 km in 30 mins at an average of 99.8 kph. In fact, last Thur, we did it in 29m 47s (average 100.5 kph) on the down and 28m 53s (average 103.6 kph) on the up with normal running in each direction. I would be interested if anyone knows of (or can find) any faster CityRail passenger schedules across the network.

So, the Editor suggested "while minding the grandkids at the beach over Christmas New Year, please take along a bunch of timetables and a laptop. Categories: Urban, Intercity Pass, Rural Pass., Freight – section speeds, end-to-end speeds. Retrospective too if you have a yearning for the good ole days."

In February, I reported: Entries are flooding in for our railway speed survey and best and worst timetable competition. At the moment, a V/Line nonstop run between Footscray and Ballan has its nose in front of the pack. Perhaps you can find something faster? Can QRN better that on its North Coast line?— it holds the Australian speed record after all. We have had no entries yet for freight runs, though

surely there must be some fast runs on ARTC's East-West route (sorry – only joking). There are no entries yet for the longest non-stop runs, but I expect that the Nullarbor or the Darwin line might provide some good examples – and hopefully longer than the "First Train Across the Nullarbor" journey described in "The Times" late last year.

The above was rather a high degree of hyperbole, because only one suggestion had then been received and things have remained that way ever since. Michael Vale, a resident of Ballan, just up the line from my childhood home at Bacchus Marsh submitted the following:

From an Australian perspective, now that the Prospector in WA no longer has an express timetable on a Friday. the fastest average speed train in Australia, I believe is on my line, the Ballarat line. Point-to-point times and an average speed being the 16:47 down, Ex Footscray service on Mon to Fri which does the 75 Km trip arriving in Ballan at 17:24 at a timetabled 37 minutes and an average speed of 121.62 KPH [train pictured at Bank Box Loop on page 9]. This is even more remarkable as the train also has to gain an elevation of 500 metres to Ballan in the process of being, I believe the fastest average speed train in Australia.

The longest express operation of a passenger train in Australia may be the 17:06 ex Footscray which arrives in Castlemaine at 18:09, 63 mins, a distance of 120Km and at an average speed of 114.29 KPH.

Possibly the Rockhampton Tilt Train may operate some fast point-to-point times, but I'm not working out average speeds for the distances say between Miriam Vale and Gladstone, I'll let someone else do the maths on that train.

Subsequently, on hearing the results of the survey, Michael added the following:

With the introduction of the revised

timetable with the introduction in June of the Regional Rail Link, an additional stop has been introduced to the formerly 16:47 now the 16:41 service which sees the 37 mins running time for this train and two other services increased to 41 mins, obviously this drops the average speed and is now 109.75 KPH. If however we take the point to point times of 34 mins from Sunshine to Ballan, a distance of 68 Km the average speed rises to a more respectable 116.6 KPH. All services quoted are on the DOWN and UP services, even though they are downhill, do not match the DOWN services for average speeds.

I followed up Michael's suggestion and looked at the Rockhampton Tilt train for high start-to-stop times, to find that it covered the 30km between Maryborough and Howard in 15 minutes for an average speed of 120.2 kph. I then looked at other longdistance trains to find fast start-to-stop times. I focused on the XPT services on the Junee-Albury line, because that line seemed a priori to offer the best prospects. The highest speed I could find was for The Rock to Culcairn, at 103.4 kph. I also checked that line for high start-to-stop times for Freight. Here a number of trains run express from Junee to Albury, the fastest of them being 5BM4, which averages 88.3kph.

Point-to-point times are tricky, as Michael pointed out in a follow-up email. First, we may not know the exact position of the timing points, especially at long crossing loops. Second, where times are given in WTTs only to the nearest minute (and they always are), the accuracy of the calculated times becomes very poor over short distances and short times. These two effects can combine to produce ridiculous results, such as speeds in the 200-300 kph range.

Notwithstanding this, there are some quite high point-to-point times which one can believe in. The highest seems to be Michael's train 8156 between Deer Park platform and Melton platform (non-stop through each) which

Submitted by	System	Train type	Speed category	Train #	From	То	km	time (min)	Speed
Michael Vale	V/Line	Intercity	Longest Express	8033	Footscray	Castlemaine	120	63	114.3
Editor	V/Line	Intercity	Point-to-point	8155	Deer Park	Melton	19.494	8	146.2
Editor	NSW Trains	Long Distance	Point-to-point	ST23	Culcairn	Gerogery	19.55	9	130.3
Editor	ARTC	Freight	Point-to-point	5BM4	Henty	Culcairn North	12	7	102.9
Michael Vale	V/Line	Intercity	Start to stop	8156	Footscray	Ballan	75	37	121.6
Editor	QR	Intercity	Start to stop	Q301	Maryborough West	Howard	30.06	15	120.2
Editor	NSW Trains	Long Distance	Start to stop	ST23	The Rock	Culcairn	46.53	27	103.4
Max Michell	NSW Trains	Interurban	Start to stop	Several	Wyong	Morriset	22.2	14	95.3
Editor	ARTC	Freight	Start to stop	5BM4	Junee	Albury	160.4	109	88.3

covers the 19.5 km in a tabled time of 8 minutes, for a point-to-point speed of 146.2 kph (but it could be anywhere between about 137 and 155 kph). Any of these figures cause this service to

have the highest speed to appear in our analysis. The southbound Melbourne-Sydney XPT (ST23) is nearly as fast between Culcairn and Gerogery. In the same general area (Henty to Culcairn North), Pacific National's 5BM4 Inter-

modal is probably the fastest point-topoint timing for freight, at 102.9 kph

The results of these analyses appear at the top of our page 8.



Express Trains—English and Foreign (Australia) G. LAMBERT, E. FOXWELL & T.C.FARRER

T IS INTERESTING TO COMPARE Australian railways timings and speeds of 2016, with those given in the 1889 book *Express Trains—English and Foreign*. As was pointed out in The Times of December 2014, railways brought to the world, a new concept called "speed" and led people to become interested in both how quickly and how fast one could travel from A to B. *Faster* meant better; *quicker* meant better.

This gave rise to much analysis in the Press, in magazines and in books like the one displayed here. This 1889 book was republished in 1964, but the pages shown here are taken from the original.

The authors said in a Preface:

"The object of the following pages is to show, as accurately as possible, the speed of Fast Trains in various parts of the world. For this purpose we have taken two standards: first, the speed including all stops, this figure being perhaps of most interest to the general traveller, since it shows the rate at which long stretches of journey are accomplished, irrespective of frontiers, custom-houses, and other checks to locomotion. Secondly, we have taken the speed excluding stoppages, i.e. the average rate attained by the locomotive during its journey. This figure gives a fairer general basis for comparing the speeds on different railways,.

Our standard for an Express train in Great Britain and the United States is any train which attains a speed, including stops, of 40 miles an hour, but it must, as a rule, cover a distance of at least forty miles. In other countries we call 'Express' any train which attains a speed, including stops, of 29 miles an hour, this being quite the common Continental express speed.

It is fairly clear that the authors were not terribly impressed with Australasian train speeds over long distances—startling as they might have seemed then to Australians and New Zealanders.

We can at least say that things are "better" in 2016.

INDIA AND THE AUSTRALIAN COLONIES.

AUGUST 1888.

AUSTRALIAN COLONIES.

In South Australia, Victoria, and New South Wales the speeds are most creditable, often amounting to over 40 miles an hour on single line, while the gradients are considerable, as will be seen below. We give the timing of the Intercolonial Mail, which is the best express in the Colonies. In certain cases the return train is slightly faster, but not above a mile an hour.

From Adelaide, 100 feet, the railway rises to 398 feet at Serviceton, the Victoria frontier, and then rapidly to 1,415 feet at Ballarat the Victorian summit; falling to 32 feet at Melbourne. Thence it rises to 531 feet at Albury, the New South Wales frontier, and goes on steadily ascending to Mittagong, 2,069 feet, the summit, whence it drops rapidly 2,000 feet in 77 miles to Sydney. North of Sydney again there are constant hills. From practically sea-level at the Hawkesbury River, it ascends steadily to a summit of 3,518 feet at Glen Innes, sinks to 1,500 at Wallangarra, the Queensland frontier, thence continuously to 58 feet at Brisbane.

Adelaide to Melbourne.

South Australia.

Gauge 5 ft. 3 in. Fare:—1st, 2d. per mile, 2nd, $1\frac{1}{4}d$. 1st & 2nd class.

Victoria. (Same train continued.)
Gauge 5 ft. 3 in. Fare:—1st, 2d.
per mile, 2nd, 1 3d.

Miles		Time	Speed	Miles			Time	Speed
	43.1-13	P.M.		100	g		Р.М.	
001	Adelaide .	3 30	23 1	196	Serviceton	•	10 45	33
$23\frac{1}{2}$	Aldgate	4 29		234 1	Nhill .	•	11 55	1
011	16 D 1 T	32	} 19	0.403	· .		12 0	24
311	Mt. Barker Jc.	4 58		2423	Kiata .	•	12 20	,
ایما		5 0 6 5	27	0.00	***		23	28
60 [‡]	Murray Bridge		[) ⁻ '	258	Dimboola	•	12 55	,
	m.::	30	35	070)	TT		1 0	28
751	Tailem Bend .	6 55	! '	2791	Horsham	•	1 45	
1141	Coonsilhers	57	} 41	297	Manual a a		50	34
1141	Coonalbyn .	7 54	,	Z91	Murtoa .	- ;	2 21	[,
	Wirrega	57 8 26)	3323	Stame!!		23 3 30	31
	wirtega	30	39	3324	Stawell .	•	350 35	Ι,
183	Bordertown .	9 43])	3511	Ararat .		4 10	32
100	Doluciown .	46		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	WINTER .	•	13	1
196	Serviceton .	10 9	} 34	380	Beaufort.		5 11	29
<u>. </u>	Corridordi ,		l'	1	Deautore.	•	16	١,
	Including stops	- 202		4081	Ballarat .		6 13	30
	Excluding stops			- • • • • • • • • • • • • • • • • • • •		•	25)
	Promuting scops	— J∠ <u>3</u> .		4633	Geelong .		7 50	39
				~~~	. 20.0.0	- 1	8 20	1
				508	Melbourne	- 1	9 45	32

Incl. stops = $28\frac{1}{2}$. Excl. stops = 32.

Whole journey, Adelaide to Melbourne, allowing for difference of time, incl. stops 29, excl. stops 32.

Miles

611

93%

1211

 $145\frac{1}{3}$

1591

187

1901

Melbourne to Sydney.

Speed

} 36

40

} 36

36

38

Time

P.M.

4 55

6 37 57

7 46

8 35

49

40

20

21

43 46

10 28 38

10 48

Victoria.

1st & 2nd class.

Melbourne

Seymour

Benalla .

Springs .

Wodonga

Albury

Wangaratta

Euroa

New South Wales. (Same train cont.)

Gauge 4 ft. $8\frac{1}{2}$ in. Fares:—1st, 2d. per mile; 2nd, 1·3d. First class only.

Prist class only.								
Miles	_	Time	Speed					
	Albury .	P.M. 11 42	. 41					
2671	Wagga Wagga	1 34	J 41					
289½	Junee	38 2 23 30	29					
323 ₂	Cootamundra .	3 40	-					
3481	Harden	4 25 30						
$389\frac{1}{2}$	Yass	5 55						
$442\frac{1}{2}$	Goulburn .	7 35) 33½					
499 1	Mittagong .	8 0 9 33						
563 <u>1</u>	Granville .	11 36						
576]	Sydney	12 5	, 31					

Incl. stops = 31. Excl. stops = 34.

Whole journey, Melbourne to Sydney, allowing for difference of time, incl. stops 31, excl. stops 35.

Sydney to Brisbane,

New South Wales.

Including stops = 33. Excluding stops = 37.

Miles		Time	
490	Sydney Wallangarra .	P.M. 4 45 5 0	

Including stops = 20½. Excluding stops = 24. Queensland. (Same train cont.)

Gauge 3ft. 6in. Fares: -1st, $2\cdot15d$.; 2nd, $1\frac{1}{2}d$. 1st & 2nd.

Miles		- -	Time	
723	Wallangarra Brisbane	•	P.M. 5 30 6 15 A.M.	

Incl. stops = $18\frac{1}{5}$. Excl. stops = 23.

Whole journey, Sydney to Brisbane, incl. stops 194, excl. stops 234.

In Tasmania, West Australia, and New Zealand, there are no expresses. The best in New Zealand is a so-called express (narrow gauge, 3 ft. 6 in.) from Christchurch to Dunedin, 230 miles in 111 hours, exactly 20 miles per hour including, and about 23 excluding stops.

At the Cape the best trains, from Capetown to Port Elizabeth, 839½ miles, Capetown to Kimberley, 647 miles, and Port Elizabeth to Kimberley, 485 miles, run only once weekly, and average about 22 including, 24 excluding stops. Fares 3d., 2d., and 1d. per mile in the three classes on the Government Railways.

Who Operates What By Victor Isaacs

INCE THE BREAK-UP AND corporatisation of Australian railways in the past few decades, it has sometimes become difficult to know which authority or company operates what. While in any one place the Australian railway structure is not as complicated as in Britain - which sets the world record for a complicated railway structure - across Australia it is even more complicated. This is because there has never been one national railway in Australia, nor one set of policies towards railways. Rather, there has always been seven major public railways, and seven sets of policies - one for each State plus the Federal Government.

These remarks relate to public railways, those offering transport to the public for passengers and for freight. They do **not** apply to private railways which are part of a closed entity, such as the sugar cane railways, and, in particular, the iron ore railways in north-west WA. These latter convey enormous quantities of freight. They in fact, operate the biggest trains in the world and the most technically advanced. But they are all closed systems, conveying freight only of and for their specific mining company owner. This article also does **not** touch upon heritage, museum or enthusiast railways.

A consequence of our wonderful Federal system is that each of the seven governments corporatised and/or broke up their railways in their own way, and at their own time – this explains the current very complicated structure. Thank goodness for the slight saving factor that neither of the two territories controlled railways.

The corporate structure of Australian railways is now so complicated, that I am sure to have missed some entities, and/or got some things wrong. So please write in with your additions and/or corrections.

In general, there are now separate entities controlling infrastructure, passenger operations and freight operations. But not always. Some entities are both infrastructure controllers and train operators. Sometimes one or the other, or both, depending on location. The most complicated is V/Line. In most places, it operates V/Line passenger trains on V/Line tracks. But in some places, it operates V/Line trains on non-V/Line tracks, and in other places the opposite applies, that is V/Line tracks but only with non-V/Line trains

Another example that can be quoted of today's complexity is the famous weekly

east-west transcontinental Indian Pacific passenger train. This is owned by Great Southern Rail. The train leaves Sydney and as far as Hermitage (a smidgen beyond Lithgow) it is on tracks owned by Transport for NSW, then as far as Parkes it is on tracks controlled by John Holland Rail, then for the very long haul from Parkes through Broken Hill, in and out of Adelaide and as far as Kalgoorlie it is on tracks of the ARTC, then over tracks controlled by Brookfield Rail, and finally the final few kilometres from Midland to Perth Terminal over a line of the Public Transport Authority of WA. That is, it operates over tracks controlled by five entities. The on board crew is provided by Great Southern Rail. But the locomotives and operating crew come from Pacific National

In general, each entity is confined to one State, but there are many exceptions. In general, infrastructure is controlled by Government entities, but there are exceptions. In general, passenger operations are by State Government entities, but there are exceptions. In general, freight operations are by private companies, but there are exceptions.

This article describes the situation in early 2016

I will start with entities that cannot be categorised by State, then go to Queensland and then clockwise around the continent. The Australian Capital Territory is covered in the NSW section and the Northern Territory in the SA section.

Interstate

Infrastructure

Most interstate mainlines are controlled by the Australian Rail Track Corporation. This is a Federal Government owned company. However, the Federal Government is currently considering possible privatisation. A decision will be made as part of the 2016-17 Budget process and will probably be known by the time this article is published The ARTC owns lines from Kalgoorlie WA across the Nullarbor to SA and to the SA/Victorian border at Serviceton. It also owns other lines in SA to Broken Hill, NSW, and to Whyalla. These lines were inherited from the former Federally-owned Commonwealth Railways. The lines it controls in Victoria, New South Wales and Oueensland are all on long-term leases from these respective Governments. The interstate mainline from Kalgoorlie to Perth has been retained by the WA

Government, However, there is an agreement for ARTC to market operations on this line on a one-shop approach.

The north-south railway from Tarcoola as far as Alice Springs was originally also owned by ARTC. When the Howard Government gave a tender for the construction of the balance of this railway to Darwin, it transferred this line to the tenderer. The current owner is **Genesee and Wyoming**.

Passenger operators

The interstate passenger trains of the former Commonwealth Railways were sold to **Great Southern Rail**, which was recently sold to Allegro Funds, a company specialising in buyouts of poorly performing companies. The trains are the iconic weekly east-west transcontinental Indian Pacific and weekly north-south transcontinental Ghan and twice weekly Melbourne-Adelaide Overland.

The interstate operations of **NSW TrainLink** are mentioned in the NSW section.

Freight operators

Interstate mainlines: The dominant freight train operator is **Pacific National**. Pacific National's origins come from the freight side of the former Commonwealth Railways. It is currently (early 2016) the subject of a corporate battle for control between Canadian infrastructure investment company, Brookfield, and a consortium including Qube and the Canadian Pension Fund. Vigorous competition comes from Aurizon. Aurizon started competing for traffic outside of Oueensland even when it was still the Queensland Government owned Queensland Railways. Another interstate operator is SCT, standing for Specialised Container Transport, but offering more than container transport.

Queensland

The following does not apply to the 100 km of the interstate mainline between the NSW/Queensland border and Brisbane. That will be considered with NSW lines.

Queensland was the last State with a traditional, integrated railway. When the State Government decided to reform the Queensland Railways, basically they divided it into two: the profitable bits and the unprofitable bits. (I will not go into the considerable political consequences of this, other than to say that it led to the then State Government massively losing the following election).

The profitable bits were freight operations, in particular, the huge coal traffic. This became what was originally

called QR National, but quickly changed its name to **Aurizon**, a made-up word combining Australia and horizon. Aurizon's main asset is the massive Central Queensland coal traffic.

The unprofitable bits of the former QR were the non-coal parts of the network and passenger operations. This was retained in State Government ownership. This took the name of **Queensland Rail**.

Infrastructure

Railway lines in Central Queensland where coal predominates were transferred to **Aurizon**. All other lines of the former Queensland Railways were retained by **Queensland Rail**.

Passenger operations

Passenger operations, with two small exceptions, are all by Queensland Rail. The long-distance trains, formerly called QR Traveltrain, are now called **Queensland Rail Travel**. These mainly operate over their own tracks. But between Gladstone-Rockhampton-Emerald they operate over track owned by Aurizon.

A small number of bus routes are part of the Queensland Rail Travel network. The shorter routes are, I think, operated directly by Queensland Rail, and the longer routes by contractors.

The Brisbane suburban and other short-distance trains in SE Queensland are called **OR Citytrain.**

There are two other, minor, passenger train operators in Queensland. NSW TrainLink has a daily Brisbane-Sydney service covered in the NSW section below. Caims Kuranda Steam Railway operates a once a week rail motor from Cairns inland to the nothing place of Forsayth. Today this is mainly a tourist service. (The name Cairns Kuranda Steam Railway is misleading. The company was established to operate steam trains from Cairns to Kuranda, but despite importing steam locomotives from South Africa, it has never done so.)

Freight operations

Most freight trains in Queensland are operated by **Aurizon**. The biggest component is the giant Central Queensland coal traffic. This operates over tracks owned by Aurizon. Aurizon also has heavy coal traffic in Southern Queensland. This operates over tracks owned by Queensland Rail.

Aurizon also operates general freight trains. The commercially viable trains operate on the main coastal Brisbane-Townsville-Cairns route. This is mainly over tracks owned by Queensland Rail. But the section between Gladstone and Rockhampton is over their own line.

Other non-commercially viable freight

trains operate on a subsidised basis into inland Queensland. These are, I think, arranged by Queensland Rail and operated by Aurizon.

Pacific National is a major competitor for freight traffic in Queensland. It competes vigorously for Central Queensland coal traffic (over lines owned by Aurizon), and also competes for general freight on the Brisbane-Townsville-Cairns route (over lines owned by both Queensland Rail and Aurizon).

Cairns Kuranda Steam Railway is a very small player in rail freight. It shunts the Pacific National freight train in Cairns and services its locomotives there.

Tram

G:link, the Gold Coast tramway is owned by the State Department of Transport and operated by the **Keolis Downer** joint venture.

Exhausted? There are five more States still to consider.

New South Wales

NSW is probably the most complicated set -up. A key consideration to keep in mind is demographic – most of NSW's population is along the coast. The inland is sparsely populated. Therefore, some country dwellers claim that NSW really stands for Newcastle-Sydney-Wollongong, i.e., that is all the State Government is interested in. When it comes to railways, that is most definitely true.

Infrastructure

Infrastructure in NSW is divided into four categories.

Firstly, most lines in the Newcastle-Sydney-Wollongong heavily populated area are owned and controlled by a State Government authority, Transport for NSW. This comprises all electrified lines in the Sydney suburban area, plus the electrified lines north to Newcastle, south to Kiama, and west to Lithgow, plus the non-electrified line from Kiama to Nowra.

Secondly, are the lines controlled by the Australian Rail Track Corporation. The ARTC has three types of lines in NSW. Firstly, there are the interstate mainlines. This is logical, as this is what the ARTC was established to control. These are on very long-tern lease from the NSW Government. The 100 km of track from the NSW/Queensland border to Brisbane is held on a similar long-term lease from the Queensland Government.

The ARTC also controls – on a long-term lease from the NSW Government – the very busy Hunter Valley coal network. Huh? What is an entity set up for interstate mainlines doing with these? When the NSW Government was desperate to get rid

of its railways outside of the Newcastle-Sydney-Wollongong area, it threw in the commercially attractive Hunter Valley network to entice the Feds to take over the interstate mainlines

The ARTC also controls, bizarrely, some lines in inland NSW with very little or indeed no regular traffic. This is because these might one day be part of the proposed Melbourne-Brisbane Inland Freight Railway.

Thirdly, there are lines in NSW that basically no-one wanted – neither the NSW Government nor ARTC. These might be called Remnant Rail, but the official name is NSW Country Regional Network. There are leased to the engineering company John Holland Rail. Thus they are officially known as **John** Holland Rail NSW Country Regional **Network** – a bizarre situation of a railway named after a person. In fact, this is not a network at all, but a series of disconnected lines, connecting with ARTC lines, and in one case (near Lithgow), with a Transport for NSW line. The tiny railway within the ACT is owned by the Federal Government, but is on an indefinite lease to the NSW Government, and then on a sub-lease to John Holland Rail

Fourthly in NSW, there are lines in the south of the State which have always been, and are now, part of the Victorian railway network. These lines will be considered in the section about Victoria.

Passenger operators

The very heavy, electrified passenger operation in the Sydney area is in the hands of a NSW State Government body, **SydneyTrains**, which operates over tracks owned by Transport for NSW and works closely with Transport for NSW.

Medium distance trains in the Newcastle-Sydney-Wollongong area are operated by NSW TrainLink. Most of these are electric and operate over tracks owned by Transport for NSW. There are also some operated by diesel multiple units. These are in the Hunter Valley operated over lines owned by ARTC, in the Southern Highlands from Campbelltown to Goulburn over lines of ARTC, and from Kiama to Nowra over the only non-electrified line owned by Transport for NSW.

Long-distance trains are also operated by **NSW TrainLink**. Within the Newcastle-Sydney area these operate over tracks of Transport for NSW, but they mainly operate further afield over lines controlled by ARTC. In some cases, they operate over lines controlled by John Holland Rail. These trains extend beyond NSW to Canberra ACT, Melbourne Victoria and Brisbane Queensland.

NSW TrainLink's network also includes a large network of bus routes feeding into the trains. All are operated by franchisees. The supplementary bus network extends into northern Victoria, the ACT and Queensland.

Great Southern Rail operates its transcontinental Indian Pacific train once a week over lines controlled by Transport for NSW, John Holland Rail and ARTC.

V/Line pokes its nose ever so slightly into NSW at Albury on an ARTC line.

The **SkiTube** railway in southern NSW from Bullocks Flat to Blue Cow is a standalone operation with integrated infrastructure and operation. It is owned by the Perisher-Smiggins ski resort.

Freight operators

Freight operation within NSW is entirely in the hands of private operators. As in most of Australia, it is dominated by two companies, Pacific National and Aurizon. NSW freight operations can be divided into the heavy Hunter Valley coal traffic, and other.

Hunter Valley coal traffic: The dominant operator here is Pacific National. Vigorous competition comes from Aurizon. In other words, the situation is the opposite way around to the Central Queensland coal traffic. There are also smaller operators competing. These are Qube, a general logistics company, Glencore, an Anglo-Swiss company, and Southern Shorthaul Railroad. All of the Hunter Valley coal traffic trains are operated over tracks controlled by ARTC.

Other: In addition to the interstate mainline operators mentioned in the Interstate section, there are minor freight operators in NSW. Those I know of are Qube for some general freight, Fletcher International, an abattoir company, to move their meat exports from Dubbo to Sydney, Crawford Freightlines from Newcastle to Sydney, **GrainCorp** for grain trains and Southern Shorthaul Railroad, **Independent Rail** and **Espee Rail**. The last two tender for short haul operations, mainly in the Sydney and Newcastle areas, ballast and maintenance trains, and wagon transfers. Although they are small, they are very interesting as illustrative of the great changes in the railways industry in recent years. Both started as pure railfan operations operating steam excursion trains, before moving to commercial freight operations. Independent Rail started as the Lachlan Valley Railway in Cowra, central west NSW and Espee Rail as the Australian Railway Historical Society, ACT Division. Freightliner Australia, and its parent company in the UK, was recently taken over by Genesee and Wyoming but trains can still be seen in its colours.

Tram

The infrastructure, operation and construction of Sydney Trams are with **Transport for NSW.**

Victoria

Victoria is almost as complicated as NSW.

Infrastructure

In theory, all railway and tramway lines in Victoria are owned by a State Government entity, **VicTrack**. But all operating lines are leased to the entities mentioned below. VicTrack mainly provides telecommunications using railway easements and commercially develops surplus railway land.

The Melbourne electrified suburban network is leased to **Metro Trains Melbourne**. Metro Trains' network also includes the non-electrified appendage of the Frankston-Stony Point line.

Interstate mainlines in Victoria are leased to ARTC, as are two standard gauge freight braches to the port of Portland and to Oaklands, southern NSW. I do not know why these two lines were transferred to ARTC and the remaining standard gauge freight branch to Hopetoun was not.

All other lines in Victoria are controlled by **V/Line**, whether used for V/Line passenger trains or not used by V/Line, but rather by non-V/Line freight trains.

Passenger operators

The large Melbourne electrified network, plus the non-electrified Frankston-Stony Point line, is operated by **Metro Trains Melbourne**, all over tracks it controls. The Stony Point trains use trains hired from V/Line. Metro Trains is a private consortium, with its biggest member being Hong Kong's Mass Rapid Transit. Thus this is the only private passenger train operator of significance in Australia. However, one wonders why, because it is so very heavily regulated by the State Government.

The large rural passenger train network in Victoria is operated by **V/Line**. Most of V/Line's trains operate over lines controlled by V/Line. However, in the Melbourne metropolitan area some operate over lines controlled by Metro Trains. This is much less than formerly, since the opening of the Regional Rail Link in 2014 and 2015. V/Line's standard gauge passenger trains to Albury operate over a line controlled by the ARTC.

V/Line's passenger network also includes a large network of bus routes, most feeding into trains, but some operating through to Melbourne. V/Line's supplementary bus network is bigger than NSW TrainLink's. These routes are all operated by franchisees. Strictly speaking, the licences

for these routes are determined by the Victorian Department of Transport, but V/Line has day-to-day supervision of them. The supplementary bus network extends into southern NSW, the ACT and SA.

NSW TrainLink also operates twice daily over ARTC's Melbourne-Albury line. Great Southern Rail's twice weekly train to Adelaide operates over the western line controlled by ARTC. However, both NSW TrainLink and GSR trains terminate/ start at Melbourne Southern Cross station owned by V/Line. The country portion of Southern Cross is controlled by V/Line and the suburban portion by Metro Trains.

Freight operators.

Other than the interstate operators mentioned in the interstate section, freight operators within Victoria are Pacific National and Qube, plus GrainCorp for grain trains. There used to also be small operators such as Great Northern and El Zorro, but these have now failed.

Trams

The large Melbourne tram network, the largest in the world by kilometerage, is leased to **Yarra Trams**, a mainly Frenchowned consortium.

Tasmania

Tasmania is simple. Since the failure of privatisation here, and the re-purchase in 2009 of the network from Pacific National by the State Government at an exorbitant price, both infrastructure and freight operation is integrated in **TasRail**. There is no non-railfan passenger operation.

South Australia

Infrastructure

As mentioned above, interstate mainlines and some other lines are owned by ARTC. Remaining lines in SA are owned by the large US short-lines owner, Genesee and Wyoming. The Adelaide suburban passenger lines are owned by Adelaide Metro, a State Government entity.

Passenger operators

The suburban network is operated by **Adelaide Metro** over its own tracks. Interstate trains are mentioned above (operated by **GSR**). There are no intrastate passenger trains.

Freight operators

Freight trains to Darwin, NT, and the very meagre remaining intrastate freight operations in SA are operated by **Genesee** and **Wyoming**.

Tram

The tramway infrastructure is owned and operated by **Adelaide Metro**.

Western Australia

Infrastructure

Rural lines in WA are leased by the State Government to **Brookfield Rail**, a Canadian company. Metropolitan lines are owned by the **Public Transport Authority of Western Australia**, a WA Government entity.

Passenger operators

The electrified Perth suburban train network is operated by the State

Government's **TransPerth**, a component of the PTA of WA. Rural passenger trains are operated by **Transwa**, another component of the PTA of WA. The Transwa network also includes a large bus network, mostly operating through to Perth, but a few feeding into trains. Unlike the supplementary bus networks in Victoria and NSW, the WA buses are not operated by franchisees, but directly operated by Transwa.

Freight operators

General intrastate freight trains,

including minerals, are operated by **Aurizon**, a predominately Queensland company. Grain trains are operated by **Watco**, a US company.

Rolling stock companies

As a final complication, there are also now companies that are solely owners of rolling stock that they lease to operators. These are both US companies, Chicago Freight Car Leasing Company of Australia (which also leases locomotives), and, on a smaller scale, GATX.

	SUMMARY	Y: AUSTRALIA	N RAIL INDUSTR	RY 2016	
	URBAN INFR'E	RURAL INFR'E	URBAN PASS	LONG DISTANCE PASS	FREIGHT
INTERSTATE	Not applicable	ARTC	Not applicable	Great Southern Rail	Pacific Nationa
				NSW TrainLink	Aurizon SCT
QUEENSLAND	Qld Rail	Aurizon	Qld Rail Citytrain	Qld Rail Travel	Aurizon
		Qld Rail		Cairns Kuranda Steam	Pacific Nationa
		ARTC			Cairns Kuranda Steam
NSW & ACT	Transport for NSW				Pacific Nationa
					Aurizon
					Qube
		ARTC			Glencore
					Crawford's
			Sydney Trains		Freightlines
		TfNSW	2,	NSW Train Link	Southern Shorthaul
		John Holland Rail		SkiTube	Ind't Rail
					Espee
					Fletchers
					Grain Corp
VICTORIA & SOUTHERN NSW	Metro Trains	V/Line	Metro Trains		Pacific Nationa
		ARTC		V/Line	Qube
					Grain Corp
TASMANIA	Not applicable	TasRail	Not applicable	Not applicable	TasRail
SA & NT	Adelaide Metro	ARTC Genesee & Wyoming Pacific National	Adelaide Metro	Not applicable	Genesee & Wyoming
WA	PTA of WA	Brookfield Rail	PTA of WA	PTA of WA	Aurizon
		ARTC	Transport t/a	Transport t/a	Watco
ARTC: Australian Rai	l Track Corporation		PTA: Public Transport Authority		
INFR'E: INFRASTRUCT			TfNSW: Transport for NSW		
PASS: PASSENGER			Ind't: Independent		

INTERSTATE PASSENGER OPERATORS					
Great Southern Rail	NSW, SA, WA, NT, VIC				
NSW Train Link	NSW, ACT, QLD, VIC				
V/Line	VIC (and buses to SA, NSW, ACT).				
INTERSTATE FREIGHT OPE	RATORS				
PN Pacific National					
QR National					
SCT Specialised Container Transport	ort.				
LOCOMOTIVE & FREIGHT V	WAGON HIRER				
Chicago Freight Car Leasing Company Australia,					
GATX.					
WA IRON ORE RAILWAYS					
BHP Billiton					
Rio Tinto					
Fortescue					
Hancock.					
TRAM OPERATORS					
MELBOURNE	Yarra Trams				
WIELDOURINE	(biggest tramway system in the world)				
SYDNEY	Transport for NSW.				
ADELAIDE	Adelaide Metro.				
GOLD COAST	Glink.				









