

NEW SOUTH WALES NEWSLETTER

OCTOBER 2009



ENGINEERS
AUSTRALIA

RTSA

Railway Technical Society of Australasia
NSW Chapter
Mail: PO Box 6238, Kingston, ACT, 2604

RTSA NSW CHAPTER MEETING

Wednesday 4th NOVEMBER

11.30 for 12.00 in the
CENTRAL STATION - CONCOURSE MEETING ROOM
(next to Lost Property)

STORE – A STUDY TOUR PAR EXCELLENCE



The recent Study Tour to Asia (STORE) was an outstanding success, with all 27 participants enjoying themselves soaking up some of the vast array of Metro and other rail developments in our near north.

In a period of just 11 days the group visited Kuala Lumpur, Singapore, Shanghai, Beijing, Changsha / Zhuzhou and Hong Kong, travelled 22,500 air km in nine different aircraft types, used at least 15 different railed or guided track systems for over 50 journeys (for some it was well over 50!!) in 4 different countries on days that lasted over 20 hours at times. Trains without drivers, depots buried deep underground, conventional trains achieving 335 km/h, crowded Metros with trains at all hours running at typically 3 – 4 minute headways, massive control centres, cable tram, monorail, linear motors – we saw and experienced it all.

The meeting will have four participants as presenters providing an overview of what the group saw, experienced, learned and what tickled its collective funny bone.

The usual light lunch and refreshments will be available prior to the meeting proper.

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MESSAGE FROM THE CHAIR

Just recently The RTSA had the opportunity to deliver a submission of the study tour of Asian metro systems (STORE) to the Inquiry to Sydney's Long Term Public Transport Plan. Although the study tour was not organised for the purpose of input into the Inquiry, but rather as a technical tour for RTSA members, the observations made on the study tour will assist in the understanding of technical and operational possibilities in the provision of high quality rail services.

Kuala Lumpur – a driverless two car K J Line train beside the metre gauge KTM Kommuter lines and the standard gauge 160 km/h Airport Ekspres south of Sentral Station.



“... I am not an engineer... but I am sure every engineer on the tour gleaned some ideas of how things are done in some cities and learnt the importance of engineering to benefit the customer - not just engineering for engineering's sake....” (John Hoyle, Australian Editor for the International Railway Journal and delegate of the Asia Metro System STORE 2009)

How true! At the end of the day, we all have a common goal, to see rail perform as an integral and efficient public transport network within our cities.

We hope the inquiry gains an appreciation of the efforts RTSA members make to build collective knowledge in public transport and find our observations and recommendation useful.

What's next?

The AusRAIL PLUS 2009 conference (and attendant exhibition) is coming up in just three weeks time in Adelaide. The exact dates are Tuesday 17th to Thursday 19th of November. The first two days will be

taken up with a combination of plenary and technical sessions under the auspices of ARA, RTSA, ARIC, IRSE and RTAA while the third day will be all ARA. Details and registrations can be found at www.usrail.com.

The lunchtime program for 2010 is currently being finalised and will commence on 3rd February. Also, Study Tours to the MetroTransport Sydney and the Hunter Valley Coal Chain are being organised by Bill Laidlaw.

Other events on the agenda for 2010, but yet to be planned, include Engineering Week 2010, a Young Engineers Conference and a couple of evening networking events.

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We look forward to a busy year and good attendance of our monthly meetings which are held on the first Wednesday of every month at the Concourse Meeting Room at Sydney's Central Station, meeting at 11.30 am for a noon start.

Put it in your diary and watch this space to find out more and get involved.

Katharina Gerstmann
RTSA NSW Chapter Chair

STORE 2009

The original intention was to have the full STORE story starting in this issue, but then the word came through that the scheduled meeting topic would have to be postponed. The logical and timely alternative was to have the STORE tour as the subject for this meeting, with four of the participants sharing their impressions and discoveries from the tour. So as not to spoil the fun (and to avoid duplication between the meeting write up and a Newsletter story) it has been decided that the next issue will contain an amalgamated version of both. So those who are interested in this topic (and all 27 participants would unanimously agree that you should be!!) will have to come to the meeting and/or read the story in the November issue. We think it will be worth the effort.

To provide a bit of background, the tour departed Australia (Sydney, Brisbane, Melbourne and Adelaide) on the morning of Sunday 13th September for Kuala Lumpur via Singapore and a two night stop over. Next was back to Singapore, which was late on Tuesday 15th for a further two nights before an early morning flight to Shanghai on Thur 17th. One night (but two days) there was followed by a very late flight to Beijing on Fri 18th and a three night stay.

Mon 21st was another early start when we flew to Changsha for a day in Zhuzhou followed by a late flight through to Hong Kong that evening. The return home from Hong Kong started in the afternoon of Wed 23rd in a double deck A380 to Singapore then a various flights to arrive back in home cities in Australia on the morning of Thur 24th. Some participants took the opportunity to go early or come back later, with some straying as far as Hanoi and Japan on their own private trips.

LAST MEETING: 7 October 2009: Mr Peter Moore, Executive Director, UITP

(Reporter: Malcolm Cluett)

The UITP is an international organisation whose objective is to promote the use of public transport. Originating in Belgium, it is celebrating its 130th anniversary.

The usage and promotion of public transport is tied up with many topical things in the world today, not least of which is climate change and emission-trading schemes. The speaker touched on various emission-trading strategies for the developed and the developing world, and issues of equity. There is no doubt that there will need to be significant reductions in emissions in the developed world under the current climate-change protocols.

In Australia, in the past six years, energy usage has increased by 15% and crude oil production has fallen by 21%. Our net carbon-dioxide-equivalent emissions are rising by 1.1% per annum. Typically, 70% to 90% of urban trips are made by car, and 5% to 10% by public transport. The cost of new cars is falling.

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Some very controversial planning decisions will need to be made by policymakers in the next 12 months. Climate Change and Peak Oil are both adding urgency to these decisions. Green technologies are part of the answer, but only a part.

Independence from rising costs and the future availability of oil are major benefits of public transport, because it doesn't have to use it. Most public transport can be operated directly with electricity from the grid, as has occurred for 110 years. The CSIRO is predicting a tenfold increase in the price of oil in the coming years.

The speaker gave two benchmarks for the provision of public transport, ie:

- Less than 500m walk from home to a transport stop, shops and parks.
- Maximum 30 min trip to work.

Clearly there needs to be some changes in the form of our cities to achieve these targets. Urban developments should be people-friendly, and achieve community outcomes favouring public transport and social objectives. Ad-hoc isolated urban developments, as typically occurs in Australia, should cease.

Transport networks require funding to lead and create opportunities for development, - and not to react to issues that have already arisen. Transport and development planning needs to be undertaken as integral parts of a single initiative. New transport systems need to connect into existing mainstream networks.

Slides were demonstrated showing the general increase in ridership in public transport in various Australian cities (boardings per capita). Boardings in Perth showed a marked increase (coinciding with the opening of the Mandurah railway) and there is also a sustained increase in Melbourne and Brisbane. In Sydney and Adelaide, however, such growth was not occurring.

Another slide showed a convincing correlation between rising petrol prices, and increased passenger rail usage, in Melbourne. It is gratifying that patronage is not trailing off with the fall in petrol prices since mid-2008.

The speaker questioned the increasing provision of road space (urban freeways) when the vehicle-kilometres-travelled trend was flat. Another significant trend is that average trip lengths are always increasing (a reflection of urban sprawl). Demand for passenger transport is increasing in both the peak and off-peak periods.

A very successful innovation is the so-called Sky-Bus connecting Tullamarine airport with the Melbourne CBD. It was achieved at very low cost (primarily paint markings on the roadway to delineate the bus-only lane on the existing freeway). It is very successful.

The speaker touched on the usage of bio-fuels such as Ethanol and bio-diesel. It is not so good when food crops are diverted for production of vehicle fuels. If such fuels can be produced from waste products, then that is a good thing.

About \$4000 of the price of each new car is spent on marketing. On the other hand, the amount of marketing of public transport is miniscule.

In Sydney, \$23 billion is spent on cars every year. Private transport also generates another \$18 billion in external costs. This compares with average expenditure of \$2.2 billion per annum on urban rail, and \$1 billion on buses. Almost nothing is spent on cycleways in Sydney.

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A slide was shown demonstrating before-and-after scenes when a large elevated urban freeway was demolished in Seoul (South Korea) and turned into a linear park. No alternative roadway provision was made. Certainly the latter scene was a lot more attractive than the former one. This was an initiative of the Mayor of Seoul.

Another slide was shown of a large urban square in Europe. Most of the area was turned over to pedestrian zones, and public transport. Signage for vehicular traffic was removed, and the overall effect was that private cars were no longer the dominant mode of transport. The light rail was operating without overhead wires, using new technology. In all, a most attractive scene, which the UITP would like to see translated in all of the world's cities.

Hong Kong (New Territories) is an example of rail links being installed first before housing was developed. This is the exact opposite of the approach in North West and South West Sydney, where the housing is being put in before public transport links are even properly planned.

The Perth (WA) trial of Hydrogen Fuel-Cell buses was an interesting, but demonstrated the need for hydrogen storage and distribution infrastructure, which is expensive. The test vehicles have now been returned overseas.

There was a slide of some multi-articulated vehicles which looked like a LRV, but which were in fact a rubber-tyred bus-like vehicle with automated steering (following a white line painted on the roadway). There is low-cost infrastructure associated with this vehicle, called a VRT. It has been used in Lyon, Nantes and Las Vegas. This vehicle can be perceived by the public as being as attractive as a LRV, but with lower costs. Rio will use VRT as the basis of its transport system for the recently-announced Olympics. Sao Paulo, Curitiba and Bogota also make considerable use of bus-only roadways. The speaker showed pictures of all of these.

The speaker raised the possibility of a tax on fuel dedicated to public transport. This would be difficult to implement in Australia. In Singapore, on the other hand, there are controls on the number of new motor vehicles (which acts to lift the price very substantially) as well as a dynamic congestion pricing which is levied on city roads.

The speaker also mentioned the introduction of cordon pricing by Ken Livingstone in London. At first the local press were wholly negative, but when the benefits became evident, both in terms of reduced congestion and increased revenues available to purchase new vehicles, the London press were full of praise. This was not a case of tinkering around the edges of a problem, but rather, tackling it head-on. The Emissions Trading scheme will add a bit of urgency to the issue.

In George St, Sydney, the main problem is to get the cars and taxis out of the way of the public transport vehicles.

External costs of private motoring are not considered by planners in the Australian context. (cf user-pays pricing for water and electricity).

A slide was shown of a LRT route in Europe, where the corridor was grassed and looked much more attractive than a river of asphalt (the line, rather curiously, was dual gauge). It was rather like a linear park, and unfenced.

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Questions and Answers

Q: Transport Planning for Sydney ?

A: Presently playing catch-up. North West Rail Link and South West Rail Link are priorities. The present non-plan will cause future social issues in terms of lack of access to PT (and associated opportunities).

Q: What are the PT implications of the Henry Taxation Review ?

A: FBT might be investigated this time. At present, with company cars, the further you drive, the less tax you pay. It is estimated that 40% of cars in Sydney are taking advantage of this tax loophole. The UITP gave a presentation of this subject at the tax review.

Q: Ideally a person should live near to where they work. Often, people live in an established house and end up commuting long distances. If the sales tax on housing was dropped, people would tend to be more mobile and live closer to their employment.

A: This point has been considered by the transport planners, but no sign of progress. The income from Stamp Duty has become an entrenched part of State Government income. Less use of private cars might also lead to less health expenditure though walking, cycling, etc. Presently \$104b is spent on health in Australia.

Q: What is the future of the taxi industry?

A: Taxis are a good product, which is well-marketed. It is an important type of public transport. It also has a lack of industrial issues that have afflicted the more unionised means of public transport (however they are subject to cartel type arrangements and periodic unsavoury practices that are not in the consumers interests).

POINT OF VIEW – Max Michell:

Imagine being in a train, up front where visibility of the track ahead is really good, cruising up toward a station perhaps 700 metres ahead when a train suddenly appears on the same track heading running in the opposite direction. The other train stops at the station, passengers alight and board, the headlights change to red tail lights while all the time your train keeps moving, albeit at slowing speeds, toward it. In time we come to a stand around 200 metres short of the other train which almost at the same time is starting off back toward the city – an action that allows us to follow it at the same interval into the just vacated platform. Half a minute passes while we all leave the train, the doors slam shut and it sets off empty to return from whence it came.

Where, you might ask, are the two red signals and a main line catch point that are so desperately needed to provide the necessary safety?

Step back an hour or two. A train is 'stabled' in a third road waiting. It might be waiting for the evening peak, but not necessarily so - this train is available to go into running at any time that passenger demand requires additional capacity. The interesting thing is that there is no crew depot, and no access footway to the standing train, so how is the train crewed when the need arises?

The simple answer in both cases is that there is no train crew – the train runs entirely automatically. We are dealing with a rail system that has no drivers at all, not even the ornamental version that sometimes

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decorates automated trains elsewhere. The trains facing each other in the first instance are both under a sophisticated automated control that has no need for the 'human error' allowances that bedevil the control of 'driven' railways, so that the trains can approach to within a reasonable distance dictated entirely by the technical minimum spacing (plus a margin) rather than some engineered safety margin determined by fallible humans to account for other fallible humans.



The second instance highlights another advantage of driverless trains in that they can be brought into traffic at any time from any location without having to have drivers (or even guards!!) standing by waiting for such an event. The standing train referred to can be activated as soon as a need is determined, and can move as soon as the track is set and the previous train is the appropriate margin ahead. It can similarly return to its stabling track at any time without having to be concerned about crew issues.

Don't get me wrong – this is not an argument about drivers. There are a large number of train drivers around this country running everything from cheerful little passenger trains to seriously heavy freight trains like those in the Pilbara. The vast majority of these are never likely to be candidates for 'automation', if only because the systems they work on are quite incapable of being automated in their current configuration. Consider a typical suburban line in Sydney or Melbourne with predominantly ground level running and unprotected platforms (add in Melbourne's level crossings if you want more difficulties) and consider how you would need to deal with those issues to even get close to being able to

automate. Look at Sydney and its double deck suburban cars, which have completely inconsistent door spacing that precludes any form of platform barriers or screens. A railway that is to be automated needs to be purpose built (or massively modified) to allow that to happen efficiently.

The value in automation is not about cost savings achieved by dispensing with drivers but rather it is all about capacity and flexibility of the system. The safety 'dragon' has so controlled rail signalling rules and practices over the years such that it is almost impossible to achieve the suburban train times of the 1950's despite the significant improvement in train technology in the intervening years. Our suburban trains have been slowed over the years, which means capacity has been reduced – at least in terms of trains able to be run in a given time. Slowing down of suburban trains over the years, at the very time when capacity (in peak periods) is the key issue, has brought on some very expensive (and dubious) capital programs to expand track capacity, when in fact the real issue is related to the frequency of trains able to be run on the existing track. Sydney has some peculiar (but self inflicted) problems to do with double deck trains and limited city platform space which contribute to the problem but are not fundamentally part of the system-wide slowing of trains and loss of capacity.

Arguably it should be possible to have trains with drivers working to the precise tolerances and train spacing as able to be achieved with automated trains, but the presumption of 'human fallibility' inbuilt into all new signalling makes this an impossibility. The current artificially slow timetables in Sydney reflect the degree to which the management of the railway believe the variability of drivers (and signallers) can affect the reliability of trains. The loss of capacity (and cost of rolling stock) required to achieve reliability under

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the assumption of human variability is a significant impost in both cost and service quality terms. There may be other ways in which the capacity of the system could be reliably optimised without necessarily disposing with the drivers. In Sydney, where automation of the existing system is virtually impossible, it might be useful to explore alternative ways of improving service quality that doesn't revolve around miniscule bangs for monumental bucks.

LETTERS TO THE EDITOR

*Letters to the editor are very welcome. In general **letters should be relatively concise (no more than half a page)** and should relate to either past material in the Newsletter, events or activities of interest, reminiscences or future watching of the rail industry as a whole. If in doubt write anyway – the editor is quite pleasant to deal with after that first cup of coffee in the morning.*

Silence.

COMING EVENTS:

The following is a listing of coming events that involve RTSA or are being organised by associated groups.

17 th to 19 th November 2009	AusRail Plus in Adelaide, SA
Fri 27 th November 2009	Light Rail and Monorail Study Tour, Sydney
3 rd to 4 th March 2010	RTAA / RailCorp Rail industry field Day, Clyde NSW
27 th to 28 th March 2009	Hunter Valley Rail Developments Study Tour, with Rail Motor Society
12 th to 15 th September 2010	CORE 2010, Wellington NZ
23 rd to 24 th November 2010	AusRail, Perth, WA

AUSRAIL PLUS 2009 ~ 17TH-19TH NOVEMBER 2009, ADELAIDE CONVENTION CENTRE

This year the prestigious and popular AusRAIL PLUS 2009 conference and exhibition is taking place in Adelaide, South Australia. AusRAIL PLUS 2009 has announced the support of the Government of South Australia's, Department for Transport, Energy and Infrastructure (DTEI) as an Event Partner.

AusRAIL PLUS 2009 runs from 17th to 19th November 2009 at the Adelaide Convention Centre and features a major exhibition, a 3-day conference and a range of networking opportunities.

With only a couple of weeks before the 2009 conference opens it is important that all prospective attendees who have not yet registered should do so at the earliest. Visit the website www.ausrail.com for up to date conference details and the opportunity to register.

RTAA / RAILCORP RAIL INDUSTRY FIELD DAYS – 3RD and 4TH MARCH 2010.

The 3rd Rail industry Field day will be held at the usual Clyde Yard venue on 3rd and 4th March 2010. This event is the only event displaying track and infrastructure industry equipment and products out in an open air environment.

For further details, including prospective exhibitors, go to the RTAA web site www.rtaa.org.au or contact Sandy Bull at sandy@bullhead.com.au

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DATE	SPEAKER	TOPIC	LOCATION	TIME
2 December 2009	Alan Gardner Manager Infrastructure and Engineering RISSB	Restoration of NSWGR Beyer-Garratt Steam Locomotive 6029	Central Station Concourse Meeting Room	11.30 for 12.00
Wednesday 3 February 2010	TBA	The Fog of Legislation on Emissions	Central Station Concourse Meeting Room	11.30 for 12.00
Wednesday 3 March 2010	David Wynd Projects & Engineering Manager, Faiveley Transport Australia	Electronically Controlled Braking for Freight Trains	Central Station Concourse Meeting Room	11.30 for 12.00
Wednesday 7 April 2010	RailCorp	Sutherland-Cronulla Duplication	Central Station Concourse Meeting Room	11.30 for 12.00
Wednesday 5 May 2010	Ivan Waterfield Executive Manager, Cardiff Operations, Downer EDI Rail	RailCorp Waratah PPP Trains	Central Station Concourse Meeting Room	11.30 for 12.00
Wednesday 2 June 2010	TBA	Independent Public Inquiry on Sydney's Long Term Public Transport Plan	Central Station Concourse Meeting Room	11.30 for 12.00

BLACK TEXT: indicates meeting is confirmed

BLUE TEXT: indicates request has been made to speaker

GREEN TEXT: indicates a topic that has yet to have a speaker arranged

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Malcolm Cluett	Committee	Paul Harris	Committee
Chris Venn-Brown	Committee		

CONTRIBUTIONS TO THE SYDNEY NEWSLETTER

Part of the function of RTSA is to keep members in touch with what is going on in the industry and with each other and to that end we are only too happy to publish items of interest. Articles, letters or editorial comment for Newsletter are very welcome. We have several hundred members locally, of whom around half a dozen have actually put pen to paper, so I am expecting a couple of hundred more correspondents of the next how-ever-long. Items for publication should be in electronic (Word) format – the editor is a total klutz when it comes to typing and would be very grateful for not having to retype articles if at all possible.

Contact details are –

The Editor, Max Michell,

- e-mail to max412@gmail.com,
- phone 02 9331 5662 or
- post to P.O.Box 279, Potts Point, NSW, 1335.

For all other matters relating to RTSA NSW Chapter contact Katharina Gerstmann (Chair) or John Watsford (Secretary) as above.

CPD CREDITS

Engineers Aust members who attend RTSA meetings and events will qualify for CPD credits as per the Engineers Australia criteria. Members are responsible for recording their own CPD for audit.

NOTICE TO MEMBERS RECEIVING RTSA NEWSLETTER BY EMAIL

If you receive this Newsletter by post you will periodically miss out or be given late advice of events – a natural consequence of the slower postal system. E-mail is far quicker and more reliable, so let Canberra know if you are able to change from post to e-mail (address in the page header). E-mail saves time for you and costs for RTSA, which in the end can only mean better service to our members.

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