

NEW SOUTH WALES NEWSLETTER



ENGINEERS
AUSTRALIA

RTSA

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

JUNE 2008

NEXT RTSA NEW SOUTH WALES CHAPTER MEETING

Wednesday 2ND JULY

11.30 for 12.00 in our temporary venue at

***** Conference Room 1, Level 2, 477 Pitt St (north lift lobby)
– opposite the tram departure ramp at Central *****



Photo: Bob Grant

FREIGHT LINK: NORTH-SOUTH TRANSCONTINENTAL

Peter Jaehne: Manager Rail Infrastructure

Just 5 years ago there was no sign of a railway in Darwin (the previous one had succumbed in 1976) but now there is a proper main line railway that supports an extraordinarily high inter-modal market share and an increasing volume of mining output. Not only is the creation of this line one of the wonders of the 20th Century, but the impact that it has made on the top end of the Northern Territory is quite astounding.

Peter will be our speaker today to give us an overview of the railway, its construction (a notable achievement in its own right), its operation and its prospects. Being a good 'track' man he will also give a 'warts and all' commentary on the track. It is a rare event to have a new Transcontinental Railway in this day and age, and we are lucky that we, in Oz, have one. A not to be missed inside view of a wonderful contemporary railway project that should be an inspiration to us all.

As is the custom sandwiches and light liquid refreshments will be available from 11.30, prior to the formal meeting, allowing both time for 'refuelling' and to meet some of your fellow railway people.

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ANNUAL GENERAL MEETING

Our Chapter of RTSA will hold its annual general meeting in August, in the half hour prior to our normal meeting on Wed 6th. The formalities will not take long, but the most important part is the election of the committee for the forthcoming year. While the traditional roles of Chapter Chair, Secretary and Treasurer need to be filled there are a number of other roles that need attention – Newsletter Editor, Event Secretary, NSW Webmaster, Young Engineer Representative as well as a number of committee persons. So there is a lot of scope for people from many and varied backgrounds to join the committee and contribute to the running of RTSA.

The Webmaster role is a new and quite important one, but we are fortunate that we have had a volunteer willing to take on this role. He will look after the NSW Chapter section of the RTSA website – his first task being to get our bit up to date.

If you are willing to help out in any role at all (or can be persuaded to do so) then please do contact Andrew Honan or Bill Laidlaw to find out more (contact details back page)

WORDS FROM THE CHAIR - Andrew Honan, Chapter Chair, NSW

Ministerial Meeting

On 28th May I accompanied the RTSA National Chairman (Ravi Ravitharan) and Deputy (Martin Baggott) to meet Gary Gray AO MP (Parliamentary Secretary for Regional Development and Northern Australia) at Parliament House, Canberra.

The meeting was set up at the RTSA's request so that we could brief the Government on the RTSA's mandate in regard to human capability, its current activities and past initiatives.

Naturally regional rail symposium got a run, and Minister Gray was interested in the RTSA being consulted as part of the Grains Task Force. However, other issues were also discussed, including professional development, skills training, bringing in new entrants into rail, and general capability for rail. We took the opportunity to inform the Minister of the CORE conference in September (in Perth) and he indicated that he would like to attend if his schedule allows.

We also touched on 'shared corridors' on the north coast and general productive capacity of rail in the overall freight task, as well as the Metro symposium planned for Sydney in November 2008.

The Minister made a point of bottlenecks to ports and intermodal terminals which he saw as critical.

We highlighted (and it appear the Minister was receptive) of our ability to provide independent technical advice on aspects of the rail industry and the large number of rail practitioners that we represent. It appeared the Minister very much wanted to keep the 'dialogue' open and commended us to say in touch with his office on matters arise.

Minister Gray organised a meeting with Minister Albanese, unannounced. Unfortunately we were not able to see the Minister but did have a lengthy discussion with his policy adviser. One aspect that the Government recognised was the lack of rail expertise within the Department of Infrastructure, Transport, Regional Development and Local Government.

The meetings were personally very pleasing, after the efforts we had been making to get Governments to recognise and engage in rail human 'capability'. We will be taking up the Minister's offer to remain in contact.

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Report from the RTSA National Meeting

The National executive held its 6-monthly meeting in Adelaide on 12 May. A number of items were discussed including receiving reports of CORE 2008, the Sydney Metro symposium, the standards sub-committee, education sub-committee and each from Chapter, including New Zealand.

There was also discussion of a Young Engineers meeting prior to CORE. This will be a great opportunity for young engineers, perhaps sponsored by their companies, to come over to CORE and to meet up and network with other young engineers.

I would encourage all young engineers to avail themselves of this opportunity – it is a great time to be thinking of a career in rail, and you will be most welcomed at this event. Details are still being finalised of the specific meeting to those who have expressed an interest in the on-line registration.

The report on membership indicates that that we are nearly at 1,000 members across Australia and New Zealand. Our National Chairman claims that he can retire once he hits the 1,000 mark!

The eminent speaker for CORE is Andrew McCusker from MTRC, Hong Kong. Arrangements are being made to have Andrew speak to NSW RTSA members on the evening of September 1 at the Sydney Masonic Centre in the city. We also would like to make Andrew McCusker available to NSW Government agencies to meet and discuss the Hong Kong experience.

Special Joint Meeting with Electrical Branch

We were approached by Engineers Australia - Sydney Division, Electrical Branch regarding a talk on Thursday, 24 July 2008 by Mr Akira Miyazaki, Toshiba Corporation, Japan. The talk is on the new types of heavy freight locomotives for South Africa, highlighting the quite innovative electrical engineering aspects of this project. The time for the talk is 5:30 for 6:00pm at Engineers Australia Auditorium Ground Floor, 8 Thomas Street, Chatswood. The talk should be very interesting, especially to those interested in heavy haul technology. See the flyer towards the end of this issue for more details.

THE OBSERVATION POST - Max Michell

Back in the early 1990's, at the time the states were giving birth with some difficulty to National Rail, the then Federal Government headed by Paul Keating put up half a billion dollars for a "One Nation" rail investment program – the first glimmer of federal interest in rail for many a long year. The list of projects were many and varied, including some that had merit but were seriously under-costed and some that had elements of just plain silly about them. In the former category was a separate freight line from the south into the Enfield area, which from memory was costed at something less than \$80 million – a number which even a simple high level study at the time found to be impossibly low for any achievable route. In the end some of that money bought the 6 km freight refuge between Ingleburn and Glenfield as a gesture toward the initial objective. It was obvious at the time that many of the One Nation projects were simply wish list stuff with very little real scoping or costing, let alone consideration of the alternatives. NSW was by far the worst in this regard although other states were not without sin.

You might think that we (as an industry and a community) might have learned something from this exercise, but it seems that we in fact have done no such thing. Some months ago in a flurry of smoke and mirrors, we got the big announcement of the "European style Metro" that is intended to run from the North West into Sydney. For a start it was quite plain it would never be anything like a

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Metro, European or otherwise. It is essentially just another 'starburst' linear railway using supposedly Metro style trains – a peculiar combination indeed!

It is just over half the length of the new Mandurah line in Perth yet is promulgated as taking almost the same time to get to the city – that is half the travel speed of Mandurah: Strike One! It has too few stations for a Metro (they should be every 500 – 1000 metres or so; Metros are for a pedestrian community) and the part of the line that is appropriate for a "European style Metro" from around Drummoyne in to the city will finish up like the airport line where longer distance travellers crowd out much hope for the shorter distance travellers: Strike Two! There much to commend a railway from the North West but a "Metro" as conceived is not the best option. Either the line should be an addition to the established CityRail network (as was originally intended, as an add-on to the nearly complete Chatswood – Epping line) or it should be conceived as a Mandurah type line with high speed between the outer suburbs and the central part of the city – in which case the transit time would need to come down to around 26 minutes rather than the advertised 44.

Equally the inner (potentially Metro) part of this scheme could be constructed as a Metro, with frequent stations but needs to be a separate entity from the longer distance line, even if the two coexist in a four track configuration. Trying to combine two quite different passenger markets into one railway is asking for continuing trouble.

For the \$12 billion being suggested as the price of this railway it would be possible to construct a very fast passenger and freight railway between Sydney and Melbourne – a line which would fundamentally change the concept of transport in this country. The "Metro that Isn't" is very unlikely to do much more than provide yet more user dissatisfaction and more fuel for the daily rants in MX. Insider comments suggest that this Metro project has not yet even been properly scoped let alone pushed through any sort of design or feasibility process. Deja-vu seems to be a kind interpretation!

Hardly had the smoke cleared from the mirrors when, in conjunction with the Federal budget, there is another Metro line proposed, but this one reeking not just of wish list extravagance but of total silliness. One of the routes proposed for more than half the length of the line is underneath the existing railway – that is underneath the only lengthy section of six track railway in the country. We are planning to place a Metro in one of the least required locations imaginable, when there are great swathes of Sydney that are crying out for better transport, not all of which are in the outer suburbs. If it is a Metro that we want then look around the Eastern beaches (Bondi through to Maroubra), the near west and western peninsulas (Pyrmont, Glebe, Balmain, Birchgrove, Five Dock etc.) and the near North Shore (Lane Cove across to Mosman and even maybe across to Manly) – fertile ground indeed for a real Metro network that not only meets the needs of a very large number of people but has the ability to reverse the descent of Sydney into some sort of rust bucket status.

The problem here in Sydney seems to be the docile acceptance by the populace of poorly thought through but opportunistic politics, coupled with too many invisible Sharangs buried deep in the bureaucracy who spend their time developing fantastic ideas that pretend to provide solutions to problems that have yet to be properly identified. Rather than these two specific Metro proposals I would have been much happier if an announcement had been made to look at Sydney in a holistic way and tried to work out where serious money could be spent on transport to get the best outcome

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for the city and its denizens. There are issues of land use, utility and services provision, mobility, access to work, shopping, relaxation and play, environment, community, capacity, efficiency and a host of other 'standard of living' attributes that inter-relate with the way transport is provided. Look at Manhattan where the public transport share of travel is reported to be something over 80%; Paris where the Metro handles 65% of the need for mobility and any number of other places ranging from Singapore (with a population more or less the same as Sydney) to most serious cities in Europe, and not forgetting London. Increasing numbers of South American and Asian cities understand the issue and are developing Metro systems – several of which promise to be on a scale bigger than anything seen thus far. All have a higher public transport usage now than we have ever aspired to. There is a window of opportunity right now to develop a long term transport plan to re-establish Sydney as a premier city, not because of the innate attributes of the city - harbour or beaches or Kings Cross - but because we planned it to be that way. So far we seem to have lost the plot – Melbourne is rapidly closing in on Sydney in a number of key attributes, and in the foreseeable future could in fact become the number one city (again) in this country. If we squander this opportunity and allow the ad hoc decision making exemplified by the recent Metro announcements to determine our (and the city's) future then we will stand condemned by history to have been woeful stewards of our place and its people.

The Metro symposium being organised by RTSA for November will be focused on the bigger picture, trying to get the message of opportunity disseminated more widely in the city and its rather sterile halls of power. J.J.C. Bradfield, almost one hundred years ago, fought a long but only partially successful battle with mean minded and parochial politicians to get a harbour bridge and city railway for Sydney. What we now need is a latter day Bradfield, someone with clear forward vision, endowed with a powerful personality and capable of rousing the masses from their torpor, who can lead the transport direction of the city toward something that, for decades to come we can be proud of. Quite where such a person might come from, and quite how they would overcome the entrenched 'winner takes all' politics of Macquarie St is a mystery at this stage, but we can only actively hope. In the mean time we should start 'thumping the tub'. Noise disturbs the body politic like no other!!

LAST MEETING – reporter Malcolm Cluett with some added editorial notes

Ross Golotta of Interfleet Technologies presented an interesting talk on 4th June on the Flinders Flyer coal train from Leigh Creek to Stirling North (Port Augusta) in South Australia.

[The editor, being a one time South Australian, has had a bit to do with this train and the power company, so has taken the liberty of adding notes where appropriate –suitably identified to save confusion!]

Ross gave an interesting presentation on a specialist train service in South Australia. The state has one coal mine at Leigh Creek (producing low grade but plentiful brown coal), and a large thermal power station near Port Augusta. Connecting the two is a daily coal train making the 500km round trip.

This service was operated by Commonwealth Railways / Australian National until 1998, when the then FreightCorp (now Pacific National) won the contract for the haulage task. The operation dated from the 1950s, when the old narrow-gauge coal-hauling operation was replaced with diesel-hauled standard-gauge

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trains using rotary dump wagons on a new railway with a more direct alignment west of the dramatic Flinders Ranges. This operation continued with AN relatively unchanged [*apart from amalgamating two 80 wagon train consists into a single 160 wagon train around 1992 – Ed*].

Privatisation of Australian National in 1998 saw Flinders Power (operators of the thermal power station) acquiring the track and contracting out the train operation. FreightCorp (also recently corporatised) won this contract, in its first major expansion from its home state of NSW. The track and below-rail assets are owned by Flinders Power, which is unique in this country for a long distance railway.

In the Australian National era, the trains were composed of rotary dump wagons, used in conjunction with an indexer which positioned the train through the dumper. Both of these were high-maintenance items, and dust from the dumper was also a problem. There were negotiations with AN to reduce the haulage charge, but these were never resolved.

The FreightCorp train was set up with 160 spare 100 tonne Hunter Valley coal wagons hauled by 3 x 3000 hp locomotives. The service is now one-person-operated, with a crew barracks at Leigh Creek. A driver operates the train from Port Augusta to the mine (five hours) and also does the loading. The driver is then relieved and another takes over for the return to Port Augusta, and the unloading of the train. The process is repeated the following day.

At present the trains are composed of three 82 class locomotives, and 168 wagons. There is also a flat wagon at the rear, containing an air compressor, which is used to aid the unloading process with its demands for on-board compressed air.

The gross weight of the train is around 15,000 tonnes. These are the heaviest coal trains in the Southern Hemisphere hauled by front-end power only. Wagons have progressively been fitted with heavy-duty drawgear.

The speed is 70 km/h loaded and 80 km/h empty. The track is 47 kg/m and the axle load is a modest 22 tonnes. Wagons are operated at 88t gross. The track quality has been improved since the AN days, but it is still a little sub-optimal and rather light for the weight of the train that it carries. Hot box detectors are installed.

There is normally no other traffic on the line, which was formerly the link to Alice Springs until the Tarcoola – Alice Springs standard gauge line was built in 1980. [*Recently there have been weekend ore trains operated by AWR with front end loaders loading on the main line at Puttapa – Ed*]

When FreightCorp took over, the first task was conversion of the unloader to suit bottom-dump wagons. A non-stop process was devised, with a stationary line-side wheel tripping a pneumatic control valve on each wagon as it passed through the dumping station. Both ends of the line have balloon loops.

The loader was also modified to suit the new wagons, which were taller than the previous units (so the trackbed was lowered). Locomotives cannot fit underneath the loader, however, so the train uses a by-pass line then backs up until the lead wagons are under the loading chutes to start loading. The wagons are loaded eight-at-a-time while stationary, which means 21 stops and starts. The loader is not ideal, and a modern non-stop installation with a single overhead surge bin would be preferred. However the long-term future of the mine is not clear, and such investment may not be warranted. At present there is a problem with the coal bridging just above the clamshell gates, and this is rectified by small explosive charges!

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The wagons are NHKF units, which were previously used in the Hunter Valley. They are not fully loaded, because of the track limitations, resulting in a longer train than would otherwise be required. Despite the wagons' construction of corrosion-resistant steel, there are some corrosion problems (some of which came from the Hunter Valley working) and these are being treated with surface coatings. In addition, after eight years of operation in this service some fatigue cracking problems have also occurred. The wagons are approximately 20 years old. There is a strengthening programme to counteract this. Ross showed various pictures of fatigue cracking in various locations on the wagons.

Originally the locomotives were FreightCorp 81 class, but these were replaced by the 82 class. They are maintained by EDI at the nearby Port Augusta facility, and refuelled by road tanker.

For the empty trains, one of the three locomotives is shut down, to conserve fuel.

Considering how critical this operation is to the State of South Australia, there is a surprisingly small stockpile at both the mine and the power station. *[The small stockpile is a 'live' stockpile, while there is another longer term storage pile which can keep the power station supplied for up to two weeks in emergency- Ed]*. After any derailment or other disruption, it is vital that the service is restored without delay, since replenishing the stockpile is a slow process due to the everyday demands of the power station. For wagon maintenance, seven are taken off the rake every week, and replaced.

The future life of the open-cut mine is somewhat unclear. It had been planned to end in 2017, but it may be extended until 2025. In the past, the original town of Leigh Creek was relocated so that the coal seam could be worked under the town site *[the same as happened at Yallourn in Victoria – Ed]*. There are other similarly low grade coal deposits around Lake Phillipson, beyond Tarcoola on the Alice Springs line – an area that also has iron ore - but this is a much longer haul than the current Leigh Creek route, over a quite busy interstate main line.

The coal train is a rather unlikely tourist attraction. A viewing platform has been installed at Parachilna where there is a rather wonderful outback tourist pub next to where the station once was. This is the only evidence of civilisation between the Leigh Ck and Stirling North. For residents from places like Sydney or Melbourne, the train is several times longer than any they have ever seen before. A bonus is that the train runs on a regular schedule in daylight hours. The beautiful Flinders Ranges flank most of the route of the railway to the East.

The train negotiates a pair of turnouts just east of Port Augusta, where it crosses the East West railway. These are subject to heavy wear, and at one stage components needed to be replaced every six weeks.

LETTERS TO THE EDITOR

Eureka!!! We got two letters, both on interesting topics. Other letter writers may like to respond. Letters on any reasonable topic are always welcome.

Letter # 1: Basil Hancock writes -

I read with interest your article in the May newsletter on the Queensland Rail coal haulage lines, and particularly the part about the intention of Pacific National Queensland (PNQ) to commence coal haulage

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over parts of the network. I note the comment that they are indicating the use of both diesel and electric power.

One effect of the opening up of railway networks for open access, whether intended or not, has been the increasing use of diesel locomotives under the wires instead of electric locos. This primarily affects freight trains, but many open access passenger services overseas also now use diesel in the form of railcars or multiple units instead of electricity for considerable distances over electrified routes. Extreme cases include HSTs in the UK operating for some 630 km to Edinburgh on a line electrified at 25 kV and then continuing on non-electrified lines over the much shorter distance to Dundee and Aberdeen.

An early example of course occurred in NSW where, soon after open access began, the commercial use of electric locos over the Blue Mountains and down to Port Kembla ceased, earlier operations to Broadmeadow having already ended. Similar effects have been noted in Britain and mainland Europe. In Britain not one new main line electric loco has been built in nearly fifteen years and, with the exception of a few Freightliner trains, electric haulage of freight has virtually ended. In Europe similar effects have been seen, although more recently the widespread use of "Universal" four-voltage locos has revived electric haulage on some routes.

Of course there are compelling operational and financial arguments for abandoning electric haulage in many cases, especially where electrification only covers short distances and therefore requires additional loco changes (e.g. at Lithgow and Broadmeadow). Similarly in Europe the differing electrification systems and voltages often force changes at borders, so that a train on a 300 km journey might have to change locos two or three times, although as noted above the new multi-voltage locos are helping to overcome the problem, particularly as the various differing signalling systems can now also be accommodated on one loco and new labour agreements mean that loco crews are now able to work through. There may also be other issues such as the capacity of substations and the overhead equipment itself which may limit the ability of electric traction to haul frequent heavy trains. No wonder the use of diesels can seem attractive.

However, there are also downsides. One is undoubtedly the environmental issue. Whether electrification really is environmentally preferable overall to diesel is an issue I do not intend to debate here. It is clearly better at the point of use, but whether it is better overall when power station emissions, transmission losses, etc, are taken into account, I will leave to others to discuss. Another is the fact that reducing the number of electric trains on a line increases the average cost to those that remain. As an example, all electrical maintenance, replacement and operating costs on the Blue Mountains are now presumably paid for only by the passenger services, increasing the average cost per train since no freight services now share the costs.

In a hard-nosed commercial world, one cannot really blame operators for using the traction which best suits their own purposes and budgets. However from an overall point of view, this may not be best for the railway or the environment. Is the use of electric traction, particularly for freight, something that we, and governments, should be encouraging? And if so how?

There are no easy answers to this dilemma, but hopefully this letter will prompt some discussion from readers.

Letter # 2: Colin Butcher writes -

For freight and passengers we have a choice of several modes of transport for interstate and inter-regional journeys. Despite community concerns about global warming and road trauma the choice is generally limited

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to the least energy efficient and less safe modes. Investment in transport infrastructure tends to support these modes rather than to influence a shift to a safer, cleaner and greener alternative.

Some 75% of the Australian population lives and works in the SE corner of the country between Melbourne and Brisbane. Not surprisingly this corridor accounts for about the same percentage of non-urban freight and passenger movement. Most of the freight goes by road and personal travel is shared between road and air with the latter taking an increasing share of longer journeys. As the growth in transport is much faster than the increase in population there is a constant demand for investment in transport infrastructure. Most is spent on the road system and assists road freight to remain dominant while encouraging the use of cars. Much less is spent on the interstate rail infrastructure and is aimed solely at the freight sector but projections by the BTRE indicate that this will not be sufficient to prevent a fall in rail's share of interstate freight.

The alternative to the current limited choice is a 21st century railway system to suit high-speed passenger and fast freight trains. Average energy consumption for an interstate journey would be only about 12% of the energy consumption by car and 14% of the energy consumption by air. Even using electricity generated by existing coal fired power stations the CO₂ emissions would be halved. A similar picture emerges for freight with road trucks requiring four to five times the energy per tonne as a fast freight train.

Road accidents claim many lives and in Australia the estimated cost is about \$17 billion pa, or approximately 2.3 per cent of GDP. Road accident statistics for NSW indicate that the majority of road accident fatalities occur in non-urban areas and involve country drivers. By comparison train travel is extremely safe and where very fast trains operate the safety standards are particularly high. For example, the Japanese Shinkansen has carried over three billion passengers without any serious incident involving a passenger. On the high speed lines in France a similar result has been experienced.

Heavy trucks are over represented in fatal road accidents and diversion of freight from road to rail would reduce road trauma. The cost of road trauma on both rural and urban roads has been estimated to be about 10 times the cost of accidents due to transport of freight by rail.

There are other advantages of a modern railway such as reduced local air and noise pollution. A detailed assessment of a proposed system suggests that it could be commercially viable and would not need to rely on public funding or capturing the monetary value of the external benefits. It seems almost unbelievable that a transport system that has so many advantages has been totally ignored.

MEETINGS

Coming meetings are listed in the table toward the back of this Newsletter. Meetings are normally on the 1st Wednesday of the month at 12.00 in the large meeting room off the main concourse of Sydney Central (Steam) Station. The venue can be found in the North West corner of the main concourse opposite platform 2, next to the Lost Property Office – **however** the usual meeting room will not be available for our **July meeting** (it has been impressed into World Youth Day service) so we will have that meeting in **Conference Room 1, Level 2, 477 Pitt St** – just a block or two away.

EMINENT SPEAKER MEETING: A special meeting will be held on Monday 1st September to hear the CORE eminent speaker, Andrew McCusker presenting on the topic of the Hong Kong MTR. The location will be the Ionic Room at the Masonic Centre at the corner of Goulburn and Castlereagh Sts at 17.30 for 18.00. Entry is from the Goulburn St frontage.

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The **Joint Electrical Institutions of EA along with RTSA** will be presenting a very interesting lecture on Thur 24th July on the topic of two heavy haul electric loco types being built by Toshiba for use in South Africa. The flyer for this presentation will be found toward the back of this Newsletter. The meeting will be in the ground floor auditorium at the EA premises at 8 Thomas St, Chatswood at 17.30 for 18.00.

CHANGED MEETING DATE: Our October meeting has been advanced a week to fit the presenters availability – the meeting will now be held on Wed September 24th at our usual Central Station meeting place. The speaker will be Kevin Taylor from the RISSB talking on the topic of Railway Standards development, and is part of a National program arranged by RTSA on this important issue

AN APPEAL

There are a multitude of activities and developments happening within our industry, again highlighted by both the editorial and last meeting report this month. Issues ranging from the high level (policy and the like) through major construction and acquisition to relatively minor matters that often go completely unrecognised and unreported are all part of our industry and in most cases are only known in detail by relatively few of us.

We are always on the lookout for interesting and varied topics for meetings later in the year and beyond. Basil has done a great job in getting an interesting and varied program up over the last 12 months, but he would welcome any, all or more bright ideas from members. So if you have a pet topic, or are overcome with curiosity about something of interest in the rail domain, then contact Basil at basil.hancock@railcorp.nsw.gov.au and let him know your thoughts.

Basil will be away for a period during June / July so during that time contact other office bearers as listed on the last page

COMING EVENTS

CORE 2008 will be held in **Perth between 7th and 10th September 2008**. Themes will be around high volume bulk freight and the integration of rail as part of the export supply chain, and rail in an urban environment and the issues of integrated planning of land use and transport as the core of successful public transport.

Apart from plenary sessions on both conferencing days and a panel discussion prior to closure on the second day, there will be four parallel technical streams running with such technically delicious topics as

Freight Logistics
Wheel - Rail
New Railways – Freight
Perth Urban Rail
Iron Ore
Track Structure

New Railways – Metro
Asset Management
Rail Grinding
Operations and Management
Planning Management
Locomotive Developments

Urban Transit
Freight Rolling Stock
Other Rail Infrastructure
Safety and Security
Passenger Rolling Stock
Back to the Future

Registration is open and there are some very interesting technical tours that will be coupled to the main conference, those to the heavy haul railways of the Pilbara being limited in numbers. The web site with all up to date information, and web based registration, is at www.core2008.org.

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METROS – FUTURE RAIL FOR SYDNEY is the title for a one day symposium being organised by the RTSA NSW Chapter for **Wednesday November 12th** at the **Old Customs House (Circular Quay)**.

The word **Metro** has had a lot of airplay in Sydney recently, but no one in the public domain has yet tried to define quite what a Metro is or does in terms of what it will do for the city and its people. Is a Metro just another linear railway, is it a form of railway that provides enhanced and otherwise unachievable mobility for a majority of citizens, is it all about interchanges and inter-connections, is it some technological whiz-bang, or is it a railway at all? The RTSA Symposium in November will grapple with these and other matters to try and put some substance into the various Metro debates and proposals currently being floated, or just maybe to influence the future direction in city mobility in a way that has not even been floated in the public domain here yet!

The basic plan is for a full day symposium which would have a number of themed sessions –

What is a Metro (personal mobility in compact city areas?)

Attributes of a Metro (what distinguishes it as a Metro?)

Sydney today and tomorrow (planning an unplanned city?)

Case Studies – the Metro experience in cities from Asia, Europe and elsewhere.

Interactive Panel Sessions, and a

What Would a Metro Network do for Sydney wrap up

The next newsletter will have important information about members priority registration, while a brochure will be released a little later which will invite registration from anyone who is interested (member or otherwise)

We are looking for sponsors – both to facilitate attendance of overseas speakers and to enhance the symposium as a whole while keeping the delegate cost at an affordable level. If you are in the corporate world, and have some interest in the prospect of a Metro network being built in Sydney, then you might **consider becoming a sponsor of this event**. Sponsors will have their logo and suitable acknowledgement on all Symposium material from the time they sign up – we have started work on the brochure with a release date anticipated in July. So obviously the early sponsors will get early exposure, as well as an assured place at the Symposium. Even if you are a bit doubtful at this stage it would be a good move to get in touch with Andrew Honan at ahonan@pacific.net.au or on 0407 921 152.

More details will be provided as the day gets closer. Mark **12th November** in your diaries now.

SAFETY – RAIL AND ROAD: A VIEWPOINT – Alex Stoney

At the request of the Editor, Alex has put together the following article which to an extent challenges the Nanny bureaucracies to take a step or two back and get a more global view of safety. Now read on

I have never had any specific training in rail safety, nor in road safety, but perhaps I have had more experience of road and rail danger than most people. I remember a traffic policeman (probably at a Neighbourhood Watch meeting), in answer to my question on how many serious road accidents a driver might expect to see, saying that an average driver might see one fatal accident in a whole lifetime. Then why have I seen seven fatal road accidents, which took 12 or 13 lives?

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Every one of these events carries a message, and observation of the circumstance can display important learning items.

People, and particularly the Press, are usually much more concerned with the perceived danger which is topical at the moment, such as terrorist attacks, than with the real dangers which surround us every day, such as walking across the road. This results in some serious misapplication of financial resources. American statistics (in regard to rail level crossing accidents) back my view; “- - for the same cost as saving a single life at a rail crossing, 150 lives could be saved by installing rumble strips, 23 saved by cable and jersey barriers, and 21 saved by upgrading traffic signals.” (Journal of Rail and Rapid Transit – Proceedings of the I.Mech.E, Part F, September 2007, page 328.)

It can be argued that money spent of railway safety is money badly spent – irresponsibly, perhaps. The railways are a very safe form of transport. More lives can be saved by spending the money on railway expansion, so as to divert commuters from driving to work on far more dangerous roads, than by searching for perfect safety on the existing system. Remember that the Waterfall accident on 31 January 2003 cost seven lives. Seven people died on NSW roads that week, and in every week since, but no passenger has been killed in a train accident in NSW since Waterfall.

Perfect safety is not within the human experience. Picture yourself going home from a meeting. You walk across the road to the carpark; people get killed walking across roads. Then you drive home; people get killed driving cars. When you get home, you go to bed, and tuck yourself in protected from external dangers, and comfort yourself with the statistic that more people die in bed than anywhere else.

Under the heading “The Price of a Life”. (See I.Mech.E. “Professional Engineering” 27 April 2005), Philip Thomas proposes “a method of gauging the value of measures taken to reduce risks”, saying “Rail safety measures have cost hundreds of millions per life saved.” and asks “Are we spending millions to save one or two lives a year, and should the money be spent elsewhere?”. “Fitting TPWS (Train Protection and Warning System in UK) at over 12,000 signals cost 585 million pounds, to save 1.52 lives per year.” (Which was 4.28 times the money amount that the saving of lives was judged to justify.)

Comparison of different travel modes, on the basis of safety statistics, is often difficult. Despite their frequent accuracy, statistics can easily be misused. Comparison of plane travel and train travel, on the basis of number of kilometres travelled per fatality, shows planes to be marginally safer than trains. Comparison on the basis of passenger injuries shows planes to be very much safer than trains - plane crashes cause very few injuries; usually all or most are killed outright. But comparison, on the basis of the number of hours of vehicle occupation, (say an six-hour plane trip, to Jakarta, against a six-hour train trip to Wagga Wagga perhaps) shows the train to be much the safer way.

Soon after I got into the rolling stock design industry, an accident occurred to the Melbourne Express, on its approach to Sydney, when it collided with a Garratt locomotive which had stopped too close to the mainline at Glenlee. I went there to look at the recovery procedures, to become familiar with the type of recovery activities I would need to design cars to survive. The 38-class locomotive had struck the corner of the Garratt locomotive, and suffered a shattered cylinder, but both remained on the track, while the passenger cars had derailed and were lying against the side of an embankment. Separating the cars so that they could be rerailed was a difficult procedure, perhaps doing as much damage as the derailment.

Right from the start of my part in this industry, half a century ago, it was accepted that:-

- (a) in a minor accident the cars should protect themselves and their passengers from damage or injury;
- (b) in a moderate accident, the cars should be repairable, and the passengers should survive preferably without injury;

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(c) in a major accident the car is expendable, but it should continue to protect its passengers right up to the point where the cars cease to move.

Application of this principle has given Australia's railways a good record of passenger safety, which the newspapers choose not to notice, preferring to glamorise any rail accident, while turning their backs on the carnage on the roads.

On rail, I have had the unusual experience of being in a Sydney suburban train, derailed at speed, but without injuries, except for the two passengers who were thrown out of their seats, and were slightly bruised.

Potentially more serious, but fortunately not, was the 1983 event in a South Australian Bluebird railcar, during very hot weather, on the new Adelaide to Crystal Brook standard gauge line, where apparently the track buckled under the train, causing a passenger near me to be thrown out of his seat onto the floor, although the train did not derail. Fortunately his bruise was not serious, but it was a bit frightening to consider the usual result of hitting a track buckle at speed.

The only train I have actually driven was a Queensland 7,000 tonne coal train, about 2 kilometres long, (which I drove about 30 kilometres), also in very hot weather. As I was driving, the train approached a track buckle, which had recently occurred (and could not be corrected until the evening cooled the rails). With a temporary speed limit of 10 km/hr, it took about 12 minutes to drive this train past and over the buckle. The other train I have driven was the Tangara train simulator, on which I took too much notice of a speed limit sign, and ignored a pedestrian crossing ahead, with the inglorious result that I ran over two simulated pedestrians. Just as well it was only a computer image on a screen, but it was a lesson in the need for constant vigilance.

Level Crossing collisions between road vehicles and rail vehicles are a danger which both sides are having difficulty coming to terms with, since the cost of grade separation (i.e. bridges) is far higher than the cost of the accidents this would avoid. It is not often realised that, while the cost in terms of personal injuries and death is usually much higher for the road side, the cost, in financial terms of property damage and consequent losses, is far higher for the rail side. A collision of a freight train with a loaded semi-trailer is likely to cost the railway about ten million dollars, which is probably far in excess of the value of the semi-trailer and its load, even if one includes several million dollars for the life of the driver.

At the other end of the scale CityRail appear to require all tunnels to be single track "for safety", which I think is ridiculous when compared with the records of overseas tunnel accidents; all of those I know of have been in single track tunnels. I know of no accidents in double track tunnels, and none in Australian rail tunnels at all. To be in a train in a tunnel is perhaps the safest place on this earth.

Occasionally, the human toll is higher on the rail side. In November 2004, at Ufton Nervet, U.K., a stationary car (suicide, perhaps) on a level crossing caused a derailment with extensive damage to train and track, plus many injuries and seven fatalities. (See I.Mech.E. "Professional Engineering" 9 Feb. 2005.) Similarly, last year's Victorian level crossing disaster at Kerang caused many deaths on the train, while the semi-trailer driver survived.

Better law enforcement is badly needed at level crossings. The use of speed cameras, triggered by the track circuit/warning light system, and a fine/penalty which is reasonably matched to the cost and risk of collision damage, would probably pay for itself handsomely, as well as improving the safety of both road and rail users.

Pedestrian safety is not often a railway concern, but the behaviour of pedestrians on railway foot crossings is often remarkably dangerous. Better public education would probably pay dividends in this regard. Pedestrian obedience to "Don't walk" signs, at city intersections, is deplorable. People think they are not

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going to get hit, and give no thought to the enormous cost, emotional, physical and financial, which they will cause to others as well as themselves, on the rare occasion that they fail to escape.

DEFINITIONS FOR MODERN TIMES

ADULT: A person who has stopped growing at both ends and is now growing in the middle.

BEAUTY PARLOUR: A place where women curl up and dye.

CANNIBAL: Someone who is fed up with people.

COMMITTEE: A body that keeps minutes and wastes hours.

DUST: Mud with the juice squeezed out.

EGOTIST: Someone who is usually me-deep in conversation.

INFLATION: Cutting money in half without damaging the paper.

RAISIN: Grape with sunburn.

SECRET: Something you tell to one person at a time.

SKELETON: A bunch of bones with the person scraped off.

TOOTHACHE: The pain that drives you to extraction.

TOMORROW: One of the greatest labour saving devices of today.

YAWN: An honest opinion openly expressed.

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**2008 Lecture Program of the Joint Electrical Institutions Sydney –
Engineers Australia, IEEE, IET with Railway Technical Society of Australasia**



New Generation Heavy Freight Locomotives

Speaker: Mr Akira Miyazaki - Toshiba Corporation - Japan

Date/Time: **Thursday, 24 July 2008; 5:30 for 6:00pm. Start**

Venue: Engineers Australia Auditorium Ground Floor, 8 Thomas Street, Chatswood

The lecture will cover two new types of new heavy freight locomotives for South Africa. Currently two types of heavy freight locomotives are being built by Toshiba in co-operation with a car builder in South Africa.

The first is class 19E, BoBo 3000kW electric locomotive which will haul coal trains under a 25kVac or 3kVdc catenary in east part of South Africa.

The second is Class 15E, CoCo 4500kW electric locomotive which will haul ore trains under a 50kV ac catenary in west part of South Africa.

Both locomotives are applied with;

- Regenerative brake system for both AC and DC catenary
- Vector controlled traction inverter
- APU system with redundancy
- Power converter with circulated water cooled power units
(4QC, traction inverter, auxiliary power, Braking chopper)
- TCMS (Train Control and Monitoring System)
- Distributed power train (Wired control for 19E and Radio control for 15E)

In the presentation, the features and capability of new locomotives and their equipment will be described highlighting the most innovative electrical engineering aspects of the technology and build project.

About the Presenter

Akira Miyazaki has extensive experience in the designing of high speed trains and electric locomotive systems over 25 years, mainly responsible for traction systems.

In recent years, has engaged in projects involving electric locomotives for China, South Africa and Diesel Electric locomotives for Malaysia.

Akira Miyazaki received a master's degree of engineering in 1982 and has worked for Toshiba since 1982.

Mr Miyazaki will travel to Australia especially to present this lecture

**For further information please contact
Mark Edmunds on 0418 424 938 or edmunds@tic.toshiba.com.au**

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COMING NSW MEETINGS: (black indicates confirmed, red indicates tentative)

DATE	SPEAKER	TOPIC	LOCATION	TIME
Wednesday 6 August 2008	Daniel Thomson RailCorp	AK Test Cars and Mechanised Track Patrol	Central Station Concourse Meeting Room	11.30 for 12.00
Monday 1 September 2008	Andrew McCusker MTR Corporation Ltd, Hong Kong	Hong Kong Mass Transit Railway	Ionic Room, Masonic Centre, cnr Goulburn and Castlereagh Sts	17.30 for 18.00
7-10 September 2008	Various	CORE - Conference on Railway Engineering 2008	PERTH	[THREE DAY CONFERENCE]
Wednesday 24 September 2008 (NOTE DATE)	Kevin Taylor Rail Industry Safety & Standards Board	Railway Standards Development	Central Station Concourse Meeting Room	11.30 for 12.00
Wednesday 5 November 2008	Graham Haywood United Group	PN 92 class locos and ARG derivatives	Central Station Concourse Meeting Room	11.30 for 12.00
Wednesday 12 November 2008	Various	Symposium – Metros - Future Rail for Sydney	Old Customs House, Circular Quay	ALL DAY
Wednesday 3 December 2008	TBA	Christmas Heritage Topic	Central Station Concourse Meeting Room	11.30 for 12.00

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Arnold Aranjo	Committee	Trevor Moore	Committee
Andrew Mackay	Committee	Malcolm Cluett	Committee
Bob McCotter	Committee	Eddie Hawes	Committee
John Watsford	Committee	Candice Ng	Invited Young Engineer

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 some of whom have stories, events or developments of interest that could make an interesting item for our NSW Newsletter.

Contact details are –

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

For all other matters relating to RTSA Sydney Chapter contact Bill Laidlaw (Secretary) or Andrew Honan (Chair) 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 should receive this Newsletter by post but would prefer to get it by e-mail (quicker and more reliable) then please let the Canberra know (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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