NEWSLETTER No 6/2006

Railway Technical Society of Australasia
SA Chapter
Engineering House, Bagot Street
NORTH ADELAIDE SA 5006

JUNE 2006

NEXT MEETING

Please note revised date and venue for the next meeting!!!

The next RTSA meeting will be held on

Thursday 13th July 2006
at the Adelaide Riviera, 31-34 North Terrace Adelaide commencing at 5.30pm.

The subject of the meeting will be:

The Queensland Rail Tilt Train Derailment

which will be presented by **George Erdos**.

In graphic detail, George will describe the incident, the investigation including the observation, collection and examination of the evidence, the hypothesis as to what happened, the conclusions and recommendations.

Following the meeting, light refreshments will be provided.

Continuous Professional Development (CPD)

IEAust members are reminded that attendance at RTSA technical meetings contribute towards CPD requirements. Each RTSA technical meeting generally has a value of 1 CPD point.

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LAST MEETING

No meeting was held in June.

QUEENS BIRTHDAY AWARDS

Awarded to **Des Smith**, The Member of the Order of Australia for services to engineering through development of rail transport systems, particularly as a contributor to the planning and design of the Alice Springs to Darwin Rail Line.

CORE 2006 – FURTHER DETAILS

Stephen Townsend provided the following review of the conference:

Keynote Address

The keynote address was presented by the Honorable Peter Bachelor, Victorian Minister for Transport. The following summarizes Mr Bachelors address:

The conference theme is important and appropriate as it resonates with the aims of the Victorian Government. The Victorian Government is carrying out significant upgrades to the railway system in Victoria including the Fast Rail project and the reconstruction of Spencer Street Station, now known as Southern Cross.

Looking back, the 1990's were not a good period for rail. There were rail closures, a botched public transport privatisation and the introduction of a ticketing system that caused considerable confusion and public criticism.

The present Victorian Government is trying to overcome these problems by major investment in the rail system, providing vision and by creating an environment that encourages future investment. These include:

i) An investment of approximately $750M in the Fast Rail Project to upgrade 500 kms of track over 4 main lines. This work includes major resleepering, rerailing and deviations; the purchase of 38 two-car Vlocity trains designed for 160km/hr running and a train protection system that will be the first used in Australia.
ii) An investment in the Southern Cross Station project to significantly revamp this area as a commercial precinct and transform it into a fitting rail and bus gateway to Melbourne.
iii) Investment in the Melbourne suburban rail system by the introduction of new trains and the extension of both the rail and tram the systems.
iv) Reopening of the Ararat and Bairnsdale rail passenger services.

More developments are to come.

The aims of the investment are to ensure the liveability and the future financial and environmental sustainability of both Melbourne and Victoria. The main issues affecting the future are:

i) The suburbs of Melbourne have expanded beyond the limits of the current rail system.
ii) The city loop is approaching capacity with over 490,000 passenger movements per day with 30% in the morning peak.
iii) Road traffic continues to grow creating increased congestion and cost to the community.
iv) There are significant choke points on the current rail system and these will have to be addressed by the duplication and triplication of lines.
v) Additional rolling stock is required.

The answer to these issues is a balanced approach to transport including the expansion of both the road and rail networks. Both are required.

A long-term transport plan, known as the Melbourne 2030 Plan, has been issued for comment. All are encouraged to comment and contribute to establish policy settings and achieved the future planned growth.

George Erdos, National Chair RTSA

CORE is considered the best railway technical conference in Australia. Its importance to the railway industry is well known and appreciated.

Rail's future is bright with solid political support being provided. Currently there is a renaissance in the rail industry which reinforces the message that rail has a bright future. Likewise, this situation applies to the RTSA and CORE.

The RTSA has approximately 860 members spread over five Chapters. Membership not only includes technocrats but also other persons involved within the rail industry including lawyers. There are still many people in the rail industry who are not members and these people should be encouraged to join.

The RTSA thanks the Sponsors of CORE2006 and its Organizing Committee.

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Platinum Sponsor Addresses

The two platinum sponsors started the conference proper with their addresses:

ARTC – Mr David Marchant, CEO

ARTC is proud to sponsor CORE. It is the only series of conferences that ARTC sponsors as it is the best railway engineering conference.

The conference theme "Rail achieving Growth" coincides with ARTC's aims. ARTC plans to invest between $1.5B and $1.6B in the interstate rail network.

On the east-west corridor, before 1998 the market share was approximately 50%. It is now approximately 80% and growing at 10% per annum. Rail is now 35% cheaper than road on this corridor. The main threats are Pan-Shipping, increased fuel pricing (potential to remain high) and a possible lack of rail competition.

On the north-south corridor, ARTC is currently rolling out a major investment program. Alliances with major rail contractors have been established for the design and delivery of the rail infrastructure upgrade projects and the work on these projects is now commencing.

The main aims for the north-south corridor are to increase capacity, reliability and provide a price system that is competitive with road.

As part of their track upgrade program on the north-south corridor, ARTC have recently contracted with Rocla at Mittagong for the supply of approximately 1.5 million concrete sleepers at a price of approximately $80 each including rail fastenings.

The main challenge for rail over the next few years is to obtain a suitable level of investment from the above rail operators for locomotives and wagons so as to take advantage of the investment below the rail.

In the Hunter Valley in NSW, coal exports are to increase significantly over the next few years. To meet this requirement an investment of $375M is proposed and is awaiting approval from the coal minors as in the end, they will have to pay for this investment. Improvements to the coal lines made so far now show that rail is no longer the main constraint on coal export capacity.

David Saxelby – Australian CEO, Thiess Pty Ltd

Mr Saxelby commenced his presentation by praising CORE2006 and its organizing committee.

Thiess have had over 55 years involvement in the rail industry commencing in 1949 working on a project for the Victorian Railways. This involvement has increased over the following decades and major projects completed include:

i) The Mt Isa Line upgrade in the 1960's.
ii) The construction of the Greenvale nickel line in Queensland.
iii) The Blacktown to Richmond line upgrade and electrification in NSW.

The Blacktown to Richmond line upgrade was carried out in alliance with the Rail Services Authority of NSW and achieved a 25% cost savings during the life of the project.

In Victoria, another alliance until 2004, Thiess Infraco had the contract to maintain the track, signals and the overhead.

Currently, also in Victoria, Thiess are involved in the Fastrail project being responsible for the upgrade of the Geelong and Ballarat lines.

In NSW, Thiess is currently involved with the construction of the Epping to Chatswood rail tunnel including the construction of the 4 underground stations. This project has required a high degree of innovation including the provision of a floating slab track and a curved large span rock roof over the stations.

In Queensland, a $700M alliance with QR has just been announced to deliver specified rail upgrade projects within south east Queensland.

Rail is a key component of Thiess's Business. Thiess has a critical investment mass of approximately $5 billion in people and equipment. It has 55 years of involvement in the rail industry and will continue its involvement in the future.

Selected Papers

Planning Rapid Transit Services for Large Conurbans - C Louis Fouvy

Mr Fouvy commenced his paper on a serious note to ensure that delegates understood that to implement the proposed infrastructure development, an investment of $1.5 billion per annum over the next 25 years is required.

Mr Fouvy considers that personal transport in the future must be transit orientated. Car based transport

encourages urban sprawl with the loss of productive land and is environmentally unsustainable.

The terms “Heavy Rail” and “Light Rail” create confusion and for this reason, the term “Rapid Transit” is used.

Rapid Transit may be provided in any number of forms be it bus, tram or train. They can be local feeder services or main route services. The main point made was that the selection of the form of rapid transit should be based upon the passenger numbers for the route serviced.

In Melbourne, the current rapid transit system covers only 30% of the urban area and of those that live in areas covered by the rapid transit system, only approximately 30% use it.

Current rapid transit developments have focused on the extensions of existing lines, both train and tram. Long tramlines are unable to meet their potential as long distance routes as they are too slow in their own right. At best they can serve as feeders to faster modes but in Melbourne they have not been constructed to link with faster modes of transport.

Train lines are reaching capacity in the inner city areas. The only long-term solution is to build new infrastructure in the form of additional tracks on existing routes or new tracks on totally new routes.

Mr Fouvy proposes a four-fold increase in the number of lines and rolling stock to meet the future needs of Melbourne. Most of this increased capacity is proposed to be built on new routes that have been determined from research into the travel movements about the city. The new routes not only provide the additional capacity but also allow people to travel to within walking distance of most areas of the city.

Melbourne Airport Transit Link - Ray Bartlett

Ground transport to Melbourne’s Tullamarine Airport is currently road based. The paper investigated alternative modes of transport.

Three alternatives were investigated:

i) A tram extension – Rejected as it would be too slow.
ii) A new technology solution such as monorail or maglev – Rejected as there is no suitable corridor.
iii) Heavy rail – provides attractive times and considered the best option.

Three rail route options were explained. The preferred route uses the current route to Sunshine, then partway along the existing freight line to Broadmeadows before veering onto a new short route to the airport with a station adjacent to the airport terminal.

Currently, research shows that only 7% of passengers use public transport to Tullamarine Airport. At present a rail connection is not considered viable, but may be in the future. The route of the proposed railway has been reserved. Instead, revamped bus based service has been implemented that provides a 20 minute journey time.

Designing for Mass Transit Railways Within Freeway Medians - Peter Martinovich

The Mandurah Line is being constructed to serve the rapidly expanding areas south of Perth. Perth is a car dominated city and the aim of the Mandurah Line and the redevelopment of the other Perth suburban lines is to change this.

Perth is typical of car-dominated cities. It has a low housing density, the area of the city is expanding rapidly and to get around, there is a high rate of car ownership. A comprehensive road and freeway system has been built to accommodate cars but congestion is a major problem.

In order for railways to compete against car based travel, the railway must offer a competitive journey time from origin to destination. In the case of the railway, the journey time must include the times for all links in the journey such as the car to the station car park, the actual train journey and the walk from the station to the destination. To complete, Perth’s Northern Suburbs Railway offers an average speed of 65km/hr and this is achieved by providing a high to speed together with station distances of 3 kms.

To attract car drivers, large car parks are provided at stations. Bus interchange and kiss and ride drop off points are also provided at stations.

The experience from the Northern Suburbs Railway shows that the high average speed has been highly successful in attracting riders and relieving car congestion closer to the city centre. The majority of the riders are car based who drive to the stations and park their cars. The number of car parks provided appears to be the main limitation on the numbers of riders using the rail system.

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The railways have to win their business in their own right. They cannot suppress or limit other transport modes but have to work in conjunction with them.

Stations without car parks can only attract riders who live within walking distance – generally less than 500 metres. This is too small an area to be sustainable. The provision of large car parks significantly extends the catchment area. Perth stations with large car parking areas can have a catchment area of approximately 35 square kms.

A typical mix of riders at a Northern Suburbs Railway station arrive by:

i) 50% by car and use the car park.
ii) 20% by either walking directly to the station or by the kiss and ride drop off points.
iii) 30% by bus.

Since the opening of the Northern Suburbs Railway the first two methods of entry to the stations has steadily increased but the third method by bus has not altered since the railway opened.

The establishment of new rail lines in a developed city is difficult due to a lack of suitable corridors. In Perth, the only corridors available were along the existing freeways. This required a change of mindset; the corridors are not freeway corridors but are transportation corridors.

The route of the Mandurah Railway runs along much of the corridor used by the Kwinana Freeway. Significant challenges had to be overcome to fit the railway within the confines of the existing corridor and in carrying the railway across the existing bridges, especially the major bridges at The Narrows and Mt Henry. This required an innovative approach and the challenging of existing standards in regard to track clearances and the approach to safety of a railway with a freeway either side.

It is proposed that the railway will be complete by the end of 2007.

POINT OF VIEW – Max Michell

ARG, the then operator of the former Westrail network as well as country South Australia and various bibs and bobs in NSW, Victoria and the Northern Territory, reported recently that its traffic for May 2006 had gone up by 3536 wagon loads compared to the same period in 2005. Grain was well up despite having dropped the former grain delivery to Manildra Mills in NSW during the review period, while iron ore was down, in part due to higher capacity wagons being introduced on the Whyalla OneSteel operation. Overall ARG averaged 2749 wagonloads a day during May. While reporting activity by wagons loads is not a precise measure it does give a reasonable 'analogue' overview of the companies activity and its traffic trends.

The problem is that ARG traffic data is reported through their American owning company records as part of their FRA reporting requirements. So to find out what is going on in Australia, in part at least, it is necessary to rely on American data sources and American reporting requirements. Here in this country there is no requirement to report traffic activity at all - as far as most rail freight activity is concerned there is now a glaring black hole. Even back in the days of National Rail, before there were any major privatised freight operations, there was a cute approach to 'commercial in confidence' which essentially removed any meaningful reporting data from the public domain. It has only got worse since the majority of rail freight has passed from the public to the private sector.

Why should we even care if rail freight companies report their activity? For a start there is the basic usefulness of industry wide data - how can we realistically present an industry as part of the economic engine-house of the nation if that industry's activity is cloaked in anonymity? "We are important to the nation, but we don't know why".

There is also the issue of planning, both of rail and transport as a whole. There are nine 'Departments of Transport' in this country presumably trying to make the best of their domain, yet they live in a data vacuum that can only make real planning extremely difficult. Even the rail industry must have difficulty in getting beyond individual industry level in the absence of reliable overall data. We glibly talk of coordination and standardisation within the industry yet we continue to live, nay even encourage, the data vacuum that leaves us engaging as much in guesswork as real understanding.

America may be the centre of many undesirable attributes but a common sense approach to company reporting and regulation are not among these. Maybe, having been the driving force behind 'capitalism' since the year dot, they have a commercial maturity that we can only dream about. Maybe they are less tolerant of the mealy-mouthed 'commercial in confidence' excuses for avoiding any reasonable reporting requirements. Maybe they are just more pragmatic about commercial life. Maybe their governments have a greater desire to do their bit with reasonable knowledge of the underlying facts.

Track owners in this country, bless their hearts, charge for rail access in various ways that generally includes a 'gross tonne kilometre' charging component, so by default we have some coarse measures. However even this data is not reported consistently. ARTC give route by route 'analogue' data in their annual reports, and periodically issue media releases about new 'GTKM' records when they occur, but see if you can find anything useful from Victoria or Western Australia.

Just in case you have missed the point consider:

i) How could the ACCC realistically hope to 'manage' the Toll / Patrick affair in the spirit of their brief when there is no useful data on which to base their assumptions in regard to competition / monopolies et al?
ii) How can the AusLink project move forward on a sensible basis when there are glaring gaps in the data that is supposed to be at it's heart?
iii) How can BTRE hope to develop a national transport policy through detailed research when basic activity data is sadly lacking in quantity and quality?

Of course there is the old adage 'never let the facts get in the way of parish-pump policy'; an unfortunate ongoing problem most recently and quite unashamedly displayed by rejection of the ATC's rather tepid proposals for increased in heavy truck (as in road trains and B-doubles) registration charges. The fact that under the same generic proposals many times more trucks (at the light end of the scale) could have had a reduction in their charges seems to have escaped attention.

It seems to me the basic data we need is perhaps a little more advanced than the Americans 'by the wagon load' measure - after all computers have been invented and infused into every corner of life in the interim. The great plus for computers is that they can do a lot of hack work in short time (but don't let them make 'decisions', as some banks have found out to their cost) and therefore it is reasonable to look for a simple set of 21st century data that will not breach anyone's real commercial sensitivities. Such data should include higher-level activity measures such as

i) Net tonnes
ii) Gross tonnes
iii) Net tonne kms and
iv) Numbers of trains

as a starting point.

It is entirely within the capability of the rail industry to start at least debating this issue in their collaborative higher-level forums. However given our existing reluctance to reveal anything useful maybe the various policy, regulatory and other governance authorities, all of whom must have a vested interest in valid and useful transport data, need to get a lot more vocal on this topic in order to get a 'top down' imposition for data. As long as we continue with our 'tell someone who cares' approach to the provision of useful higher level data there will continue to be judgemental decisions that do rail no favours at all.

7TH INTERNATIONAL CONFERENCE ON CONTACT MECHANICS AND WEAR OF RAIL/WHEEL SYSTEMS
BRISBANE, AUSTRALIA, SEPTEMBER 2006

The International Conference on Contact Mechanics and Wear of Rail/Wheel Systems covers contact conditions between the wheel and rail and the material damage mechanisms (wear, rolling contact fatigue, corrugations) that occur at this interface. The first conference was held in Canada in 1982, with subsequent conferences in the USA, Canada, the UK, Japan and Sweden.

Recent conferences in this series have attracted strong support from the international railway community, through the focus on wheel/rail contact and the issues that arise from managing this interface in passenger, freight and heavy haul railway systems.

The 7th International Conference on Contact Mechanics and Wear of Rail/Wheel Systems (CM2006) is to be held in Brisbane, during the period September 24-27, 2006. This is the first time this conference series has been held in Australia. CM2006 therefore represents a unique opportunity for the Australian railway industry to hear and participate in presentations and discussions specifically focused on the rail/wheel interface.

The theme of CM2006 is “Combining scientific and practical knowledge for the safe and economic operation of railway systems”. A total of 90 papers from leading representatives of rail administrations, operators, industries, consultancies, institutes and universities have been accepted for presentation. Appendix A provides an overview of various aspects of the conference program; a complete list of all accepted papers is included at Appendix B.

Of particular interest to some sectors of the industry will be presentation of papers on management of the rail/wheel interface by improved designs for wheel and rail profiles and rail grinding procedures, recent developments in the application of friction modification technology, and the results of research into damage modes such as corrugations, squats, and other rolling contact fatigue modes.

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CM2006 has attracted strong support from the Australian research community, in particular through the Rail CRC program. A total of 9 such papers on vehicle/track dynamics, corrugations, special track work, etc, are included in the provisional program.

Keynote presentations on the challenges associated with managing the rail/wheel interface will be given by Dr Stephen Marich (Australia) and Mr Harry Tournay (USA). Stephen Marich is widely known throughout the Australian and international railway industry for his long-standing involvement in the heavy haul sector. Harry Tournay is a member of the CM International Committee, and is currently employed by the Transportation Technology Center, Inc in the USA. Both speakers contributed extensively to the writing of the International Heavy Haul Association's Best Practice Manual on wheel and rail interface issues.

The CM conference series is administered by an International Committee comprised of leading researchers and practitioners from some 13 countries. Under the guidance of this committee, the Organising Committee for CM2006 has developed a technical program that reflects the various aspects of the wheel-rail interface.

The Railway Technical Society of Australia (RTSA) are supporting CM2006, through representation of the Queensland Chapter on the Organising Committee.

Materials Australia has been appointed the conference managers for CM2006.

Additional information on CM2006 is available at the conference web site, which is:

www.materialsaustralia.com.au/cm2006/.

Peter Mutton and Bill Thomas
Co-Chairmen, CM2006

MEETINGS FOR 2006

Future Speakers/Dates/Topics				
Date	**Speaker**	**Organisation**	**Topic**	**Venue**
13/7/2006	G Erdos	ATSB	The Tilt Train Derailment	Adelaide Riviera – North Terrace Adelaide
3/8/2006	R Nancarrow		History of Ultrasonic Rail Flaw Detection/ Current Practices	Adelaide Riviera – North Terrace Adelaide – Joint with PWI
7/9/2006	TBA		TBA	Joint with IRSE – Adelaide Riviera – North Terrace Adelaide
5/10/2006	Mike Sowden	ARTC	Wayside Detection and Wheel Profile Measurement	Joint with PWI - IEAust Building – Bagot Street
2/11/2006	TBA	Bombardier	The Vlocity Train	IEAust Building – Bagot Street
28/11/2006				RTSA AGM

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Articles or editorial comment for Newsletter are very welcome. We have over 100 members locally some of whom will have stories, events or developments of interest that could be reported in 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.

Send copy to the Editor, Stephen Townsend at st771048@bigpond.net.au or fax to 08 8297 0992.

Electronic despatch of Newsletter is undertaken by Malcolm Menadue – contact Malcolm on mmenadue@ozemail.com.au if you have any problems receiving Newsletter electronically or in hard copy. Note that electronic subscribers will get their Newsletters and flyers as soon as the editorial stuff is done, while the hard copy mail will of course be some days slower.

For all other matters relating to RTSA SA Chapter contact Robert Schweiger (Chairman) at e-mail robert.schweiger@jhg.com.au, or by phone on 0413 128 775.