

Chairman's Message

RTSA's efforts of late been focussed on two major professional development initiatives. The first of these has been to extend the learned society railway function to members and railway professionals who are based in New Zealand. The first RTSA technical meeting in New Zealand was held in Wellington in May 2007, where two engineers presented technical papers covering both permanent way and rolling stock related issues faced in recent railway projects conducted in New Zealand.

Daniel Headifen from ONTRACK presented a paper on the re-engineering of Newmarket station project, which is Auckland's second largest station and one of the major Developing Auckland's Rail Transport (DART) projects. David highlighted some major constraints faced by the redevelopment, which entailed building new station platforms and track layout within the existing space while regular services continued to operate.

Barry Fryer from Toll Rail's Professional Services Group (PSG) presented a session on the project currently underway to develop a new bogie to meet the demands of New Zealand's expanding passenger operations. Barry identified the space constraints playing a major role in the bogie design because the bogies are required to fit under existing rolling stock, albeit with necessary changes. His presentation also included an overview of the re-engineered former British Rail Mark II carriages, which are to be used in metro services. The original rebuild entailed replacing the original outward opening doors with power operated plug doors for use on outer suburban/interurban use. It should be noted that more recently Toll PSG have also re-engineered cars to feature quarter doors for Auckland suburban use.

Apart from highlighting some of the local innovations, these presentations also provided an opportunity to share some of the issues faced by these projects with railway professionals in other areas. There were more than 70 railway professionals who attended the first RTSA technical meeting in New Zealand, who welcomed this opportunity for networking, sharing of knowledge, and professional development.

The second major initiative in which RTSA is currently involved is a series of *Symposiums on Professional Development*. The main purpose of these symposiums will be to identify strengths and weaknesses of the various training and development programs offered within the railway industry. It is expected that these forums, apart

from being a knowledge-sharing platform, will also facilitate mechanisms to improve current training and development programs offered by various organizations.

The first of these half-a-day symposiums will be held in Melbourne on Wednesday 19 September 2007. At this symposium railway organisations are invited to present 10-15 minutes presentations outlining the main aspects of their current professional development programs (*See Page 16 for more details*).

RTSA will also present a program it has developed in conjunction with Engineers Australia, which provides a mechanism for conducting a common independent assessment of the competencies gained during various professional development activities within the railway industry. External benchmarking and recognition is a critical element of a successful development program.

RTSA will play a conduit role to encourage close collaboration between candidates (who are participating in a professional development program), railway organisations (who are providing the training) and Engineers Australia (who are providing the framework for external benchmarking) to improve the overall development of railway professionals and to address some of the skills shortage issues within the railway industry.

The railway organisations and professionals who are interested in participating in the Symposiums on Professional Development, should contact the RTSA secretariat on (02) 6270 6548.

Ravi Ravitharan

Executive Chairman

Railway Technical Society of Australasia



Rail Horizons

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ENGINEERS
AUSTRALIA

RTSA

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Postcard from Italy

Max Michell

The recent threat by the Captains of Debt and Greed to acquire Qantas was something of a wake up call. Now must be the time to redeem all those accumulated frequent flyer points (even if most were frequent use of credit card points) before the acquirers decided to do something dastardly with them. So off we went around the world.

The trip was not really a railway trip, but for obvious reasons we still managed to run up more than 6000 km of rail travel in UK and Europe, not hard to do when many of the trains had cruising speeds of up to 300 km/h.

Of these the 13.24 Paris to Montpellier TGV (connect to the Barcelona Talgo) was noteworthy, covering the 736 km in three and a half hours with two intermediate stops and the last 100 km on multi-use 160 km/h track. This train was made up of two duplex sets – 20 vehicles in all with seating for around 1400 passengers. The top deck has the inter-car connections (not the lower or middle level that we are used to) yet there was hardly any relative movement between the cars even at full speed.

Even more interesting was that for over 600 km we were following just four minutes behind an identical train

heading for Marseilles – that is less than the definition of a late train in this colony!!

However it was not the high speed trains that appealed to my senses, but rather a little piece of the Italian Railway system that is unlikely to ever be part of a high speed network, but is never-the-less a very notable bit of railway. I refer you to the coastal section from Ventimiglia (on the border with France around 30 km east of Nice) to La Spezia south east of Genova – around 250 km in all.

Maybe I should start with the story of the wandering coat.

Air-conditioning on European trains is not designed for really hot days and struggles somewhat on such occasions. The day we travelled from Nice to Santa Margherita Ligure (change trains at Genova) was such a day. The coat, which had been acquired a couple of weeks earlier from a persuasive tailor in the Lower East Side of New York, was definitely surplus baggage on this day so was placed in the convenient coal rack (below the luggage rack) in the well appointed Italian Inter-City cars we occupied.

Two very urbane tax refugees from Britain, who now are resident in Monte Carlo, were fleeing to Switzerland for the duration of the Monaco Grand Prix and hence unwittingly we became travelling companions for a couple of hours – and a most entertaining couple of hours they were.

At Genova, which is the sort of station that sneaks up on you, we hurriedly abandoned train and then were occupied trying to find when and where we could get a train onward to Santa Margherita. After some typically confused argy bargy, compounded by language difficulties, we found ourselves happily ensconced on a more or less express heading where we wanted to go.

Happily that is until I realised that my coat, completely without permission, had taken itself off toward Milan on the first train. Even worse the aforementioned coat had two passports and a bat phone in its care, which meant we were, for the time being, stateless – more or less in the same diplomatic situation that refugees find themselves in. Not an ideal situation in an English speaking country, even less so when your only foreign language is a corrupt amalgam of simple French and Spanish picked up over the previous few days.

There are times when the stars just seem to align at the right moment and this was one such. Both conductors on our train were English speakers. How do you tell? All Italian conductors have little flags on their name tags to let you know what languages they speak. Plus the senior man also had a lot of initiative.

Even though this line is more in tunnel than in open air the company bat phone functioned to good effect to call Milano to get them to ring the equivalent man on the Nice to Milano train and before more than a few kilometres had

passed we had the message back that the coat was in the possession of the (other) conductor and could be reclaimed at Milano.

The next question was can we get there by train today (it now being mid afternoon, 200 km from Milano and rapidly getting further away) – the conductor pulled out his palm pilot equivalent and in short order had brought up timetables for all the trains in the region. In no time at all the plan was set – 16.06 Santa Margherita to Genova Piazza Principe, 17.19 Inter-City to Milano (another ex Nice train) to arrive 18.50 then return by the 19.15, 20.10 or 21.10 – the 20.10 being preferred since it would deliver me where I wanted to get to without changing trains.

At Milano there was a period of confusion until the girl in the Customer Care office took me in hand and took me across the width of the station (one of Europe’s grandest) to the conductors roster room, where to my great joy I was greeted with an “Ahh, you musta be the Australian”. So a potentially grim situation was converted into a bit of an adventure, largely due to the competence of a number of people in the Italian Railways. But at the same time we were introduced to a great bit of railway.

Despite the sociable first part of the original journey and the rather more panic stricken second part it was plainly obvious that this was no ordinary bit of railway we were on. Monte Carlo station is underground; San Remo is even more underground, while a number other stations were

shoehorned into open space between pairs of tunnels. Where the railway is in the open the Mediterranean is close by on the southern side while the most charming of villages cluster around the stations.

The line from Ventimiglia is single track to within around 30 km of Genova, apart from the relatively long tunnel behind San Remo which is double track. From there through Genova and onwards to La Spezia the line is (at least) double track with frequent third road refuge facilities for overtaking moves in either direction. The refuges are used for freight trains and also slower passenger trains when being overtaken by faster trains – a not uncommon occurrence. There are several significant sections, notably on the Italian side of Ventimiglia and south east from Genova where the line is at least 50 % underground. Further south through the Cinque Terre to La Spezia is probably around 90 % underground over a length of around 20 km, even though it is more or less hugging the coast.

The Cinque Terre (‘five lands’) is a group of five villages that are only accessible by train, boat (on a calm day) or foot. The area is now a UNSECO World Heritage site, deservedly so, and has some wonderful walking tracks between rail served villages.

Stations at three of the five villages have third track (refuges), two of which inevitably extend through adjacent tunnels, while three stations have platforms that extend



back into (or through) tunnels. In places the northbound track hovers over the rocky coastline while the southbound track is still encased within the cliffs. At one village the open air platform (just, there are tunnels bracketing each end) is connected to its village by a long pedestrian tunnel; the same village has boats on little dolly wheels (but no cars) parked in its main street allowing them to be wheeled down to a launching gantry.

The whole of this amazing railway passes through a very rugged coastal strip in which are some of the most charming of villages and towns (some of truly ancient ancestry), served by a train service of one or two trains per hour depending where you are.

Did I forget to mention the trains? Almost all are electric loco pulled or pushed, although the Inter-City, and Internationals that connect to the north of Switzerland or into France, tend to keep their motive power at the leading end (perhaps in deference to installed power of up to 7000 hp in the locos for these trains). Cars for local trains are big and comfortable; 80 ft long conventional and double deck cars and 85 ft drop centre cars specifically designed for quick loading at the standard low level platforms. The opposite end to the loco has a fully fitted driving cab car so that these trains are basically a fixed consist with all the power concentrated in one 'vehicle'.

Curvature on the coastal route restricts speeds to around 90 - 100 km/h much of the way, but there are periodic opportunities to zip up to 140 km/h where the alignment is more benign. Cars are all marked with tare, length, speed and other useful data, including overhead voltage(s) for those things that use electric power, so working out what is happening is quite easy.

The coastal route sees quite a number of freight workings – understandable since Genova is a major port and industrial area, and this line feeds directly into main lines to France, Switzerland and Germany. Most freight trains are hauled by any of quite an array of electric locos, particularly on international trains where embryonic 'open access' is becoming a fact of life. Most freights are not long (maybe up to 500 - 600 metres) but as a rule they are fast, running at passenger speeds up to about 120 km/h. Two axle and even articulated three axle wagons are a regular part of high speed freight trains – something that takes a bit of getting accustomed to.

Electric locomotives cover quite a range from the characteristic Italian tri-Bo articulated types to rigid body tri-Bo's and conventional Bo-Bo types. The latter two are more usually on the higher speed loco hauled trains and regularly run up to 160 km/h on just about any main line (most Inter-City cars and some locos are authorised for 200 km/h). The articulated locos are common on freight trains and local passenger but we had a pair on an Inter-City train that kept time although restricted to 140 km/h. Power output of most locomotives would seem to be in the range of 4000 hp to 7000 hp and it shows when the whips

are out at high speed – quite dramatic acceleration even with trains of over 400 tonnes.

If you feel that I have a soft spot for the Italian Railways you would be dead right. There is something about the way they work, the gear they run and the vibrancy of the operations that is quite appealing to this railroader. Something that adds to the quintessential Italian experience and in fact is probably part of that experience. It is well worth while putting Italy on your list of things to do.

NEWS

\$15 million for Inland Rail Scoping Study

The Australian Government has decided to take the next step in planning the proposed inland railway from Melbourne to Brisbane. The Government has made the broad decision that the railway will run through Parkes before heading north through western New South Wales to the Queensland border. The Government will now commission a \$15 million engineering and scoping study to determine the best alignment for the railway within this broad route.

Announcing the funding, Deputy Prime Minister and Minister for Transport and Regional Services, Mark Vaile said, "Last year, the North South Rail Corridor Study identified four possible corridors for the inland railway. It concluded that the most cost-effective option was what it called the 'far western sub-corridor', which would involve building the railway through Parkes and western New South Wales.

"The Australian Rail Track Corporation (ARTC) will now carry out a detailed engineering, land and environmental study to determine the best alignment for the line generally within this sub-corridor. The study will prove up the alignment so it can be taken through the statutory planning and approval process and then into detailed engineering design and construction.

"The study will also scope the project's capital cost to within plus or minus 20 per cent, and put together a development and delivery timetable. In general terms, it is possible that land acquisition will begin as early as 2010, with construction starting in 2014. The line will be completed by 2019.

"The study will tell us exactly where the line should go and how much it is likely to cost. It will provide the Government with a basis for evaluating private sector financing for the project because it cannot go ahead without private sector funding.

"Australia needs an inland railway from Melbourne to Brisbane. Our strong economic growth means that the amount of freight on our transport system is forecast to double by 2020. The coastal route will



The Australasian Railway Association (ARA) welcomed the announcement. The ARA's CEO Mr Bryan Nye said: "The Australian Rail industry has been a very strong advocate for the Melbourne to Brisbane inland rail link. It also considers it vital that the investment program for the Melbourne - Sydney - Brisbane coastal route be fully executed and that a freight transit through Sydney North be completed as a matter of highest priority."

become hopelessly congested unless we go ahead with our visionary plan.

"The inland railway will increase rail's share of the freight between Melbourne and Brisbane from 30 per cent to about 73 per cent. It will also reduce the growth in the number of trucks on our roads, because every double-stacked container train is equivalent to 276 semi-trailers.

The objectives of the Inland Rail Scoping study are to determine:

- The optimum alignment of the inland railway, taking into account user requirements and the economic, engineering, statutory planning and environmental constraints. The alignment will be sufficiently proven up so it can be quickly taken through the statutory planning and approval process and into detailed engineering design and construction.
- Order of construction costs to +/- 20 per cent;
- Likely order of below rail (infrastructure) operating and maintenance costs;
- Above rail operational benefits
- Level and degree of certainty of market take up of the new alignment;
- Project development and delivery timetable;
- Basis for evaluating the level of private sector support for the project.

In developing the detailed alignment for the route, ARTC will generally follow the 'far western sub-corridor' identified by the North-South Rail Corridor Study. The study is to be completed in 2009.

"The announcement of the Western sub-corridor through Parkes as the preferred route will bring some certainty to future planning and stop the proliferation of proposed routes." said Mr Nye.

Hunter storms cut export coal supply chain

Train services in the Hunter Valley came to a complete halt as a result of the severe storms that hit the region over the June Long Weekend.

According to Acting ARTC CEO, Wayne James said, "The Friday storms and resultant flooding wreaked havoc with the network, closing both the Main North Coast and Hunter Valley Coal lines."

Major problems occurred in the section between Singleton and Whittingham where both tracks were heavily undermined by flood-waters. At Minimbah and Belford the structural integrity of the embankments was affected; the flood protection gates at Maitland forced the closure of the track; and at Sandgate the points and switches were affected by flood-waters. On the Main North Coast Line at Tocal, damage to an embankment caused services to be disrupted.

Lloyds List DCN Newswire reported that the delay to export coal supply chain - believed to be the biggest disruption in the Port of Newcastle's history was estimated to cause the loss of 2 million tonnes of coal capacity or the equivalent of more than a week and a half of ship loading.

As well as damage to the rail network, coal producers indicated that flooding at some major mines would also create significant delays in production.

ARTC estimates the cost of repairs to Hunter Valley rail network from the storms and flooding at around \$4 million. After crews worked around the clock, ARTC announced that rail operations would officially recommence on the Hunter Valley coal network at 6 pm Friday 15 June.



“The speedy reopening of the network has been made possible through the enormous effort of ARTC crews over the past 8 and a half days. This mammoth contribution from our employees and contractors has enabled the network to reopen for business within a remarkably short time,” said Wayne James.

The upper Hunter Valley network is planned to re-open with a temporary speed restrictions of 20-30 kms per hour with a single track operating between Branxton and Singleton.

ARTC predicted the Hunter Valley coal network would be back operating at pre storm conditions in two weeks time. While the damage to the rail infrastructure was extensive, it seems unlikely that it will have any long-term effect on the current 120 mtpa capacity of the Hunter rail network, once the repairs are completed.

WA to attempt to regulate traffic back to rail

Planning and Infrastructure Minister Alannah MacTiernan has signed an order to amend the Transport Coordination Act, to take effect from December 1, 2007, to regulate the haulage of woodchips and logs in the South West ensuring that the movement of timber products by rail destined for the Port of Bunbury is economically viable.

“We want to provide the best balance between road and rail freight, to ensure the impacts of freight on communities are minimised and that valuable rail infrastructure is not lost. Without some regulation, it is clear it will be impossible to keep important rail infrastructure in operation. So far the State Government has committed \$14.45 million total funding for infrastructure with the intention of working in partnership

with industry to ensure rail is competitive with road transport,” Ms MacTiernan said.

“This investment was intended to provide for the movement of about seven million tonnes of plantation woodchips and logs transported by rail in the South-West over the next 10 years and it would have led to a significant reduction of truck traffic on the South West Highway.

“However, it was proving impossible for the timber companies and the rail operators to reach agreement on a realistic price because of the amount of product being lost to competitors using road transport.”

The Government already required that iron ore road haulage operations in the Mid-West were licensed under the Transport Coordination Act for those operations within 100km of a serviceable railway to use rail.

Under this arrangement, permits had been issued to mining companies allowing them to haul bulk iron ore by road transport where rail transport was not a practical option.

Queensland Coal Supply Chain for Review

Following lengthy shipping queues at the Darymple Bay export coal terminal, the Queensland Government has announced that Stephen O’Donnell has been appointed to undertake an independent review of the Goonyella Coal Chain. Much of the criticism regarding delays and capacity problems has been aimed at QR’s rail operations

Mr O’Donnell has had previous experience working in the mining sector for Mt Isa Mines at Pasminco and was most recently inaugural CEO of rail freight operator, Pacific National.

Queensland Premier Peter Beattie said, “Mr O’Donnell will review the overall performance of the Goonyella system, which incorporates rail and port facilities in Central Queensland.

“His task will be to clarify the key determinants of system performance, provide realistic throughput targets that have been agreed by all parties; and map out future system improvements. He has been asked to make a series of recommendations focussed on improving transparency, system throughput and confidence in forecast capacity in the short, medium and long-term.

“The Queensland Government and the Resources Council have also agreed that Mr O’Donnell will work with a steering committee comprised of two representatives of Government and two representatives of the Resources Council. They will ensure a focus on the entirety of the coal supply chain - from the time it’s dug up to the time it leaves on a ship.”

The Queensland Government says that QR had won the export coal haulage contracts by tender more than two

years ago when the coal companies "did not know then they would want surge capacity".

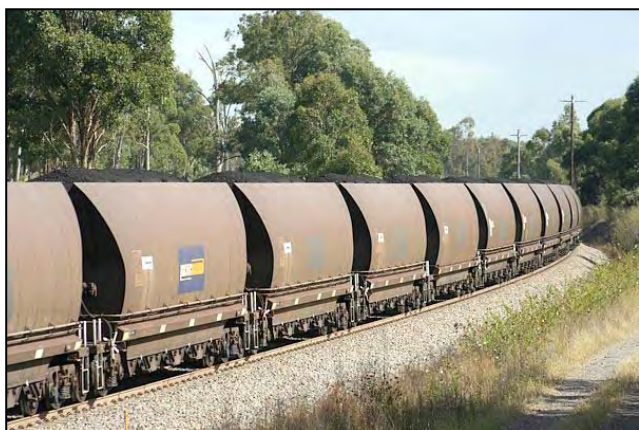
"They went for price over volume. Contracts are always renegotiable but if they want surge capacity they will have to pay for it at commercial rates," said Deputy Premier Anna Bligh.

In a message to QR staff, Acting CEO Stephen Cantwell said, "Over the past week, QR has come under significant scrutiny in the media for our role and performance in the Central Queensland coal supply chain, in particular our service delivery to the Dalrymple Bay Coal Terminal.

"Coal supply chains are extremely complex and the solutions are not simple. And while there are many views and opinions being put forward, everyone agrees on one thing - the coal industry is experiencing a "super cycle" that is a tremendous opportunity, but one that is placing pressure on all of us to perform.

"The current pressures bring into sharp focus the reality that we are in a global supply chain. We are being watched by our customers' customers in global markets. They see our importance in their business success and we must be very conscious that our participation in their world is at their invitation. For many of us, everything we do everyday can have an influence on this.

In New South Wales, ARTC CEO David Marchant has strongly refuted suggestions that the capacity of the Hunter Valley rail network is any way responsible for similar lengthy shipping queues at the Port Waratah (Newcastle) export coal loaders.



In a terse media statement ARTC CEO, David Marchant said, "The rail infrastructure is not the driver of the reduction in export coal from Newcastle. The rail infrastructure has sufficient pathing capability to carry in excess of 120 million tonnes per annum (mtpa) on the key stretch of track between Whittingham and Port Waratah.

According to ARTC figures, between January and March this year more than 25% of available train paths in the Hunter Valley, 1870 in total, were not taken up by the mining industry or by train operators.

In November 2006, ARTC opened the \$60 million Sandgate Flyover, which removed a major network constraint. This was followed shortly afterwards with signalling and operational improvements on the grades at Minimbah and Nundah to allow higher train speeds. The combined effect of these improvements lifted the capacity of the Lower Hunter rail network to 120 mtpa annum, well in excess of the projected export figure of 106 mtpa for this calendar year.

Climate Change in Europe

A few interesting anecdotes from the 57th UITP World Congress in Helsinki

- Dubai is spending \$US 28 billion on roads in the next 12 months – people in Dubai like to drive their cars and the petrol is cheap.
- Finland normally experiences around 70-80 days of maximum temperatures each year below zero. In 2006, 40 days only were below zero!
- Golfers in southern Finland normally play until mid-October, but stopped playing in mid-January this year.
- Helsinki has a population slightly less than Adelaide. Helsinki has an expansive light rail network (10 minute frequencies at midnight, real time passenger information, smart card ticketing etc etc), a metro system and an extensive bus and train network – real transport choice.
- A UITP delegate making the long trip from Australia to Helsinki for the World Congress counted 105 wind farms (with multiple generators) under the Qantas flight path as he flew over Europe. Four years ago there were very few to be observed under the same flight path. It works in Europe – where is the vision for Australia?

Symposium on Professional Development

**Wednesday 19 September 2007
3pm to 7pm, Westin Melbourne**

The Railway Technical Society of Australasia (RTSA) has arranged a half-day *Symposium on Professional Development* to identify the strengths and weaknesses of the various training and development programs currently offered within the Australian railway industry. The symposium will be the first step in identifying mechanisms to improve these programs.

See Page 16 for more details



Perth provides heavy lift for Taiwan High Speed Rail

Vector Lifting, in partnership with Taiwanese companies China Steel Machinery Company and Teco Industries, has recently completed its largest and most ambitious project since inception in 1974. Over the past three years, the West Australian-based railway engineering company has supplied a number of items of maintenance equipment for the Taiwan High Speed Rail Corporation. This equipment ranged from simple bogie stands to a state-of-the-art underfloor lifting system and included a bogie drop table; bogie load test system; disassembly hoist; mobile jacks; bogie and wheel set turntables, and wheel set and axle rotating devices.

Well known in Australia for similar engineering projects, this has been the first international, and by far the most challenging railway project undertaken by the company. Les Capelli, Vector Lifting Managing Director said this has been a significant venture for the company that had required the establishment of an additional specialist design and administration office dedicated to this one project, in addition to the project management office set up in Taiwan.

Taiwan's high speed railway has been one of the largest construction projects of the late 20th Century. With an original cost estimate of some 13 billion US dollars, the electrified high-speed line connects the major cities of Taipei in the North and Kaohsiung in the South, a distance of 345 kilometres. The new rail line cuts the journey-time from four hours to just ninety minutes. Around 300 kilometres of the track is built on viaducts or in tunnels.

Taiwan has a high incidence of earthquakes and all

elements of the supplied equipment were designed to withstand a significant earthquake.

The underfloor lifting system (ULS) is located in the main maintenance depot at Yen Chao and is the centre-piece of the equipment supplied by Vector Lifting. It is capable of lifting a complete twelve-car, 300 metre long electric multiple unit (EMU) train set weighing over 700 tonnes.

The cantilevered lifting system provides enough lift to enable bogies to pass under the raised railcar bodies along the full length of the track. This operation is carried out on the single ULS track without the need of intermediate turntables or an adjacent track. Up to twenty-four bogey sets can be replaced simultaneously.

Besides being able to lift a complete EMU train set, the ULS can be configured to lift a combination of individual railcars as well as groups of railcars. For example, operators can lift six individual railcars or four individual railcars and a group of three. A number of different combination lifts are available. When lifting the whole train set, the ULS is controlled from a central main control console. In addition, twelve local control consoles are available for use when lifting different combinations of railcars.

The actual ULS comprises twenty-four individual hoisting systems each with two lifting screw spindles. A Programmable Logic Controller (PLC) ensures the accurate synchronisation of all forty -eight spindles in order to maintain an even lift. The PLC programming is made even more complex because of the various combinations of lifts that can be selected.

In order to maintain a safer working environment, the hoists are all concealed below ground when the system is not in use.

As with any project of this scale, an enormous amount of documentation was provided to the client. Vector Lifting produced all the technical and training documentation for the railway operators, maintenance and repair staff, as well as running the training courses. All the documentation was produced in English however the operation and maintenance manuals were required in both English and Chinese. A technical writer in Perth wrote the original copy which was then sent to the Taiwan office for translation. Some ten operation and maintenance manuals, as well as ten training packages were written, translated and printed over an eighteen month period.



Book Review

Freight Across the Nation; The Australian Superfreighter Experience

Rod Avery (2006) Copyright Publishing

Rod Avery set out on a remarkable journey, travelling on a series of Pacific National freight trains across Australia from Brisbane to Perth. This book is a down to earth account of the author's travels riding with the drivers of the Pacific National freight trains that supply our largely city based consumers with the good they require.

The author's journey starts late one Tuesday afternoon at Acacia Ridge with 3BM4, Brisbane to Melbourne intermodal service. The author subsequently joins the crews of 4BM4 at Taree and 5BM4 at Chullora to complete his journey. The book includes accounts of the driver operating the antiquated safe working system to Casino, and the "slow winding journey down the NSW North Coast" with drivers changing in Grafton and Taree. Suburban passenger services cause delays between Newcastle and Sydney before arriving at PN's Chullora terminal on Friday afternoon.

Train 5BM4, running one and a half hours late through Sydney just misses 'the dreaded curfew' to safely reach Campbelltown and then, after contending with wet weather, arrives at Junee. The wet conditions add to 'run ins' when the front of the heavy train comes out of a descent and the back is pushed forward by gravity. With new drivers at Junee, 5BM4 arrives 10 hours later in Melbourne - some 36 hours after it left Brisbane.

The East West Melbourne-Adelaide-Perth corridor is sketched through journeys on ISP2 (steel), 2MP5 and 3MP4 intermodal services. This includes seeing very few people between Port Augusta and Kalgoorlie; also dealing with rain and wind. An account is also given of the different intermodal yards and ARTC's Adelaide train control centre and track maintenance based at Port Augusta. Plus the basic crew quarters at Cook with its permanent population of two.

Along with details of NR class locomotive maintenance and their communication and safeworking equipment, a good summary is also included of the Keating Government's 1992-95 'One Nation' rail capital works programme. Here, the Melbourne - Adelaide Rail Standardisation (MARS) was the key project. This summary correctly notes that (p 108) "Although the interstate network is much improved following One Nation, so much more can still be done. Watching a superfreighter pass by the Cullerin Range between Goulburn and Yass in New South Wales, for instance, will

show the very long train gently (and slowly) snaking its way through the hills, hampered in its speed by the tight, frequent curves so typical of the line between Sydney and Junee, which was quite deliberately realigned in such a way in the early 20th century to ease grades for steam trains. Watching the train, it looks impressive at first...but the mood soon changes when one thinks of the endless procession of trucks speeding past on the newly built much straighter nearby Hume Freeway. And if you look carefully enough, you can often see the cuttings and embankments of the (much straighter) original line, an alignment that would be perfect for today's modern trains!"

The book could perhaps have benefited from an abbreviated freight train timetable, some numerical details of the track that the trains traversed (length, ruling gradients, types of track, weight of rail etc). An account of



the strong rail freight growth on the East West Corridor since 1995, and the current ARTC works programme would have added interest.

While the book covers the North South and East West standard gauge corridors linking Australia's five mainland state capitals, an outline of a ride from Sydney to Wollongong, Adelaide, Port Augusta and/or Whyalla would have given a complete picture.

However, the author has succeeded in giving a well written account of how heavy freight trains move much freight along the mainline interstate track, and the many people who help them along. There are also many photographs of interest in the 221 pages.

To quote from the foreword of Bryan Nye, CEO of the ARA, "If you have any interest in rail, this is a book that should be added to your reading ... [all] will find it of interest and gain an understanding of why rail is vital to Australia's transport future."

The book is highly recommended. Available ARHS and other railway bookshops or directly at \$39-95 via www.copyright.net.au

Reviewed by Philip Laird, University of Wollongong

Society and Chapter News

CONFERENCE ON RAILWAY ENGINEERING

CORE2008

RAIL - THE CORE OF INTEGRATED TRANSPORT

**Perth Convention and
Exhibition Centre**

Western Australia

September 7-10 2008

The focus of CORE 2008 will highlight the successful role of rail in integrated transport systems in both urban travel and freight contexts.

The conference theme will put the spotlight on high volume bulk freight and the role of rail as an integral and integrated component of the export supply chain, and how the successful interface between transport modes and stockpiles is critical to success.

Similarly, in an urban environment, the successful use of rail depends on an integrated land use and transport planning approach - land use planning that encourages the use of public transport and positions rail as the core of a successful urban transport system.

CORE 2008 will build on the success of previous conferences, with national and international speakers analysing the increasing important role of rail in modern transport systems. A challenging technical program is being developed, with technical tours that will focus on leading-edge technology and techniques that position rail at the forefront of the transport industry.

The vibrant city of Perth has been chosen as the venue for the 2008 CORE 2008 to showcase the unprecedented expansion of the city's urban rail network, and the major development of the north-west railway system in response to the world's increasing demand for iron ore.

Potential delegates, exhibitors and sponsors are invited to register their interest in CORE 2008 by submitting details to the conference website at www.CORE2008.org

Conference Papers

The key dates for papers for the conference are as follows:

Call for Abstracts

- Opens: 3 September 2007
- Closes: 30 November 2007

Call for Papers

- Opens: 15 January 2008
- Closes: 28 April 2008

Sponsorship Opportunities

The sponsorship packages are currently being finalised and will be circulated to potential sponsors over the next few weeks. Potential sponsors are encouraged to register their interest with the conference organisers by emailing info@eventedge.com.au.

Preliminary interest in sponsorship has been very strong and it is expected that the conference will be fully sponsored.

John Goodall
Chairman
CORE 2008 Organising Committee

Nurturing the Next Generation of Railway Engineers

The Railway Technical Society of Australasia (RTSA), in conjunction with Engineers Australia (EA) and other industry organisations, is currently involved in establishing a mechanism to improve the professional development programs offered within the railway industry.

Senior railway engineers are being asked for their assistance and experience in this process through the provision of support and mentoring of junior railway engineers to better enhance their career development.

RTSA Executive Chairman, Ravi Ravitharan says, "We believe that this initiative will not only benefit individual engineers, but also the professional development of all railway professionals and of the rail industry as a whole."

"Appropriate training will be provided by the RTSA and EA for those senior engineers who are interested in joining and assisting in this extremely worthwhile program."

If you are interested in participating or wish to find out more about this important initiative please:

Contact RTSA Executive Secretary John Dring on dring@bigpond.net.au

RTSA Tenth Anniversary

The RTSA will celebrate its tenth anniversary in 2008 and the RTSA Executive is inviting members to share their ideas as to how best to celebrate this important occasion.

One suggestion that has been received already is for the publication of a Ten Year History of the RTSA and the changes that have taken place within the railway industry during that time.

The Executive is open to other proposals so please present your ideas for evaluation.

Please contact the RTSA Executive Secretary, John Dring, at dring@bigpond.net.au by 30 November 2007 with any suggestions that you may have and he will consolidate them for consideration by the Executive.

2008 RTSA ANNUAL ENGINEERING AWARDS

In **2008**, the Railway Technical Society of Australasia is calling for nominations in five categories of award, being;

- The Individual Award;
- The Biennial Industry Award;
- The Young Railway Engineer's Award and
- The Railway Engineering Student's Award.
- The Contact Mechanics Award

The **Contact Mechanics Award** is a newly introduced Award which has been initiated following the successful CM2006 Conference that was held in Brisbane in 2006 and it is designed to encourage interest in wheel-rail interface issues that are critical to safe and reliable railway operation.

Further details about these awards, together with nomination information, previous winners and guidelines, can be found on the RTSA website at www.rtsa.com.au/awards/

Nominations close on **Friday 29 February 2008** for the first three awards.

However, the Railway Engineering Student Thesis Award and the Contact Mechanics Award close on **Friday 2 November 2007**. This will require final year students to submit their nominations before the end of the final semester of the calendar year. Theses completed in either **2006 or 2007** may be nominated for the 2008 Award.



Victoria and Tasmania

The Victoria Chapter continues to enjoy an active programme, holding presentations and events every month until December this year.

The Victoria rail scene has created an environment for increased participation in our events and the interests of members have risen such that a number of competing events are available over the coming months. The original programme published at the beginning of the year has seen some alteration and refinement and has been continually updated in the correspondence available to the Executive.

Very good attendances occurred at the Eminent Speaker, Ed Zsombor, event in February and the Harry Roberts, "Investing in Rail Infrastructure" event in March.

There was a disappointing attendance at the combined Young Engineers event in April. Despite a reasonable attendance, we saw only 2 Young Engineers as such. Other young engineers that were in attendance were there for either railway purposes or had railway backgrounds.

Our Annual Dinner was well represented in which speaker Rob Barnett, CEO VLine, provided an informative and entertaining picture of the recent success of the Regional Fast Rail service. The service is so well patronised now that busses have been needed to supplement a rail service where passengers are standing (on 160kmph trains!!!)

A number of policy events have occurred over the past few months in Victoria which will be good a good foundation for some interesting events in the next six months. They include the buyback of regional Victoria infrastructure by the Victorian government which will be a catalyst for the standardisation of the NE railway to Wodonga as well as strategic decisions about the future of the railway. As well, the suburban railway has been the subject of intense media interest and the revelation of heavy fines being imposed on Connex for below par performance. The future of the suburban railway contractual structure is therefore rich in speculation.

Therefore a number of events in the remainder of the year will focus on these issues including:

- June – Railway Progress in Victoria
- July – Site visit to maintenance facility
- August – AGM and presentation on progress of Dandenong Rail Corridor
- September – Professional Development Program Seminar
- October – Public Transport Safety in Victoria, an Update
- November – Track Gauge Conversion in Victoria
- December – Christmas Function and Presentation by GHD

Martin Baggott, Chapter Chair

New South Wales

The Sydney Chapter continue to hold member meetings each month with the Executive meeting prior to member meetings except when the meeting is a joint venture with another kindred organisation such as the PWI and IRSA.

The Chapter Newsletter Editor has endeavoured to publish a Newsletter in the fortnight prior to each meeting with details of the speaker and the topic to encourage attendance.

In June 2006 the Sydney Chapter of Engineers Australia moved from Milsons Point to new premises at Chatswood, whilst only six stations down the line from the city there has been a noticeable drop in numbers attending meetings, the one exception in the last quarter was the January Eminent Speaker presentation which was held in the CBD attracting many from RailCorp and other city locations. After discussion and searching the Executive have sourced a meeting / conference room right on the concourse at Central Station and have resolved to have the remaining meetings for 2007 at this location from July in the format of a luncheon meeting with some refreshments supplied.

John Watsford and Bill Laidlaw continue to attend the Steering Committee meetings for the December AusRail 2007 Conference. The RTSA will have two half day sessions on days 1 & 2 of the conference; the call for papers has closed with over 70 submissions for all the streams (RTAA, IRSA & RTSA) CORE2008 brochures will be distributed in the conference satchels. Provision has been made to hold the National AGM at the Conference venue after lunch on day 1.

Four young engineers from each of the participating organisations are extended complimentary attendance to the conference sessions (however this invitation does not extend to attendance at the dinner). The Queensland Chapter were invited to select the four young engineers to represent the RTSA at the Brisbane conference in 2006 so this year it is intended to seek 4 local NSW young engineers as travel expenses are not included. Provision to include RTSA in the award presentations at the formal dinner is available.

The following is an extract of the chapter events for the last quarter, which is written in more detail in the Chapter Newsletter which may be found on the RTSA Website.

2007 Programme

12 April

A Joint meeting organised by the IRSE at a CBD hotel venue, the subject was "Assessing Risk at Level Crossings" by Chris Lees from the NSW Level Crossing Unit.

2 May

Shamus Walsh of Hardface Technologies presented rail repair techniques in situ and the rebuilding of turnouts designated for the scrapheap back to traffic at a fraction of the cost of a new turnout.

7 June

Richard Bull and Melvyn Bolus of Air International Transit presented on "Climate Control Challenges for High Speed Rail". Richard outlined the companies organisation and background with examples of applications in both rail and non-rail fields. Melvyn highlighted the technical aspects of air conditioning with emphasis on pressure surges when entering tunnels or passing trains in the opposite direction. Thanks to Member Mark Flint of AIT for organising the speakers. Attendance was diminished due to the appalling weather conditions (next morning we awoke to hear of a ship being grounded at the entrance to Newcastle Harbour).

Forthcoming Meetings

3 July

This meeting is the chapter AGM and the first meeting at the new location at Central Station, Sydney opposite Platform 1, next to the Lost Property Office. Please note the starting time of 12.00 and that light refreshments will be available, sponsored by EDI Rail. The meeting will conclude by 13.30, it is hoped that this new location will encourage those working around Central to attend.

After the brief AGM, Peter Hong Ning of EDI Rail and Dr. Dave Brown of Battery Energy will make a presentation on battery technology for rolling stock and signaling applications. This will include a history of battery technology, an overview of different designs, factors affecting battery life and performance and an overview of "RailGel" technology.

7 August

Siemens Transportation Systems will be making a presentation on their "Combino Plus" Low-floor Tram currently under trial in Melbourne. Siemens are seeking feedback from passengers using the Combino Plus. If you've travelled to Melbourne and taken a trip, then please bring your feedback to the meeting.

23 August

A Joint meeting with the PWI and IRSE at Masonic Centre, Sydney at 16.00, the subject will be decided by the PWI, refreshments will be served following the meeting.

Joint meetings will have their venue advertised in the monthly newsletter. To have the monthly newsletter sent to you please send a request to billlaid@bigpond.net.au with your contact details.

Under the recently amended Constitution I am ineligible to stand as Chair for the next period so I wish to take this opportunity to thank everyone who has contributed to the running of the Chapter during my tenure.

Bill Laidlaw
NSW Chapter Chair

South Australia

In South Australia, our meeting programme is providing interesting and high quality presentations.

The meeting on 12 April featured an address by RTSA member Roger Wyatt on some of the difficulties associated with development of an innovative new switch design for the Adelaide to Glenelg tram line. The excellent technical paper which formed the basis of this presentation is published in the Chapter's April newsletter, available on the RTSA website.

On 3 May, the meeting featured a presentation on the May 2006 Lismore (Vic.) level crossing accident, covering the Australian Transport Safety Bureau investigation and report. The talk, given by ATSB's Mark Stallbaum, generated lively discussion. Of particular interest was that the investigation report made no adverse findings against rail, its recommendations all relating to roading aspects of the incident.

The 7 June meeting, held jointly with, and hosted by the Permanent Way Institution, comprised a presentation by Tim Ryan, General Manager Asset Management for Australian Rail Track Corporation, on ARTC's upgrading works along the Melbourne – Brisbane corridor and in the Hunter Valley. It is most encouraging to see the progress being made to improve transit times, increase capacity, and eliminate obsolete working practices on the east coast portion of ARTC's network.

Our next meeting, on 5 July, will comprise a presentation by Alan Burns of Bombardier, on the future of rail transport in Adelaide from a rolling stock perspective. This subject is presently very topical.

On 2 August, the South Australian chapter will be again hosting PWI for a joint meeting. The guest speaker will be Robert Easthope from Genesee and Wyoming, covering G&W's extensive operations in the State.

The September meeting (on 6/9/07) will be the annual joint event with the Institution of Railway Signal Engineers, on the subject of ARTC's innovative in cab activated points system (ICAPS). In October, a presentation on Adelaide's new Port River bridge and associated track upgrading is planned.

Full details of Chapter activities, and summaries of meeting presentations, are contained in the monthly newsletter, published on the ARTC website.

Duncan McLeod, SA Chapter Chair

Queensland

Chairman's Comments

The Queensland Chapter have held three presentations during the quarter.

Recent Meetings

Meetings to report on since last report:-

28 March 2007

Bob Stuart, the Director for Major Projects at QR gave a presentation on one of the many in the large portfolio of infrastructure projects currently under progress in Queensland. The Northern Missing Link Project will connect the Goonyella and Newlands coal systems providing improved capacity to the supply chain. Bob provided an update on the status of the project as well as the challenges involved. (Attendees 42)

18 April 2007

Vic Stevens, General Manager Rolling stock for QR National discussed "Meeting the Demand – QR's Locomotive Development Plan". With QR's annual freight tonnage fast approaching 200 million tonnes, Vic outlined the current program of locomotive procurement, refurbishment and upgrade initiatives, its impact upon QR's freight operations and the strategy behind these programs. (Attendees 60)

16 May 2007

Mike Garrett, Practice Manager, Rail for Hatch, outlined "Current Rail Growth in South Africa". He discussed the enormous investment in rail infrastructure in South Africa over the next 3 to 5 years and in particular the Saldanha Iron Ore Line Upgrade Project.

Upcoming Events

With the year almost half over, the Queensland Chapter has a number of presentations and activities arranged.

The next presentation is Dennis Walsh, Program Director for SEQIP Rail. He will discuss the South East Queensland Infrastructure Plan (SEQIP), the rail component, delivery strategy and current health of the program.

Other activities include the AGM/Dinner/Trivia night in July, rolling stock procurement by RailCorp on the Sydney PPP project in August and the Taiwan High Speed Rail Project in September.

Mark Wishart, Queensland Chapter Chair

Western Australia

The past three months has been a relatively active period for the WA Chapter with two technical presentations and a major dinner meeting being conducted. In conjunction with the ongoing planning for the CORE 2008 the group has been kept busy.

A presentation titled "Australasian Rail; Can We Cope?" was delivered by Mr David Ratcliffe, Industry Director of Rail, Maunsell on 8th March. From his perspective the future of the railway engineering industry is heading for unprecedented heavy demands with potential major developments being planned worldwide. With the projects being proposed the demand for experienced railway engineers will be high and steps will need to be taken to ensure the resources are in place.

A special presentation was given on 12 April as a 2007 Women in Engineering topic. The 2006 RTSA Young Engineer co winner Rebecca Taylor provided the presentation of a subject of her own choice – "The Greatest Railway Journey in the World – Bring Young Engineers out of the Depot". Rebecca traced her career path in the railway thus far and identified the great opportunities available in a multidisciplinary field of railway engineering. Her presentation was well received and has raised interest in the eastern states chapters as a potential future presentation to their groups.

A highlight of the year has been the visit to Perth of the National Committee who met on Friday 25 May for the mid year meeting. On the day prior to the meeting a tour of the Southern Suburbs Railway works was hosted and conducted by the Public Transport Authority. Aspects of railway including the track infrastructure and the electric overhead were inspected from the bus tour south along the Kwinana Freeway to the Cockburn Central railway station some 25 kilometres south of Perth, where the facilities of the new station were examined. On arrival back in Perth a brief inspection was carried out at the new William Street underground station and tunnelling works.

Progress in the Southern Suburbs Railway project has slowed in recent months and it is unlikely that services will commence until later in the year. Although much of the track infrastructure is completed the fitting out of stations needs to be completed and the complex interface signalling with the existing system needs to be tested.

The WA Chapter hosted its first dinner meeting on Thursday 24 May at the Perth Exhibition and Convention Centre. The evening was hailed a great success and the contribution of the sponsors, Beyond Rail Solutions, EDI Rail, John Holland Rail, Longrun Transport Developments, Maunsell, Parsons Brinckerhoff, Pilbara Rail, Public Transport Authority Speno Rail Maintenance, WestNet Rail and WorleyParsons were acknowledged for their contributions. The keynote speaker Mr Reece Waldock spoke on the future of the rail industry with particular emphasis on the role urban rail services will play as part of Plans are in place for more interesting and varied technical presentations to be conducted in the next few months including the Electronic Ticketing System adopted by the PTA on 28 June and an overview of the Mid West Rail Developments planned for 26 July.

The CORE 2008 planning committee have progressed with finalising the conference theme and logo which will soon be announced. Sponsors have been approached and already the response has been good with several major industry companies pledging support for the event. The call for technical papers is planned for the next half of the year and promotional activities will soon be stepped up.

John Syers, WA Chapter Chair

RTSA Diary 2007

July to September

National

3 September	CORE2008 (September 2008 in Perth) - Call for Abstracts	Open
19 September	Symposium on Professional Development at the Westin, Melbourne (<i>see p16</i>)	
30 November	CORE2008 (September 2008 in Perth) - Call for Abstracts	Close

NSW Chapter

3 July	AGM/ Battery technology for rolling stock and signaling applications
7 August	Siemens "Combino Plus" Low-floor Tram under trial in Melbourne
23 August	Joint RTSA/PWI/IRSE Meeting
5 September	Presentation to be advised

Victorian Chapter

18 July	Site visit to the South Dynon Maintenance Centre
22 August	AGM/ Dandenong Rail Corridor Project
19 September	Symposium on Professional Development Program
17 October	Presentation on Public Transport Safety

Queensland Chapter

25 July	AGM Dinner and Trivia Night
22 August	RailCorp Project for over 600 New Railcars
September	Taiwan High Speed Rail Project (Date to be confirmed)

South Australian Chapter

5 July	Future of rail transport in Adelaide, from a rolling stock perspective
2 August	Genesee and Wyoming's operations in South Australia (with PWI)
6 September	ARTC's in cab activated points system (ICAPS) (joint with IRSE)
4 October	New Port River rail bridge.

Western Australia Chapter

26 July	Mid West Rail Developments
6 September	Site Visit - venue TBA
25 October	Forum - The Future of Rail

The above program is subject to last minute changes. For additional information on the RTSA and its activities, including the symposiums on Professional Development, please visit the RTSA web site or contact the secretariat on (02) 6270 6548.

www.rtsa.com.au



Symposium on Professional Development

Wednesday 19 September 2007

3pm to 7pm

Westin Melbourne

The Railway Technical Society of Australasia (RTSA) has arranged a half-day *Symposium on Professional Development* to identify the strengths and weaknesses of the various training and development programs currently offered within the Australian railway industry. The symposium will be the first step in identifying mechanisms to improve these programs. All organisations working in or with the rail industry are being encouraged to make a 10-15 minute presentation detailing the development and training programs that they currently offer for railway professionals.

Engineers Australia will also make a presentation on the Professional Development Program that is being designed specifically for the railway industry. This program will be based on the competencies to be gained through a structured training approach offered through various organisations.

This symposium apart from being a knowledge-sharing experience, will also facilitate discussion designed to improve current training and development programs and to identify the opportunities to introduce new initiatives. Such improvements should also result in an enhancement in the standing of those professionals who participate in these programs and also address some of the existing and future skills shortages within the railway industry.

If you are interested in presenting or participating in this **free** event, please register your interest by contacting Wilson Wong on (03) 9653 8522 or wilson.wong@maunsell.com.

There are only limited opportunities available and you are encouraged to register your interest as soon as possible.



Symposium on Professional Development

Dear Wilson,

I am interested in participating in the RTSA Symposium on Professional Development Yes No

My Name:

Address:

Email:

Telephone:

My organisation is interested in making a presentation at the Symposium Yes No

Organisation Name:

Contact Person:

Address:

Email:

Telephone:

For more information Contact Wilson Wong
Fax: (03) - Tel: (03) 9653 8522 - email: wilson.wong@maunsell.com