

RTSA NSW CHAPTER NEWSLETTER

JULY 2010 EDITION



NEXT MEETING

OVERHEAD WIRING

Rob Stevens, Principal OHW Design Engineer,
Trackwork Services Alliance



Track is one of the most obvious parts of a railway and tends to be front of mind when infrastructure is mentioned. On the other hand overhead wiring, a critical element of most electrification schemes, tends to be largely overlooked.

Rob will take us on a quick 'tour' of the arcane science of

overhead electric wiring and all that goes with it – wires, insulation, supports, power supplies and so on, with reference among other things to the skill and training requirements associated with hands on high voltage work.. His experience with traditional DC systems as well as the newer high voltage AC systems across several continents makes him well placed to be able to discuss the peculiarities and requirements of the differing types of electrification in this country and overseas.



TECHNICAL PRESENTATION

VENUE:
Central Station
Meeting Room
(Opposite Platform 2,
Beside Lost Property)

DATE:
Wednesday 7th JULY 2010

TIME:
11.30am (for noon start)

*LIGHT REFRESHMENTS
WILL BE PROVIDED*

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CORE 2010 – WELLINGTON, N.Z., 12th to 14th SEPTEMBER 2010

The 2010 CORE conference is only a few weeks away. There will be 80 technical papers presented at the three day event, drawn from around 200 proposed papers offered by members and professional associates. In addition a number of Technical Tours are offered that range as far afield as Auckland, 650 km north of Wellington, and the West Coast main line 'overseas' in the South Island.

Time is running out to register to attend this conference, so if you are intending to go and have not yet booked then now is the time. A number of intending delegates were unable to attend the last CORE in Perth when the event was fully booked well before the actual event.

All the conference program details as well as registration details can be found at www.CORE2010.org.nz

RAIL – REJUVENATION & RENAISSANCE
CORE2010
CONFERENCE ON RAILWAY ENGINEERING
12-14 SEPTEMBER WELLINGTON NZ. WWW.CORE2010.ORG.NZ

Registration now open!

Rail – Rejuvenation & Renaissance, the CORE 2010 theme, highlights the re-emergence of rail as a major solution to the need for sustainable, high capacity infrastructure to support economic development on both sides of the Tasman and around the world.

Registration and the full conference program, together with the social and partners' program, is available at www.CORE2010.org.nz

NEW MEMBERS

We continue to get new members joining the NSW Chapter of RTSA. We warmly welcome the following new members and trust they will find their membership a rewarding experience.

Wayne Adamson
John Bartlett, Smart Transport Solutions P/L
Michael Briggs, Australian Rail Technology
Piers Brogan
Michael Cleary
Gavin Cox, Student
Adriana Cruz, RailCorp

Warren Dixon, Sydney Harbour Foreshore Authority
Scott Ferguson, Student
Stanislaw Ganko
Rashed Kabir, Student
Ching-Yen Lu, RailCorp
Sajith Mohan
Ross Payne, Wabtec
Jacqueline Power, Ansaldo-STC
John Thorn
Renzo Tonin, Renzo Tonin & Assoc (NSW) P/L
Robin Walpole, Worley Parsons

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COMING EVENTS

Meet the Railway People Expo 24th July

Just a reminder, we still have space available for your business to take advantage of the 2010 Meet the Railway People Expo on 24th July at the Powerhouse Museum.

The Expo will consist of two parts – in the first part, a discussion forum titled 'A Career in Rail – All you need to know' will be held formed by an experienced professional, a highly regarded recruitment agent and two graduate employees. The speakers will widely discuss the culture and opportunities of the rail industry, their own and potential career developments. The second part of the event will provide students with free time to visit company's display booths, from where they could gain a deeper insight into each individual company, their operating customs and offer of opportunities.

For Registration and further information visit <http://rtsa.eventbrite.com>

RTSA 2010 Annual Dinner 5th August at the RAA

Club. Rob Mason, CEO of RailCorp will be guest speaker for the evening. This event is almost fully subscribed but if there are any members out there who want to go, but have been a bit tardy in booking, then they should get in touch with Katharina straight away (see contact detail on last page).

Eminent Speaker Tour

Andrew McNaughton will be the keynote speaker at CORE 2010 in Wellington early in September. Andrew's specialty is High Speed Rail and following CORE he will be undertaking an Eminent Speaker Tour of the various Chapters of RTSA. We anticipate he will be speaking at an early evening event in Sydney on Monday 20th September at a city location (details to be confirmed). For those of you who do not get to New Zealand this will

be an excellent opportunity to get an international perspective on what looks to be the Next Big Thing.

STORE Proposal

Given the current interest in things High Speed there has been a proposal to run a Study Tour of Asia to look at current developments in this area. At this stage it is little more than a bright idea, but judging from the STORE2009 (Metro) Study Tour success this one could be very popular – after all one of the Metro Tour highlights was travelling at high speed (up to 335 km/h) between Beijing and Tianjin. Stay tuned.

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JUNE MEETING REPORT – PHIL ROBINSON

HIGH SPEED RAIL PRESENTED BY COLIN STEWART, DIRECTOR AND HEAD OF GLOBAL RAIL, ARUP

WHAT IS HIGH SPEED RAIL?

Trains - Power/weight ratios, aerodynamics, safety, reliability. Need fixed formation train sets rather than locos and cars.

Lines - Layout, track quality, catering for the environment. High specification. Conventional lines unable to sustain High Speed operations (needs new lines)

Signalling and control - In cab signalling required; line side signals unable to be used at >200 km/h

WHY HIGH SPEED?

Land use comparison between HSR and Motorway; For same capacity land requirement for HSR is 33% of land for Motorway

Energy efficiency;

Figures shown including 170 passenger km carried per unit energy HSR, 52 for Regional rail, 39 for private car and 20 for plane.

Mode shift:

Madrid – Seville 471km Plane travel predominant before HSR.

Rail from 33% to 84%
Plane from 67% to 6%

Paris – Brussels 320km Car travel predominant before HSR.

Rail from 24% to 50%
Car from 61% to 43%
Bus and Plane from 15% to 7%

Running speed:

Normal train operation in 1955 was up to 160km/hr, by 2009 had gone to 350 km/h

Standards:

Minimum curve: 200km/hr = 1800m, 400km/hr = 7200m
Gradient: classic main line = 1 in 100, HSR = 1 in 35

Other aspects:

Aerodynamic and pressure effects – eg going into tunnels and the effect on passengers' ears.
Very large tunnel size to reduce effect. Pressure sealed trains being looked at.

Cost

Construction disruption
Construction carbon

TRAINS

Length: Classic train = 245m; HS Train = 2 x 200m = 400m fairly standard

Capacity

Plane	150 to 250
Coach	approx 50
Classic train	approx 500
HS train	approx 550 x 2 = 1100

Mixing Traffic Speeds

Train graph displayed showing train paths for 330km/hr trains at 3 minute intervals. Running one 210km/hr train consumes 5 x 330km/hr train paths.

Population Density Effects

In France population density is high in discrete regional centres so HSR is hub and spoke pattern. In Holland, Belgium and Germany population density is more consistent so HSR development is based on nodes at closer intervals

Stations And Hubs

New HSR station can bring about re-building up a run down area – the Lille effect

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Upgrading Existing Rail Systems

Not a good idea – past attempts to improve existing lines have been only partially successful at best. Need to go to purpose built HSR for full benefits.

DEVELOPMENT OF HSR AROUND THE WORLD

Japan: 1964 Tokyo – Osaka

France: 1982(?) Paris – Lyon TGV

Spain: 1992 (now 1589 km, by end 2010 2230km)

South Korea: 2002, joint French and Korean technology

Taiwan: 2007 Taipei – Kaohsiung (Japanese technology), private BOT competing with state classic railways.

China: 2008. Plan 16,000 km by 2020 to cover 90% of population (approx 1,000,000,000 people

Combination of French, German and Japanese technology

USA: Starting to look at HSR - \$8bn allocated for preliminaries.

Current World Rankings On HSR

Japan, France, Spain, Germany, China, Italy, Russia, Sth Korea

HSR started in Japan in 1964. By 1998 worldwide there were 5000km of HSR, 10,000km by 2008, 15,000km by 2010, will be 25,000km by 2012, and 40,000km by 2024. Australia only continent that has no plans for HSR

CASE STUDIES

Channel Tunnel Rail Link connecting England and Europe: initially 120km classic section in UK using 3rd rail. Resulted in additional travel time, complexity of electrical systems, trains specially built to classic UK outline which resulted in high first cost and ongoing maintenance

Market share (of rail and air) was 60 % before UK High Speed line (HS1) was opened, increased to 79% when 1st stage of HS1 opened in 2004 and now 89% after 2nd stage opened in 2009

UK HS link, 108km, cost 5.8bn pounds, but benefits 6.2bn pounds. Additionally economic regeneration benefits from HSL are 10.5 billion pounds – Stratford City, Kings Cross Central, and Ebbsfleet are main beneficiaries. Land development needs to be included to give justification.

HS Routes To North of London

2001 Study – nothing happened, but recent Government interest with the realization that existing capacity is running out.

New study London to West Midlands (HS2) over last 12 months, covering area from London to north of Birmingham and roughly the distance between Oxford and Bedford wide. Major driver is exhaustion of existing rail capacity despite very expensive upgrading of existing West Coast Main line. Cost in order of 20bn pounds. Government is supportive but issue is how to fund it.

China – State funded

Dutch HS line – Civil engineering – Government; Rail system and maintenance – PPP, Operation – Government. Project running late - interface contract problems.

Portugal – All contracts private. Going ahead in spite of the country's financial problems. Viewed as a way of improving finances.

USA – California – 600miles – Federal, State and private funding. In planning stage.

Australian Context: Sydney – Melbourne: Air 1hr 30min flight time (currently >30" frequency shuttle), HSR 3hr 30min. Real issue in city to city in which case the times are comparable. No HSR plans.

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2010 AGM

The RTSA NSW Chapter Annual General Meeting will be held on August 4th immediately prior to the August syllabus meeting. The various papers associated with

the AGM were reproduced as attachments to the June Newsletter.

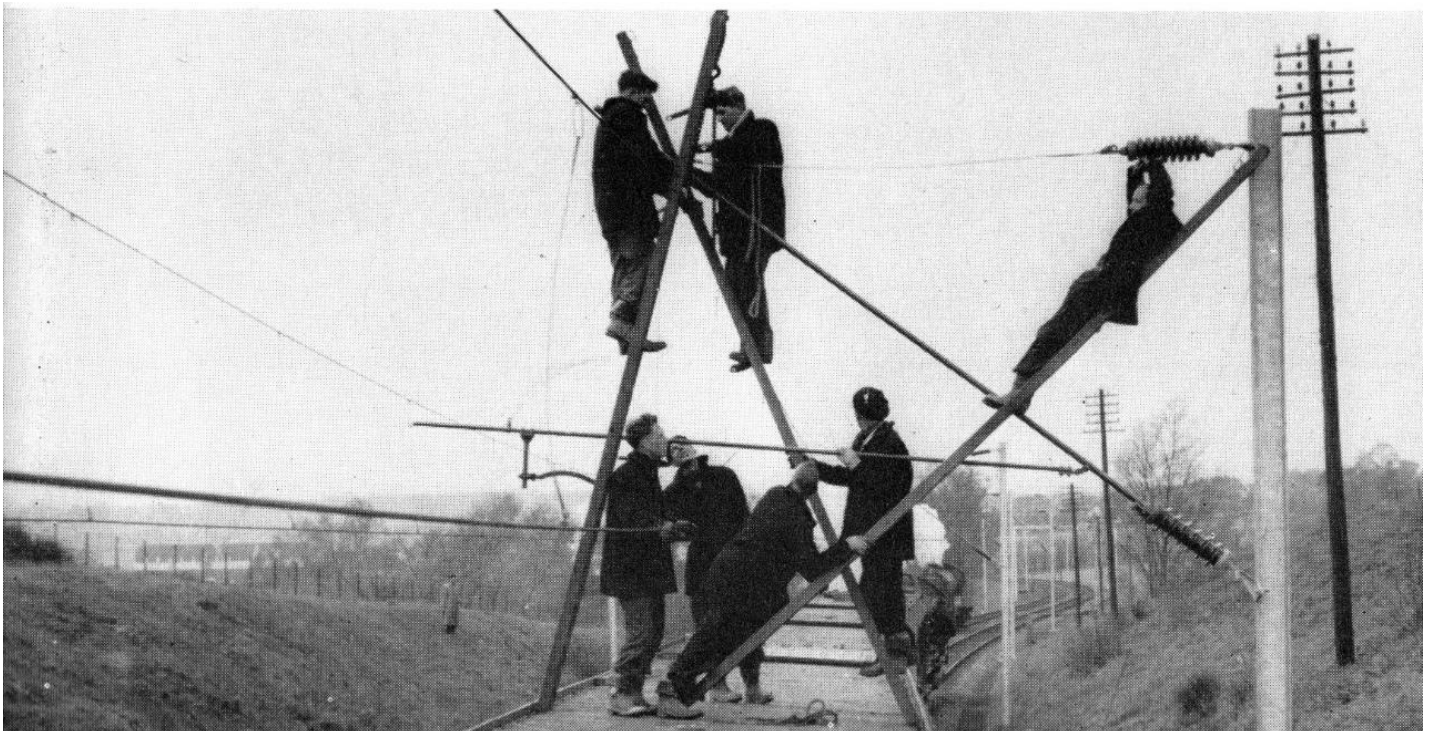
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2011 MEETING PROGRAM

The 2011 meeting program is now being planned so if there are any thought, ideas or particular issues that would be of interest to members then now is the time to forward them to Basil Hancock (for the time being). While RTSA is primarily interested in the technical aspects of rail there are many topics that involve rail

(and technology) even though they are not at first glance engineering matters. Rail is a network above all else and as such everything that happens in rail will have impacts and effects across the whole spectrum of activities.

OH & S – 1950's style



Contributed by Basil Hancock

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FUTURE MEETINGS AND EVENTS

Wednesday 4 August 2010 11.30 for 12.00	Overhead Wiring Rob Stevens, Principal OHW Design Engineer Trackwork Services Alliance	Meeting Room Central Station Concourse Sydney
Thursday 12 August 2010 17.30 for 18.00	Earthing and Bonding David Stuart Smith Senior Associate, Electrical Systems, Arup <i>(Joint meeting with the Electrical Branch)</i>	EA Auditorium, Ground Floor, 8 Thomas Street Chatswood
Wednesday 1 September 2010 11.30 for 12.00	Two or three short topics Young Members Presentations	Meeting Room Central Station Concourse Sydney
Monday 20th September (time TBA)	Eminent Speaker Andrew McNaughton	(venue TBA)
<i>Wednesday 6 October 2010</i> 11.30 for 12.00	<i>To be Confirmed</i>	<i>Meeting Room</i> <i>Central Station Concourse</i> <i>Sydney</i>
Wednesday 3 November 2010 11.30 for 12.00	Automatic Train Protection Craig Stanfield Project Director ATP, RailCorp	Meeting Room Central Station Concourse Sydney
Wednesday 1 December 2010 11.30 for 12.00	Christmas Heritage Topic Rebirth of a Legend: 3801 in the 21st Century Craig Mackey (NSWRM) and Chris Hoskin (Halcrow)	Meeting Room Central Station Concourse Sydney

Engineers Australia members are reminded that attendance at RTSA technical meetings contributes

towards CPD requirements. Each RTSA technical meeting generally has a value of 1 CPD point.



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CONTRIBUTIONS TO NEWSLETTER

Contributions for publication in Newsletter are welcome. As far as possible they should be kept to a reasonable length (articles desirably no more than 2 pages; Letters to the Editor ½ page) and should be relevant to the interests of members.

By far the best way to submit contributions is by e-mail – to the Editor at max412@gmail.com for preference.

In general hard copy material that has to be transcribed into electronic format for publication will tend to be given lower priority than material supplied in electronic format.