

**Railway Division Annual Report
2011-2012**

Chairman's Reflection

As my year as Chairman approaches its end, the advice I received from past Chairmen proves to be true: the year passes all too swiftly. And I can confirm what my predecessors also told me: it is a great privilege to be Chairman of the Railway Division, and a huge pleasure to have been able to meet so many Railway Division members in the course of the year.

Current Strength

The year included celebration of our centenary. The Railway Division started in 1911 as the Institution of Locomotive Engineers. It was founded by practical engineers who wished to improve their knowledge; and the practice of railway engineering. So it's appropriate to reflect on what those who founded the Railway Division would think of our work today. The original Objectives were

1. *The reading and discussion of papers.*

In a year we have had 10 HQ lectures, 4 YM lectures, 6 seminars and 47 events in Railway Division Centres throughout Britain. Our Lectures Committee and Seminars and Conferences Committee both continue to organise excellent events with first class speakers. It is noteworthy that in aggregate we have twice as many attendees at Centre events as HQ, confirming that Centre activity continues to be a great strength.

2. *The dissemination of information concerning locomotive engineering and the allied sciences.*

The Journal of Rail and Rapid Transit published as part of the IMechE proceedings attracts leading rail research papers from around the World.

3. *The visiting of locomotive works and running departments of interest.*

I have just returned from the **Annual Technical Tour** to Germany and Switzerland. The event was a real success: the best such visit I have attended, with many thanks due to the Visits Committee. The access to first class manufacturing and maintenance plants, and also to strategic managers of rail and public transport systems was excellent. And importantly, we had a very good mix of senior rail engineers and young engineers from across the industry.

4. *The mutual assistance and intercourse of members.*

Over 1100 people from across the industry attended the Annual Luncheon this year, and the network of contacts which the Railway Division offers to its members is second to none.

With more than 4000 Members the Railway Division is in rude health, and goes from strength to strength. This strength was reflected in the award of **Division of the Year** by the IMechE to the Railway Division, which I was pleased to accept in December on behalf of all those who contribute to our continued success. I am confident that our founding members would look at our work in our 101st year and be proud of what they started, and what we continue to achieve.

Innovations

And we don't stand still. We have launched the **Stephenson Award for Practical Innovation**, in partnership with the National Rail Awards. Focused on innovations which will have a real impact on the revenue and cost of the railway business, this award has attracted an excellent set of submissions in its first year.

The **Railway Challenge** is set to hold its first trial competition this summer. This presents teams of engineers from universities and industry with the challenge of designing a small gauge locomotive to meet some large engineering requirements for traction energy efficiency and performance.

Influencing Policy

We continue to engage with and respond to various transport policy initiatives as they arise. The Railway Division offers a place where rail policy makers and senior rail business managers can meet deep expertise from within the Railway Division and across the rail industry, and where expertly informed discussions can take place one step removed from corporate positions. This year we have held a number of **Chatham House Rule Discussions** over dinner in the HQ Council Room after lectures addressing strategic topics. Feedback from attendees has been excellent, and it has been easy to secure industry sponsorship for these events: proof that they are valued.

Future Challenges

The Railway Division exists to promote excellence and opportunity in railway engineering. It is clear from feedback from members that there exists within the Division strong support for **broadening our membership** to re-connect with apprentices and technicians, as well as graduates, and to offer those with the right aptitude and application the chance to realise their full potential as railway engineers. This is not a project that can be delivered in a single year, but I am sure we must continue to pursue this opportunity which aligns strongly with a strategic objective of the wider Institution.

Another topic for continued development is our approach to **communications**, in the widest sense. This covers communications to our members; to our rail industry stakeholders; to policy makers and to the media and general public. The Institution is reviewing its own communications policies, and this is an area that will require further attention in the next year if we are to harness the strength of IMechE resources in a manner which works best for Division activities.

Future Strength

One of the greatest pleasures of the year has been to see the strength of the **Young Members** in the Railway Division. Our Young Members Committee has a great breadth of representation from across the industry and organises a range of events and technical visits which I recommend for all. Particular recognition is due to those who take time to act as ambassadors promoting the attractions of railway engineering in colleges and schools. The future of our Division looks very good indeed.

Board Changes

Andy Batters, Simon Johns, Simon Groom and Bryan Donnelly have all stepped down from the Railway Division Board this year, and I would like to thank them for their contribution. And a warm welcome to Stephen Thompson, who joins the Board as the new NE Centre Chair and Chris Kinchin-Smith, who has taken over from Mick James as SW Centre Chair. Mick James and Chris Moss both join the board as Ordinary Members.

Thank-You

Apart from the necessary update on Board membership, I have deliberately avoided reference to individuals throughout this reflection, because it's not possible to mention some without unfairly missing many. Suffice it to say that the Railway Division works so well because of all your involvement, commitment and contributions. The Chairman's role is not so much to lead, as to act as a temporary steward of a great treasure. I hope I have discharged that obligation in a manner worthy of the trust which you have placed in me. I could not have done so without the encouragement, advice and support I have received from across the entire Railway Division. Thank-you.

The Next Chairman

I am delighted that Bridget Eickhoff takes over the reins as Chairman at the Railway Division Board meeting on 15 June. Anyone who knows Bridget will share my confidence that she will apply the same wisdom and ability to her role as Chairman that she applies to her work as a railway engineer. The Division will be in most capable hands.

Bill Reeve
Chairman, Railway Division
2011-2012

Railway Divisional Board Composition 2011/12

Position/ Name	Company	Election Date	Affiliation
Chairman Bridget Eickhoff	RSSB	2012	REF
Deputy Chair Simon Iwnicki	Manchester Metropolitan University	2012	Railway Challenge Prizes & Awards
Past Chairman Bill Reeve	Transport Scotland	2011	
Past Chairman Tim Dugher		2011	
Vice Chairman Richard East	Atkins	2007	REF
Vice Chair Louise Shaw	ATOC	2010	Visits
Vice Chairman & SE Centre Chairman Tim Poole	Transport for London	2011	Centres (SE) Railway Challenge
Centre Chairman Chris Kinchin-Smith			Centres (SW)
Centre Chairman Stephen Thompson	Sabre Rail		Centres (NE)
Centre Chairman Lee Bartholomew			Centres (Midlands)
Centre Chairman Simon Fung	Bombardier		Centres (NW)
Centre Chairman John White			Centres (Scotland)
Ordinary Member Andrew Skinner	First Group	2012	
Ordinary Member Andy Mellors	First Group	2012	
Ordinary Member Mick James	RSSB	2012	
Ordinary Member Chris Moss	Eversholt Rail	2012	

Ordinary Member Kate Marjoribanks	Chiltern	2011	
Ordinary Member Graham Neil	London Underground	2011	
Formally Invited Chris Carr	Department for Transport		Lectures
Formally Invited Paul Cooper	Hitachi Rail		Young Railway Professionals
Formally Invited James Collinson	Network Rail		Seminars & Conferences
Formally Invited Craig Young	Network Rail		Young Members
Informally Invited Carolyn Griffiths	RAIB		
Informally Invited Richard Lockett	ERA		
Informally Invited Malcolm Dobell	London Underground		
Informally Invited Clifford Perry	Consultant		
Informally Invited Roger Goodall	Loughborough University		

Railway Division Activity

Date	Events	Total	M	NM
12/04/2011	Film Evening	80	42	27
01/05/2011	Summer Technical Visit: Sweden & Denmark	25	23	2
02/03/2012	Annual Luncheon	1130		

Date	Lectures	Total	M	NM
04/04/2012	How Can Railway Condition Monitoring Help Us Predict and Plan for the Future?	139	72	67
19/05/2011	YM Presentation Competition	49	33	16
22/06/2012	Condition Monitoring – Putting Trains in Control	35	25	10
07/07/2012	Trains for All Weathers	86	45	31
26/09/2011	Chairman’s Address	100	60	40
10/10/2011	European Train Acceptance – It’s Getting Easier, Right?	69	45	24
31/10/2011	The History of Going Uphill	71	21	50
28/11/2011	ERTMS The Story of a Success	104	56	48
01/12/2011	Railway Incidents UK and Beyond	58	18	40
08/12/2011	Why Bother with Adhesion	43	34	9
16/01/2012	S Stock Value Engineering: The Benefits of Co-operation	137	69	68
20/02/2012	Crossrail – 2012 Challenges and Solution	81	39	42
19/03/2012	High Speed Rail – British Plans in a World Perspective	207	95	112
23/04/2012	Braking the Pendolino	81	39	42

Date	Seminars and Conferences	Total	M	NM
07/04/2011	Train Maintenance - Operations and Cost	62	27	35
22/06/2011	Railway Plant: Investment and Opportunity	50	27	23
21/09/2011	Tracks to Success - Delivering in Demanding Times	75	49	26
06/10/2011	Gaining Traction in Energy Efficiency	77	53	24
06/12/2011	The McNulty Report: Engineering Solutions	75	48	27
26/04/2012	Delivering High Speed 2: The Technologies & Strategies behind Britain’s New Railway	84	17	67

Date	Workshops	Total	M	NM
17/05/2011	Introduction to Rolling Stock	10	2	8
18/05/2011	Traction and Braking	12	4	8
24/05/2011	Vehicle Dynamics & Vehicle Track Interaction	13	7	6
25/05/2011	Fleet Maintenance	14	4	11
26/05/2011	Vehicle Acceptance & Approvals	11	5	6
26/10/2011	Introduction to Rolling Stock	4	1	3
27/10/2011	Traction and Braking	7	3	4
01/11/2011	Vehicle Dynamics & Vehicle Track Interaction	11	7	4
02/11/2011	Fleet Maintenance	5	3	2
03/11/2011	Vehicle Acceptance & Approvals	10	4	6
18/05/2012	Fleet Maintenance	9	3	6
27/03/2012	Introduction to Rolling Stock	9	6	3
28/03/2012	Traction and Braking	11	5	6
17/04/2012	Vehicle Dynamics & Vehicle Track Interaction	9	6	3
18/04/2012	Fleet Maintenance	9	5	4

Centres

Midlands Centre

The Midlands Centre has enjoyed another successful year with 9 meetings and one visit held during the 2011/2012 session. Average attendance at the meetings has been 64, an increase of 20% on the previous session. Joint meetings have been held with Derby Railway Engineering Society and Burton Engineering Society and one meeting was held in conjunction with the iRail event in Derby. These joint meetings have made a significant contribution to the increased attendance. The regular venue for Centre meetings is now the Derby Roundhouse which is an excellent venue and an historic railway building.

North East

It has been another successful year for the North East centre with the following programme:

- Class 158 HVAC Carl Moore reassuring to see a young trainee engineer (Wabtec) getting to the root causes of a problem.
- Chairman Address - Bill Reeve
- A wonderful mix of engineering, and an emotional story of the The Winton Train, by Martyn Clegg
- Film Evening popular as always, mix of old and new.
- Young members evening – our winner was from Interfleet Tim Fairbrother couplers and horns in winter
- IEP Super Express Update Alistair Dormer and Stuart Baker, excellent presentation that provided a catalyst to the ensuing and engaging debate.
- US Track Laying – exploits and experiences, Speaker Phil Kirkland Sponsored by Harsco Rail
- High Output Electrification Construction Train - The speakers (Simon Bailey & David Broadbent) articulated both the business case and a good level of technical detail.

North West

The 2011-2012 session has again included a programme of 9 ordinary lecture events plus the Chairman's Address event with the customary preceding 'Case Study' event beforehand.

Topics have been wide and varied, supporting our long established 'Joined-Up Railway' approach with shared events with sister institutions of the IET, ICE, IRSE & PWI as well as the IMechE NW region and the Newcomen Society for the first time. Topics have ranged from 'The future for freight', 'Rail lubrication' and the 'Northern hub' rail scheme - which drew our largest audience of 120. The annual heritage presentation saw an update of 'Tornado – 3 years on the mainline' with a candid summary of the challenges faced and the engineering solutions presented to an audience of 94. The annual Young Engineer's event saw 5 impressive presentations, and a wide variety of topics covered by the speakers.

We continue to maintain our links with local academia, with events hosted by the Manchester Metropolitan University. Local industry links continue to be maintained in addition via the highlight 'Chairman's Dinner'. Hosted events and tours of the Bombardier Transportation Crewe site in April, and a similar planned event at Alstom Transport Preston in May have also featured in this session's programme.

The centre has maintained support of 'benefit in kind' sponsorship from MMU, Alstom and Bombardier in the hosting and subsidising of events. The significance of this is not to be understated and has allowed the centre to continue to operate in its established manner this session. However, our current arrangement with MMU is likely to cease which will present a significant challenge for the forthcoming 2012-2013 session.

Scotland

The 2011/2012 session was successful with a full programme of seven meetings. These included a joint meeting with the South East Scotland Branch and a technical visit to Shields Depot. In general attendances have been good, but we are trying to learn from the occasions when they have been less than encouraging.

The Centre continues to support REF Scotland and is a major player in the organisation and promotion of these events which are of interest to the wider rail community. This years events were a presentation by Sir Roy McNulty and another on the work of National Skills Academy of Railway Engineering. These now form a major part of the Centre's programme and while the benefit over past years has been to attract more significant presentations and promote broader discussion, next year a Young Professionals' Papers evening will be held, something that we have not been able to do on our own account for many years.

The position regarding future programmes continues to improve, with the programme for 2012/2013 almost finalised, and that for 2013/2014 already in preparation. Links with academia have still not been established and this has now become a priority.

South East

2011/12 proved to be another very successful season with attendance at or above any previous year and often stretching the capacity of the venue. Most of the talks involved two or more speakers, which proves popular with attendees and allows varied approaches to issues to be presented.

The talks included DC traction problems, SSL Upgrade ATC signalling, energy metering and driver advisory systems. The metering and advisory evenings were linked by design, and this was picked up by the speakers, allowing the centre to cover this topical subject very thoroughly and in a planned fashion. An 'ICE in the Tunnel' talk was also well received, and holding a joint event with the IRO is something the centre hopes to repeat as the attendees engaged in much valued networking before and after.

Again, the Young Members evening and visit are the events where numbers struggle slightly, and the first event inevitably suffers as some are still on leave or do not note the season has started

The committee have assembled a programme for next year with one or two events so interesting the centre expects capacity to be exceeded and will need to find an alternative location.

South West

The South West Centre has again made progress towards its current objectives of raising the profile of the rail industry amongst young engineers, and of demonstrating that railway engineering is a growth industry which can provide excellent long-term prospects for satisfying careers. We held a total of seven lectures, one symposium and one careers fair. The symposium compared experience of train maintenance by the manufacturer and by the operator, with contrasting presentations by two TOC Engineering Directors, Christian Roth and Gerry McFadden, and a good level of debate.

Our prestige lecture at Bath University in February 2012 by Alistair Dormer on the subject of the Hitachi Super Express Train coincided with our second Rail Engineering Careers Fair at this University. These events built on the experience of the events held in November 2010 and were without doubt more successful by all criteria. The key difference was the greater degree of engagement and support achieved from University. The careers fair was attended by more than 100 students, and the lecture was attended by approximately 100 students and 50 others. Our local employers have told us that they particularly valued the opportunities provided by the careers fair.

In 2013 we will be seeking to achieve engagement with other Universities and employers in our area. This will be supported by our BDM Alan King and will be helped by changes to our centre committee which now has a majority of members in senior and middle

management roles with railway companies.

Our Young Members' Competition evening was well supported both by the competitors and our members. We also enjoyed stimulating and well attended lectures on the subject of ERTMS (jointly promoted with the IRSE and IRO), and of the LUL Victoria Line re-equipment project. Christian Wolmar was the speaker at our pre-Christmas lecture.

Young Members

Highlights

- Delivering a series of 8 University presentations and building relationships with these institutions in the process. These will provide a basis upon which we can expand in the academic year 2012/13 as we look to further engage with more Undergraduates and Universities.
- Successfully delivered a programme of events throughout the year, with increasing numbers of attendees. The Autumn Technical Visit and Hands on Heritage events were the pick of the bunch which showed that we could really deliver new, engaging, good quality events to our young members
- Ever increasing engagement through the use of Twitter and our new upgraded website

Challenges

- To keep on moving forward, growing and making sure that all the events we run are topical and industry relevant
- To increase non member engagement within the Institution and at our events

Prizes & Awards

T A Stewart-Dyer Prize/Frederick Harvey Trevithick Prize	P Xu, Q Sun R Liu & F Wang	'A short-range prediction model for track quality index' (Proceedings volume 225 Issue 6)
The John F Alcock Memorial Prize	R Nowell, A Sutton	'The benefits and Developments of Windows with improved passenger containment' (Proceedings volume 225 Issue 3)
John Jarrett Davis Prize	JA Zakeri, M Esmaili, M Fathali	'Evaluation of humped slack track performance in desert railways' (Proceedings volume 225 Issue 6)
William Alexander Agnew Meritorious Award/Clarence Noel Goodall Award	O Arias-Cuevas, Z Li	'Field investigations into the performance of magnetic track brakes of amn electrical multiple unit against slippery tracks. Part 1: Adhesion improvement' (proceedings volume 225 Issue 6)
Alfred Rosling Bennett Premium/Charles S Lake Award	M Larcher, F Casadei, G Giannopoulos, G Solomos, J-L Planchet, A Rochefrette	Determination of the risk due to explosions in railway systems (proceedings volume 225 Issue 4)