

An Entente Cordiale of Railway Engineers: Birmingham – France railway connections celebrated

France is often viewed as the land of the modern railway while Great Britain is generally acknowledged as the birthplace of the classical steel-on-steel railway, having perfected the early wagon ways that emerged in Central Europe in the 16th century. Today, Britain tends to look to France for some of the technologies to achieve its future aspirations. Interestingly though, France is also keen to learn lessons from what happens in Britain, particularly in terms of the way in which Britain has applied the precepts of the European Union.



Not only senior railway engineers and managers venture across the borders to acquire new knowledge and know-how but also the people working in the area of railway systems education. Over the past three years, strong links have developed between Birmingham University's School of Civil Engineering, the Birmingham Centre for Railway Research and Education (BCRRE) and two institutions in France, namely, École des Ponts ParisTech (ENPC, formerly the École Nationale des Ponts et Chaussées) and the Ecole Supérieure des Cadres de l'Infrastructure, both based in the Paris area.

Since 2005, BCRRE has been the home of the MSc in Railway Systems Engineering and Education (RESI), which had originally been conceived and developed at the University of Sheffield in 1995, thanks to the generous support of the then British Railways Board (BRB). The focus of the programme is on understanding the interfaces and interactions between the subsystems of the railway and on acquiring the skills to manage major railway projects. The MSc in RSEI is international in its outlook, in the composition of the student body and in its teaching, with contributors from academia and the international railway industry.

For full time students, the programme takes just one year of very intensive study, while part-time students require between two and three years to complete the eight taught modules and the dissertation. Thanks to the structure of the programme with week-long themed modules, it is possible to study part-time even when based in Australia or Hong Kong. Every year, at the end of the taught programme, the cohort visits a number of railway installations and operations as part of a European study tour. Thanks to this tour and other international relationships, BCRRE and the School of Civil Engineering have been able to develop the close links with France mentioned above.

BCRRE was delighted to discover that it had competition when ENPC created, in 2008, a so-called Mastère Spécialisé with the title 'Systèmes de Transports Ferroviaires et Guidés' (Rail Transportations Systems). This programme aims to create generalist railway engineers and managers who understand all aspects of the railway system, in much the same way as the MSc in RESI. The programme is attended by railway engineers and managers from all over the world, who wish to enhance their transport systems know-how. It requires one year of full-time study and covers long distance passenger services, urban and regional services, as well as freight transport. Although there is a strong focus on steel wheel on steel rail systems, university and industry based teaching also covers rubber-tyred and non-conventional systems. The objective is to provide an overall appreciation of the technical, economic, institutional and regulatory issues influencing the performance of railways. The course, divided into a common core and specialist options, is very demanding and includes a substantial dissertation project. It is strongly supported by French and international railway industries and operators. A limited staff exchange scheme with Birmingham is developing.

In 2010, ENPC asked BCRRE to arrange an annual one week study tour of Britain for each cohort. Thanks to its links with Britain's railway industry, the Birmingham team arranged a programme of visits to Alstom's Longsight train care facility, Manchester Metrolink depots, the University of Birmingham, Crossrail and the Olympic site. Highlights of the visit were the talk about HS2 by its chief engineer, Andrew McNaughton, Terry Morgan's introduction to Crossrail, cab rides on a Virgin Pendolino train and dinner onboard Wrexham and Shropshire's open access train. The participants have been impressed with the work happening in Britain, in particular, the scale and complexity of the projects.



ENPC delegates, March 2011

Ecole Supérieure des Cadres de l'Infrastructure is the in-house management school of French national railway operator SNCF. It is a highly selective institution with the remit to prepare about 20 mid-career railway engineers and managers per year for senior roles in infrastructure and buildings maintenance, operations management and train service supervision. Participants have a wide range of backgrounds, from engineering to law, and they have one thing in common: they are all high-flyers whose managers strongly support their further development. The programme is biased towards management issues, but technical topics are also addressed. The participants spend the last two months of the 10 month course on an in-house consultancy project, in small groups, tasked with solving a significant infrastructure related problem. On completion of the course, the graduates will normally work on contracts that SNCF holds with Réseau Ferré de France (RFF), the French infrastructure manager.

SNCF's top managers feel that senior staff should be competent not just technically but also in terms of their communication skills. Surprisingly, they now expect staff to be able to work in an English language environment. Bernard Chrétien, the former director of ESCI, approached BCRRE in 2008 and asked whether The University of Birmingham would be prepared to provide an add-on to the ESCI programme, that is, a structured visit to Britain, involving both academic study and practical experience of Britain's railways. BCRRE agreed to help with this and the 2008 cohort of ESCI students duly started to learn English, ready to come to the UK in December. The group then joined either a one-week module of the MSc in RSEI or took part in a specially developed short course on Advances in Infrastructure Systems. Both groups then spent two weeks on placement in British rail businesses, such as Balfour Beatty, DeltaRail, Network Rail, Scott Wilson, Signalling Solutions and Virgin Trains. The feedback of the participants and hosts was very positive and, as a result, the exercise was repeated in 2009 and 2010, with the latter year seeing a development in the format of the course.

December 2010 included a lecture programme held in Derby at the premises of Catalis Rail Training, followed by a visit to one of the country's newest signalling centres and a tour of the birthplace of the industrial revolution and associated canal and railway networks at Cromford in Derbyshire. This was followed by a two week placement with a one nine railway industry partners, undertaking tasks such as a review of High Speed 2 from a French perspective.



It is important to recognise that railway education requires a great deal of support from the industry since railways are highly investment intensive and are still experiencing very rapid change. BCRRE, ENPC and ESCI are all fortunate in having excellent industry partners and sponsors. They hope to create a European grouping of railway related educators – will Spain or Germany be next?

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