

IRSE ///

Institution of Railway Signal Engineers

Proceedings

2017-2018



Institution of Railway Signal Engineers

Proceedings for the year 2017 to 2018

- Chapter 1 **Introduction and Summary of the year 2017 to 2018**
- Chapter 2 **Annual Report and Consolidated Accounts for the year 2017**
- Chapter 3 **Index to IRSE News contents from May 2017 to April 2018**
- Chapter 4 **2017 to 2018 Presidential Programme – Summaries of Papers presented at Technical Meetings in Brisbane, London, Birmingham, Utrecht and York.**
14 July 2017 'An Engineer's Journey'.
12 October 2017 'The Train Control Dilemma'.
6 December 2017 'What Follows GSM?'
25 January 2018 'UK secession from the European Union'.
8 February 2018 'Continuous Improvement for Lifelong Learning'.
15 March 2018 'Track Worker Safety'.
- Chapter 5 **Results of the IRSE Examinations held in October 2017**
- Chapter 6 **Reports from Local Sections outside the UK:**
Australasia
China
France
Hong Kong
India
Indonesia
Ireland
Japan
Malaysia
Netherlands
North America
Singapore
Southern Africa
Switzerland
Thailand

Chapter 7 **Reports from Local Sections in the UK:**

Midlands & North-Western Section

Minor Railways Section

Plymouth Section

Scottish Section

Western Section

Younger Members' Section

York Section

Chapter 8 **IRSE News issues 233 (May 2017) to 243 (April 2018)**

IRSE News 233 May 2017

IRSE News 234 June 2017

IRSE News 235 July / August 2017

IRSE News 236 September 2017

IRSE News 237 October 2017

IRSE News 238 November 2017

IRSE News 239 December 2017

IRSE News 240 January 2018

IRSE News 241 February 2018

IRSE News 242 March 2018

IRSE News 243 April 2018

IRSE Proceedings 2017-18: A summary of the year

The IRSE's Presidential Year started on 21 April 2017 with the 104th Annual General Meeting, held at the Institution of Engineering and Technology in London, and chaired by retiring President Charles Page. The inauguration of the new President, Peter Symons, was followed by his Presidential Address which introduced his theme for the year, *Future Signalling and You*. In his Address, Peter stressed the importance of self-development and learning.

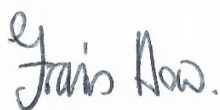
By the end of 2017 we were approximately half-way through the timescale for delivering the IRSE's 2015-2020 Strategy. We continued to make progress with the various themes in the Strategy, and the international dimension of the Institution became increasingly apparent. Our Convention took place in Dallas and our ASPECT Conference in Singapore – the first time the latter has been held outside the UK. We also celebrated the formation of a Japan Section of the IRSE.

Francis How continued to serve as the Chief Executive of the IRSE, supported by the London-based IRSE staff. During 2017 Paula Persson, previously the Licensing Registrar, took on responsibility for leading the Institution's marketing and communications project with the aim of modernising our image and improving our communications with both IRSE members and the public.

The Institution continued to publish a wide range of technical papers and articles, principally through IRSE News. The International Technical Committee was a major contributor to this output, and in 2017 they published one of their most important papers, titled "Strategic drivers of change in the signalling industry". At the end of 2017 the IRSE also published a paper titled "Making a Success of the Digital Railway", with the objective of influencing the pace of implementation of ETCS in Britain. The paper was well received, not only in Britain but also in some other countries facing similar challenges.

The IRSE makes a number of awards each year to recognise, reward and encourage the professional development of engineers, particularly those in the early stages of their career. The 2017 winner of the IRSE Signet Award, for the IRSE Exam candidate who achieved the highest marks in any one module, was Luke Roger, an assistant project engineer working for Alstom in Derby. Luke obtained a mark of 91% in Module 2 of the Exam. The 2017 Thorowgood Scholarship was awarded to Duncan Robb, a principal consultant working for SNC-Lavalin in the UK. The Dell Award was made to Ron Skillett of Transport for London in recognition of his high standard of skill in the science and application of railway signalling. Two Merit Awards were presented during 2017, to Andy Knight and Rueben Dakin in recognition of services provided by Signet Solutions to enable candidates to prepare for the IRSE Exam.

We received 450 applications for new membership in 2017, but the overall membership of the Institution fell slightly to 5,298. Encouragingly, we received a record number of applications for Engineering Council registration – a 20% increase on last year.



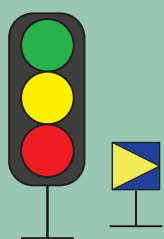
Francis How
Chief Executive, IRSE
August 2018

IRSE Annual Report

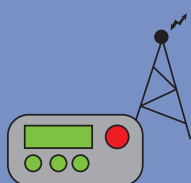
Number 105

1 January to 31 December 2017

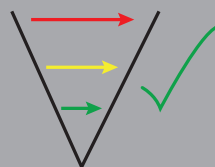
Signalling



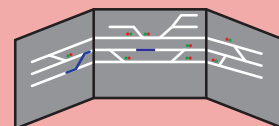
Telecoms



Systems engineering



Control



Safety, reliability, availability

1 in 10⁹
99.99%

Professional development



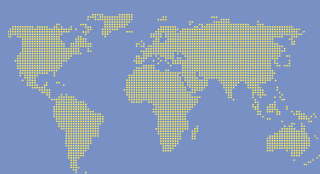
Papers, conferences, seminars



Technical visits



Local Sections



Younger members



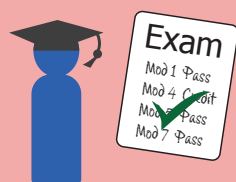
Equality, diversity, inclusion



Licensing



Professional Examination



Publications



IRSE
INSTITUTION OF
RAILWAY SIGNAL
ENGINEERS

Contents

This Annual Report briefly describes the activities undertaken by the Institution of Railway Signal Engineers (IRSE) throughout the world during 2017. Our President from April 2017 has been Peter Symons, Technical Director at Tritun Pty Ltd in Australia.

An introduction from our President	3
Objectives of the Institution	4
Our Strategy	4
Governance	5
Supporting Professional Development	6
Membership and registration	6
Awards	7
Licensing	8
London office and personnel	8
Presidential programme	9
Section activities	9
Younger Members	10
Annual General Meeting 2017	10
Annual Dinner	11
Members' lunch	11
Seminars and technical visits	11
International Technical Convention	12
ASPECT 2017	12
International Technical Committee	13
Publications and communications	13
IT systems	14
Collaboration with other organisations	14
Finances	15
IRSE Consolidated Accounts	16

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For up to date information about the Institution or its activities, or to download a membership application form, log on to the IRSE Web Site: www.irse.org.

Follow us on Twitter [@IRSEHQ](https://twitter.com/IRSEHQ)

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An introduction from our President

As I sit on a plane, 12,192m (40,000ft) in the air, I reflect on just how quickly the year of an IRSE President passes, and how much progress we have made in delivering against our plan. This has been very much a year of change with the culmination of a number of initiatives around modernising and refreshing our image. My theme for my Presidential Year, "Signalling the future and you", aimed to blend Professional Development with the identification of some of the future challenges in our industry.

I would like to take this opportunity to thank Francis How for his sterling work as CEO of the Institution, in particular the support that he has provided me. I know that he is not due to step down until August 2018, but waiting for next years' Annual Report to acknowledge his efforts seems too far away.

Francis is a past President (2012-13) and has been our CEO since August 2015. He has given many years of service to the IRSE including serving as a Council member, President and more recently as CEO. He has been instrumental in steering some complex projects including introducing the new customer relationship management system, the new website (coming in 2018) and, importantly, the work associated with the updating of the IRSE's image.

Over the last few months I have chaired a CEO Selection Panel (my thanks to George Clark and Lynsey Hunter for their help) to seek Francis's successor. This process has been completed, and the new CEO will take up his appointment in August 2018.

2017 was filled with events at international, national and local levels. The Convention, held in Dallas, Texas was a long overdue return visit to North America, as the last Convention there was held in the mid-1990s. The attendees' feedback indicated that the presentations were well received. They included information on North American signalling systems (which led in very well to the subsequent site inspections). International Technical Committee (ITC) members Frans Heijnen, Rod Muttram, and Libor Lochmann/Francis How focused on human factors and other issues relating to speed control. Many thanks to the North American Section for hosting, in particular David Thurston, Bill Scheerer, Rob Burkhart and Ray Rizman.

In late November our International Conference, ASPECT 2017, was held in Singapore, the first time it has been hosted outside the UK. It was highly successful, with many delegates from Asia, India and Australasia. The Australasian Section in conjunction with the Singaporean Section held a



one-day seminar immediately after the conference, which was also well attended. Martin Fenner led the ASPECT organising committee, ably supported by Robert Cooke, Chair of the Singaporean Section. Both ASPECT and the Convention were attended by Hewlett-Fisher bursary winners, who were active participants throughout.

In December the CBTC conference in Toronto was oversubscribed, testimony to the quality of the speakers, papers and technical visits. The event was attended by over 110 attendees – my thanks to Yousef Kimiagar who was instrumental in the planning and organising of this event.

All these events were a credit to those who gave their time to the many months of planning and organising activities or in the authoring of papers and presentations.

As part of our strategy, my six Presidential papers were read all around the world, with topics covering the future, disruption, and the impact on engineers. We started with Brisbane in July (a first for Australasia), followed by London, Birmingham, Utrecht, York, and finally London again. There were two papers that flowed directly from my Presidential Address. The first was by Cassandra Gash with "An engineer's journey to becoming consciously competent" and then Judith Ward with "Continuous Improvement for lifelong learning", thus covering the whole career lifecycle. These papers and presentations were and are core to what we do i.e. "Inform - Discuss - Develop". No matter what phase of your career you have reached, the key message is that you MUST take ownership of your own professional development.

We deal with technology every day, yet it constantly changes, so Presidential papers about disruption, namely "The train control dilemma" by Stuart Calvert and "What happens after GSM-R?" by Clive Kessell and Paul Darlington" hopefully provided pointers for the future.

Changes that affect our working environment and careers can also arise from political decisions, and Andrew Simmons' paper on the "Potential

effects of Brexit on railway signalling and communications" indicated how the industry might need adapt and evolve in the future, particularly around the setting of international standards and the need to have clearly a defined System Authority in place for the rail system in the UK.

The railway is a hazardous place and though safe systems of working are in place around the world it is a constant challenge to keep people safe. Wim Coenraad's and Rod Muttram's Presidential Programme presentation "Track worker safety – where are we and what lies ahead?" described new developments to improve workplace safety. This was the first annual "Wing Safety Lecture", named in memory of Peter Wing, a former S&T Engineer who did so much to improve track-worker safety in the UK.

On a personal note, I reprised my original Presidential Address at ASPECT, as well as developing and delivering a new presentation based on the excellent work, "Strategic drivers of change in the signalling industry" by the IRSE's ITC, a piece of work led by retiring Council Member Alan Rumsey. The members of the ITC, chaired by Frans Heijnen, are the IRSE's think tank on technical matters of global interest. I have drawn heavily on their contributions this year and I thank them all for their efforts.

At the invitation of Glenn Miller (Chair of the Australasian Section), I attended IRSE Australasian Section meetings in Brisbane, Singapore and Melbourne. I also participated in the 10th Anniversary celebrations of the Netherlands Section in Utrecht, and the AGM of the Irish Section in Dublin. I was also very pleased to accept Yuji Hirao's invitation to visit the new Japanese Section (inaugurated in November 2017).

The President of the IRSE changes on an annual basis, and each one strives to achieve progress through the delivery of our Strategic Plan. Being President is in effect a three-year project; as Junior Vice President the year is spent planning the presidential programme. This process involves taking ownership of certain elements of the Strategic Plan. Then as Senior Vice President, the plans are finalised, and then delivered during the Presidential year. This is very beneficial in providing continuity in our direction of travel, as each President is exposed to the development of the Strategy before becoming President.

Of one thing I am certain, namely that Presidents yet to come will continue reinvigorate the IRSE to meet the challenges of the future.

Peter Symons
IRSE President 2017-18

Objectives of the Institution

The Institution's objectives are written in our Articles of Association and can be traced back to the formation of the Institution in 1912. They are:

- a) The advancement for the public benefit of the science and practice of signalling by the promotion of research, the collection and publication of educational material and the holding of conferences, seminars and meetings, and
- b) The maintenance of high standards of practice and professional care amongst those working within the industry and the promotion of improved safety standards for the protection of the general public.

Although it might appear that the IRSE is concerned only with railway signalling, the full text of the objectives makes clear that all forms of train control and traffic management, and communications systems, are all within our scope of interest.

There is a clear emphasis in the objectives on 'public benefit'. This is most obvious in the sense of contributing to safety on the world's railways, where train control systems play a critical role. But

we are also interested in ensuring that railways are efficient, cost-effective and sustainable (in the widest sense). We meet our obligations to the public through the following principal mechanisms:

- The dissemination of knowledge, experience and good practice in the fields of railway signalling, control and communications and allied topics, to help ensure that those working in the profession do so with the best available knowledge for the safe, efficient and cost-effective construction and operation of the world's railways.
- The provision and management of the IRSE Licensing Scheme to assure the competence of those working in the profession. The Scheme is focused predominantly, but not exclusively, on ensuring safety in the design, construction, testing and maintenance of signalling and telecommunications systems.
- Our Code of Professional Conduct with which IRSE members are required to comply in the course of their work. It emphasises topics such as personal responsibility for

work undertaken or managed by IRSE members, the importance of safeguarding the public interest (particularly safety), environmental management, the efficient use of resources, handling conflicts of interest etc.

- Undertaking specific initiatives to help ensure the safety and efficiency of railways, such as our ongoing work with Network Rail and suppliers in Great Britain to improve safety on Britain's railways, and the formation in 2017 of an IRSE Section in Japan, to help engineers and others in that country to deliver ever safer railways. We also produced our White Paper "Making a Success of the Digital Railway" during 2017.

The financial resources of the Institution are applied to achieve the objectives of the Institution, in addition to which members make a significant contribution to delivering the Institution's aims by their volunteer activities. The Institution has only a small number of full and part-time staff and most of the activities are organised by our members acting in a voluntary capacity.

Our Strategy



- Enabling growth of the IRSE as a global engineering institution, so as to promote professional standards throughout the world.
- Tackling the skills gap facing railway signal, control and communications engineering in the UK and other countries in the world.
- Encouraging employer support for IRSE to help ensure that the Institution's activities align with the needs of the wider industry.

Further progress was made during the year with developing the international dimension of the Institution, with our Convention taking place in Dallas and our ASPECT Conference in Singapore (the first time the latter has been held outside the UK), together with the formation of a Japan Section of the IRSE. There is more work to be done to support the Local Sections, and in later 2017 we appointed a Local Section Coordinator for this purpose.

Not surprisingly, in common with most of the rail industry, we have found that addressing the skills gap is a challenging issue. Realistically, it is only by working in partnership with other organisations

that we can expect to help address this challenge.

Support by companies for the IRSE and its work remains generally strong, and the Plan contains actions to further strengthen this support. In 2018 we hope to launch a new Industry Affiliation Scheme to improve our engagement with employers in the rail industry. Specific collaborative initiatives such as the Digital Railway White Paper in 2017 provide good examples of how the Institution and other industry organisations can work together.

The communications and marketing elements of the Plan were developed considerably during 2017, and these should come to fruition in 2018 as we undertake a major re-branding exercise, embracing our published material, our use of social media, and the modernisation of our website.

During 2017 an additional theme was introduced on the subject of Technology, aiming to raise the Institution's profile as a thought-leader in train control and communications.

In mid-2015 the IRSE launched its new Strategy, to cover the period 2015-2020. The Strategy is supported by an Implementation Plan that sets out in more detail the specific initiatives to be delivered. Both the Strategy and the Plan are published and are available to the public on our website. By the end of 2017 we were approximately half way through the timescale for delivering the Strategy. The Plan, which is subject to regular monitoring and review by the IRSE's governing Council, addresses a number of key areas, including:

Governance

Council

The IRSE is governed by an elected Council of twenty one Corporate Members, led by the President, who are the Trustees of the Institution.

Six meetings of the Council were held during the year during which the business of the Institution was conducted. The Articles of Association permit the current Chairs of all local sections, both in and outside the UK, and also Country Vice-Presidents to attend Council meetings. During the year a number of Chairs and Country Vice-Presidents attended meetings, either in person or using video conference facilities.

In addition to conducting all the normal Council business during the year, Council discussions included the following topics:

- Progress with the Strategy 2015-20 and the associated Implementation Plan.
- Formation of the IRSE Japan Section
- Preparations for re-branding of the IRSE, including the selection of a new logo.
- Proposals for a new Industry Affiliation Scheme.
- Reducing the membership fees for members on formal training programmes.
- Changes to the process for making nominations for Council.
- Managing late payments of subscriptions.

Council also receives and reviews the annual report from each of the international Sections of the IRSE.

Committees

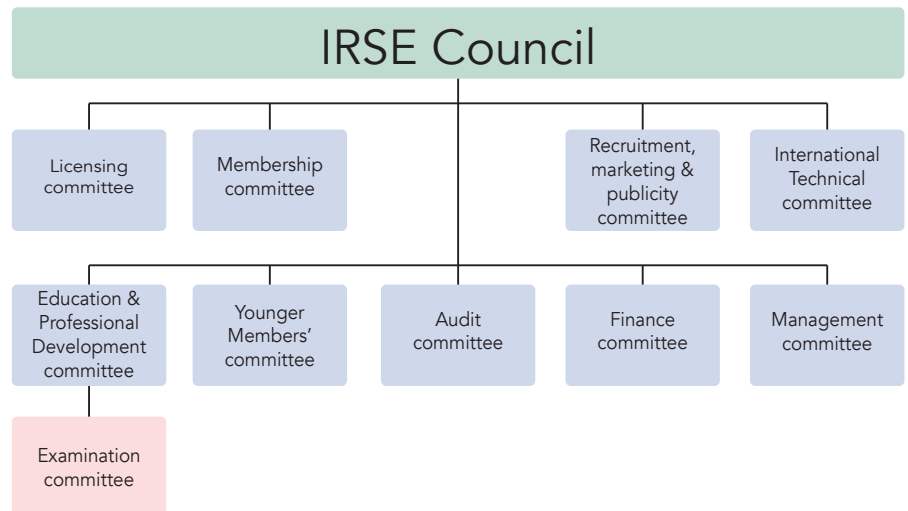
The Institution has a number of Committees which are accountable to Council, through which our activities are managed. The principal Committees and their relationships to Council are shown in the diagram. In addition, ad-hoc working groups are formed from time to time which focus on specific tasks.

Audit

External Audit

A number of areas of the Institution's business are audited on a regular basis by various external audit bodies:

- All areas of finance are subject to audit annually by independent external auditors who submit their report to the Annual General Meeting.
- The Licensing Scheme is subject to an annual external audit by the United Kingdom Accreditation Service (UKAS).



- As a registered Charity, the Institution is subject to periodic external review by the Charity Commission.
- As the Institution is licensed by the Engineering Council (EC) in the UK to register Chartered and Incorporated Engineers and Engineering Technicians, it is subject to a review every five years by the EC in order to ensure compliance with their registration standards.

Internal audit

The IRSE's internal Audit Committee undertakes independent audits to complement the external audits, in order to ensure the Institution is running efficiently and effectively.

The Audit Committee normally performs two audits per annum. Each audit results in a report, which is presented to the Chair of that Committee and subsequently the Council, which uses the recommendations to improve the management of the Institution's affairs for public benefit and for the benefit of its members.

During 2017 one major audit was undertaken, focused on the Institution's management of risk. The Institution maintains a Risk Register, which is reviewed annually by Council, and this was used as the basis for the audit. There were no mandatory corrective actions arising, but several recommendations for improvement were made, which are being implemented.

IRSE Enterprises

IRSE Enterprises Ltd is the trading company wholly owned by the Institution. The trading company handles a number of activities which are associated with but outside the direct scope of the charity.

The Directors of the company appointed for the year April 2017 to April 2018 were:

- Chairman, Charles Page.
- Andrew Simmons.
- Junior Vice-President, Gary Simpson.
- IRSE Treasurer, Andrew Smith.
- IRSE Chief Executive, Francis How.

Any profits from the company are, where possible, gift-aided to the Institution.

Sections

The IRSE Sections around the world exist by authority of the IRSE Council, and they operate in accordance with a set of Articles of Association (or Byelaws) that have been approved by Council. At the end of 2017 there were 20 geographical Sections, five of which are UK-based and the others are in various parts of the world (Australasia, China, France, Hong Kong, India, Indonesia, Ireland, Japan, Malaysia, Netherlands, North America, Singapore, Southern Africa, Switzerland, Thailand). The Japan Section was formed during 2017. The North America Section includes the USA, Canada and Mexico. The Ireland Section includes both Northern Ireland and the Republic of Ireland.

Each Section has an organising Committee, with elected officers for key roles. Information about the activities of the Sections is provided elsewhere in this report.

Two other Sections also exist – the Younger Members' Section and the Minor Railways' Section. These are not geographically-based, although their activities are predominantly within the UK. Some geographical Sections also have younger members' groups.

Supporting Professional Development

Supporting the professional development of IRSE members and prospective members throughout the world is a key objective of the IRSE.

To do this, we have Judith Ward as our Professional Development Manager (based in London), the Education and Professional Development Committee (whose membership in 2017 included people from Australia, Hong Kong and South Africa as well as the UK), and the Examination Committee.

IRSE Professional Examination

Set approximately at a Masters degree academic level, the exam tests candidates' knowledge and understanding of railway systems, with a particular emphasis on safety. To pass the exam as a whole, candidates must pass four modules including a compulsory module on safety systems. Passing the IRSE exam is one route to obtain either Associate Member or Member grade of the IRSE, and it can also be used to "top up" a Bachelors-level engineering qualification for professional registration with UK's Engineering Council.

Support material for the examination was updated and published for candidates taking the exam in 2017. Each year many volunteers run exam study groups for candidates to prepare together, and there is also an independent exam forum website to support candidates.

The Annual Examination in 2017 resulted in a significant increase in the pass rate to nearly 60%, averaged across all modules. This is the second successive year that the pass rate has improved (from a low point of 37% in 2015). Over the same period, the number of modules taken has shown a decline because we have encouraged candidates to prepare more thoroughly so that they have a reasonable chance of

passing each module at the first attempt. The past two years also coincide with the introduction of sponsoring arrangements to ensure that an IRSE Member or Fellow is satisfied that a potential candidate is sufficiently well-prepared for their chosen modules before they permitted to sit the exam.

The preparation and marking of the exam is a major challenge each year, and the IRSE is very grateful to the Exam Committee (chaired by Tony Kornas), Examiners, Study Group Leaders, Forum coordinators and IRSE staff for their continued contribution in supporting the whole exam process across the world.

The format and structure of the examination has not changed for the past 23 years (although the syllabus has of course been updated). Accordingly, a review is being commissioned to identify what changes need to be made to the assessment methods and module structure. This is due to be completed in 2018.

Consideration is also being given to the introduction of a Foundation Level qualification, which would appeal to employers and to candidates who may not have the aptitude or experience needed to pass the Professional Examination, but whose ability should nevertheless be recognised. Work is ongoing to establish the market demand for such a qualification, and the business model for its provision.

Continuous Professional Development (CPD)

The first annual random monitoring of the CPD records of IRSE members registered with the UK Engineering Council took place in early 2017. Somewhat disappointingly, only 60% of

those selected for checks chose submitted their CPD records for monitoring. Those who did engage were given personalised feedback on their records. There will be another random monitoring review in 2018. Information about the importance of Continued Professional Development has continued to be provided through IRSE News and the website in response to lessons learnt from the monitoring exercise. The IRSE continues to recommend the use of the Mycareerpath system for CPD planning, recording, reflecting and reviewing. More information about Mycareerpath is available on the IRSE website.

Mentoring Scheme

The IRSE Mentoring Scheme aims to develop members' professional competence, achieve their learning objectives and enhance their non-technical skills to maximise their potential, particularly in the early stages of their career within the railway control engineering field. The Education and Professional Development Committee have been reviewing the guidance and information available about the Scheme, which should lead to improvements in 2018.

Masters Degree Railway Signalling and Telecommunications Programme

The IRSE is supporting the University of Birmingham in the development of a Masters degree course in Railway Communications and Control, expected to commence fully in 2018. The course could be potentially deemed suitable as exemption for some or all of the IRSE examination modules, dependent on content and level.

Membership and registration

The IRSE received 450 applications for membership in 2017, each one considered by the Membership and Registration Committee. Taking into account those ceasing membership, there was a small decrease of 67 in the membership total over the year.

In 2017 we again received a record number of applications for Engineering Council registration – a 20% increase on last year. The majority of the applications were from UK-based members, with the remainder from Australia, Brazil, India, Philippines and the UAE. The IRSE registered fifteen as Chartered Engineers, six as Incorporated Engineers, and twenty as Engineering Technicians. To deal with the increase in registration applications,

we trained and recruited a number of new members to join the pool of assessors and interviewers. As we continue to have a steady flow of registration application we plan to increase the pool further in 2018.

The Institution was sad to report the deaths of the following members during 2017: PH Bates (Fellow), D Bowlby (Member), TP Burke (Member), R Cisman (Accredited Technician), A C Crawford (Associate Member), J-N Duquesnoy (Member), B Dutta Chowdhury (Fellow), E Goddard (Hon Fellow), S Gomez (Affiliate), F Kerr (Hon Fellow), P G Law (Member), D Northover (Accredited Technician), A J R Rowbotham (Fellow), and H Wijnmalen (Affiliate).

Grade	2016	2017
Companion	25	26
Hon Fellow	54	59
Hon Fellow (Non-corporate)	3	3
Fellow	537	553
Member	1781	1831
Associate Member	1156	1155
Accredited Technician	225	217
Affiliate	1584	1454
Totals	5365	5298

Awards

The IRSE makes a number of awards each year. The majority of these are to recognise, reward and encourage the professional development of engineers (particularly those in the earlier stages of their careers). The purpose behind this is not simply to assist their career development, but to promote high standards of engineering excellence, thereby contributing to the public benefit objectives of the Institution.

Frank Hewlett Bequest and Alan Fisher Memorial Fund

Frank Hewlett was an Associate Member of the Institution. He died in September 2008 and left a very generous and substantial bequest to the Institution. In 2009 the IRSE Council launched an appeal to establish a memorial fund for Alan Fisher, who died unexpectedly during his Presidency of the Institution. The intention was to use the fund to support the development of young S&T engineers, particularly those outside the UK.

The income from the two funds is used predominantly to provide a number of travelling bursaries for younger members from all over the world to support their attendance at major IRSE events. In 2017 around 20 people benefited from the fund, enabling them to attend the IRSE's International Technical Convention in Dallas and the ASPECT Conference in Singapore.

Thorrowgood Scholarship

The Thorrowgood scholarship is awarded annually under a bequest of the late W J Thorrowgood (Past President) to assist the development of a young engineer employed in the signalling and telecommunications field of engineering. It takes the form of an engraved medallion and funding for a study tour of railway signalling installations or signalling manufacturing facilities. The award is made to the young member who achieves the best performance in the IRSE exam, with at least a pass with credit in four modules.



Following the 2016 Examination, the scholarship was awarded to Duncan Robb, a principal consultant working for SNC-Lavalin in the UK. Duncan achieved two Distinctions, a Credit and a Pass in the four exam modules that he took in 2016. He received his award at the AGM in April 2017.

IRSE Merit Award

Two Merit Awards were presented during 2017. The Merit Award was introduced in 2007 in order to recognise exceptional service to the Institution by a volunteer or staff member anywhere in the world. The award is made by the Council following receipt of a nomination, and takes the form of a plaque mounted on a rectangular plinth with an engraved citation.

The awards were made to Andy Knight and Reuben Dakin in recognition of the services provided by Signet Solutions to enable candidates to prepare for the IRSE Exam. Signet has hosted a weekend workshop for Modules 2, 3 and 5 every year since 2008. They do so at their own expense, and they allow the IRSE to make full use of their training facilities, as well as providing support staff and funding the refreshments.

Dell Award

The Dell award is made annually under a bequest of the late Robert Dell OBE (Past President). It is awarded to a member of the Institution employed by London Underground Ltd for achievement of a high standard of skill in the science and application of railway signalling. The award takes the form of a plaque with a uniquely designed shield with an engraved plate being added each year with the recipient's name.

The 2017 Dell Award was made to Ron Skillett, who joined London Transport as a signalling apprentice in 1966. Having completed that apprenticeship he was assigned to London Underground's Signalling Maintenance department where he has worked for almost his entire career. Ron has been extensively involved in the Signalling Apprenticeship scheme



throughout his career and is an influential figure on London Underground's Signalling School governing body. He is also a key figure in the use of IRSE licensing within LU. He received his award at the AGM in April 2017.

IRSE Signet Award

During 2016 the IRSE introduced a new Award, sponsored by Signet Solutions. This Award is given annually to the person who obtains the highest marks in any single module of the IRSE Examination. The Award takes the form of the Signet logo 'person' on a small plinth, engraved with the name and year of the winner, and bearing the IRSE's logo. The Award also comprises funding for the winner to attend the annual IRSE Convention.



The 2017 winner of this Award was Luke Reger, an Assistant Project Engineer working for Alstom in Derby, UK, who obtained a mark of 91% in Module 2 of the Exam (Signalling the Layout). At the time he was the Contractor's Engineering Manager for part of the Crossrail West project. As a result of winning the award, Luke attended the IRSE's Convention in Dallas in September 2017.

IRSE/Network Rail Apprentices of the Year

The IRSE makes two Awards annually to Network Rail's apprentices, one to the outstanding signalling apprentice and one to the outstanding telecommunications apprentice. The Award for signalling is a trophy consisting of a working model of a four-aspect colour light signal. The award for telecommunications is a silver trophy. Each recipient also receives a cheque for £100 and a year's free membership of the Institution. In 2017 the awards were given to Richard Fuggle (signalling) and Thomas Beech (telecoms).

Other awards

Some Local Sections of the IRSE also make awards periodically. The Australasian Section made two awards in 2017. The first was the annual Byles & Calcutt Award (commemorating the names of two prominent signal engineers who had a significant impact on signalling in Australia), presented to the Australasian Section's younger member who presents the best paper at an Australasian section technical meeting. In 2017 the Award was presented to Thomas McPeake, a railway signalling engineer with 15 years' experience in both the Australian and UK rail markets.

The Second Award was the IRSE Australasian Section Chairman's Award. This recognises an individual who has made a significant contribution to the IRSE and also to the Australasian Rail Industry. In 2017 Tony Howker received the award for his outstanding contributions to the industry and the Australasian Section over many years.



Licensing

The IRSE operates a competence certification scheme, known as the IRSE Licensing Scheme, which exists in order to provide assurance for the competence of individuals to carry out technical safety-critical or safety-related work on rail control systems. The Scheme provides a cross-industry accepted benchmark of competence for personnel carrying out a range of activities. All competence standards are reviewed at least five-yearly and during 2017 the Maintainer suite of licences underwent review in order to ensure that the competence criteria remain consistent with Industry developments.

The Scheme is managed by the Licensing Registrar supported by a small team in the IRSE offices in London, which works under

the direction of the Licensing Committee, chaired by Colin Porter. Since August 2017 our Licensing Registrar Paula Persson has been seconded to the Communications and Marketing Project for the IRSE, and David Weedon has been Acting Registrar, on a part time basis, to support Karen Boyd as Deputy Registrar.

During the year 1471 licences were issued, and the total number of valid licences on 31 December 2017 was 6566, increased from 6483 at the end of 2016. Each licence is valid for five years. For operations within the UK, the Licensing Scheme continues to hold full approval by the United Kingdom Accreditation Service (UKAS) against the competence standard for the certification of persons: ISO17024:2012.

Although the Scheme operates predominantly in the UK, it is used to a limited extent in a few other countries, and the IRSE does from time to time receive enquiries about its potential application in other places. During 2017 a delegation from Indian Railways visited the IRSE's offices in London to understand more about the Scheme and to consider the potential for its application in India, where major rail expansions are planned.

IRSE Assessing Agents are approved and appointed for the purposes of performing assessments of candidates for licences, and they are an essential part of the Licensing Scheme. Currently the number of approved Assessing Agencies is 30. One new Assessing Agency was approved in 2017 and one ceased to operate.

London office and personnel

The Institution leases a small suite of offices on the 4th floor of the Institution of Mechanical Engineers, 1 Birdcage Walk, London, UK, from where the centrally organised activities of the Institution are managed – membership, licensing, events administration, financial administration, publicity, communications and IT systems operation.

The Chief Executive and General Secretary of the Institution is Francis How, a Past-President of the Institution. He is responsible for directing and managing the resources of the Institution in order to implement the decisions of Council in an efficient manner and

in compliance with UK company and charity law. He is accountable to the Council. He also provides the focal point of contact for other Institutions and external organisations, including the UK's Engineering Council and the Royal Academy of Engineering, government agencies, the chief officers of other professional bodies, and the scientific, engineering and technology community. He is also responsible for ensuring compliance with the requirements of the Institution's Articles of Association, Companies House, the Charities Commission and relevant legislation. The office team comprises:

- Christine White, Membership and Registration Manager.
- Hilary Cohen, Administration Manager.
- Paula Persson, Marketing and Communications Project Manager.
- Judith Ward, Professional Development Manager.
- David Weedon, Licensing Registrar.
- Karen Boyd, Deputy Licensing Registrar.
- Roger Button, Licensing Assistant.
- Caterina Indolenti, Membership and Registration Administrator.
- Anja Laitinen, Administration Assistant (part-time).
- Hannah Mueller, Finance Assistant (part-time).

Paula Persson had previously been the Licensing Registrar, but during 2017 took on responsibility for leading the Institution's Marketing and Communications project, which is aiming to modernise how we present ourselves to, and communicate with, members, industry and the public. David Weedon, a former President of the IRSE, has taken on the role of Licensing Registrar.

Andrew Smith is the Institution's Treasurer, with responsibility for the production of the budgets and accounts, and for monitoring the health of the Institution's savings and investments.

Debbie Bailey is our Personnel Manager and Spencer Williamson is our IT Manager. These staff work on part-time contract basis.



The London office staff on a team building day in 2017. Back row from left – Francis How, Paula Persson, Anja Laitinen, Roger Button and Hannah Mueller. Front row – Hilary Cohen, Christine White, Judith Ward, Caterina Indolenti and Karen Boyd.

Presidential programme

Each year the IRSE President plans a programme of major events, comprising a series of high profile technical papers, the annual Convention and other events as appropriate. Our President up to April 2017 was Charles Page, and the final three technical papers in his year, presented in London in early 2017, were on the subjects of "Low cost signalling", "Automated testing of interlockings" and "ERTMS Level 3: the game-changer".

Peter Symons, our President from April 2017 onwards (to April 2018), took as his theme for the year the subject of "Future signalling and you", reflecting the role of the IRSE and its members in professional development. The first three papers delivered during 2017 were on the subjects of "An engineer's journey to achieving conscious competence" (presented in Australia), "The train control dilemma" (presented in London) and

"What follows GSM-R?" (presented in Birmingham, UK). The theme continues with three further papers in 2018.

All the papers are published in our monthly publication, IRSE News, and the presentations are available as webcasts on the IRSE website.

Section activities

In addition to the Presidential Programme, every year there is a programme of lectures, seminars and technical visits organised by the Institution's Sections in Australasia, China, Hong Kong, India, Indonesia, Ireland, Japan, Malaysia, Netherlands, North America, Singapore, Switzerland, Thailand and Southern Africa, and by the Midland & North Western, Plymouth, Scottish, Western, York and Minor Railways Sections in the United Kingdom. Details of many of these activities are published publicly online on the IRSE website. The more significant events are reported in IRSE News.

The geographical Sections vary considerably in size (from around 40 members up to several hundred), and in levels of activity. Each has its own organising Committee, elected officers and programme of events. They report annually to the Council on their work.

One new Section was inaugurated during 2017, namely the Japan Section,

in November. It had been a long-standing ambition to form a Japan Section, after a highly successful Seminar was held in Tokyo in 2016 by the International Technical Committee.

The Council wishes to record its thanks to the Officers, Committee members and all others involved in the operation of the Local Sections, for the excellent work they undertake in organising technical meetings and other events. Council also very much appreciates the help and support given by many companies in facilitating and supporting the events organised by the Sections all over the world.

During the year the IRSE published improved guidance for the effective operation of Local Sections, and continues to work to improve the support given to Local Sections, as set out in our Strategy 2015-2020. In late 2017 Charles Page was appointed as Local Section Coordinator, a new role formed to assist Local Sections.



Younger Members



The Younger Members' Section has continued to facilitate events for younger members of the IRSE (including some older ones as well!). We had a change of committee members in March 2017 with Keith Upton taking over as Chair. The committee has continued to grow and there are now 11 members on the committee. The aim, as ever, is to engage with younger members across the UK (and the world) and to provide opportunities for networking and sharing knowledge across the signalling industry.

Although the Younger Members' Section operates predominantly in the UK, in 2017 we contacted other IRSE Younger Member sections and groups across the world to see if a wider network could be established. From this initial contact, further opportunities to network and develop contacts across the world are starting to progress.

The Section has also been committed to engaging with the IRSE Council, who are always supportive of the Younger Members, and Keith attended the Council meeting in December to further showcase the Younger Members' Section. We also improved our mailing list, enabling an easier and more professional way to send emails to our extensive list of contacts.

Our technical visits in 2017 were well attended, and included the Highgate Control Centre (supported by London

Underground), Northern Line Extension project (supported by the Northern Line Extension team at London Underground) and the North Pole Depot (supported by Hitachi Rail Europe). These visits have provided a great opportunity for the Younger Members to see railway activities beyond the scope of their normal work, and as always were free to attend.

Our Annual Seminar took place in November, this time in Newcastle. It was generously supported by Newcastle College Rail Academy and Nexus, who provided excellent technical visits for the following day. Attendance was slightly lower than in previous years, however this gave the event a more informal feel with great networking opportunities.

The Section is committed to supporting candidates' preparations for the IRSE Exam, and we provided two exam study events during 2017, kindly supported by Signet and Atkins and with the personal support and commitment of Peter Woodbridge, David Nicholson and Reuben Dakin. Both events were held in July - the first was a Module 2, 3 and 5 study weekend at Signet in Derby and the second was a Module 1 and 7 study day in Birmingham.

We have exciting plans for 2018 and we hope that we will see many new faces, as well as some older ones, at one of our events soon!

Annual General Meeting 2017

The IRSE's 104th Annual General Meeting, chaired by the retiring President, Charles Page, was held at the Institution of Engineering and Technology, London on Friday 21 April 2017.

After conducting the formal business of the AGM, Charles commented on the Annual Report for 2016 (published on 1 April 2017), drawing attention to the continuing growth of the Institution worldwide, including the formation of three new Sections during 2016, in France, Thailand and China.

The Treasurer, Andrew Smith, commented on the Accounts for 2016, in particular drawing attention to the provision made for the depreciation of the new membership management IT system that had been procured and commissioned during the year (depreciation has been deemed to take place over three years).

Charles Page announced that the ballot for the election of members to Council had resulted in Peter Allan,

IRSE Council 2017-2018	
President	Peter Symons
Vice Presidents	Markus Montigel, Gary Simpson
Members of Council from the class of Fellow	Peter Allan, Steve Boshier, Ian Bridges, George Clark, Yuji Hirao, Andy Knight, Jane Power, Alan Rumsey, Philip Wong, Daniel Woodland
Members of Council from the class of Member	Rob Burkhardt, Simon Eastmond, Martin Fenner, Ryan Gould, Lynsey Hunter, Ajay Kulshreshth (co-opted)
Members of Council from the class of Associate Member	Firas Al-Tahan, Helen Kellaway

George Clark, Jane Power, Philip Wong and Daniel Woodland receiving the highest numbers of votes for the Fellow vacancies, and that they were therefore duly elected. He particularly welcomed those who were joining Council for the first time – Peter Allan and Jane Power.

The Chairman also informed the AGM of the untimely death on 9 April 2017 of Buddhadev Chowdhury, who was a member of Council and had

performed invaluable service to the IRSE both in the UK, India and elsewhere, particularly in assisting younger members with membership and professional development. He was greatly liked by many people around the world, and would be much missed. The Council had made him a Fellow of the IRSE shortly before his death in recognition of his contribution to the profession and the Institution. Buddhadev's death created a vacancy on

Council, which was filled on a temporary basis by the co-option of Ajay Kulshreshth (India) in June 2017. Ajay had been nominated as a member of Council in 2016, but had been unsuccessful in the election.

Announcements and presentations were made to the recipients of the Thorrowgood Scholarship, the Dell, IRSE-Signet Merit Awards (for more details see the Awards section of this Report).

The Chairman announced that Council had elected Malcolm Menadue

(Australia), Howard Revell (Australia), Roger Short (UK), Johan van de Pol (South Africa), Christian Sevestre (France) and David Weedon (UK) as Honorary Fellows of the Institution in recognition of their major contributions to the work of the IRSE over many years. Roger and David were presented with their certificates at the AGM.

This was followed by the inauguration of the new President, Peter Symons, who then gave his Presidential Address. His theme for the year was "Future signalling and you", and in his address

he spoke about a number of accidents in recent years, the implications for future of train control systems, and for the engineers who specify, design, install, test and maintain them. He referred to the career learning life-cycle to which all of us are subject, whether consciously or unconsciously, finishing with the words *"For all of us, it will be increasingly important to break away from the signal engineer stereotype, and become self-managed professionals responsible for our own development and learning"*.

Annual Dinner

Each year, following the AGM in London, the Annual Dinner provides an opportunity for members and their guests to socialise and relax, meet up with old friends, make new friends, share their news and enjoy good food in a convivial atmosphere.

For many years The Savoy has been the venue for the Dinner, having many advantages in terms of familiarity, proximity and proven quality of service. Nevertheless, an extensive review of alternatives was undertaken for the 2017 Dinner to see whether better value could be obtained elsewhere, but The Savoy remained very competitive and we returned there for another year.

In 2017 we made a conscious decision to limit attendance to 350, allowing extra space that was appreciated by attendees and enabled quicker and better service. As in every year, the 53rd Annual Dinner Dinner was sold out.

The newly inaugurated President, Peter Symons, welcomed guests to the event, and introduced his principal guest David Waboso, Managing Director of the GB Digital Railway Programme. David spoke frankly about the Programme, highlighting the plans for the future as well as the challenges ahead, not least for members of the signalling and telecommunications professions.

The President's nominated charity for the evening was the Royal National Lifeboat Institution (RNLI), represented on the evening by Cub Llewellyn-Davis who came fully dressed in lifeboat clothing. He reminded guests that the RNLI's busiest lifeboat station is on the Thames, close to where we were having dinner. Generous donations by guests raised £3,666 on the night.

We are most grateful to our sponsors WSP Parsons Brinckerhoff (now known as WSP) for supporting this important corporate event. Our thanks also go to Peter Halliwell and Hilary Cohen for the organisation and administration of the event, and to Judith Ward for overseeing the arrangements on the evening.

Members' lunch

On Wednesday 14 June 2017 the Institution held the 19th Annual Members' Luncheon at the Union Jack Club, near Waterloo Station in London. Over 90 members and staff gathered to reminisce and to exchange news, including eleven past-Presidents. The President and Senior Vice-President were unable to be present, so Gary Simpson, the Junior

Vice-President, welcomed everybody to the lunch and spoke afterwards about his career journey and his involvement with the IRSE.

Francis How (Chief Executive) updated those present on the activities of the Institution, changes in the IRSE office in London, awards made to young

engineers during the past year, and major forthcoming events (the Convention in North America and the ASPECT Conference in Singapore). He also expressed thanks on behalf of the IRSE to Ian Allison, stepping down from the role of IRSE News Managing Editor after overseeing the production of 143 editions during the course of 13½ years.

Seminars and technical visits

The IRSE and its Sections organise many technical meetings and seminars around the world, which are advertised on the Institution's website. In 2017 these included:

- Joint seminar with the Institution of Mechanical Engineers in London on the subject of Automatic Train Operation for main line railways, in February 2017.
- IRSE Seminar in May 2017 at the Institute of Engineers Malaysia, organised by the Malaysian Section.
- Technical visits organised by the Swiss Section, including the Rosshäusern

Tunnel west of Bern (October 2017), and to COMLAB to learn about radio transmission systems (November 2017).

- Two-day technical meetings organised by the Australasian Section in Sydney (March 2017), Brisbane (July 2017).
- Technical visit to Dublin Smart City by the Ireland Section, September 2017.
- Workshop on Chinese signalling and telecommunications in Xi'an, China, October 2017 (China Section, supported by the IEEE).
- CBTC Seminar in Toronto, December 2017 (organised by the North American Section).

- Throughout 2017 we ran a series of part-day workshops to tackle issues related to the implementation of the "Digital Railway" in Great Britain. This was done with the support of WSP, and culminated in the publication of a White Paper "Making a Success of the Digital Railway" in December 2017.

In addition, many smaller local meetings were held at various venues worldwide, at which papers and presentations on relevant subjects are offered.

International Technical Convention

The IRSE's 2017 Convention was organised and hosted by the North American Section of the IRSE in Dallas, Texas, from 25 - 29 September. After an evening reception on Monday, the first full day of the Convention was a 'papers day', comprising a series of presentations to familiarise delegates with North American signalling, as well as other topics of wider interest. The event was held in the Val

Verde Theatre at the Hilton Conference Centre, and provided an excellent venue for the speakers to engage with the delegates.

Tim McKay, Senior Vice President of Dallas Area Regional Transit (DART), gave the keynote address. He described the long-term plans and approaches that DART is taking in the region, and

the particular challenge of Positive Train Control (PTC) which DART is required to provide on the commuter lines around Dallas.

On both Wednesday and Friday delegates participated in site visits to local railway installations. On Wednesday, attendees were taken to see several BNSF railway sites and the General Electric locomotive assembly plant near Alliance, Texas. Delegates were particularly keen to understand more about the PTC system that is being deployed by BNSF (covering about 80% of their operations at the time of the Convention), comparing it with ATP systems with which they are familiar in other parts of the world. Friday's technical site visits included a tour of the Denton County Commuter Rail line vehicle maintenance shop, and a visit to the Trinity Rail Express (TRE) Richland Hills station to see a remotely controlled interlocking, a four-quadrant barrier system at a level crossing, and an intermediate wayside signal location positioned for regulation purposes.

The final event of the week was the Gala Dinner. Reflecting on the events of the week, the Convention achieved its goals of offering the attendees a rich and rewarding experience, in technical, networking and social terms.



ASPECT 2017



After two and a half years of meticulous planning, ASPECT 2017 took place at the Land Transport Authority (LTA) Headquarters in Singapore from 27 to 30 November 2017. The event was sold out, with over 240 delegates registering to attend the main two day conference, and attracted the sponsorship and support of sixteen companies and a further three exhibitors.

The move from ASPECT's traditional home in London was deliberately aimed at attracting a new audience both from existing and potential new members. The event attracted large numbers of delegates from Singapore and nearby countries in the region, together with strong support from Australasia, Europe (including the UK), and representatives from southern Africa, Japan and India.

The event was a huge success, made possible in large measure due to the support received from the sponsors - Platinum Sponsors SMRT and SBS Transit, Gold Sponsors Frauscher, Siemens and Thales, Silver Sponsors Belden, Hollysys, Masstron, Nexans, SNC-Lavalin and ST Electronics, and Bronze Sponsors JMD Railtech and Wago.

The coverage of topics during ASPECT 2017 was broad, as is always the case with ASPECT Conferences. The call for papers focused on four specific themes, which whilst were woven into the broader topics of Automation, Signalling, Performance, Equipment, Control and Telecommunications (hence the acronym ASPECT). A specific and longer presentation was commissioned for each of the four themes as part of the Introduction Day, and content was also included in the main conference sessions:

Metro Technologies: The introductory session presented by Andrew Love of SNC-Lavalin on “Why are metro and main line technologies so different?” was followed later in the week by metro related content in virtually every session of the conference. Topics explored including specifications of systems; migration; integration, test and commissioning; asset management; reliability improvement and

the need (or otherwise) for secondary train detection. The complexities of signalling a brownfield site were repeatedly a topic of considerable interest.

Condition Monitoring: Trevor Bradbeer of Balfour Beatty introduced ‘Remote condition monitoring: are we on the right track?’ which was followed by a specific asset management session looking at innovation in this field and use of asset management data.

High Speed Rail: The introduction by Gao Ling of CRSC on ‘High speed railway signalling in China’ was followed by presentations exploring the Korean, Indonesian and Japanese approaches to implementing ETCS, as well as a presentation on ‘Hyperloop’ technology.

Professional Development: Daniel Woodland of Ricardo Rail presented “Training and development for signalling, control and communication

engineers” – a call for members to develop personal development plans and make use of the IRSE’s “Route to CPD” (which can be found on the IRSE website). This was followed by a dedicated session on the Wednesday which explored best practice models for development of signalling expertise, an example of cross-cultural exchange and learning, as well as a look at maintaining older technological know-how, specifically in relation to use of signalling relays.

Following the main days of the conference, delegates had the choice to attend one of three technical visits, to Bishan Depot and Kim Chuan Depot; Gali Batu Depot; and ST Electronics.

International Technical Committee

The IRSE’s International Technical Committee (ITC) has 21 fully participating and 8 ‘correspondence’ members from many parts of the world, including Japan, USA, UK, Netherlands, Italy, Germany, Switzerland, Belgium, Finland, France, Australia, Spain, Singapore and Canada.

The ITC’s primary purpose is to provide thought leadership and disseminate learning on strategic and technical topics relevant to train control and communications systems in the railway environment, thereby providing value not only to IRSE members but to the wider rail industry. Its particular strength lies in its international membership at senior level, enabling engineering principles

and practices from a diverse range of countries to be compared and contrasted, and brought to bear upon the subjects that ITC debates.

During the year, the ITC held four meetings, in Brussels (on two occasions), Utrecht and Dallas. Three papers were produced, on the subjects of “ETCS business case”, “Best practice and its role in railway signalling” and “Cyber security risks in railway signalling systems”, all of which have been published in IRSE News. ITC members also prepared and presented three papers on behalf of the Committee at the Dallas International Convention (due to be published in IRSE News in early 2018).

In addition, ITC produced a key paper on “Strategic drivers of change in the signalling industry”.

The ITC meetings are hosted by members in their country, and minutes are produced for each meeting. An annual report is produced for the IRSE Council, summarising the ITC’s activities during the past 12 months.

The ITC is chaired by Frans Heijnen. Laura Arenas, who took over the role of ITC Secretary in 2016, stepped down in December. We are very grateful to her for her support. She will be replaced by Jane Power, a member of IRSE Council.

Publications and communications

In the IRSE’s five year Strategy published in 2015, the Institution communicated itself to improving how it communicates with the wider rail industry, as well as with its members. We have now been working on this element of the Strategy for nearly two years.

Whilst 2016 was mainly focused on identifying the needs and developing plans, in 2017 we began the early stages of implementation, with Paula Persson appointed to the role of Communications and Marketing Project Manager. We have raised our profile through greater and better use of social media, we have developed an outline specification for the replacement of the IRSE website (due to take place in 2018), and we have laid the groundwork for a major re-branding of the Institution (also due to take place

in 2018). In addition we have continued to make use of our more traditional communication mechanisms:

IRSE News

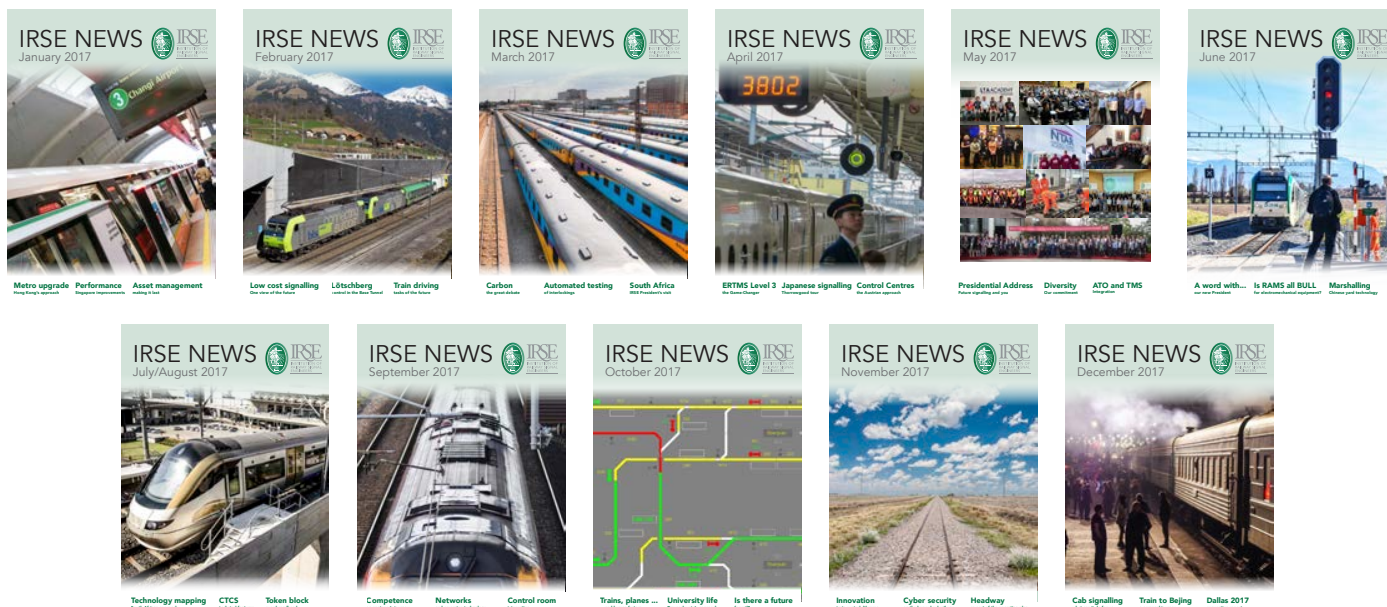
IRSE News is published monthly, its purpose being primarily to inform IRSE members worldwide about industry news, technical developments, and the work and activities of the IRSE and its Sections. Papers that comprise the Presidential Programme are published in IRSE News, together with a wide range of other internationally sourced educational papers and articles. During 2017 we increased the number and topic range of articles in each edition. Our Managing Editor of 13½ years’ standing, Ian Allison, stepped down from the role in September, and has been ably replaced by Paul Darlington.

Proceedings

The Institution’s Proceedings for 2016-2017 were published in November 2017 and are available on the IRSE website. The Proceedings provide a summary of the Institution’s activities and have been produced annually since the very first issue in 1913. A hard copy of the Proceedings is supplied to the British Library and to the library of the Institution of Engineering and Technology.

Website

The website provides details of Institution events, Sections, information about the governance and operation of the IRSE, material for members taking the IRSE professional examination, how to become a member, as well as a wealth of information relating to professional



development. Members (and registered non-members) can update contact details, book events, order publications, and pay their subscriptions on-line. We also advertise industry vacancies that may be of interest to IRSE members and non-members. During 2017 we focused on making sure that information is up-to-

date and relevant, although the format will not change until we replace the website in 2018.

E-communication

A monthly email bulletin is sent to all members, containing information about upcoming events and other topical information.

Publications

The IRSE publishes a range of books on railway train control and communications systems, which provide a useful source of educational material for those relatively new to the profession, as well as providing a valuable record of the development of signalling. During 2017 we began a

collaborative work with Alstom to produce a textbook on Signalling Maintenance and Asset Management, which we plan to publish in 2018.

In December 2017 we published a White Paper "Making a Success of the Digital Railway", focused on addressing the challenges of implementing the Digital Railway Programme in Great Britain.

Library

Members of the Institution are permitted to use the library of the Institution of Engineering & Technology in London, and there is also an archive collection of publications available on request at the IRSE's London offices.

IT systems

The three major IT components that support the Institution's operations are the Membership and Licensing Database, the Websites, and the London office IT systems.

In September 2016 we commissioned a new membership and licensing database. 2017 has been a year of gradually mastering how to optimise our use of the

system, as well as addressing a number of problems, some of which have impacted on IRSE members as well as the staff in the London office. We are continuing to work to resolve these issues and gain the benefits of a modern system.

The two IRSE websites (for the main Institution and for Licensing) have continued to operate reasonably

effectively, although they are clearly behind the times in terms of both looks and functionality. Our work on improving our communications and our plans for rebranding includes the intention to replace the websites in 2018 (although some of the work to provide full functionality may extend into 2019).

Collaboration with other organisations

The IRSE has both formal and informal working relationships with a number of organisations in the UK and, either directly or through its Sections, with organisations in other parts of the world. In China and South East Asia in particular, the IRSE's Sections are forging closer links with other engineering and educational organisations, and with governments. This is to be welcomed.

In late 2016 the decision was made by the IRSE's governing Council to close our existing Company Affiliation Scheme, as it had become evident that it was providing little tangible value either for the companies who participated, or for the IRSE. We are now working on proposals for a new Scheme.

An important element of our five-year Strategy is to strengthen our engagement

with external bodies, including not only rail industry companies, but also other relevant organisations. The Institution enjoys good working relationships with, and support from, many companies, but our ambition is to grow this further for mutual benefit.

During 2017 we established formal collaboration agreements with the Institution of Engineers, Singapore

(officially announced at the ASPECT Conference in November), and with the UK and Ireland Section of the IEEE. Both are aimed at providing mutual support in the fields of professional development, training and education. The IES collaboration also includes the possibility of establishing IRSE Licensing in Singapore, and the IEEE collaboration includes the possibility of working together on the development of international standards.

In the UK, two organisations are of particular significance for the Institution as a whole:

Engineering Council

The UK's Engineering Council is responsible for the regulation of engineers, particularly in the UK. The IRSE is a licensed body of the Engineering Council and is thus licensed to register Chartered Engineers, Incorporated Engineers and Engineering Technicians.

The Royal Academy of Engineering

The Royal Academy of Engineering is the lead representative organisation in the UK for matters relating to government policy on engineering, including education. It works in close collaboration with all the

licensed engineering institutions (of which the IRSE is one). It has two major work-streams, 'Engineering the Future' which deals with engineering policy issues, and 'E4E' (Engineering for Education) which deals with education policy issues in so far as they have implications for the supply of engineers and technicians for the future.

The IRSE is a signatory of the Academy's Diversity Concordat, and during 2017 we launched our Diversity, Equality and Inclusion Policy (available on the website) as a sign of commitment to these important issues. We have also started benchmarking ourselves using resources provided by the Academy.

Finances

Whilst preparing the 2016 Accounts we were advised that the format of the accounts had been amended in order to meet the requirements of Financial Reporting Standard 102, Accounting and Reporting by Charities: Statement of Recommended Practice (SORP). Subsequently this advice proved to be not entirely correct. We are however assured that the 2017 Accounts do meet these requirements, but this has led to some significant change to the tables in this Report, to present the information in a succinct manner.

The financial results are shown on pages 16 to 20. They are extracted from the consolidated accounts for the IRSE and its wholly owned trading subsidiary, IRSE Enterprises Limited. The term 'Group' at the top of a set of tables refers to the two companies combined, and 'Charity' to the IRSE alone. As far as possible, these extracted results use the titles and the format of the consolidated accounts.

The Consolidated Balance sheet, on page 16, is for the Group and shows an increase in the net financial value of the Institution from £1,862,775 to £1,918,982, the main source of this being growth in the value of the Institution's investments, shown in Note 1. The Consolidated Statement of Financial Activities on page 17, also for the Group, shows there was a small increase in income (£58,866) compared with 2016, but a much more noticeable increase in expenditure, leading to an excess of expenditure over income of £138,955 during the year. (Note that the increase in the value of our investments gave a net surplus income of £53,698.) There are various causes of the increase in expenditure, the most significant of which are summarised below.

The contribution from IRSE Enterprises to the overall Group income is £58,568, but in Note 8 it will be seen that a significant loss was incurred on Conventions and Conferences, without which a much larger contribution from IRSE Enterprises would

have arisen (which in turn would have reduced the excess of expenditure over income). Note that the Donation shown in Note 8 is the Gift from IRSE Enterprises to the IRSE Charity in lieu of paying Corporation Tax. The ASPECT Conference contributed a small profit, but the net result for major events, a loss of £35,088, arose from three main issues associated with the Convention: significant fixed costs associated with the event, a relatively low attendance, and difficulty in raising sufficient sponsorship. The Institution has already taken action to address the difficulties associated with financing a Convention by significantly increasing the attendance fee and a plan to alternate the Convention and ASPECT each year, thus allowing more time for planning and financing these events.

The second significant cause of the excess of expenditure over income can best be seen in Note 14, where the Charity's support costs, i.e. the costs associated with running the Charity, are shown (the SORP requirements have led to the costs being separated between the formal 'charitable activities' ('promoting best practice' and 'awards' in our case), and other activities the charity undertakes). During 2017 we intentionally increased our staffing levels in the London office, with a commensurate increase in salary costs. This has two principal elements - employing a Professional Development Manager on a virtually full time basis, which we have not done before, and transferring the Licensing Registrar to manage the Communications and Marketing Project (part of our Strategy 2015 - 2020). The Licensing Registrar role is currently being filled by one of our past Presidents on a paid basis. In the longer term it is expected that these personnel changes will help drive an increase in membership as well as identifying other incoming-generating activities, but initially we have to spend in order to achieve that objective. The changes are currently being supported internally from the Institution's

funds, although a higher than normal increase in subscription rates for 2018 was agreed by Council, recognising that the improvements may take several years to be fully realised.

The third and final significant cause of the excess of expenditure over income reflects costs incurred related to the on-going introduction and integration of the new membership and licensing database system, which required a significant level of support during the earlier part of the year. There was a marked reduction in these costs as the year progressed and it is to be expected that these costs will be significantly lower in 2018. The depreciation costs associated with the new system (which are spread over three years, 2016-2018) also significantly impacted on the figures.

During the year an opportunity arose for an additional income stream. Following an enquiry from Network Rail, the IRSE provided an independent professional review of proposed changes to various signalling principles. A number of changes were reviewed by a project team comprising a small number of IRSE members and the Chief Executive, on behalf of the Institution. The experience gained by providing this service will be applied if a similar opportunity arises again in the future.

Finally, over the last two years there has been a marked reduction in interest in the Wing Award for Trackside Safety, with the result that no entries worthy of the award had been received in the last two years. Following a review of the Award, and in discussion with Peter Wing's widow, it was decided that the associated fund, managed by the IRSE on behalf of the rail industry, should be closed and the investments held were transferred into the Memorial Fund, which holds the investments of the Alan Fisher Memorial and Frank Hewlett Bequest Funds. It was this transfer that caused the significant increase in the donations and legacies.

IRSE Consolidated Accounts

THE INSTITUTION OF RAILWAY SIGNAL ENGINEERS CONSOLIDATED BALANCE SHEET AS AT 31st DECEMBER 2017

	Notes	Group 2017 £	Group 2016 £	Charity 2017 £	Charity 2016 £
Fixed Assets					
Tangible assets		79,972	129,932	79,971	129,930
Investments	1	1,626,032	1,452,195	1,249,480	1,109,122
		1,706,004	1,582,127	1,329,451	1,239,052
Current Assets					
Stocks	3	48,337	56,427	47,791	51,514
Debtors	4	234,629	187,528	360,191	320,910
Investments	5	206,739	205,511	206,739	205,511
Cash in hand		523,307	593,249	68,527	210,368
		1,013,012	1,042,715	683,248	788,303
Creditors:					
amounts falling due within one year	6	(547,018)	(469,983)	(234,814)	(247,109)
Net current assets / (Liabilities)		465,994	572,732	448,434	541,194
Total assets less current liabilities		2,171,998	2,154,859	1,777,885	1,780,246
Creditors:					
amount falling due after more than one year	7	(253,016)	(292,084)	-	-
Net assets		1,918,982	1,862,775	1,777,885	1,780,246
Funds	2				
Unrestricted funds		1,882,222	1,828,524	1,741,125	1,745,995
Restricted funds		36,760	34,251	36,760	34,251
Total funds		1,918,982	1,862,775	1,777,885	1,780,246

THE WING AWARD FOR SAFETY BALANCE SHEET AS AT 31st DECEMBER 2017

	2017 £	2016 £
Fixed Assets		
Listed investments at fair value at 1 st January 2017	14,844	12,445
Additions	-	6,167
Disposals	(14,844)	(6,042)
Fair value adjustments	-	2,274
Listed investments at fair value at 31 st December 2016	-	14,844
Current Liabilities		
Fund manager - IRSE Main fund	-	(945)
Net assets	-	13,899
Capital		
Accumulated fund	-	13,899

Approved by the Trustees on 15 March 2018.

P SYMONS
President
Director and Trustee

M MONTIGEL
Vice-President
Director and Trustee

IRSE Consolidated Accounts

THE INSTITUTION OF RAILWAY SIGNAL ENGINEERS CONSOLIDATED STATEMENT OF FINANCIAL ACTIVITIES FOR THE YEAR ENDED 31st DECEMBER 2017

	Notes	Unrestricted £	Restricted £	Total 2017 £	Total 2016 £
INCOME AND ENDOWMENTS FROM:					
Donations and legacies	9	15,163	-	15,163	795
Other trading activities:	10	1,022,782	-	1,022,782	975,346
Investment Income	11	38,270	658	38,928	41,866
Total		1,076,215	658	1,076,873	1,018,007
EXPENDITURE ON:					
Raising Funds	12	601,827	-	601,827	533,918
Charitable activities	15				
Awards		44,919	2,066	46,985	29,512
Promoting best practice		567,016	-	567,016	441,757
Total		1,213,762	2,066	1,215,828	1,005,187
Excess of INCOME over EXPENDITURE		(137,547)	(1,408)	(138,955)	12,820
Realised & unrealised gains / (losses) on investments		191,245	3,917	195,162	175,352
NET INCOME / (EXPENDITURE)		53,698	2,509	56,207	188,172
RECONCILIATION OF FUNDS					
Total funds brought forward		1,828,524	34,251	1,862,775	1,674,603
TOTAL FUNDS CARRIED FORWARD		1,882,222	36,760	1,918,982	1,862,775

THE WING AWARD FOR SAFETY INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31st DECEMBER 2017

	2017 £	2016 £
INCOME FROM:		
Dividends from fixed asset investments	272	436
	272	436
EXPENDITURE ON:		
Awards and other costs	138	110
Donation to Memorial Fund	14,033	
Net (expenditure) / income	(13,899)	326
Fair value adjustments		2,274
Profit on disposal of investments		(201)
Accumulated fund brought forward	13,899	11,500
Funds available for use	-	13,899

ANNUAL MEMBERS' REPORT WITH SUPPLEMENTARY MATERIAL

The tables set out on pages 15 to 19 are extracted from the full audited accounts of the Institution for the year ended 31 December 2017. They constitute supplementary material to this Annual Members' Report. Section 426A of the Companies Act 2006 requires the following statements to be made in respect of the supplementary material:

1. This annual report is only part of the company's annual accounts and reports prepared under the Companies Act.
2. A full copy of the company's annual accounts and reports may be obtained upon request from The Institution of Railway Signal Engineers, 4th Floor, 1 Birdcage Walk, Westminster, London SW1H 9JJ.
3. The auditor's report on the annual accounts was unqualified.
4. The auditor's statement under section 496 of the Companies Act (whether the Trustees' Report is consistent with the accounts) was unqualified.

A P Smith
Treasurer

IRSE Consolidated Accounts

THE INSTITUTION OF RAILWAY SIGNAL ENGINEERS NOTES TO THE CONSOLIDATED ACCOUNTS FOR THE YEAR ENDED 31st DECEMBER 2017

1 Fixed Asset Investments (Group)

	Equities £	Government Securities £	Total £
Market value			
At 1 January 2017	1,335,604	116,591	1,452,195
Additions	149,131	10,792	159,923
Disposals	(153,671)	(27,577)	(181,248)
Revaluations	153,661	41,501	195,162
At 31 December 2017	1,484,725	141,307	1,626,032

2 Movement in Funds (Group)

	At 1.1.17 £	Net movement in funds £	At 31.12.17 £
Unrestricted funds			
General Fund	948,122	(68,504)	879,618
Scholarship fund	75,956	(5,974)	69,682
Alan Fisher / Frank Hewlett Fund	371,259	51,758	423,017
General Development	307,000	-	307,000
Future ASPECT Conference	10,000	-	10,000
International Convention	27,500	-	27,500
Textbook Preparation	7,500	-	7,500
IRSE Enterprises - General Fund	81,187	76,418	157,605
	1,828,524	53,698	1,882,222
Restricted funds			
Dell Bequest	22,309	2,073	24,382
Thorrowgood Bequest	11,942	436	12,378
TOTAL FUNDS	1,862,775	56,207	1,918,982

The company holds 20% or more of the issued share capital of the following company:

Company	Country of incorporation	Share class	%age owned
IRSE Enterprises Limited	England and Wales	Ordinary	100

	Share capital and reserves	Profit for year
IRSE Enterprises Limited	£145,512	£58,568

3	Stock	Group 2017 £	Group 2016 £	Charity 2017 £	Charity 2016 £
	Stock	48,337	56,427	47,791	51,514

4	Debtors	£	£	£	£
	Trade debtors	151,025	115,841	1,288	1,524
	Other debtors	9,292	5,693	8,042	4,443
	Pre-payments and accrued income	60,376	58,192	-	-
	VAT	13,936	7,802	13,936	7,802
	Amounts owed by group undertakings	-	-	336,925	307,141
		234,929	187,528	360,191	320,910

5	Current Asset Investments	£	£	£	£
	National Savings	206,739	205,511	206,739	205,511
		206,739	205,511	206,739	205,511

6	Creditors: amounts falling due within one year	£	£	£	£
	Trade creditors	34,863	68,059	25,853	63,735
	Other creditors	179,547	234,234	32,047	32,323
	Other taxes and social security costs	6,650	6,748	-	-
	Deferred income and accruals	325,958	160,942	176,914	151,051
		547,018	469,983	234,814	247,109

IRSE Consolidated Accounts

7	Creditors: amounts falling due after one year	Group 2017 £	Group 2016 £	Charity 2017 £	Charity 2016 £
	Deferred income	253,016	292,084	-	-

Representing the proportion of licence fees receive which will be credited to Income after more than one year.

8	Activities of IRSE Enterprises	2017 £	2016 £
	<u>Turnover</u>		
	Proceeds - Conventions and Conferences	91,696	59,350
	Proceeds - Dinner	40,536	49,071
	Proceeds from Technical Visits and Seminars	36,710	21,860
	Licences - Fees Received	229,336	245,456
	Licensing - Appraisal Fees	75,330	55,158
	Licensing - Assessing Agents Fees	83,320	86,735
	Licensing - Technical Publications	11,553	12,830
	Younger Members' Seminars and Visits	-	3,000
		568,481	533,460
	<u>Cost of sales</u>		
	Opening Stock	4,913	9,736
	Costs - Conventions and Conferences	126,784	72,629
	Costs - Dinners	28,542	27,238
	Costs - Technical Visits and Seminars	18,543	10,381
	Costs - Engineer's fees	13,403	13,076
	Licensing - IRSE Administration Charges	191,341	210,133
	Costs - Appraising Engineers	69,248	84,983
	Costs - Accreditation	8,249	8,799
	Costs of Young Members' Seminars and Visits	162	4,359
		461,185	441,334
	Closing stock	(546)	(4,913)
		460,639	436,421
	<u>Expenditure</u>		
	IRSE Admin Charges	20,359	20,337
	Telephone	4,669	4,382
	Post and Stationery	8,874	9,171
	Officers' expenses	502	121
	Accommodation and Refreshments	3,992	7,199
	Computer costs	10,015	7,016
	Sundry expenses	2,741	2,721
	Licensing - Treasurer's, Chief Executive's and Registrar's Fees	31,738	20,390
	Investment Manager's Fees	3,071	2,484
	Auditor's remuneration	2,875	2,650
	Profit / loss on sale of fixed asset investments	363	437
		89,199	76,908
	<u>Finance costs</u>		
	Bank charges	-	2,556
	Licensing - Bank charges	2,412	3,000
			5,556
	Total Expenditure of Trading Subsidiary	552,250	518,885
	Donations	22,050	16,731
	<u>Other income</u>		
	Dividends receivable	4,133	5,380
	Bank interest receivable	67	2,156
		4,200	7,536
	Net figure	(1,619)	5,380
	<u>Gain / Loss on revaluation of assets</u>		
	Gain on revaluation of investments	60,187	34,146
	NET PROFIT	58,568	39,526

IRSE Consolidated Accounts

9	Donations And Legacies (Group)				
			2017	2016	
			£	£	
	Donations		15,163	795	
			15,163	795	
10	Other Trading Activities (Group)				
			£	£	
	Subscriptions		381,376	395,958	
	Advertising		11,815	16,635	
	Booklets and text books		5,478	6,795	
	IRSE ties, badges & cufflinks		173	434	
	Examination Fees and materials		11,774	21,029	
	Proceeds of functions		1,035	1,035	
	Consultancy Income		42,650	-	
	Turnover of trading subsidiary - Note 8		568,481	533,460	
			1,022,782	975,346	
11	Investment income (Group)				
			£	£	
	Equities and government stocks		22,753	22,112	
	Interest receivable		16,175	19,754	
			38,928	41,866	
12	Raising funds (Group)				
			£	£	
	Fund raising dinners		4,014	4,295	
	Consultancy fees		32,880	-	
	Expenditure of trading subsidiary - Note 8		552,248	518,886	
	Support costs		4,927	3,676	
	Invest management costs		7,758	7,061	
			601,827	533,918	
13	Direct Costs of Charitable Activities				
			£	£	
	Proceedings: editing and printing		3,832	2,773	
	Newsletter: editing and printing		78,131	65,637	
	Printing of technical papers and books		-	160	
	Booklets and textbooks		3,326	2,684	
	IRSE ties, cufflinks and badges		313	(117)	
	Prizes		215	556	
	Activities funded by country subscription supplements		13,1419	20,881	
	Thorowgood medals		24	24	
	Awards		27,279	14,811	
			126,269	107,409	
14	Support Costs	Support	Governance	Totals	
		£	£	£	
	Other (Raising funds / Investment management costs)	12,645	40	12,685	
	Awards	19,547	159	19,706	
	Promoting best practice	464,250	3,776	468,026	
		496,442	3,975	500,417	
		Awards	Best Practice	Other	
		£	£	£	
	Wages	6,497	154,313	1,624	162,434
	Social Security	638	15,155	160	15,953
	Pensions	399	9,475	100	9,974
	Office rent and services	798	18,964	200	19,962
	Fees and honoraria	1,482	35,203	371	37,056
	Membership database project	1,951	46,330	487	48,768
	Other administrative costs	6,336	150,477	1,584	158,397
	Depreciation of tangible fixed assets	1,446	34,333	361	36,140
	Investment manager's fees	-	-	7,758	7,758
		19,547	464,250	12,645	496,442
15	Charitable Activities Costs (Group and Charity)				
		£	£	£	
		Direct costs	Support costs	Totals	
		(See Note 13)	(See Note 14)		
	Awards	27,279	19,706	46,985	
	Promoting best practice	98,990	468,026	567,016	
		126,269	487,732	614,001	

Index to IRSE News contents from May 2017 to April 2018

IRSE News 233 – May 2017	Author/Presenter	Page
Presidential Address: Future signalling and you	Peter Symons	2
Diversity, Equality and Inclusion in the IRSE	Judith Ward	7
Integration of traffic management and train automation for the main line railway	Dr Xiaolu Rao and Dr Markus Montigel	8
Industry News		14
ATO – The future of main line railway seminar report	Ian Mitchell	15
Validation of hybrid ETCS Level 3	Dr Ir Bob Janssen	18
IRSE Matters		23
News from the IRSE		23
Australasian Section: The IRSE goes to sea, Australasian 2017		24
Midland & North Western Section: Technical meeting and visit to Resonate in Derby		26
North American Section: 2016 activities		27
York Section: March Technical meeting		29
Younger Members' Section: Visit to Reading Train Care Depot		30
Book Review: The History and Development of Railway Signalling in the British Isles, Volume 4: Level Crossings		32
Past Lives: Tony Rowbotham		33
Presidential Programme 2017-18		34

IRSE News 234 – April 2017	Author/Presenter	Page
A word with Peter Symons		2
Is RAMS all BULL for electromechanical equipment?	Wayne McDonald	4
Automation technology and its application in marshalling yards in China	Shi Weizhong	12
Research on signalling system interoperability for urban rail transit	Sun Xiaoguang	18
IRSE Matters		22
News from the IRSE		22
Report in the IRSE's Annual General Meeting and Dinner		23
CPD Monitoring 2017 ... The results are in!		25
French Section: Technical Conference: The Internet of Things		27
Swiss Section: Spring Meeting and Annual General Meeting		30
Feedback		32
Past Lives: Kevin Hurley		33
Membership Matters		34

Index to IRSE News contents from May 2017 to April 2018

IRSE News 235 – July/August 2017	Author/Presenter	Page
Technology Mapping for Train Control and Communication Systems	Portia Xaba	2
Technical feature analysis of the Chinese High-Speed Railway Train Control Systems	Tang Tao, Ning Bin, Liu Chaoying, Mo Zhisong and Li Kaicheng	11
Electric token working using broadband	Philip Wiltshire	16
Dear 11-year old me	Rang Lee	19
IRSE Matters		20
News from the IRSE		20
Minor Railways Section: Technical Visit to the Ffestiniog and Welsh Highland Railways		21
The CPD map to success		24
Feedback		26
Past Lives: Gert Koppenberg		27
Past Lives: Buddhadev Dutta Chowdhury		29
Membership Matters		30

IRSE News 236 – September 2017	Author/Presenter	Page
An engineer's journey to achieving conscious competence	Cassandra Gash	2
Do we have the backbone to support emerging technologies?	Malcolm D'Cruz and David Lim	13
How well are you LinkedIn?	Judith Ward	19
Control room integration and innovation	Paul Darlington	20
Common shared networks for signalling application	Lee John Allen	22
Cybersecurity in railway signalling systems	Norther Howe on behalf of the International Technical Committee	26
Industry News		12, 37
IRSE Matters		30
News from the IRSE		30
The IRSE's Annual Lunch in London		31
9% is not enough: addressing female shortfall in engineering		32
Continuing professional development reminder		34
Hong Kong Section: Technical Forum: Latest development on the DUAT Signalling Replacement Project		35
Swiss Section: Paper Session at the Swiss Section		36
IRSE News News: change of Managing Editor		38

Index to IRSE News contents from May 2017 to April 2018

IRSE News 237 – October 2017	Author/Presenter	Page
My love of planes, trains and the psychology of human factors	John Barnett	2
The Virtual Railway Operations Laboratory at TU Braunschweig	Jörn Pacht	9
The evolution of safety practice in railway signalling	Yuji Hirao	16
Will rail be a significant transport provider in years to come?	David Fenner	19
An interview with ... Clare Jameson	Paula Persson	23
Industry News		15, 24
IRSE Matters		25
News from the IRSE		25
French Section: Technical visit to the new interlocking in Paris – Gare de Lyon and Operational Control Centre (CCR) in Vigneux		26
Midland & North Western Section: Annual General Meeting, Technical visit to the Great Central Railway and Annual Luncheon		30
Younger Members' Section: Technical visit to Highgate Service Control Centre, IRSE Exam modules 1 and 7 workshop		34
Past Lives: Eddie Goddard		37
Feedback		37
Membership Matters		38

IRSE News 238 – November 2017	Author/Presenter	Page
The train control dilemma	Stuart Calvert	2
Cyber security on a heavy haul railway	Jeff Wimberley	9
Headway as part of the operating plan	Terry Macdougall	12
Application of the European interoperability verification process to infrastructure projects	Martin Westerman	22
The risk maturity management model	Paul Darlington	26
An interview with ... Keith Walter		28
News from HQ		30
Australasian Section		31
Irish Section: A technical visit from the organiser's perspective – the Irish way!		34
Feedback		37
Industry News		37
Membership Matters		38

Index to IRSE News contents from May 2017 to April 2018

IRSE News 239 – December 2017	Author/Presenter	Page
What can cab signalling ever do for us?	Bob Barnard	2
Strategic drivers of change in the signalling industry	Alan Rumsey	5
Thirty years ago	Stephen Clark	8
By train to Beijing and back	Keith Walter	12
Control and communications reliability	Paul Darlington	19
News from the IRSE		23
IRSE Convention 2017 – Dallas		24
IRSE Library – the latest donation		30
Licensing		36
Industry News		18, 36
Midland & North Western Section: 21 st Century professional engineering institution		34
York Section: 2018 Annual Dinner		38

IRSE News 240 – January 2018	Author/Presenter	Page
What follows GSM-R?	Paul Darlington and Clive Kessell	2
SSI long line links over IP networks	Phil Mounter	10
Adopting a proactive approach to the implementation of speed control systems	Frans Heijnen and Alan Rumsey	13
Developing a standard for driveability of lineside signalling	Richard Barrow	16
Feedback		24
News from the IRSE		27
The IRSE membership process		28
Industry News		25, 33
Past Lives: Paul Bates		32
Membership Matters		34
Minor Railways Section: Level crossing workshop		30
Younger Members' Section: IRSE Exam study day		31

Index to IRSE News contents from May 2017 to April 2018

IRSE News 241 – February 2018	Author/Presenter	Page
UK secession from the European Union	Andrew Simmons	2
Docklands Light Railway radio system	Kamal Chohan	6
Railway accident trends	David fenner	12
Automated testing of SSI data	Alexei Iliasov, Dominic Taylor and Alexander Romanovsky	16
ERTMS: from verification and validation to operation and maintenance	Maurizio Palumbo	22
Protecting crossings using ETCS Level 2	Wim Coenraad and Maarten Bartholomeus	26
News from the IRSE		30
IRSE Professional Examination – hints and tips		32
Industry News		5, 21
Feedback		38
Scottish Section: Annual Section Dinner		31
Swiss Section: Equipping Rosshäusern Tunnel		34
York Section: York Dinner speaker announced		38

IRSE News 242 – March 2018	Author/Presenter	Page
Continuous improvement for lifelong learning	Judith Ward	2
How do we reduce the number of accidents involving human factors?	Rod Muttram	12
Driver advisory systems – opportunities and challenges	Ian Mitchell	18
What is 'Women in Rail' and how can it help the industry?	Adeline Ginn	22
Making a success of Britain's Digital Railway programme	Ian Mitchell	24
Industry News		11, 23
News from the IRSE		26
ASPECT 2017		27
S&T comes to life – visit to the Great Cockrow Railway for the IRSE staff		33
Membership Matters		38
Feedback		38
Japanese Section: Launch of the Section		35
York Section: Driver only operation		37

Index to IRSE News contents from May 2017 to April 2018

IRSE News 243 – April 2018	Author/Presenter	Page
Development of a National Train Control Centre – key stages and facets of the procurement	Paul Manning	2
Digital railway discussion	David Fenner	10
Shifting spectrum – the new fibre-optic based axle counter	Joachim Janle	13
The IRSE re-brand story	Francis How	16
Industry News		9, 19
News from the IRSE		20
Local Section Coordinator		21
IRSE Professional Examination 2017 – results		21
ASPECT 2017 – a younger member view		23
Meet the ASPECT 2017 bursary winners		24
“IRSE CBTC and beyond” conference, Toronto		28
Feedback		36
Past Lives: Sinta Wati and Dudley Both		38
French Section: High speed lines conference		32
Netherlands Section: Tenth anniversary		34
Scottish Section: Christmas social		35
Southern Africa Section: New Chair		35

Summaries of Papers presented at Presidential Programme Technical Meetings

Each year the President of the IRSE invites keynote speakers to produce papers and presentations on selected topics. During 2017-2018 these were presented in Brisbane, two in London, Birmingham, Utrecht and York.

In 2017-18 the papers and speakers were as follows (a summary of each appears on the following pages, together with a summary of the discussion that followed, where available):

1. ***An Engineer's Journey*** by Cassandra Gash given on 14 July 2017 (discussion not documented) (Published in IRSE News, September 2017 – Issue 236)
2. ***The Train Control Dilemma*** by Stuart Calvert given on 12 October 2017 (Published in IRSE News November 2017)
3. ***What Follows GSM-R*** by Clive Kessell & Paul Darlington given on 6 December 2017 (Published in IRSE News January 2018 – Issue 240)
4. ***UK secession from the European Union*** by Andrew Simmons given on 25 January 2018 (discussion not documented) (Published in IRSE News February 2018 – Issue 241)
5. ***Continuous Improvement for Lifelong Learning*** by Judith Ward given on 8 February 2018 (discussion not documented) (Published in IRSE News, March 2018 – Issue 242)
6. ***Track Worker Safety*** by Rod Muttram & Mark Prescott given on 15 March 2018 (Published in IRSE News May 2018 – Issue 244)

An Engineer's Journey by Cassandra Gash, Senior Signalling Project Manager, Melbourne Metro Rail Authority, Australia on 14 July 2017 in Brisbane (Published in IRSE News, September 2017 – Issue 236)

An engineering qualification provides a graduate engineer with the fundamental knowledge and attributes to continue learning, and to develop the competence required for independent professional practice. However, the rail signalling and telecoms industry is highly specialised, so there are naturally gaps in a graduate engineer's competence that must be addressed in the workplace.

This paper explores an engineer's formative years in the railway signalling profession, and the journey from unconscious incompetence to the achievement of conscious competence.

Technical competence relates to the specific workplace practical skills and is subdivided into the following:

- General: Independent of application or rail network.
- Product: Specific to a product or suite of products.
- Domain: Specific to an application or rail network/organisation that considers the local standards, practices, systems, and arrangements.

Non-technical competence, commonly referred to as “soft skills”, is required to perform professionally and communicate with others. It draws upon our personality traits and is influenced by our attitude towards others, society, and the environment. It includes written and verbal communication, negotiation, active listening, leadership, collaboration, creativity, agility, and emotional intelligence.

Discussion:

No record was made of the discussion at this meeting.

The Train Control Dilemma by Stuart Calvert, Head of Early Contractor Involvement – Digital Railway, Network Rail, UK on 12 October 2017 in London
(Published in IRSE News, November 2017 – Issue 238)

Much has been written about railway signalling. Anyone who wants to understand the history of signalling, its current use and the various methods of operation across the world will find a huge resource available in libraries and on the Internet. Anyone searching the Internet for information on future signalling systems will be directed towards pages about CBTC and ETCS.

However, whilst there is much written about the disruption caused by signalling, there is little to be found on the disruptive innovation within the signalling industry and how this is driving advancement and improvement to meet societal and customer needs.

This paper does not seek to look at, discuss, or predict future developments of the technical systems which support train control and traffic management; these issues are well covered elsewhere in IRSE technical papers, academic articles and corporate company literature. It also assumes that the rapid development of sophisticated digital technologies will continue and there will be many opportunities to use these to provide train control and traffic management systems with ever-improving functionality and performance.

Rather, the paper considers the train control dilemma, namely - why, with dramatic technological developments which have enabled almost everyone to be able to afford a device that they can put in their pocket which has the processing power of a 1970s super-computer, are we seeing a dramatic and unsustainable rise in the cost of deployment of modern digitally based train control and traffic management systems where the primary function can be simply defined?

What is the real problem we are seeking to address, and how will disruptive innovation impact on the development, deployment and use of train control, traffic management and associated systems?

Discussion:

The discussion was opened by P. Halliwell who thanked the speaker for his very thought-provoking talk and asked how the balance could be struck in keeping these systems secure.

S Calvert admitted that he had glossed over cyber-security but felt that the benefits in the digital twin needed to be seriously considered and catered for.

Q MacDonald didn't believe that anybody has yet really tried out testing the principles of Level 3 ETCS and believed that the key to success was to fit a critical mass of rolling stock that could then utilise the ETCS equipment where and when it was fitted. He then asked if the SEU costs had risen in proportion to the other engineering costs of building a new railway.

S Calvert advised that the costs of signalling do fluctuate widely compared to the other engineering disciplines.

D Fenner (retired) thought that the main reason for high signalling costs were the constraints imposed by making sure that the driver could not make a mistake and he believed that the requirements change could have considerably reduced those costs – he believed that the key was getting the train-fitment costs down.

S Calvert agreed that it was managing the people involved to accept the changes and the associated stress caused by the disruption.

C Kessell (Past President) agreed that signalling costs were too high but thought that it was because of the lack of an overall management structure.

S Calvert believed that most of the technology was already there, but it was the leadership of the processes that was required and that could only come from within the industry.

E Murphy (Phoenix Signalling) wondered how a non-UK entrant with an existing system could enter the UK digital signalling market.

S Calvert was of the opinion that it was imperative that the Product Acceptance regime was such that it was not a barrier to introducing new technology.

T Foulkes (retired) thought that some of the benefits of Traffic Management and C-DAS were being confused with the belief that the existing signalling was the problem whereas it was often simpler solutions, such as crew management, that could resolve many of the problems.

S Calvert clarified that there were two levels including technology and operational issues.

A Gordon (TfL) was interested in the speaker's thoughts on how you go out to the market for the "disruptive" elements.

S Calvert acknowledged that this was a challenge and it would be necessary to have the correct commercial arrangements in place, possibly based on MOD –style contracts, but this was still to be fully developed.

C Porter (Past President) was concerned that the cost of an SEU had risen so much.

M Thomas questioned if any of the interfaces were being specified to enable newcomers to access the market.

S Calvert confirmed that this was part of the Digital Railway's remit.

A Simmonds (Network Rail) explained that this work was on-going across Europe, with the Infrastructure Managers, to provide a framework for introducing the technology.

D Bradley (retired) thought that one of the objectives of privatisation was that the innovative private companies would provide the most cost-effective solution to the client. After twenty years that has still not happened which implies that we must already have the best solution and that any further developments are not worthwhile.

S Calvert pointed out that the railway industry is still heavily regulated which prevents that innovation as expected from a true "free-market". He thought that it was finding the correct balance, between all of the interested parties, and the willingness to engage that was key.

A Waters (Frequentis) thought that the most efficient method would be to have a single organisation that owned the infrastructure and also ran the trains.

P Jarratt (TfL) thought perhaps that the problem was that the railway was too systemic and was too complicated and inter-dependent.

S Calvert agreed and thought that maybe Level 4 might be the solution.

R Short wondered if some "disruption" into the existing systems was initially required to smooth the way.

S Calvert agreed that an appropriate regime was required.

F How (Chief Executive) pointed out that the industry was not flexible enough which could eventually lead to its demise. He then thanked the speaker for his paper and subsequent participation in the question and answer session.

What Follows GSM-R by Clive Kessell, Past President, IRSE Engineering Writer Rail-Media Group & Paul Darlington, Managing Editor, IRSE NEWS Engineering Writer Rail-Media Group on 6 December 2017 in Birmingham (Published in IRSE News January 2018 – Issue 240)

This paper was presented as part of the Presidential Programme series of Technical Papers for 2017-18. It was published in IRSE NEWS January 2018.

GSM-R train radio has had great success both in Europe and further afield. Based on 2nd generation (2G) GSM technology it has benefited from the economies of scale of development and production from its GSM heritage. It has been a cost-effective digital replacement for the previous incompatible analogue railway radio networks and at least 35 different GSM-R networks exist in Europe alone. It is used internationally, for example in Australia and Asia, China having largest GSM-R deployment with 33 750 km of route covered. Support for GSM-R has been agreed until 2030 and there are features which are still to be exploited and developed; however, the search for a successor to GSM-R has begun, and it is likely to be based on 4G/5G Long Term Evolution (LTE).

This paper explores the history of the development of train radio in the UK, and some of the options for successors to GSM-R.

Discussion:

The discussion was opened by P Jenkins who thought that there were a number of issues with the vision and asked if Private Digital Mobile Radio had been considered taking into account the limited amount of data that was actually required for train operation and he saw no reason to invest in 5G.

***P Darlington** explained that the presentation was based on what the UIC were working on and acknowledged that a narrow-band system could satisfy the operational requirements but would not cater for the expectations of the public.*

***E Nix (Network Rail)** wondered if consideration had been given to getting the necessary TSIs.*

***C Kessell** reiterated that he believed that they would need to be in place by 2025 to enable implementation prior to GSM-R switch-off.*

***J Drake** believed that 5G was a multi-faceted system that would provide all that was required.*

C Kessell concurred and confirmed that the specifications were still being developed but they would encompass all of the latest technologies.

P Symons (President) asked what lessons could be learnt from other companies who have been through the upgrading process.

P Darlington explained that a great deal of infrastructure was already in place and 5G would have to be backward compatible to make use of that.

K Ford (Network Rail) noted that there had been a number of recent announcements and on-going activities driving 5G onto the railway but was concerned that the voice communications would be overlooked.

C Kessell was unsure but thought that this was being investigated with the proposed LTE-R – the “R” specifically including railway communications.

An **unidentified speaker** from Network Rail asked how the Baseband would be maintained if positioned in close proximity to OLE equipment.

P Darlington explained that engineering solutions would have to be considered when designing where equipment was to be positioned.

L Giles (retired) thought that the end-dates were unduly pessimistic.

P Darlington agreed that this might be the case because the financial benefits of earlier iterations had still not provided any real return to those who had invested in them.

A McGill (Frequentis) thought that there would always be an operational need for railway specific applications that should be independent of the system used.

C Kessell agreed that the radio was just a medium for these communications.

An **unidentified speaker** wondered how Brexit would affect the situation.

T Foulkes (retired) believed that it was essential that the railway applications should be on “different pages” within the TSI.

C Kessell agreed that the difficulty lay in getting from where you were now to where you wanted to be - even if you could define where you wanted to be. He felt that this would specifically impact on the rolling stock owner who would be expected to fit all of the different systems.

P Symons (President) finally thanked the speakers for their presentation.

UK secession from the European Union by Andrew Simmons, Network Rail, UK
on 25 January 2018 in Utrecht (Published in IRSE News Feb 2018 – Issue 241)

On 23 June 2016 the United Kingdom of Great Britain and Northern Ireland held a referendum to determine if the electorate wanted to remain within the European Union. Out of a turnout of 72.2%, a 51.9% majority voted to leave the EU.

The process of seceding from the EU has been christened “Brexit” (for “British Exit”). To commence Brexit, the UK Government invoked Article 50 of the Treaty on the European Union on 29 March 2017.

This paper explores the issues and impacts on the UK national railway after the UK leaves the EU.

The paper looks at:

- Application of, and ability to influence, European railway standards
- The need for a UK Systems Authority

The paper concludes: “For as long as it remains unclear what the future relationship will be between the UK and the EU, there remain risks and opportunities for the UK rail industry. Whilst Brexit may be a significant disruptor for the UK and also the EU, it is unlikely to be the stimulus for the transformation of CCS systems necessary if the railways in Britain are to address the business challenges associated with capacity and system sustainability. Such transformation is likely to be system-driven, with a stable ERTMS system at its kernel. Given that solutions to the challenges faced by the railways in Britain are likely to address many of those faced by railways in other EU member states, it is considered that working in conjunction with other EU railway administrations and other sector organisations will be of benefit to all.”

Discussion:

No record was made of the discussion at this meeting.

Continuous Improvement for Lifelong Learning by Judith Ward, Professional Development Manager, IRSE on 8 February 2018 in York (Published in IRSE News, March 2018 – Issue 242)

To ensure that we as individuals and as an industry contribute to the safe and efficient movement of people and freight by rail, not only do we need to ensure that our ever-changing technology and environment is safe and sufficient, but also that we are (or are being supervised by those who are) competent for the roles we are undertaking and technology we are using.

This paper discusses how to retain your hard-earned competence, how to develop yourself further, how to motivate yourself to improve and what motivates you to do so. This paper also discusses the role of the IRSE and our employers in the retention of competence for rail signalling, telecommunications, train control and traffic management engineers.

The paper covers topics such as defining competence, conscious/unconscious competence, lifelong learning, motivation, keeping up with technology, the health benefits of lifelong learning, mentoring and inspiring the next generation. It presents the IRSE's CPD "map to success".

Discussion:

No record was made of the discussion at this meeting.

Track Worker Safety by Rod Muttram, Fourth Insight, UK & Mark Prescott, Network Rail UK on 15 March 2018 in London (Published in IRSE News, May 2018 – Issue 244)

The focus of the paper is heavy rail; many of the principles also apply to metros, but the prevalence of tunnel and elevated infrastructure for those systems pose particular risks and issues.

Working on or near the track, with on-going train traffic, do not mix; at least, that is the predominant opinion nowadays among many railways. Increasing frequencies and speeds of trains combined with societal risk aversion tend to enforce regimes where track workers and train traffic are separated—in time, in space or by physical barriers. Currently, in some countries (e.g. the Netherlands) working on or near the track is only allowed in possessions, and even adjacent tracks are not allowed to be in service. This imposes such restrictions on the possibility of performing maintenance and repair activities without disruption to traffic that ProRail's newly appointed CEO has publicly voiced his concerns that we are “going over the top” in our safety concerns and should be more pragmatic.

This paper explores the issues associated with cost-effective trackworker safety protection, and reviews the standards and some of the latest developments in technology for ensuring safety of people working on the railway track.

Discussion:

The discussion was opened by D Hotchkiss (RSSB) who noted that during the 1980s a similar type of system was discounted because it required interlocking changes that, under some circumstances, resulted in the clearance of signals been delayed.

R Muttram acknowledged that system failures could result in unacceptable delays and this would have to be considered especially under those circumstances where manual intervention might be required.

M Prescott agreed that it was a complex system and the Operators had to recognise the fact that delays might result.

D Fenner (retired) wondered if the accuracy of GPS was accurate enough in multi-track situations; he also questioned if the systems were open to malicious operation when using, for example, TCODs, and finally asked if other disciplines had been advised of the development of the process.

R Muttram confirmed that the specific location of staff was included within the detail of the paper and was actively been considered. Security was also being taken seriously and this included encryption-type measures.

M Prescott explained that security was provided using SIL4 type methods and that he would be actively engaging with the other interested parties within the industry at an appropriate time.

An **unidentified speaker** questioned what could be provided for the track-worker sooner – he was aware of a system in use on the Western Region that identified Line Blockages as they were taken.

M Prescott did not believe that anything could be done in a relatively short space of time; it was vital to have Trade Union involvement; he was unaware of the system that the speaker had described.

Another **unidentified speaker** from RSSB, thought that the problem might be that the bolt-on warning systems had not been part of the initial specifications for Digital Railway.

M Prescott confirmed that access arrangements were included within the Traffic Management architecture, but it was the Network Rail Routes that needed to specify exactly what was required.

R Muttram explained that the initial plan was to include this type of “controls” but had been side-lined by other issues that had arisen.

C Porter (Past President) noted that there had been no mention of economics and wondered what sort of costs were involved and what was been done on HS2.

M Prescott confirmed that there was a budget for this work.

M Morris (HS2) explained that they were looking at a number of methods but nothing definitive had yet been decided.

P Allen (Siemens) asked the speakers what was been done to assist New Works staff.

M Montigel (Vice President) did not believe that increasing SIL levels was the way forward because this just resulted in increased costs. He then thanked the speakers for their presentation

Results of the IRSE Examinations held in October 2017

The IRSE is pleased to announce the results of the 2017 IRSE Professional Examination and to congratulate all those who have now successfully passed four modules. There are seven exam modules and to gain the full IRSE Exam it is necessary to achieve a Pass in four of them. Module 1 is compulsory, and candidates can choose a further three modules to suit the experience and specialism.

Congratulations to all of those named below and a thank you to all who supported candidates through study groups, sponsorship, the exam forum and other means, and not forgetting the examiners, support staff and volunteers who always spend a considerable amount of time making the examination the success it is.

The modules referred to in the table below are as follows:

Module 1 Safety of Railway Signalling and Communications (compulsory)

Module 2 Signalling the Layout

Module 3 Signalling Principles

Module 4 Communications Principles

Module 5 Signalling and Control Equipment, Applications Engineering

Module 6 Communication Applications

Module 7 Systems Management and Engineering.

Successful candidates completing the exam by passing modules in 2017 are:

Name	Modules: results
Boyd K	1: Pass, 3: Pass, 5 Pass, 7: Credit
Reilly A	2: Credit, 3: Pass, 5: Pass
Kakinada V	1: Pass, 3: Pass, 7: Pass
Chan C C S	1: Pass, 3: Pass
Dixon A	4: Pass, 7: Pass
Dunsford R	3: Pass, 5: Pass
Heaton J	1: Credit, 3: Pass
McNulty M	3: Pass, 5: Pass
Reger L	1: Credit, 7: Credit
Srivasta A K	1: Credit, 5: Pass

Name	Modules: results
Sturton R	2: Credit, 3: Pass
Bandyopadhyay A	3: Pass
Cleverley L	1: Pass
Kwan K T P	1: Pass
Malschuk J N	2: Pass
McCann A	1: Credit
Meghanathan N	1: Pass
Mitchell G T	1: Credit
Walsh R A	1: Distinction
Wheeler D F J	1: Pass

Candidates who have successfully passed modules in 2017, but not yet achieved the required four module passes for full exam completion are:

Name	Modules: results
Akshantalu R	2: Credit
Ali N	1: Pass
Aliot E	1: Pass
Atluri E L S	3: Pass
Aviomoh V A	4: Pass
Bandi N	3: Pass
Barker M J	2: Pass, 3: Credit
Bastow M	1: Pass
Beavers A	3: Pass
Chang K	2: Credit, 3: Pass
Chittajallu M K	3: Pass
Clapham A D	1: Pass
Crowther S	1: Credit
Dooley S G	3: Pass
Flynn T	1: Pass
Ho I C	2: Credit
Iqbal M S	5: Pass, 7: Pass
Kellaway H	3: Pass
Kerrigan C	2: Pass
Lau S F	3: Pass
Lee R J	2: Distinction, 3: Credit
Lulek C M	3: Pass
Maddock S	3: Pass
Madinga C	3: Pass, 4: Pass
Morrison A	5: Pass
Navas Hussain M R	2: Credit

Name	Modules: results
Neilan M	5: Pass
Nguyen J	1: Pass
O'Duffy S	1: Pass
Paladugu A	2: Pass
Paley S J	2: Distinction
Patel K	1: Credit, 7: Pass
Patey G	2: Pass
Pathak Y A	1: Credit, 3: Pass
Paxton D	1: Pass, 7: Credit
Rock C	1: Pass, 3: Pass, 5: Pass
Ryan T	5: Pass
Shanmugaratnam T	1: Credit
Shek K K W	2: Pass
Slade M	3: Pass, 5: Pass
Smith M G R	1: Pass
Stanev S	1: Pass, 7: Pass
Stankowski T	1: Credit, 7: Pass
Steele A	3: Credit
Vidarthi A	2: Pass
Wallace S	5: Pass
Wang B	1: Pass
Williams C	1: Credit, 7: Pass
Wong Tsz Wai T	3: Credit
Yoganathan J	1: Pass, 7: Pass
Yuen S C	1: Pass

Section Reports from Local Sections outside the UK

The following reports were originally prepared by the UK's international (non-UK) Sections as a means of reporting their activities to the Institution's Council. They have been edited slightly for the purposes of providing a permanent record as part of the Proceedings 2017 – 2018.

The international Sections in existence in 2017-18 (in alphabetical order) were:

Australasia
China
France
Hong Kong
India
Indonesia
Ireland
Japan
Malaysia
Netherlands
North America
Singapore
Southern Africa
Switzerland
Thailand

Australasia Section report – 2017

1. Introduction

The IRSEA Australasian Section has had a busy year again. It has held many National and State based technical meetings, captured new members and sponsors, along with gathering a new mix of people to the IRSE as either members or participants of the events held.

With the very large, costly and huge number of Projects being undertaken in Melbourne, Sydney and Brisbane there is an influx of people to undertake the works, with IRSE benefitting from those areas as well.

There were 597 IRSE Australasian Section Inc members as of August 2017.

2. Section Officers

Chairman:	Glenn Miller
Vic Chair:	Kaniyur Sundareswaran
Secretary:	Les Brearley
Treasurer:	Geoff Willmott
Country Vice-President:	Robert Baird
Webmaster:	Bill Milburn

3. Main Activities During the Past 12 Months

During the year, there has been three national Australasian Section technical meetings of the Australasian Section (with one being combined with the AGM). In addition, 30 local technical meetings were held.

National Technical Meetings

These meetings are held in each state and New Zealand on a rotational basis. The AGM meeting (March or April) is held over three days. The other meetings are two days.

Melbourne, 11 November 2016 -The final national Technical Meeting for the 2016 year had a theme of *Up and Over or Down and Under*. This related to the 50 level crossings being removed in and around Melbourne as one of Victoria's major projects.

Approximately 150 people attended the technical meeting with 60 being part of the Saturday site visits to railway work areas to see level crossing removals both in progress and also those completed.

Technical Meeting and AGM, Sydney, 10 March 2017 - The evening before the AGM a Committee of Management strategy meeting was held, where new strategies

were discussed, and the current strategies from the IRSEA strategy plan revisited, altered and some priorities altered.

The first meeting for the 2017 year started with the theme *New Technologies - Are We Ready?* This was a three-day meeting and included the 2017 AGM. There were some 150 people in attendance

Awards presented were:

- Byles and Calcutt award (best technical paper delivered in previous 12 months by a young member) – Thomas McPeake.
- Chairman's Award – Anthony Howker.
- HonFIRSE certificate and plaque were presented by Charles Page to Allan Neilson

Noel Reed, who attended the second IRSE Australian (as it was then) section meeting in 1948 and until recent times has rarely missed a meeting, provided a fascinating a walk down memory lane of the Australasian Section.

Technical Meeting, Brisbane, 14 July 2017 - The two-day meeting had a theme of *Signalling Byte by Byte*. 141 Members and guests attended the Friday meeting with 63 attending the site visits to the recently opened Redcliffe Peninsula Line and the new Network Manage Centre.

A professional development event followed by a social and networking meeting was held the evening prior by the Younger Members.

HonFIRSE certificates and plaques were presented by Peter Symons to Howard Revell and Malcolm Menadue.

Local Technical Meetings in 2016

Local technical meetings are held in capital cities. Typically, they involve two 30-minute presentations followed by light refreshments and networking. Technical papers are not usually provided. Note this information is for the 2016 calendar year which is the most recent detailed information available. These meetings have continued in a similar pattern in 2017 with the exception of no local meetings being held in Western Australia so far this year.

Queensland

8 November 2016, attendance 55

Resignalling of Denmark – Morten Sondergaard (WSP Parsons Brinckerhoff).

7 December 2016, joint meeting with RTSA, PWI and RTTA, attendance 70

Operations & Network – A delicate balance – Therese Miller (QR)

South Australia

1 September, attendance 65.

Joint meeting IRSE, RTSA & PWI

Collision involving road-train truck and train 8834N near Narromine, New South Wales, 23 September 2015 – George Erdos (Australian Transport Safety Bureau)

Level Crossings – When is enough, enough? – Simeon Cox (DPTI)

Victoria

17 August 2016

Overview of Signalling at Diamond Valley Railway – Bruce McCurry (Diamond Valley Railway)

Remote Overhead De-energisation and Earthing System for MURL – Wesley Allen & James Donovan (MTM)

21 September 2016

Remote Condition Monitoring of Surge Arrestors in Signalling Networks – Glen Turvey & Hans Slagter (IPD)

Telecommunication – Essential Examples – Nick Czeperko (Ethernet Australia)

19 October 2016

Management of Mud Holes – Nathan Lorient (MTM)

Wheel Rail Interface – Shane Cooper (V/Line)

New South Wales

2 August 2016, attendance 40

What they didn't tell you at University or did they? – John Aitken (Aitken & Partners).

22 September 2016, attendance 52

Observations on Perth Technical Meeting and site visits July 2016 – Jung Mok (AECOM)

Improving railway performance with advanced technologies – Bill Palazzi (Palazzirail)

20 October 2016, attendance 48

Train Braking and Signal Design to Prevent SPADs – Trevor Moore (ARTC)

24 November 2016, attendance 58

Signalling the Future and You – Peter Symons (Triton)

Western Australia

9 Dec 2016 Attendance 30

Christmas Networking and Social Event.

New Zealand

October 2016, attendance 30

Signals 101 (repeated due to popularity)

October 2016, attendance 12

Rimutaka Tunnel Communications Upgrade

November 2016, attendance 70

Level Crossing Forum

Sydney

13 July, attendance 400

One evening in Sydney where the IRSE and the other rail engineering institutions of Australasia put together and organised an event and call the Australasian Rail Industry Awards (ARIA), where people were recognised for their contribution into the Industry, and the IRSE made an award for the Rail Signalling and Systems Engineering area, and won by Zdenka Wright from MTM trains in Melbourne.

Additional Significant Activities for 2017

IRSE Australasian Section has achieved the following:

- A new budget has been formulated and agreed upon and now being worked with.
- The new IRSEA strategy plan has been fine-tuned and priority strategies are being worked to, with time and dates and people nominated to undertake roles
- The update to the IRSEA website, final systems and email use has been recently agreed upon and stage one of the upgrade work is in progress
- IRSEA have been involved in and sponsored a rail systems engineering award, at the Australasian Rail Industry event in Sydney in July. Winner was Zdenka Wright from Metro Trains in Melbourne.
- Captured and understood where the Rail Signalling Graduate Diploma resides now that Rail Innovations Australia has gone into voluntary liquidation, and will progress with CQU and CA to finalise the certification to ASQA of the course training package, to place into course ware, and then deliver
- Insight in Railway Signalling courses were held at Melbourne, Sydney and Brisbane.
- All officers of the IRSEA, and members of the Committee of Management, and section chairs, plus State coordinators now have IRSEA business cards to promote the IRSE and have it made more visible in the Industry and the people of the IRSE noticed and made relevant and recognised for being an IRSE committee person.
- New email system being used is mail chimp and email addresses are now captured and used within this system as a more professional front to the IRSE.
- A number of IRSEA section members have now gained the recognition of HonFIRSE, being Malcolm Menadue and Howard Revell, to join recent HonFIRSE Trevor Moore and Allan Neilson.
- Gained more people onto IRSE committees and more diverse, along with people from other industries and such as systems engineering, systems assurance, railway operations, trades people and cadets.
- Attracted larger numbers of attendees across Australasian technical meetings than previously, a better spread of attendees.
- Gained a broader spread of sponsors to IRSE events and in some meetings there were up to 24 individual sponsors.

4. Plans for the Next 12 Months

- To celebrate 70 years of IRSE in Australasia
- National Technical Meetings:
 - Joint IRSE Australasian Section and Singaporean Section event in Singapore, adding to the ASPECT conference, and also a joint committee meeting. 30 November and 1 December 2017.
 - Annual General Meeting and combined Technical Meeting Melbourne 16th March 2018
 - Technical Meeting in Adelaide in July 2018

- In addition, 10 local meetings are planned for each of Melbourne and Sydney with six planned for Brisbane one in Adelaide. Western Australia and New Zealand have yet to firm up their plans.
- Continue to arrange an alternative provider for the Graduate Diploma Railway Signalling.
- To add to the content in magazines of IRSE NEWS, and also track and signal magazine (Australasia)
- To capture and continue to attract a diverse range of sponsors, and trades suppliers as sponsors to keep the IRSE meetings as “affordable” to all members and others
- To capture the many new people into the rail industry that are here for major projects in Sydney, Melbourne, Brisbane from across the world-to come along to IRSE meetings –and then JOIN the IRSE
- To better communicate to other rail and engineering institutions and share meetings, rather than be seen as competition, as the rail industry is still quite small here
- Light rail has had a huge growth in Sydney, Gold Coast, Canberra, Newcastle, Melbourne and IRSE hope to be able to attract those working in that part of the industry
- To be seen as the “place of knowledge for signalling and rail systems”, and actively promote the IRSE is that place-and not specific people.
- Continue to work in accordance to IRSE and IRSE Australasian section strategy plan:
 - Attract younger members to IRSE
 - Attract a diversified group of people to the IRSE
 - To capture the emerging technologies and people associated with those areas, such as systems engineers, assurance and systems integration, CBTC, ETCS skilled and competent people
 - To drive in a structured manner all strategies with dates, times and allocated people to deliver the strategies.
 - To recruit young members,
 - Communicate with CEOs across Australasia to ensure they see and understand the IRSE,
 - To align with competencies and continuing professional development systems within Australasia,
 - Revisit awards and bursaries given out by IRSEA,
 - Make better use of the new IRSEA operations committee,
 - Look at HonFIRSE, FIRSE and Companion levels within Australasia.
 - Better utilisation of the website

Report produced by: Glenn Miller & Les Brearley
Date: September 2017

China Section report

1. Introduction

The new China local section has had a busy year and consists of 81 members (March 2018 figures).

2. Section Officers

Chairman:	Bin Ning
Secretary:	Yinghong Wen
Treasurer:	Daming Jiang
Country Vice-President:	Chaoying Liu; Weizhong Shi; Weizhong Huang
Webmaster:	Kexin Liu

3. Main Activities During the Past 12 Months

IRSE China Section AGM (January 2018)

IRSE China Section 2017 Annual General Meeting (AGM) was held in January 2018 in Beijing with the kind support of Beijing Jiaotong University. The president of IRSE China Section, Professor Bin Ning, gave a warm welcome to all attending IRSE members and presented the formulation of IRSE China Section and the current status of China Section.

Vice President Mr Weizhong Huang made a report to all members in terms of the main activities during the past 12 months and the plans in 2018. Members also expressed the opinions and suggestions of the expected development of IRSE China Section. The Annual Dinner followed the AGM in the Hongguoyuan Hotel.



Pictured above: IRSE China Section AGM and annual dinner

IRSE China Section Local Technical Workshop - Rail Signalling & Telecommunication in China (Oct 2017)

With the kind support and sponsorship of the 7th IEEE International Symposium of Microwave, Antenna, Propagation and EMC Technologies (MAPE 2017), the IRSE China Section held a technical workshop in Xi'an, Shaanxi Province on 24 October 2017. This workshop was open to individuals involved with rail signalling and telecommunication systems or who are interested in those topics. The scheduled topics included *Maintenance Technology of the Rail Telecommunication System*, *Rail Telecommunication Application Technology*, *Rail Signalling Simulation Technology and its Application*, *Chinese Next Generation Train Control Technology* and *Rail Safety Assessment and Authentication in China*. Members from China Railway Corporation, China Academy of Railway Sciences, Beijing Jiaotong University and Chinese railway industry companies attended the workshop, and five delegates made the relevant presentations.



Pictured above: IRSE China Section Technical workshop

IRSE China Section visited IRSE Australia Section (April 2017)

The delegates from IRSE China Section visited IRSE Australia Section and Transport for New South Wales in Sydney on 27 April 2017. The IRSE China Section and Australia Section delegates had a technical discussion in terms of the development of Rail control technology and its application. The Chinese delegates also attended the IRSE Australia local technical meeting which was hosted by the lead signals and control systems engineer of transport for NSW, Mr Peter McGregor.

This technical communication provides a good opportunity for Chinese and Australia delegates to communicate and learn from each other. For Chinese delegates, it is a good chance to get to know the application of ETCS2+ATO+TMS in Australia, and Australia could also get to know CTCS's character and its advancement well. This meeting helped strengthen the links between the IRSE China Section and IRSE Australia Section. Other IRSE members, including from Burma and Malaysia, and industrial delegates from Ansaldo STS and Australian rail companies, also attended the meeting.



Pictured above: IRSE China Section visit to IRSE Australia Section

IRSE China Section visited IFASTAR and Birmingham University (April 2017)

In April 2017, IRSE China Section, The French Institute of Science and Technology for Transport, Development and Networks (IFASTAR), and Birmingham University cooperated on an academic workshop in France. Prof Tao Tang was invited as the lead professor from China side. The workshop aimed to provide professionals and researchers all over the world with an opportunity to communicate and share experiences in the field of rail traffic control and telecommunications and rail transportation.

IRSE China Section visited Queensland University, University of New South Wales, and Griffith University (August 2017)

Delegates from IRSE China Section visited universities in Australia in August 2017. The railway technical group in Griffith University has gained support from CRC for the Rail Innovation Gateway. The Secretary of IRSE China Section, Prof. Yinghong Wen, was invited to visit Griffith University and discuss with the lead professor David Thiel in Griffith University possibilities for technical and academic cooperation. IRSE China Section would also seek appropriate funding support to make the cooperation proceed smoothly from the China side.



Pictured above: IRSE China Section visit Griffith University

Technical visit to POLITO and Aalto University (September 2017)

Between 7-11 September IRSE China Section scheduled a technical trip to the Polytechnic University of Turin and Aalto University. Prof. Yinghong Wen, A/Prof. Wei Jiang and member A/Prof. Debiao Lu joined the visit. The two universities have strong scientific backgrounds in electromagnetic simulation, testing and diagnostics, and the advanced antenna design for SCOM and GNSS in transportation environments. IRSE China Section provided Chinese and Europe researchers and institutes with the opportunity for academic discussion and research equipment sharing and exchange.

ICEAA conference special session (September 2017)

The IRSE China Section supported the International Conference on Electromagnetics in Advanced Applications (ICEAA) 2017 in Verona, Italy. Prof. Yinghong Wen led the session on *System Safety and Security*. IRSE members A/Prof. Wei Jiang and A/Prof. Debiao Lu made presentations to the conference. The title of A/Prof. Wei Jiang's presentation was *Evaluation of loosely and tightly coupled GNSS/INS vehicle navigation system*, and the title of A/Prof. Debiao Lu's presentation was *Fairness-power consumption re-topology strategies for mobile botnet*.

Executive Committee Meeting 2018

The Executive Committee Meeting was held on 26 January 2018, chaired by Vice President Mr Chaoying Liu. The executive committee summarised the events of IRSE China Section in 2017 and discussed the future activities in 2018. The Bye-laws for IRSE China section were also revised.

IRSE Membership applications

In 2017, IRSE China Section considered and approved 27 membership applications, and submitted them to the IRSE Council.

IRSE China Section also translated the application form and the membership routes flowchart in Chinese and submitted to IRSE committee. The translated version has also been uploaded to IRSE China Section website to help member applicants fill in the English/Chinese application form.

4. Plans for the Next 12 Months

Annual General Meeting

The Annual General Meeting in October will be chaired by president Bin Ning. The Annual Dinner will be held at Beijing in October 2018, followed by the Annual General meeting. The IRSE China Section will invite president Bin Ning to give an annual report of IRSE China Section to all members.

Executive Committee Meeting 2018

The first Executive Committee Meeting is planned to be chaired by the president Bin Ming in June, at Beijing Jiaotong University. The meeting aims to discuss membership applications to IRSE China Section and recommend the applications to the IRSE council. The second Executive Committee Meeting is scheduled 3 weeks prior to the AGM, aiming to prepare for the AGM.

Training and courses

The IRSE China Section will conduct a series of training and courses in 2017 to assist members to develop their professional skills.

The courses will include but not limited to:

Signalling Principles

The course provides a thorough understanding of signalling principles and systems to ensure that members can apply this knowledge in a safe and cost-efficient manner. Students will be able to understand and address the issues that may arise from combining multiple and diverse units of equipment.

Signalling Systems, Management and Engineering

The course assists students with further development of engineering skills in railway signalling, control and communication systems including integration of many subsystems and diverse equipment in a professional manner. Students are introduced to Systems Engineering and learn how to transform an operational need into a set of requirements to system performance, produce the most suitable configuration and recommend system design, select the equipment, implement and then validate the system.

Railway Telecommunications

This course provides students with broad systematic knowledge and skills required for the application of telecommunications systems in a railway environment. Impact of telecommunication systems on rail operation, safety and efficiency of railways, types and features of different communication systems, equipment and operation of train control centres are topics considered.

Other Training

In October 2018, IRSE China Section is also scheduled to conduct an academic training school. 10 academic staff from Rajamangala University of Technology Thanyaburi in Thailand will come to China to attend the training school. The training contents include Rail Traffic Control, Rail Signalling and Telecommunication and Rail Safe Operation.

Seminars and technical visits

The IRSE China Section plans to organise several technical meetings and seminars, which will be advertised on the IRSE China Section's website. The planned Seminars include:

- IRSE China section visit to the IRSE Australia section and Transport NSW in September 2018.
- IRSE China Section visit to the French Institute of Science and Technology for Transport, Development and Networks (IFASTAR).
- IRSE China Section will host a technical workshop *Big data-based railway health management and maintenance* in Beijing in May 2018. Prof. Tao Tang will be the Chair of the workshop. IRSE Hong Kong Section will also participate in organising the workshop. The workshop is open to all IRSE members and we encourage all related researchers and industrial companies to attend.

Publications and communications

Website. The IRSE China Section website provides details of all events, news and membership application operation of the section. In 2018, the membership function will be further revised on the website. Members can update their personal information, contact details, and book events online.



Pictured above: Current website of IRSE China Section

E-Communication. A monthly email bulletin will be sent to all China Section members, containing information about upcoming events and other topical information. The IRSE China Section also plans to make use of social media channels like Wechat and Weibo.

Report produced by: Yinghong Wen
Date: March 2018

France Section report

1. Introduction

The France Local Section is now over a year old, but no Annual General meeting is to be organised as such. Regarding financial matters, IRSE French Section has decided to organise free events (around 4 per year, including conferences and technical visits), each individually sponsored by companies who have members.

The French section has been increasing its number of members from 45 (at the formation of the Section) to 76 members of the IRSE today. It also attracted the interest of 188 other people through its events and activities, these people are potentially future members of the IRSE.

Minutes of all meetings are written and available in native language.

2. Section Officers

Chairman:	Mr Christian Sevestre
Secretary:	Mr Hugh Rochford
Country Vice-President:	Mr Jacques Pore
Webmaster:)	Mr Hugh Rochford

3. Main Activities During the Past 12 Months

Meetings

The French section has held 9 regular Committee meetings since April 2016. The committee meetings are well attended with physical or online presence of the section's 7 committee members, namely Christian Sevestre (Consultant ex SNCF), Jacques Poré (Alstom), Hugh Rochford (SNCF Réseau), Jocelyn Gallou (SNCF Réseau), Philippe LeBouar (SNCF Réseau), Gilles Pascault (ANSALDO), Pierre Damien Jourdain (ALSTOM).

The agenda consists of decisions to be taken regarding the Section's development (visiting major railway companies for IRSE promotion), and the preparation of events (contacts and coordination of the event).

Events

The events attracted around 70 individuals at each conference (limitation of 50 for the technical visits), among which there are both members and non-members.

Technical conferences:

These events focused on national and international signalling presentations such as:

- 2016/06/15 Conference on ERTMS Return of experience of French companies in France and abroad

- 2016/08/01 Technical visit of the French wide range control centre (CCR) in St Denis
- 2017/03/20 Conference on Internet of the Things in the railway environment
- 2017/10/18 Conference on the return of experience of HSL built under Public Private Partnership

All Conferences this year were hosted by SNCF Réseau and the technical visit by SNCF Réseau and SETEC. Events end usually with an informal session around drinks and finger food.

The interest and satisfaction of attendees is good and increasing in the number of attendees, experience shows that the answer rate is high and fast (50+ persons willing to participate only 2 days after the invitation is sent).

After each event an article is sent to IRSE NEWS to increase visibility of the section's activities.

4. Plans for the Next 12 Months

Plans for the future mainly concern the events which will be organised. The IRSE French Section will organise new events towards the beginning of 2018:

- Conference on the return of experience on conventional lines (CNM) with a PPP organisation, including the French certification body's views
- Conference of formal methods
- Conference on BIM tools
- Conference on driverless RER
- Possible technical visit to the Lille Metro
- Possible conference on IoT from the industry's side
- Feedback from this first full year of events is being analysed, but the section already sees the fruit of its efforts to promote contacts and discussion across the French sector. This action had never been done in France and is felt as being beneficial.

Report produced by: Hugh Rochford

Date: November 2017

Hong Kong Section report

1. Introduction

The Hong Kong local section continues to organise successful events, developing our members' signalling and telecoms knowledge. There were 230 members in March 2018.

2. Section Officers

Chairman:	PANG Kwok Wai
Secretary:	SUNG Yuen Fat
Treasurer:	PANG Kwan Kin, Ken
Country Vice-President:	LUK Kam Ming

3. Main Activities During the Past 12 Months

The IRSE Hong Kong Section celebrated its 22nd Anniversary Dinner on 16 June 2017. 48 members attended the event and shared memorial evening.

On 2 August 2017, IRSE(HK) successfully collaborated with MTR Academy. IRSE(HK) made a proposal to offer two short courses, namely Basic Signalling Course and Intermediate Signalling Course. The first course was launched on 2 March 2018.

Other meetings, activities and events:

- Committee Meetings – Normally bi-monthly meeting.
- Technical forums
- Technical visit to local railway lines and local major utilities
- Participated in IRSE Convention 2017 in USA – 3 members attended.
- Technical visit to Beijing Jiaotong University and Beijing Metro Academy in December 2017 – 4 Committee members attended.
- Provision of IRSE Exam study group for IRSE candidates –10 sessions were provided.
- IRSE(HK) Committee Member presented an article to ASPECT 2017 in Singapore.

4. Plans for the Next 12 Months

Plans include:

- Committee Meetings
- Technical forums
- Technical visit to local railway lines and local major utilities
- Technical visit to the railway operators and suppliers in main cities of China
- Provision of basic signalling courses

- Provision of IRSE Exam study group for IRSE candidates
- Invite CRH experts from China to give talks on new developments

Hong Kong Section programme, April 2017 – April 2018

Date	Event (Paper/Meeting/Visit etc) & Title	Location	Speaker/Lead
16 May 2017	IRSE(HK) Committee Meeting	MTRHQs	KW Pang
16 June 2017	IRSE(HK) Annual Dinner	FRH Fo Tan	KW Pang
24 June 2017	Launch of IRSE(HK) Examination Study Group	MTRHQs	Y F Sung
25 June 2017	IRSE(HK) Committee Meeting	FRH Fo Tan Shatin	KW Pang
31 July 2017	Technical visit to China Light and Power Limited, Black Point Power Station	Tuen Mum	YF Sung
17 October 2017	IRSE(HK) Committee Meeting	MTRHQs	KW Pang
21 November 2017	Technical forum	MTRHQs	YT Tai
2 December 2017	Technical visit to HAECO Air Flight Maintenance Centre	Hong Kong International Airport	YF Sung
5 December 2017	BJTU-TT2015 Graduation Ceremony in Beijing	Beijing Jiaotong University, Beijing	CP Lung, YF Sung HM Fan
14 December 2017	IRSE(HK) Christmas Gathering	Kowloon	Committee Members
18 January 2018	IRSE(HK) Committee Meeting	MTRHQs	KW Pang
20 January 2018	Technical visit by Russian St Peterborough University	Hong Kong	KW Pang YF Sung KP Leung
6 March 2018	IRSE(HK) Chinses New Year Gathering	Kowloon	Committee Members
20 March 2018	Asia Pacific Railway Conference	Hong Kong	Gordon Lam Bik Shum
21 April 2018	Technical visit to HAECO Air Flight Maintenance Centre- second visit	Hong Kong International Air Port	YF Sung

Report produced by: Y F Sung
Date: March 2018

India Section report

1. Introduction

The India Section of Institution of Railway Signal Engineers started in 2009. Since then the Section has progressed very well as a professional body for the advancement of the science and practice of railway signal engineering and telecom related matters, due to the collective efforts of all its members.

Now the membership extends to almost all the zonal regions of the Indian Railways, various working and upcoming metro railways, and many international signalling OEMs and system integrators and railway signal design companies working in India. The Section has furthered its objectives and principles by holding workshops and technical reviews throughout the year across length and breadth of the country. During the year it has convened its annual seminar in association with the prestigious Indian Institute of Technology, Kharagpur.

The IRSE India Section is also working closely with Indian Railways and Institution of Railway Signalling and Telecom Engineers (India) to start an IRSE licensing-based system of competence assessment. It is envisaged that to begin with Indian Railways will use licenses provided by the IRSE in London as a prerequisite to work on relevant railway projects.

It is worth mentioning that an ambitious project of complete upgradation of existing signalling and telecom system has been approved at an approximate cost of USD 10-12 billion. This includes many modern systems like:

- Provision of electronic interlocking systems at all its balance stations (nearly 5,000 in total).
- Provision of ETCS Level 2 on its entire network of 60,000 – Baseline 3 MR2.
- Mobile Train Communication system based on LTE rel 15.
- CTC on its Golden quadrilateral routes (nearly 9,000 Rkms).
- Remote signaling health monitoring system.
- WiFi at all its stations and all types of coaches of all the passenger trains (numbering 60000 coaches).
- CCTV-based, artificial intelligence powered video surveillance system for a secured rail journey at all its stations and on all its coaches of all the passenger carrying trains.

The timelines are 5 to 6 years, thus there seems to be a huge requirement for professionally competent railway signal engineers to undertake the work on such an ambitious timeline.

2. Section Officers

Chairman:	Mr A K Misra
Vice Chairman:	Mr Nikhil Swamy
Secretary and Treasurer:	Mr Anshul Gupta
Country Vice-President:	Mr Arun Saksena
Webmaster):	Mr Ajai Singh

3. Main Activities During the Past 12 Months

During the year the Indian section had arranged the following activities:

- Annual Symposium - the Annual Symposium was held at Indian Institute of Technology, Kharagpur on 26 - 27 May 2017 in association with IEEE. (picture below). About 115 delegates attended. Frauscher and Thales were the main sponsors.
- A one-day seminar was held at Ranchi on *Signalling for Sidings to Increase Throughput*. 40 delegates attended.
- A technical visit was arranged at Kharagpur station of South Eastern Railway, to see Indian railways' largest Electronic Interlocking system, which was introduced in a record 12 hours traffic block. 50 IRSE and IRSTE delegates attended on 8 Nov 2017.
- A technical visit organised at recently introduced Electronic Interlocking at Bokaro Steel City Stations on 31 August 2017.
- AGM was held on 28 July 2017 at New Delhi. Elections were also conducted.
- IRSE examination study sessions are held regularly at Bangalore by Atkins.

4. Plans for the Next 12 Months

28-29 June 2018 - International Convention by IRSE & IRSTE, New Delhi

23 July 2018 - Technical Visit to Bengaluru RRI and Metro.

17 September 2018 - IRSE Members visit to Delhi Metro line having CBTC.

11 November 2018 - Young Members visit to MRVC for CBTC for Mumbai suburban

19 December 2018 - Technical Seminar on LTE based ETCS L2.

26-27 Feb 2019 - International Seminar at Kolkata.



Pictured above: Symposium at IIT



Pictured above: Seminar at Ranchi



Symposium on Advanced Train Control and Safety Systems for Indian Railways

26th and 27th May, 2017 at IIT Kharagpur



<http://cse.iitkgp.ac.in/conf/atcssir>

Report produced by: Anshul Gupta
Date: March 2018

Indonesia Section report

1. Introduction

The new Indonesia local section has been working and planning hard over the last year, working with government agencies towards a national licensing scheme.

2. Section Officers

Chairman:	Adi Sufiadi Yusuf
Secretary:	Toni Surakusumah
Treasurer:	Yunanda

3. Main Activities During the Past 12 Months

Setting up Railway Assessing Agency in co-operation with Indonesian Railway Association, accredited by government. An IRSE Licencing Assessment Agency will be part of the Railway Assessing Agency. The IRSE Licensing Scheme has been submitted for approval as part of the National Licensing Scheme for S&T.

4. Plans for the Next 12 Months

- Co-ordination and discussion with local Sections of Malaysia and Spore in order to explore the possibility of merging Indonesia, Malaysia and Spore Sections to become South East Asia IRSE Section. The proposal to merge the Sections is for the purpose of attracting members to become committee key persons since the Section became multi-national, as well as the cross-nation activities being more attractive and overall becoming a more active IRSE Section.
- The election of New IRSE Indonesia Section Committee.
- Continue setting up of Railway Assessing Agency.

Report produced by: Toni Surakusumah

Date: March 2018

Ireland Section report

1. Introduction

2016-2017 was the third year in existence of the Irish Section of the Institution. The Section continues to be in a healthy state, with membership remaining consistently in the mid-80s and great interest shown in the many events organised throughout the year. There is an active and enthusiastic committee of 8 members drawn from different railway administrations, suppliers and regulators and together they have run a wide-ranging and diverse programme of events throughout the year.

2. Section Officers

Chairman:	Sean Burns
Vice Chairman:	Peter Cuffe
Secretary:	Bernard Kernan
Treasurer:	Huw Bates
Webmaster:	Peter Cuffe

3. Main Activities During the Past 12 Months

Annual dinner in Belfast, 18 Nov 2016

The year began with the annual dinner dance held in the Hilton Hotel in Belfast on 18 November 2016. This was an excellent social event attended by some 75 members, partners and supporters. The music, dancing and general “craic” continued well into the small hours of the following morning, with many members surprising their colleagues with their hitherto unsuspected musical abilities.

In addition to the opportunity to see professional colleagues in a whole new light, the event once again featured a raffle, the proceeds of which resulted in significant donations to two charities, Hill Croft School in the north of Ireland and Dogs for the Disabled in the south.

AGM, 1 March 2017

The AGM this year was in Belfast on 1 March 2017 and was attended by 23 members. The Chairman’s report highlighted the principal events held in the previous year and outlined the intended programme for the year ahead. Accounts were presented and the new committee was elected, consisting in the main of the previous year’s committee with some roles alternated.

The Chairman drew particular attention to the excellent IRSE exam results that had been published during the year for the exams held in October 2015. Sixteen candidates sat a total of 19 modules and achieved an average pass rate of 72%, compared to a worldwide average of 46%, with four candidates achieving the four modules required to become full members of the institution.

Technical presentation on *Planes, trains and human factors in transport safety* given by Dr John Barnett in Belfast, 1 March 2017

Following the AGM, Dr John Barnett presented a technical paper on *Planes, Trains and Human Factors in Transport Safety*, subsequently published in the IRSE News in Oct 2017. Dr Barnett described his enduring love of both planes and trains and drew on his own experience to emphasise the vital role that human factors play in the safe operation of both modes of transport. Drawing on a number of accidents in the air industry, he clearly showed that failure to appreciate the human factors dimension contributed significantly to many accidents and that the subsequent lessons learnt could equally apply to the rail industry.

It was a sobering presentation for all who attended, ending with the memorable observation, paraphrasing slightly, that “superior pilots use superior judgement to avoid having to use superior skills”.

Presentation on *Railway Regulation in the Single European Area*, given by Gerald Beesley, then Commissioner for Railway Regulation in Ireland, Dublin, 25 April 2017

On the evening of 25 April 2017 Gerald Beesley, then the Commissioner for Railway Regulation in Ireland and now retired, presented a paper on Railway Regulation in the Single European Area to a meeting co-hosted by the Section and by the Railways Group of the Roads and Transportation wing of Engineers Ireland. The paper discussed the recent implications of changes to the Single European Railway Area Directive and to the Railway Safety Directive and Inter-Operability Directives.

The meeting was very well attended by a broad cross-section of interested parties and the implications for infrastructure managers and for the incorporation of safety culture requirements into safety management systems ensured a lively Q & A session afterwards.

Technical weekend visit to Londonderry/Derry (L/Derry) – Portrush re-signalling, 17-18 June 2017

A particular highlight of the Section’s yearly events has been the technical weekends generally held in June each year. These combine technical visits to engineering sites, technical presentations, cultural and exploratory tours for partners and no small measure of socialising and carousing.

This year, the technical weekend was hosted by Translink and centred on the recently completed re-signalling works along the L/Derry Portrush line. In addition to technical papers presented by Colin McVea and Clive Bradberry, the weekend featured visits to a number of relevant locations. These included inspections of Coleraine and Bellarena stations, a boat trip on the river Bann to see the railway swing bridge in operation for a unique angle and a visit to City of Derry Airport to view the control tower facilities.

With the associated wining and dining activities, the weekend has deemed to be an outstanding success both technically and socially. A fuller description can be found in Colin’s article in the Nov 2017 edition of the IRSE News.

Golf outing, Carrickmacross, 19 July 2017

Despite some appalling weather, a very enjoyable golf outing and meal were held in the Nuremore hotel and golf course in Carrickmacross, following the committee meeting held in the morning. Ten individuals braved the wind and rain, with the same number again joining afterwards for the meal.

Technical visit to Dublin Smart City, 7 Sept 2017

On 7 Sept 2017, Dublin City Council hosted a visit to the Dublin Smart City project. Following technical presentations on the many innovative smart city initiatives being undertaken in Dublin, particularly in the Financial Services district, the group then toured the Dublin traffic control centre located at Wood Quay.

Some 25 members attended the visit that generated a lot of interest particularly in the area of intelligent transport systems. The presentations showed clearly how transport infrastructure plays a vital part in the overall functioning of a vibrant city.

Support for IRSE exam candidates

A number of workshops and training sessions were held throughout the year to help candidates who intended to sit the IRSE exams. These proved very popular with candidates and the support of employers to enable them to attend was much appreciated. As a result, four candidates sat module 1 and nine candidates sat module 5 at the exam centre in Dublin.

4. Plans for the Next 12 Months

The Section intends to follow a similar format for presentations and visits for the year ahead. The following is the outline programme that has been put together so far, with some dates and speakers yet to be confirmed:

Date	Topic	Location
31 January	AGM, followed by a technical paper to be determined.	Railway Record Society, Heuston
March	Visit to the Poolbeg power station	Dublin
25 April	Technical paper on training and competence.	Belfast
16-17 June	Technical weekend, possibly including the DART signalling system and the NTCC	Dublin
July	Possible golf outing	Carrickmacross
Sept	Technical paper and visit to the completed Luas light rail extension	Dublin
Nov	Annual dinner	Belfast

Report produced by: Bernard Kernan

Date: November 2017

Japan Section report

1. Introduction

The Japan local section was formulated during the Presidential Year 2017 – 2018. A total of 49 IRSE members and those applying for membership petitioned Council to permit the formulation of a local section, which was approved.

Articles of the Japan section, which were approved by Council, were written on the basis of the recently formulated Irish section.

2. Section Officers

The following are those proposed for election at the inaugural event:

Chairman:	Prof Yuji Hirao, Fellow
Vic-Chairman:	Dr Masayuki Matsumoto, Fellow
Secretary:	Mr Takashi Kawano, Member
Treasurer:	Mr Hideki Komukai, Member
Committee Members:	Mr Toshiaki Sasaki, Fellow
	Dr Katsuji Akita, Fellow
	Mr Shigeto Hiraguri, Member
	Mr Hiroshi Ito, Member
	To be elected
	To be elected

3. Main Activities During the Past 12 Months

Not applicable.

4. Plans for Next 12 Months

Inaugural Event

The inaugural event of IRSE Japanese Section is planned as followed:

Inaugural Meeting, 1 November, 16:00

Location: Meeting room of Tokyo Branch Office, East Japan Railway

Agenda:

- Explanation of the formation process of IRSE Japanese Section.
- Proposals of Articles of IRSE Japanese Section, chairman and the committee members, and strategy and activity plans.
- Resolution on the Proposals.
- Declaration of the Establishment of IRSE Japanese Section.

Celebration of the Establishment of IRSE Japanese Section

Date: 1 November, 18:00

Location: Tokyo Branch Office, East Japan Railway

Outline Plans for Programme of Events

IRSE Japanese Section periodically (five or six times in a year) holds lecture meetings as technical events. Subjects being considered are:

- Effects on railway signalling of radio, image processing, security, artificial intelligence (AI), big data, IoT and road vehicle self-driving technologies.
- New train control systems, ATO and railway digitisation.
- Safety standards, RAMS, CSMs and EU legislation, and safety management.

Social events are planned after each technical event.

Report produced by: Yuji Hirao

Date: October 2017

Malaysia Section report

1. Introduction

The Malaysia local section has been working with the Institute of Engineers Malaysia this year which culminated in a seminar for the region in May.

There are approximately 150 IRSE members in the section.

2. Section Officers

Chairman:	Dato' Mohd Salleh Abdullah
Secretary:	Aniket Mukhopadhyay
Treasurer:	Hazwan Rahman
Webmaster:	Aniket Mukhopadhyay

3. Main Activities During the Past 12 Months

- IRSE Seminar on 25 May 2017 at Institute of Engineers Malaysia
- Paper at IRSE ASPECT Conference Singapore by Basam Mansour, IRSE Malaysian Section
- Participation at IRSE ASPECT

4. Plans for the Next 12 Months

- Organise joint seminar with Women in Rail Malaysia in the first quarter of 2018
- Organise IRSE ASEAN conference in November 2018 in Singapore
- IRSE annual event in September 2018
- IRSE exam study group
- Technical visits to new projects in Malaysia

Report produced by: Aniket Mukhopadhyay
Date: January 2018

North America Section report

1. Introduction

The normal AGM was just a business meeting without any activities due to the fact that the NAS hosted the IRSECONV17 in Dallas, Texas the following week. North America Section will look to have an active AGM in 2018 as well as its normal Canadian meetings in Toronto in December. There are 55 IRSE members in the North America Section.

2. Section Officers

Chairman:	David Thurston
Secretary:	Ray Rizman
Country Vice-President:	Bill Scheerer
Webmaster:	Rob Burkhardt

3. Main Activities During the Past 12 Months

There were four activities during the last year and they are listed below. The Section is encouraged by the increased activity in Canada, as well as a promising conference venue for the 2018 AGM.

The 2017 AGM was held in Indianapolis, Indiana in conjunction with the Rail Interchange event on September 9th. This was a fairly low-key event, as the International Convention was hosted by the NAS the following week. Business of the AGM consisted of certifying the election results and providing updates on the various projects undertaken by the Section. In addition, the meeting was used to finalise planning for NAS members going to the IRSECONV17. Only ten members were in attendance.

The NAS hosted the IRSECONV17 in Dallas, Texas on 25-29 September. The week-long event featured an opening reception on Monday evening, a full day of presentations on Tuesday featuring speakers and topics on North American signalling as well as international subject matter, field site visits to commuter rail and heavy haul freight lines throughout the area on Wednesday and Friday, and a day enjoying the sights and sounds of the Dallas/Fort Worth on Thursday. There were approximately 150 attendees and guests present for the Convention.

On 30 November - 1 December the second annual Communications Based Train Control conference was held at the Royal York hotel in downtown Toronto, Canada. Just over 100 attendees took advantage of a day long series of presentations about all aspects of CBTC and its impact on signalling. In addition, a field visit to the Toronto Transit Commission's new subway extension was made on 1 December. This line is equipped with CBTC and was only a few days from full revenue service. This

conference was even more successful than the first one in 2016. In fact, a number of potential attendees were turned away due to space limitations in the room used for the event. The Section looks forward to continuing this new tradition next year at the same time. It exceeded expectations for revenue though a larger than anticipated growth in sponsorships. Overall profit exceeded projections by a substantial amount.

Following the conclusion of the CBTC conference, the NAS conducted out annual mini-conference in conjunction with the Toronto Railway Club annual holiday dinner on 1 December. This event is offered free of charge to anyone interested in train control. With over 85 attendees, the room used for the presentations was filled to capacity. Topics covered in the presentations included items related to cyber security as well as heavy haul railways.

4. Plans for the Next 12 Months

Events currently scheduled for 2018 include the two conferences in Toronto for 3 and 4 December in the same venues. The AGM for 2018 will feature a series of speakers in the afternoon prior to the opening reception for the Railway Signal Suppliers, Inc. (RSSI) annual product show in Omaha, Nebraska on 21-24 May.

The Section has been looking into more NAS meetings in Canada, and this will be decided in the coming months.

Report produced by: David Thurston
Date: January 2017

Netherlands Section report

1. Introduction

This Presidential Year has been a busy one for the section has been busy with many technical visits and presentations for the section members and changes to the section officers. There were 208 IRSE members in the section in January 2017.

2. Section Officers

Chairman:	Alwin van Meeteren
Secretary:	Ben van Schijndel
Treasurer:	Tom Spronk -> Wilbert Eijsink
Country Vice-President:	Wendy Brandt - Mennen
Webmaster:	Wim Coenraad via Secretaris@irse.nl

3. Main Activities During the Past 12 Months

The main activities of the Section during the past 12 months both for members to attend and actions for the board are listed in the tables below:

Activities for all Members

During the past year the Dutch section has organised several meetings and presentations:

Date	Subject	Attendees
10 January	New Year drinks & presentation strategy IRSE NL	59 members
12 April	ATO, Prorail	48 members
18 May	AGM and presentation China Convention by Tom Jansen	54 members
22 June	Visit to Dual Inventive; Innovative track safety solutions	21 members
28 September	Presentation TOPP; Learning from design mistakes	31 members
2 November	Visit at the DataLab, ProRail	Young Members
13 December 13	EULYNX, Presentation Frans Heijnen/Maarten vd Werff	61 members

Significant changes - New changes in the Board

Since the 2016 AGM 4 out of 10 board members had reached the end of their electoral period, the Section only faced one change in the AGM of 2017. CVP Fred Dissel reached the final end of election. The board has sent out a request to the Dutch members to find appropriate candidate for a board position. The board was happy to have elected Mr Arjan Mann (Siemens) during the annual member meeting of May 2017.

Since Fred Dissel was the current IRSE CVP and Tom Spronk (Treasurer) is one of the members at the end of the electoral period next AGM, the board had to re-elect the board positions again for the new period.

<i>Position</i>	<i>Old</i>	<i>New or re-elected</i>
Chairman	Alwin van Meeteren	Alwin van Meeteren
Secretary	Ben van Schijndel	Ben van Schijndel
Treasurer	Tom Spronk	Wilbert Eijsink
Country Vice-President	Fred Dissel	Wendi Brandt-Mennen

New Strategy process for 2017 onwards

During several 2016 board meetings and evenings spent together, the new board elaborated a renewed strategy for the next 5 years. The process is known as OGSM. In the first meeting of the new year this new OGSM strategy method was firstly introduced to the members. After discussion and (smaller) adaption the new strategy was presented during the 2017 AGM. All 5 strategy items were presented by its non-executive board member to further adopt this item with AGM.

OGSM Outcome in brief:

Mission

To improve the safety and the increase of the capacity of rail-guided systems by the retaining and further development of the knowledge and practice of signaling.

Vision

By developing and bringing together professionals and knowledge in the field of the signaling, propose and encourage them to realise solutions for the optimisation of the use of track.

The goals and strategies are defined in 5 major strategy items:

<i>Strategy Item</i>	<i>Goal</i>	<i>Measure</i>
Knowledge Platform	Securing, deepening and broadening of knowledge by bringing together knowledge and collaborations with knowledge sources.	# Of times developed knowledge is consulted (measurement: hits on IRSE websites).
Network	Developing knowledge and acquaintances by increasing and simplifying access to knowledge and acquaintances.	% Of members connected to % of members through online network (measurement: LinkedIn).
Involved Members	Increasing the involvement of its members by mobilising the knowledge of its members.	% Of the members present at least 1 x an event (measurement: own records).
Opinion making	The interpretation of the developments in the industry so that it can be practically applied.	# Of times you are cited by others (measurement: Internet service).
Image	Securing the continuity of knowledge of signalling by a relevant and contemporary knowledge platform	% Of members who believe that IRSE has a modern image (measurement: annual membership survey).

Other issues during 2017

The 10-year anniversary of IRSE's Netherlands Section was celebrated in January, and the Section was also happy to be invited by IRSE HQ to host a presidential paper and presentation. The event was held on the 25-26 January 2018 and was be the 'kick-off' for the celebration year. This event was sponsored by the local companies that support the IRSE Dutch section and continued special attention was given to young (potential) members. A special program was executed with the goal to be more interesting to younger members.

A first special Young Member excursion and presentation was held during November. The website has been updated regularly with technical information and the presentations that were held during the year forward.

4. Plans for the Next 12 Months

ERTMS is going to remain a hot topic in the Netherlands, since decision for the roll-out on a nation-wide scale is foreseen to be decided in 2018. There will be a couple of meetings regarding this topic and regarding the two large re-signalling URBAN projects in the Netherlands, Metro Rotterdam and Metro Amsterdam. It is going to be an interesting year for all members of the IRSE Dutch Section. Current Plans (can be changed further):

<i>Month</i>	<i>Subject</i>	<i>Date</i>
January 2018	Presidential Paper	January 25/26
February 2018	Hyperloop, Delft Tech.University	
March 2018	'Lagerhuis' discussion	
April 2018	RET/Bombardier, Mixed use	
May 2018	AGM and update Signalling Prog	May 17
June 2018	ERTMS roll-out	
September 2018	CBTC Amsterdam Metro	
September 2018	10-years of IRSE NL	September 22
October 2018	Visit to Harbour AMS or ROT	
November 2018	EMC Effects on new systems	
December 2018	Close-out Anniversary Year	

Report produced by: Ben van Schijndel

Date: January 2018

Southern Africa Section report

1. Introduction

The South African signalling industry activity over the past 12 months remained focused on:

- Renewal of the commuter rail network signalling installations in the Gauteng, Durban and Cape Town metropolitan areas. Meaningful progress has been achieved in specifically the Gauteng and Durban areas, with progress in the Cape Town area lagging.
- Signalling expansions or implementing signalling changes to various selected freight rail corridors to increase the capacity of the general freight network. The extent of this work has reduced going into 2017.
- Essential train control system developments, enhancements, maintenance and repair to ensure continued train operations on existing commuter and freight rail networks.

The need to develop resource competency and capacity in the local industry to meet the needs of these initiatives remains a big challenge to the industry and IRSE Local Section.

Interest in the proceedings and offerings of the IRSE still shows signs of increasing. The willingness of the local industry to financially support the SA IRSE Section remains a mixed bag, with good support from some industry players and limited to no support from others.

The membership of the SA IRSE Section is approximately 70 but continually varies.

2. Section Officers

Chairman:

Secretary:

Treasurer:

Country Vice-President:

Webmaster):

Kobus van Niekerk

Ryan Gould

Johan van de Pol

Graham Paverd

Kobus van Niekerk (SA website now setup and Kobus is currently webmaster

3. Main Activities During the Past 12 Months

- Eighth 2016 Technical Meeting, 13 October. The topic was *Fibre Bragg Grating in Railway Applications* presented by Juan Bruyns of Actom (Pty) Ltd.
- AGM and ninth 2016 Technical Meeting, 10 November. The topic was *The Monorail Dream in South Africa: The Alternative*, presented by Mashia Tebele of Bombardier SA.
- First 2017 Technical Meeting, 9 March. The topic was *Technology Mapping for Signalling, Train Control & Communication Systems from a Perspective of a Railway Asset Owner*, presented by Portia Xaba of the Gautrain Management Agency. This paper was published in the IRSE News.
- Second 2017 Technical Meeting, 8 June. The topic was *The Evolving TCO: Operating in a Transitioning Technological World*, presented by Bramwell Ortell of Transnet Freight Rail.
- Third 2017 Technical Meeting, 13 July. The topic was *Testing Requirement with the Introduction of Electronic Interlocking*, presented by Christiaan von Abo of Transnet Freight Rail.
- Fourth 2016 Technical Meeting, 10 August. The topic was *Reliability and Safety Aspects of Refurbished Relay-based Interlocking*, presented by Tiisetso Nkalai of Transnet Group Capital.
- Fifth Technical Meeting, 14 September. The topic was *The Impact of Locomotive Based Signalling on the Waterberg Line*, presented by Mlu Daniel of Transnet Group Capital.

There will be a further two Technical Meetings to the end of 2017, of which the last meeting in November will double as the AGM of the Southern African Section.

The SA Section continues to have the privilege of using the video conferencing system of GIBB to connect technical meeting venues in Johannesburg, Durban and Cape Town. This has enabled a wider participation in these events and is most certainly appreciated.

The level of attendance at the technical meetings listed above has varied significantly but, on average, has stayed much the same throughout the year. The SA Section continues to face the challenge that there are usually more guests than members attending these meetings.

Efforts to increase the number of members has had some positive outcome, but there is still opportunity and further effort needed to meaningfully change the relatively low level of membership. The initiative to get recognition as a voluntary association from the Engineering Council of South Africa (ECSA) has been revived with a resubmission, various meeting held with ECSA and the opportunity to engage directly with the CEO.

4. Plans for the Next 12 Months

The current 2017 focus areas for the Southern African section are captured below. These will however be reviewed and refined after the AGM in November 2017, when the newly elected committee is in place. Accordingly, these focus areas/plans may change.

- The process of getting formal recognition, from the Engineering Council of South Africa, of the IRSE SA Section as a voluntary association is still not concluded for various reasons, mainly outside of the control of the local section. A concerted effort to achieve this within 2017 is now under way, with indications of the best possibility of being successful being seen. Implementing the potential advantages when achieved will need to follow in 2017 and into 2018.
- Identifying alternative approaches and enhancing ongoing efforts to encourage guests and others in the train control systems arena to become IRSE members. Some progress has been made in this regard during 2017.
- Completing the current 2017 programme of events as planned. There are two further technical meetings set in October and November. The November technical meeting will also serve as the AGM for the Southern African Section. Consideration is still being given to organise a technical visit in either October or November, but these arrangements are still to be finalised provided a suitable opportunity for the visit can be secured.
- Further efforts and alternative ways to approach the captains of the railway and signalling industry in South Africa to promote the IRSE and to promote a better understand of how the IRSE can contribute to the success of the industry.

Report produced by: Ryan Gould
Date: September 2017

Singapore Section report

1. Introduction

The Singapore local section have had another year of interesting technical presentations and are in midst of planning for ASPECT 2017 Conference which is being held in Singapore.

There were 50 IRSE members in the section as of November 2017.

2. Section Officers

Chairman:

Robert Cooke

Secretary:

Martin White

Treasurer:

Ian Tomlins

Country Vice-President:

Mark Appleyard

Webmaster:

Lim Chiau Khoon

3. Main Activities During the Past 12 Months

The following presentations were held during the last twelve months:

- *Singapore DTL Resignalling* - Joanna Lee, 18 November 2016
- *Upgrading the World's Oldest Railway* - Mike Harvey, 7 March 2017
- *Managing and implementing practical Information Systems Technology Security in Railway Communications Systems* - Lim Thiam Siew, 23 May 2017
- *Guide to the Production of Signal Scheme Plans and Equipment Routing Design Drawings for Green Field Projects* - Kang Poh Peng, 11 July 2017
- *Condition Monitoring of Track* - Andrew Ng, 8 November 2017

Presentations are open to both IRSE and non-IRSE members. There are typically approximately 60-70 attendees at these events.

4. Plans for the Next 12 Months

Members of the committee (Robert Cooke, Martin White, Toh Kim Toon and Andrew Ng) have been actively involved in planning for the ASPECT 2017 Conference due to take place on 28-29 November, with an Intro Day on 27 November. In addition, there has been liaison with the IRSE Australasian Section in connection with the planning for Australasian and Singaporean Sections Seminar, that follows on from ASPECT 2017 on 1 December 2017.

At the ASPECT Conference the IRSE formally implemented the Memorandum of Understanding between the IRSE and the Institution of Engineers Singapore, which it is hoped will lead to greater co-operation and joint working between the two organisations.

The plan is to hold presentations in 2018 at approximately two monthly intervals.

Report produced by: M P White

Date: November 2017

Switzerland Section report

1. Introduction

The Swiss local section has continued to organise successful technical visits and presentation whilst planning the IRSE International Convention 2018.

There were 63 IRSE members in the local sections as of January 2017.

2. Section Officers

Chairman:	Daniel Pixley
Secretary:	Dr Marco Lüthi
Treasurer:	Rolf Seiffert
Country Vice-President:	Rolf Seiffert
Webmaster:	Beatrice Müller & Dr Marco Lüthi

3. Main Activities During the Past 12 Months

Events

During 2017 the Section as usual organised 4 events (three technical visits and one paper session) according to the following overview:

Date	Topic	Type
10 March 2017	Transport de la Région Morges, Bière and Lille-Mont-la-Ville (MBC): Interlocking at Chigny, CTC in La Gottaz	Technical Visit
10 March 2017	AGM in Morges	AGM
16 June 2017	Remote Control	Paper Session
20 October 2017	Equipping Rosshäusern Tunnel west of Bern	Technical Visit
10 November 2017	Comlab: Radio Transmission Systems	Technical Visit

All events were well attended, generally by far more than half of the section members. At a number of events members from other sections joined. This was very much welcomed, and it would be excellent to increase this further. Reports of all events have been submitted to the IRSE News, those of the last two technical visits are yet to be published. The selection of interdisciplinary subjects demonstrates once again one important element of the strategy of the section.

AGM

On 10 March 2017 the 6th regular AGM was held. Dr. Rolf Gutzwiler resigned from the Swiss section committee. He had been Country Vice-President since founding the Swiss section 6 years ago, organised most of the Section's paper sessions and maintained its contacts to universities. His contributions were very substantial for the success of the Swiss Section. The chairman and all of the members thanked Rolf for his great work. Patrick Sonderegger from Thales was elected as new member of the section committee

Committee

The committee met four times during the year and treated strategic subjects, the organisation of the events, membership and other matters. A major activity was taking decisions concerning the organisation of the IRSE convention 2018 in Switzerland. New committee member Patrick Sonderegger has taken responsibility for organising events. Also, other responsibilities within the committee were adjusted.

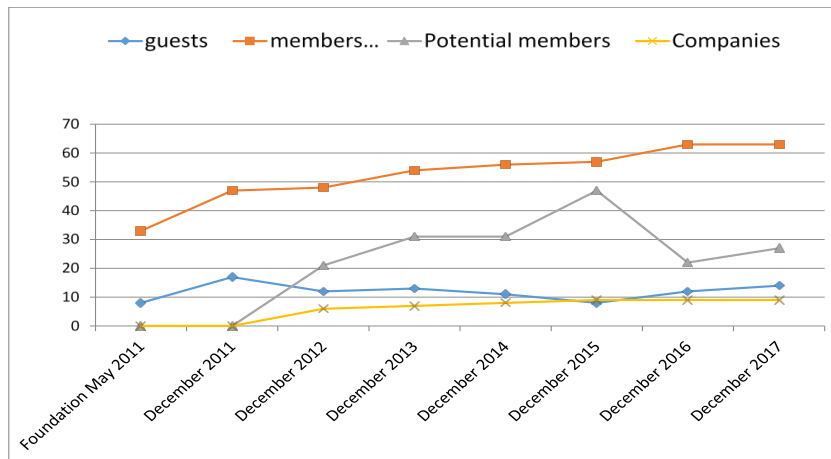
Planning of the Convention 18

For organising the convention, the dedicated organisation committee and many members have been very active. The committee got together multiple times in the last year. A web site was put in place. Together with IRSE HQ the budget was finalised, and the invitation was published. It has been very strenuous to commit the needed sponsors. Dr Markus Montigel has put a lot of effort into that and it look like objectives will be met. For future conventions this financial model heavily based on sponsors will need to be rethought.

Development of membership

The number of section members has been consistently growing slowly in the last years. In 2017 the number of members again grew slightly to 63. There are a few more applications in the pipeline. The potential to grow to 100 member remains given the number of guests and prospective members. The largest obstacle remains filling in the application form in English correctly and completely.

Going forward, the Section has assigned a member of the committee with the specific experience to motivate and coach prospective members individually when filling in the application form.



The committee continues to focus on membership development. Specific members have been encouraged to upgrade their membership level where appropriate. The committee is also working to identify and motivate members for functions in the Swiss and international IRSE organisation. Due to the large engagement of active members in organizing the Convention 18, it is expected that this will show visible success after the Convention 18.

4. Plans for the Next 12 Months

For 2018 the committee has set the following priorities for the Swiss section:

Organise the usual 4 yearly events:

Q1 - 1 technical visit and AGM

Q2 - IRSE convention

Q3 - Dinner meeting at Innotrans

Q4 - International IRSE Seminar

In this year, two events are focussed for international participation (IRSE Convention, IRSE Seminar) and it is also expected that the dinner meeting at Innotrans in Berlin will be interesting for a number of international members that are at Innotrans. All events will be published on the IRSE HQ web site as the dates are defined. For 2019

thought is being given to setting up a few additional meetings without technical visits as opportunity for the members to get together.

- Continue to focus on growing the number of members and on membership development.
- Improve the communication between members of the Swiss section by taking advantage of state-of-the-art social media tools and simplify the exchange of pictures taken at events.
- Work on organising a spectacular Convention 18! The organising committee is putting further detail to the plans and is working on finding sponsors. As one element, the brochure for sponsors is being translated from German to English.

Report produced by: Daniel Pixley
Date: January 2018

Thailand Section report

1. Introduction

The Thailand local section have been busy participating in regional conferences, technical presentation and technical training.

There were 44 IRSE members of the Thailand local section as of September 2017.

2. Section Officers

Chairman:	Asst. Prof Wichai Siwakosit, Ph.D.
Secretary:	Mr Vasuwee Euanchita
Treasurer:	Mr Vasuwee Euanchita
Webmaster):	Mr Vasuwee Euanchita

3. Main Activities During the Past 12 Months

The following four activities took place in 2017:

Rail Expansion Asia, 18 May 2017

Mr Anan Phonimdang (an IRSE Thailand Committee member, from State Railway of Thailand) was a keynote speaker on the topic *ETCS Development in Thailand*.

Asia Rail Summit, 25 May 2017

Asst. Prof Wichai Siwakosit, Ph.D. (Chairman of IRSE Thailand from Kasetsart University) was a keynote speaker on the topic *ETCS Development in Thailand*.

Technical talk, 14 July 2017 at Bombardier Transportation (Thailand)

Two topics - JICA's *HSR Study for Bangkok-ChiangMai Route* by Mr Hiroyuki Mizui, project manager of JICA study team, and *Big Data for Railway* by Mr Bjorn Lundberg, EAPD engineering director, Bombardier Transportation. A total of 25 guests attended the technical talk and Mr Adrian Exer (a Fellow of IRSE) also attended.

Training to SRTET (S.R.T. Electrified Train Company Limited), the Airport Rail Link operator in Thailand, 26 - 27 July 2017

On the topics *Global System for Mobile Communication – Railway (GSM-R)*, by Asso. Prof Wiroonsak Santipach, Ph.D. from Kasetsart University and *ERTMS/ETCS Introduction* by Miss Moa Svensson (Senior Expert) and Mr.Taweesak Satiracharoenkul (Expert) from Bombardier Transportation. A total of 32 attendees from SRTET attended. The course was 2 days classroom at Golden Tulip Hotel, Bangkok.

IRSE as a Development Tool

As part of the development of resources we are encouraging the use of IRSE for self-development, principally via activities such as Lunch & Learn or simple mini presentations. Typical examples include:

- The CPD Map to Success
- Traffic Management & ATO

4. Plans for the Next 12 Months

Tentative Date	Activities	Target Group
2 nd week of November 2017	IRSE TS Committee Meeting	IRSE TS Committees
2 nd week of February 2018	IRSE TS Committee Meeting	IRSE TS Committees
1 st week of March 2018	Technical Talk	IRSE members and interested audiences in Thai Railway industry
3 rd week of May	Asia Rail Summit Presentation by IRSE TS	Conference audiences
3 rd week of July 2018	General Meeting	IRSE members and interested audiences in Thai Railway industry
2 nd week of September 2018	IRSE TS Committee Meeting	IRSE TS Committees

Expectations:

- IRSE Thailand shall be providing facilitators for the forthcoming 2017 IRSE Examinations.
- During the course of the next 12 months the intention is to progress further Technical Talks, potentially on a quarterly basis. Another area we are looking to explore is building the foundations of a Younger Members section given that the rail industry in Thailand is attracting a high volume of resources from University and are seen to be proactive individuals.

Report produced by: Mr Vasuwee Euanchita
Date: September 2017

Reports from Local Sections in the UK

The following reports have been received from the IRSE's UK Sections to report their activities over the Presidential Year 2017 – 2018. They have been edited for consistency and to provide a permanent record for the 2017 – 2018 Proceedings.

Midlands & North-Western Section

Minor Railways Section

Plymouth Section

Scottish Section

Western Section

Younger Members' Section

York Section

Midlands & North West Section Report

1. Overview

The M&NWS had a strong year with its spread of activities both in terms of subject and the geography of the section. The Section remains unique in IRSE Sections in that it does not operate predominantly from a single base within its geography but across different centres. The result of this is that there is a wide catchment of attendees and participants but few who travel to all events across the territory of the section.

In returning to the role of Chairman Peter Halliwell's objective for the year was to broaden the horizons of the view of control, command and communications in the mix of more traditional IRSE topics; key to this was both a technical visit to a Smart motorway project and a presentation by a Smart motorway design house on the principles and practices of Smart motorway signalling, signage, operation and control.

2. 2017/18 Technical Meetings

19 September 2017 - *What can cab-signalling ever do for us?* by Bob Barnard, retired, Manchester.

The opening meeting was deliberately provocatively titled. The meeting gave Bob the opportunity to review the developments throughout his extensive career and to speculate on the potential future use of the European Train Control System, Drivers' Advisory Systems, and Automatic Train Operations.

10 October 2017 - *Derby Remodelling and Derby North Recontrol* by Edward Zifodya, Siemens Rail Automation UK, Derby.

Edward presented details of the technology application across the former Derby and Trent Power Signal Box areas and transfer of control into the East Midlands Route Operation Centre. A full write up was included in IRSE News 239, December 2017, by Ian Mitchell.

16 November 2017 - *Level Crossing Developments* by Ed Rollings, Network Rail, Birmingham.

Ed presented a journey through some of the recent developments in understanding human behaviour at level crossings and how the level crossings engineer might respond. He included footpath and User Worked types in addition to those 'signalled' types in which the level crossings engineer is traditionally involved.

7 December 2017 - *Ordsall Update* by Geoff Paley, Siemens Rail Automation UK, Manchester.

Geoff gave an update on the Ordsall Chord project, the signalling arrangements, the project and its integration with other works in and around Manchester.

9 January 2018 - *HS2 – Network Rail Interfaces* by Dave Gordon, Network Rail, Crewe.

Dave presented details of the analysis of technical, operational, safety, regulatory, environmental and legal interface issues. He explained how the duty of cooperation is intended to operate between Network Rail and HS2 to lead to the successful creation of the HS2 route, its integration with the national network and the integration of HS2 train services with those on the national network.

6 February 2018 - *What follows GSM-R?* by Paul Darlington, retired, Stoke-on-Trent. In a short notice change to the programme owing to illness Paul stepped in to deliver a talk about the Global System for Mobile Communications – Railways network and future options for operational mobile communications for the national rail network. This was a reprise of the Presidential Programme paper by Clive Kessell and Paul which was published in IRSE News 240, January 2018.

8 March 2018 - *FuTro* by Clive Burrows, First Group, Derby.

Clive spoke about Future Traffic Regulation and Optimisation (FuTRO) which is a key research programme in the area of traffic regulation and management to define the railway of the future. He described how technology offers a unique opportunity to transform the railway but is also a threat to its survival if we do not rise to the challenge of the mid-21st Century. His presentation outlined the work done and planned by FuTRO in the context of the Rail Technical Strategy Capability Delivery Plan, aiming to rise to the challenge and support the transformation. A full write up was included in IRSE News 244, May 2018, by Ian Mitchell.

10 April 2018 - *Smart Motorways* by Neil Young and Richard Goodwin, Jacobs, Birmingham. Neil and Richard explained the operational concept, design principles and technology of smart motorways. They gave a brief history of the development of the application of traffic management and control systems on British motorways leading to the arrangements applied in the latest projects. A full write up was included in IRSE News 244, May 2018, by Peter Halliwell.

3. Technical Visits and Annual Luncheon

There were four events during the year:

24 May 2017 - Ordsall Chord. This was a visit to view the works and the worksite of the Ordsall Chord project as it neared completion.

24 June 2017 - The venue for the 'steam lunch' as it is affectionally known was the Great Central Railway (GCR) heritage railway in Leicestershire. Twenty-four members and guests visited the GCR. The technical part of the visit at Swithland Sidings hosted by GCR allowed the visitors to visit the signal box, relay room and the Mountsorrel branch. A full write up was included in IRSE News 237, October 2017, by Ian Allison.

13 September 2017 - M6 Smart Motorway Project. This was a visit to the site office of the M6 junction 16 to 19 Smart Motorway project to see how a major road reconstructions and control project is set up and operates. A full write up was included in IRSE News 239, December 2017, by Peter Halliwell.

6 February 2018 - Network Rail Telecoms's Network Management Centre (NMC), Stoke-on-Trent. This visit to the NMC saw how the hierarchy of the trunk telecommunications network is operated, the structure of the network, the use of fibre optic technology and an insight as to how resilience has been designed into the network and the way it is operated. This visit tied in with the technical meeting held in Stoke-on-Trent on the same day.

4. Chairman's Award

The section is proud to have an annual trophy which is in the gift of the chairman to recognise an individual's contribution to the industry. Peter Halliwell awarded the Chairman's Trophy to Secretary, Bill Redfern, for his countless years of dedicated, loyal and unstinting service.

5. Committee

Bill Redfern (Secretary)
Clive Williams (Treasurer)
Steve Barge
Ian Bridges
Paul Darlington
Ian Fury
Tapas Haldar

Graham Hill
Ian Mitchell
Charlie Stanger
Paul Toole

There were two vacancies at the start of the year, Marie Kipling and Geoff Paley were co-opted to the committee during the year.

Minor Railways Section Report

1. Overview

The Minor Railways Section aims to provide an encouraging forum to support, assist, and provide guidance and to learn from those involved in the minor railway and heritage S&T community.

All members of the IRSE employed by, or with an interest in, minor railways are eligible for membership of the Section.

The Section undertakes technical visits, technical seminars and technical training workshops to support and further the aims of the IRSE within the minor railway and heritage S&T community.

The 2017-18 committee consisted of:

Chairman:	Ron Whalley
Vice Chairman:	Charles Weightman
Treasurer:	Martijn Huibers
Secretary:	Russell Withington
Visits Secretary:	Mike Tyrrell
Committee:	Dave Helliwell
	Trevor Hodgson
	Stephen Clark
	Major Ian Hughes TD

2. Events

The Minor Railways section has continued through the year with its programme providing a number of hands-on opportunities for members to gain practical experience and advice for those involved with and responsible for minor railways.

In September 2017, a successful signalling maintenance and installation two-day workshop on level crossings, supported and sponsored by Señalización Ltd, Signet Solutions and Green Dragon Rail and held at Signet Solutions' training facilities in Derby with 12 people taking part.

In November 2017, the sixth technical seminar was held at Kidderminster Railway Museum, at the Kidderminster Severn Valley Railway Station with the theme *New Technology Applied to Minor Railways*. The day had a number of interesting sessions around the management and implementation of new technology and the application of these on minor railways. The event also saw the presentation of the 2017 Volunteer S&T Technician of the Year Award, recognising those individuals who demonstrate an

outstanding individual commitment, on a regular basis, to the practice of S & T engineering on their particular minor railway or in a minor railways' context. The 2017 winner was Roland Johnson of the South Tyndale Railway, who won the trophy, a framed certificate and a cheque for £250,

In March 2018, a technical visit was made to the Nene Valley Railway at Peterborough, with opportunities to inspect the line and equipment as well as view the infrastructure from chartered a train.

The Annual General Meeting of the Section was held in June 2018 at the Swindon Panel Museum at the Didcot GWR Museum. This was followed by the official opening of the Swindon Panel museum by Francis How, the IRSE Chief Executive. The afternoon was free for members to browse the site on an afternoon finished off with a BBQ.

The section committee would like to thank all those who have supported the section throughout the year.

3. Chairman's Report

The Section was set up nine years ago with the object of providing a forum, for staff working on minor railways so that they could gain expertise and competence and exchange knowledge and equipment in order to provide the appropriate signalling for their line.

I particularly mention competence because, as I frequently tell trainees these days, trains don't run on rails, they run on paper!

The MR Section has achieved its objectives by arranging visits to many railways and signal boxes, both heritage and main line, and, a few years ago, also to some in Holland. We have also published several guidance documents covering the installation and maintenance of equipment.

This year our work has continued by holding another of our very successful technical training courses at Derby courtesy of SIGNET. This time it covered level crossings and our thanks go out to our sponsors and in particular to SIGNET for their invaluable support in developing and running these courses.

We also held our biannual Technical Seminar at Kidderminster. Visits are already being planned for the forthcoming years, and our visits Secretary will provide details of these in his report.

During the Kidderminster Seminar we awarded the most recent *Volunteer of the Year* award to Rolly Johnson of the South Tynedale railway. We would like to encourage all of the member railways to make an application for this award. Look at the work you have done, and the personnel involved and put some names forward!

Next year is the 10th anniversary of the foundation of this section and with it, the realisation that some of us are not getting any younger. We see succession management as an important part of our remit, and to this end we are anxious to recruit new people from all grades of membership both to the section and to the committee.

Some people might be put off by the thought of committee work. This year we have we have increasingly used teleconferencing in order to save Members having to travel, so location should not be a barrier to anyone interested in joining us.

Thank you for your continuing support for the section and the Institution as a whole, and my personal thanks go to my fellow committee members for their work on behalf of the section.

Ronald H. Whalley

Plymouth Section Report

1. Overview

At the 2016-2017 Annual General Meeting the committee for the 2017-2018 session had been elected as follows: Richard Belli, Allan Morgan, John Senior, Mick South, Tom McLarnon and Andy Billson.

Secretary/Treasurer: David Came

Financial Scrutineer: Alastair Wilson.

The session turned out to be one of great expectations and successful events followed by a downslide which brought a temporary cessation to activities.

A full programme of meetings and events had been planned and all of these took place as programmed, with great success until the final event. Just prior to it taking place one of the local signalling companies was put into liquidation with the immediate loss of employment for its staff. With so many of the Section's newer and younger members being based with that company, the future became very uncertain as although there are a number of members domicile in the extreme south west, the section does rely on there being a core of membership in the city.

Following a short period where moves were being made by local companies to resolve the issue, it transpired that a number of members would continue in local employment, resulting in the section being able to continue much as before, albeit with reduced numbers.

One function of the 2017-2018 Annual General Meeting was to determine the way forward for the section following the above events.

2. Summary of Committee Actions

The committee held meetings during the session inclusive of using electronic means to involve members who were not able to attend in person. The key results of these meetings were:

- Richard Belli was elected to be Chairman. (This is in line with the section Bye-Laws: a committee is elected at the AGM and the committee elects the Chairman).
- A draft initial programme of events was decided upon.
- Following further discussion, a final programme of events was established and published to members and to HQ in London.
- The content of the HQ document *Procedure for Membership of Local Sections* was discussed and its relevance to the Plymouth Section identified.

- The HQ circulars relating to the creation of a new IRSE logo were discussed and replied to.

The final programme of events was as follows:

- A Presentation on Crossrail (in conjunction with the IET and held at Plymouth University)
- A social evening. A variation from the usual was discussed but the decision was to continue with the "Beer and Curry" night but using alternative venues.
- A Technical Visit to the Plymouth Waste Incinerator.
- A Technical Visit to the Dartmouth Steam Railway (Paignton to Kingswear).

Technical & Social

Crossrail - On Tuesday 24 October 2017, Tom Godfrey of Bombardier Transportation gave a presentation on Crossrail. This was held in the Babbage Building of Plymouth University in conjunction with the IET. The meeting was well attended by a combination of IRSE and IET members, university students and railway enthusiasts. The meeting register shows that 10 IRSE members attended.

The presentation was extremely interesting and presented in a manner that appealed to both signalling engineers and those from other disciplines and rail enthusiasts.

The first part of the meeting saw a brief explanation of current signalling terminology and practices for the benefit of non-signal engineers present. The second part explained how Crossrail would be achieved by using and / or interfacing with those current systems.

An interesting and lively question time followed before time constraints brought proceedings to an end. Questions and comments were received from both signalling and non-signalling attendees, demonstrating that the presentation had been of interest to all present.

Social Evening - The traditional "Beer and Curry" night took place on Friday 24 November 2017 however, it was decided to visit different venues to those of previous years. The evening began in the renowned Dolphin pub on the Plymouth Barbican, where a good number of members assembled. Following this the party moved on to the Marina Bar for more thirst-quenching on route to the Jaipur Palace Indian Restaurant. It was a very successful and enjoyable evening attended by in excess of twenty members.

Plymouth Waste Incinerator - On Thursday 15 February 2018, in stark contrast to a rail presentation, fourteen members made a technical visit to the Plymouth Energy

from Waste Plant, operated by MVV Environment on behalf of the South West Devon Waste Partnership which consists of Plymouth City, West Devon and Torbay councils. Due to the absence of the MVV public relations officer, the group had the bonus of being shown around by the managing director Mr Paul Carey, who has been involved with the project from day one and was able to provide a detailed background to events throughout the process from concept, planning, public enquiry, construction, testing and finally operation.

Whilst the plant input is brown waste from the above referenced councils, MVV considers the works to be a Power Generation Plant using domestic and industrial waste as fuel rather than a waste disposal facility, as its output delivers both electricity and steam to the adjacent Devonport Royal Naval Dockyard, with the option to feed surplus electricity to the National Grid. There are other by-products such as metals, and even the ash spoil is used to create construction material.

The scale of the process is indeed impressive with giant overhead computer controlled manoeuvrable grabs feeding the waste to the incinerator furnace, which in turn produces steam to drive an 11kv generator. A key function of the process is the mandatory environmental monitoring of all residual matter, particularly gasses, the data concerning which is transmitted directly to the environmental authorities via a link that MVV does not control.

The complete works is managed on a 24/7 basis from a control room not too dissimilar to many of the control rooms familiar to the IRSE membership, except one major difference is a large window area overlooking the waste entry chamber such that operators may visibly monitor operations and take manual control of the grabs if necessary.

It was an excellent and thoroughly interesting visit and the total tour experience was greatly appreciated by those present.

Dartmouth Steam Railway - Returning to railway matters, the Dartmouth Steam Railway, which runs between Paignton and Kingswear, was the location for the next technical visit by the Plymouth Section. Unfortunately, the number of members attending was very low as a result of events described earlier in this report.

The group assembled at the entrance to Paignton station before proceeding to visit Paignton platform trackside, Goodrington, Churston Workshop, Brittonia Crossing (Dartmouth Higher Ferry) and Kingswear utilising a combination of a timetabled steam train plus the maintenance bus for transport.

The signalling installations were of course of interest, but in addition it was fascinating to visit the workshop at Churston to witness the level and detail of work undertaken on the locomotives. Lydham Manor number 7827 stood impressive and complete within the workshop, whereas a second loco was virtually totally disassembled with only the chassis and cab seemingly present. Listening to the explanation by the mechanic of

the works undertaken was fascinating, and illustrated to the visitors the depth of knowledge and abilities of these engineers.

Host Dave Helliwell facilitated an excellent and informative visit to this popular West Country tourist attraction.

3. HQ Activities Relation to Local Sections

The session saw a number of activities that would affect local sections being undertaken by HQ, as part of a major review. Most of these relate to the global position that the Institution now occupies, with sections in many countries around the world as well as the UK. In general, information received from HQ could not be related to a section the size of Plymouth, leading to committee discussion as to their relevance. Two items that did relate to all sections were as follows:

Local Section Membership - The proposal is for each local section to take ownership of and maintain a membership list relevant to its area. An option that would not be applied by Plymouth is the freedom of local sections to collect an annual membership fee from their members, on top of that paid to the Institution. This is aimed at offshore sections.

New Logo - Members will have become aware of a revised logo now in use by the Institution. The decisions on the logo were all undertaken by HQ. The choices presented to sections were limited to colours and in some cases presentation. The committee considered the options and informed HQ of the Plymouth decisions. This report is headed by the new Plymouth general logo.

4. Annual General Meeting

The Annual General Meeting for the 2017-2018 session for the Plymouth Section of the IRSE was held on 12 September 2018 at 17.30 hours at the offices of Hitachi Control And Communication Systems, Crownhill, Plymouth. A summary of key items is as follows:

Opening statement - The Chairman opened the meeting to express satisfaction that the section had experienced a successful year despite external events beyond its control, these events being the reason for the delayed AGM.

Attendance - Nine members attended the meeting, either in person or via remote link. Apologies for absence were received from seven members.

Reading and Acceptance of Minutes of Meeting of Previous Year - The previous minutes were accepted with the only matter arising being the explanation as to why the section had not applied for a £500 grant from HQ on the grounds that there were no justifiable reasons for needing the finance.

Secretary's Report - The secretary presented his annual report to the meeting, followed by the financial report, both of which were accepted by the members following minor clarifications.

Election of Officers - The secretary put forward a suggestion that going forward it was an option to slightly modify the section bye-laws so as to allow for committee members to serve beyond 3 years if they were willing. This would suit the new situation where a reduced number of members are employed by each local company. Also, it was not ideal to be changing the Chairman every year and would be far better for continuity if this was not done.

The bye-laws of the main body do not dictate that things should be done the way they are now, and the system was put together to suit the British Rail / M L Engineering situation that existed at the formation of the section.

The secretary went on to propose that in view of the above, no changes to the committee or Chairman would be made this session. This was unanimously agreed by those present.

In addition, it was agreed that the bye-laws be changed at the next AGM and in future the Section will attempt to hold its AGM closer to the date of the main AGM.

The standing committee voted in was:

Richard Belli (Hitachi) (Chairman)

Allan Morgan (Bombardier)

John Senior (Atkins)

Mick South (Retired)

Tom McLarnon (Retired)

Andy Billson (Rail Signalling and Power - RSP)

Dave Came to continue as Secretary / Treasurer

5. Programme of Events 2018-2019

A list of potential subjects for technical meetings and visits for the next year was generated following an open discussion.

6. Other Business

It was raised at the meeting that the section has never submitted any articles for publication in the IRSE News. It was agreed that an article would be prepared describing the sections events over the past session, to be forwarded to IRSE News. There was discussion on the subject of the 50th anniversary of the formation of the Plymouth section, which would take place during the 2019-2020 session. The exact history in terms of at which dates meetings and the official formation of the section took place needed to be established.

Scottish Section Report

1. Overview

This year's session has been an improvement on last, with lectures that were arranged for 2017 being well attended at the Sloan's function room venue.

The Section's 2017 Dinner was generously sponsored by SVM, with 257 guests present.

With the surplus accrued from the various dinners, the committee will continue providing funding for training session days for younger members, bursaries to allow members to attend the IRSE Exam study groups organised at Derby, as well as subsidised events such as tours and visits to Glasgow Central and Prestwick NATS for this year's technical visit.

2. Summary of the Session 2017/18

September Lecture

Inverclyde Lineside Renewals, Ian Hill of Network Rail

The session kicked off with an informative lecture from Ian Hill of NR regarding the Inverclyde Lineside Renewals project, one of the first projects of its size to be delivered internally by Network Rail.

The scope of the project included lineside renewals, signal refurbs and renewals, track plain lining, provision of Class II 650V power feeders, new Bi-Directional signals and innovative use of tunnel location cases in Scotland's longest railway tunnel.

The numbers couldn't have been better for the programme opening lecture, and the Q&A session lasted on until the refreshments downstairs.

(Attendance: Members 29, Guests 9)

October Lecture

Automatic Testing of Interlocking Signalling Controllers, Craig Hourston of Atkins

The second lecture of this year's programme was kindly presented by one of the Section's own members in the absence of Eduardo Olleta of Atkins.

The automation of design and testing for signalling systems is the focus of considerable interest and effort at present, and the production of software for an interlocking signalling controller that can be tested automatically brings new challenges to the signalling industry.

Craig described the Electro-Logics software and the definition of its system requirements as well as the challenges faced when complying with BS EN 50128 as a SIL 4 interlocking controller.

A well-attended event, with another long-lasting Q&A session.
(Attendance: Members 17)

November Lecture

Low Cost Signalling, Andy Stringer and Graeme Christmas of Siemens/NR

Andy Stringer of Siemens and Graeme Christmas of Network Rail agreed to present the lecture preceding the Dinner.

The presentation looked at how signalling solutions need to be adapted to meet the future demands of more benefit for lower cost. As well as considering traditional areas of cost savings the talk considered different perspectives, to look at not only the price of signalling but the value that the system provides.

The topic was very well received and attended, with different companies and IRSE HQ being represented during the question and answer session following the presentation.

The lecture was followed by the Annual Dinner which was kindly sponsored by SVM.

(Attendance: Members 38, Guests 38 – Dinner 257)

January Lecture

Cyber Security of Signalling Systems, Chris Waters of Siemens

The first lecture of 2018 was given by past committee member Chris Waters, with a strong local attendance.

Chris explained how the role of IP networking in modern railway signalling systems has increased massively in recent years, and are now providing the connectivity between interlockings, control systems, and trackside equipment in schemes across the country.

He then discussed the risks which comes with increased networking and the types of cyber threats/attacks being used, and what areas the rail industry must improve its current levels of protection to ensure future proofing a connected network.

A very interesting lecture was followed on with an intense Q&A session which also ran on until the pints were being poured.

(Attendance: Members 17, Guests 15)

February Lecture

Poles to Packets – Telecoms on the Highlands Enhancements Programme, Alisdair Smith of NR

The Telecoms lecture of the session was delivered by Alisdair Smith of NR.

Alisdair detailed the outline of the three projects making up the Highland Enhancements Programme; Aberdeen – Inverness (West), Aberdeen – Inverness (East) and Highland Main Line; with a flavour of the new Telecoms and Signalling technologies being deployed.

A well-attended event, with another long lasting Q&A session.

(Attendance: Members 12, Guests 5)

April Technical Visit

Prestwick NATS - The section organised two separate visits to Prestwick Airport NATS to visit the control centre. Liam and Stuart ran through an interesting presentation on the development of the centre, and its functionality with overall control of air traffic within the UK, before a guided tour of the operating floor and death by grey cabinets in the equipment room.

An impressive and very interesting visit which was enjoyed by all attendees.

(Attendance: Members 17, Guests 1)

May AGM

The Section's session ended in May with the joint AGM and Quiz Night. This was held in Sloans with a Kelburn Brewery tasting session and canopies provided.

Western Section Report

1. Introduction

The 17-18 season was a simple affair for the Western Section, driven by major personnel changes. Long-standing committee members Peter Martell and Tug Wilson departed for work abroad, with recruitment issues meaning only a single replacement, Sam Loveless, was introduced. Obtaining suitable personnel for the committee is an ongoing issue.

2. Main Activities during the past 12 months

October Lecture: *Crossrail* – Chris Chapman, Crossrail

The first presentation of the season was a detailed examination of the technical signalling elements of the Crossrail project, delivered by a staff member of the Crossrail company. The focus was on the various interfaces required between signalling systems both on the project and at the fringes to Network Rail infrastructure. This presentation was held at Western House in Swindon and was followed by a Q&A. Attendance: Members 27, Guests 12

November Lecture: *Low Cost Signalling* – Andy Stringer, Siemens & Graeme Christmas, Network Rail

This event was preceded by the section AGM.

The Siemens office in Chippenham hosted this re-run of a presidential paper that used a typical commuting route from Worcester to London to highlight issues relating to railway cost and complexity that currently exist. Taking audience questions and suggestions as they went, the speakers explained their views on the current challenges facing the industry, particularly relating to cost and technology change.

Records of this meeting are currently unavailable.

December Lecture: *Railway Operations: Plus ça change, plus c'est la meme chose!* – Nigel Murphy, Winder Phillips

Nigel Murphy was at Amey in Bristol to share his experiences in operations management, which he had done over a long career on the railway. There was emphasis throughout on signal boxes, mechanical signalling, low-cost solutions and the importance of local working.

Attendance: Members 14, Guests 3

February Lecture: *Listening for Trains (Distributed Acoustic Sensing)* – Oli Marshall & Lindsay McInnes, Thales

This was a joint presentation with the IET, held at Siemens' offices in Chippenham.

The subject of the evening – Distributed Acoustic Sensing (unfortunately for the railway industry abbreviated as DAS) – is already heavily used in the gas and oil industry. The speakers spent the evening describing their company's attempts to trial a version for us on the railways via new and existing lineside fibre optic cable.

Frauscher's solution taking noise profiles from the cable, processing them and using them to identify various scenarios that are of use to maintainers. The biggest obstacle presently is conducting the necessary trials to generate the noise profiles require to identify various phenomenon. Frauscher currently have trials in numerous countries covering different applications of DAS. Work is still ongoing to determine client preferences. The following Q&A covered electromagnetic effects, speed differentials in travelling trains, data acquisition and compression methods.

Attendance: Members 19, Guests 3 (not including IET members)

March Lecture: *The Digital Railway* – Mark Ferrer, Siemens

This session was held at AECOM in Swindon, where Chris Hardy talked about the Digital Railway from a supplier's point of view. Given the nature of the topic, the speaker used a mixture of company and personal views to describe various positions on the Digital Railway. Questions were asked by the audience throughout. These views typically involved the benefits of introducing new capacity-improving technologies such as C-DAS.

Attendance: Members 18, Guests 13

A final session on level crossings was planned for April. This was cancelled when the speaker withdrew at the last minute, with the intention to reschedule for the following season.

3. Western Section – Officers:

Chairman: Adam Allen

Treasurer: Andy Scarisbrick.

Secretary: Sam Loveless.^{#1}

Committee: Simon Cooper, Pete Duggan, Martin Beard.

^{#1}: Owing to the late AGM and prior IRSE commitments, Tug Wilson acted as Secretary for the October and December meetings.

Younger Members Section Report

1. Introduction

The YM Terms of Reference are as follows (list is not conclusive):

- Improving the benefits the Institution provides for Younger Members
- Supporting the initiatives of the Institution's Council, Committees and Sections for Younger Members and provide assistance
- Providing a focus within the Institution for the co-ordination of Younger Members' events and communications.
- Communication with the Younger Members of the Institution through regular use of the Institution's publications, the website and email

Younger Members are generally under 35, however the Section welcomes all ages to its events. The Younger Members Section aims to have a mixture of regular events across the country and throughout the year. As a national committee it caters for multiple regions which has its benefits and challenges. There are 945 people on the Younger Members' mailing list.

The Section also wants to create a network with younger members from international sections: Francis Howe sent a message to the Sections earlier this year. Keith Upton has collated the response and is now assessing the best way forward.

The Section also tries to help the younger members with the IRSE exams, encouraging attendance at study groups and arranging study days during the year.

2. Section Officers

Chairperson:

Keith Upton

Voting Member:

Matt Slade

Richard Brown

Tom Corker

Alexander Patton

Tanya Chong

Theodora Vlassi

Becky Radnage

Kevin Gardner

Michael Bastow

Helen Kellaway

Treasurer:

Publicity Secretary:

Council Representative:

(Not a regular attendee of committee meetings, available if required)

General Secretary:
Voting Member and EP&D representative:

Vivich Silapasoonthorn
Mohammad Sekanderzada

3. Main Activities During the Past 12 Months

Average attendance for all events is 20-30 (certain events, especially those in the South, were close to 40)

- Crossrail Integration Facility, Westferry London, Supported by Crossrail – 24 February 2017
- AGM, Exam Review and half day Seminar – 23 March 2017, London
- Highgate Control Centre Technical Visit – 21 June 2017, London
- Mod 2,3,5 – Exam Study Weekend – 2-3 July 2017, Signet, Derby
- Mod 1,7 – Exam Study Day – 15 July 2017, Birmingham
- Northern Lines Extension Technical Visit – 20 October 2017, London
- Annual Seminar and Technical Visit – Homogeneous Transport Systems. Nexus and Newcastle College Rail Academy. 15-16 November 2017, Newcastle

All events have been free of charge as that is always the aim for events. Therefore the Section relies on sponsors and contacts for technical visits.

4. Plans for the Next 12 Months

- Confirmed visit to the North Pole depot to see the new IEP trains – 7 December 2017 (already full up).
- Exam study weekends are planned again for next year and discussions as to when in the year these should be are underway. There has been talk that they should take place before the exam registration deadline, so this is likely to be in April. The mod 2,3,5 will take place in Signet and the mod 1,7 will hopefully take place in London at the Atkins offices.
- AGM, half day seminar and exam review is likely to be in March. The date is dependent on when the exam committee are willing to undertake the exam review. This will take place at Birdcage walk.
- Permission has been given to attend the Wegberg-Wildenrath railway test and validation centre in Germany that is used by Siemens and Alstom – this will be in March/April 2018. Details tbc. The Section needs a sponsor for this event, so any help from the Council will be appreciated.
- A joint event with CIHT is on the cards – likely to be presentations from each institution around ITS for highways.

- North Yorkshire Moors Railway Technical Visit followed by a young member attendance at the York section dinner.
- Technical Visit to Wales: Cambrian Line. Likely to be in May/June 2018.
- Signalling weekend at Didcot Railway – reduced YM rate, YM have offered to help with event, potentially can help and establish as a STEM event – 23-24 June 2018.
- Annual Seminar and technical visit – plan is Birmingham. Will include a visit from the IRSE president – likely 8 November 2018
- The Section always struggles to nail down a calendar with advanced notice. The plan this year is for the current committee to nail down dates/location for the main events (annual seminar, AGM and study days), then the next committee can nail down the next year's event and so on. Some of the smaller more ad-hoc technical visits will be organised by the current committee.

York Section Report

(Taken from Chairman's Report from Simon Prins, 10 April 2018)

1. Forward

I was pleased and honoured to take up the position as IRSE York Section Chairman following the 2017 AGM. During the year my aim was to provide a blend of telecommunications and signalling presentations with a focus on the emerging technologies being deployed which will deliver the digital railway of tomorrow. I have enjoyed working with the committee to ensure the IRSE section continues its important work in representing and enhancing the professional lives of members in the region.

2. Committee Meetings

The first committee meeting of the year was held in September at GSH. I put forward the proposed sequence of technical meetings for the year going forward. It was established that committee meetings would be held one week before each technical meeting. Through the year the committee discussed items for IRSE News, planning for the Technical Meetings, annual dinner planning, section financial position as well as HQ re-branding for the IRSE.

3. Technical Meetings 2017/18

5 October 2017 at GSH: *Smartlock Developments* by Don Hayward, Alstom.

Don described how Smartlock can be used to breathe new life into SSI interlocking controlled areas to meet the needs of Digital Railway, extend their control using Smart IO and how recent tool developments may allay concerns over SSI data language.

16 November 2017 at GSH: *DOO CCTV Optical Design Principles* by Peter Stevens, SNC Lavalin's Atkins Business.

Pete described some of the key principles behind DOO CCTV optical designs. He shared insights from recent DOO schemes which help optimize the design process and give confidence in delivering a DOO working solution.

7 December 2017 at York ROC: *Predict & Prevent, What's it all about?* by Ian Puckrin, Network Rail.

This paper defined what predict and prevent really means in the real world for maintenance Engineers, described how the team engage their workforce, helping them cope with new technology whilst managing the expectations of stakeholders.

18 January 2018 at GSH: *FTNx – The Next Generation Telecommunications Network for the UK Railway*, by Andrew Longyear & Steve Matthews, Cisco Systems.

Cisco Systems provided details on FTNx which has been deployed to replace the previous generation of SDH based network called FTN. FTNx is an all IP network based on MPLS (Multi-Protocol Label Switching) allowing the network to be truly multi service for existing and future trackside service requirements.

22 February 2018 at GSH: *Westrace Trackside Systems* by Dermot Tuohey, Siemens.

Dermot described the transition of Siemens' move towards using WTS on the lineside to replace traditional SSI lineside architecture.

22 March 2018 at GSH: *ElectrologIXS, A VLC based Interlocking for the UK* by Ian Bridges, Peter Harbottle and Grace Nodes, SNC Lavalin's Atkins Business.

Ian, Peter & Grace described the development and key components of the ElectroLogIXS interlocking solution for the UK railway including the supporting telecoms network and the Level Crossing in a Box solution.

4. Presidential Programme Address at York ROC, Thursday 8th February 2018

This year the York section was fortunate to host one of the presidential programme addresses. This was held at the York ROC and was presented by Judith Ward on the Continuous Improvement for Lifelong Learning.

5. Report on the 2018 Dinner

Our Annual Dinner was held at the National Railway Museum for the second time, building upon the experiences of the first, and was well received. Bookings were 140, down from 144 in 2017, a good result against the background of such occurrences as the Carillion liquidation that have hit parts of the railway industry hard. A profit of £316.35 was made for Section funds.

The Prize Draw raised £1,517 for Railway Children (against £609.50 in 2017) - £1,770.38 with Gift Aid - to support their good work.

The guest speaker for the evening was Warwick Dent, Safety & Operations Director, Virgin Trains East Coast. Warwick gave amusing insights into experiences through his career as well as challenging engineers to look to new technologies to delivering better service in the future.

Chapter 8

IRSE News issues May 2017 to April 2018

**The IRSE News issues identified for Chapter 8 (Issues 233 - 243)
are available in the IRSE News archive at www.irse.org**

Please visit:

<https://www.irse.org/Publications-Resources/IRSE-News/Archived-Issues>