

INSTITUTE OF ACOUSTICS

***42st ANNUAL REPORT OF THE COUNCIL
FOR THE YEAR ENDED 31 DECEMBER 2015***



3rd Floor

St Peter's House

45-49 Victoria Street

St Albans

Hertfordshire

AL1 3WZ

42nd Annual Report of the Council for 2015

The Institute has continued to serve the interests of its members through its established programmes in the areas of education, professional development, meetings and publications, and by providing representation in areas such as the Engineering Council, Standardisation and International affairs.

The Trustees confirm that in the exercise of their powers as charity trustees, they have had due regard to the published guidance from the Charities Commission on the operation of the public benefit requirements and the aims of the charity are carried out for the public benefit.

The strategic aims confirmed by Council remained as:

1. To advise public policy with regard to the impact and nature of acoustics
2. Increase public awareness of good acoustic design
3. Increase understanding of acoustics by other professionals
4. Developing tomorrow's professionals
5. Providing better support for members
6. Increasing members' professional understanding.

To achieve these aims Council agreed the following objectives against which progress in 2015 is listed.

Objective	Progress in 2015
Advise policy makers on acoustics	The Institute has regularly sent a representative to the Parliamentary and Scientific Committee meetings and has joined the Campaign for Science and Engineering (CASE).
Increase public awareness of good acoustic design	The Peter Lord Award for outstanding acoustic design was awarded in 2015. The Institute sponsored the <i>In Pursuit of Silence</i> film which had world premiere in 2015. The UK premiere is planned for 2016.
Create opportunities for other professionals to gain a better understanding of	Joint activities have taken place with young members of other professional institutes. The Institute has contributed to debates on Engineering for the Future and the Nature

<p>acoustic and its interaction with their specialist field</p>	<p>of 21st Century Engineering Professional Institutions.</p> <p>ProPG guidance document on noise sensitive development jointly commissioned with the ANC; out for consultation in January 2016.</p> <p>Supplementary guidance notes have been out for consultation related to amplitude modulation of wind turbine noise.</p>
<p>To develop links with undergraduate students</p>	<p>The student e-zine was produced twice and student membership increased from 80 at the end of 2014 to 377.</p>
<p>To support the teaching of acoustics at AS/A2 level</p>	<p>Under review awaiting results of Government Consultation on Physics AS/A2 syllabus.</p>
<p>To improve the operational efficiency of the Institute</p>	<p>Further improvements have been made to the website: library catalogue online, members' annual register snapshot available to members.</p>
<p>To develop mechanisms for supporting members professional development</p>	<p>10% monitoring of members CPD continued.</p> <p>Series of conferences and events held during the year, including online events attended by groups across the UK.</p> <p>Major market research study undertaken to identify needs of members and sector over next 5 -10 years; currently being analysed.</p>

Standing Committees

The operation of the Institute is guided by Council through standing committees concerned with Education, Engineering, Medals and

Awards, Meetings, Membership, Publications and Research Co-ordination. The reports of the various committees follow.

Education Committee

The Diploma and Certificate courses have continued to provide education and training for both members and non-members of the IOA. The education programmes and courses introduce many working in acoustics and associated professions to the Institute and support the recruitment of new members.

The Diploma in Acoustics and Noise Control is now in its eighth year since revision in 2008. As a result of grades obtained in 2014/15, the Diploma was awarded to 75 students from four universities (Derby, Leeds Beckett, London South Bank and Southampton Solent) and four distance learning (DL) centres (Bristol, Dublin, Edinburgh and St Albans). Sadly the Diploma will not be offered at Salford or NESOCOT for the foreseeable future and Colchester and Ulster have not recruited sufficient candidates to run the course at their centres. Sarah Wakely (DL St Albans) won the prize for best overall performance and Aoife Kelly (DL Dublin) for the best performance by an Irish student. Nine students received special commendation letters for achieving five merits. The committee continued to monitor the effects of the changes in higher education funding on students and centres, and is developing options for electronic delivery of learning materials. Newly acquired video tutorial facilities at St Albans are in operation for overseas candidates and DL candidates at St Albans.

In 2015, the numbers taking and passing the Certificate Courses were as follows: Hand-Arm Vibration, 18 students, 12 passes; Environmental Noise, 170 students, 154 passes; Building Acoustics Measurement, 41 students, 37 passes (including presentations made for the first time in Ireland and Scotland); Workplace Noise Risk Assessment, 37 students, 32 passes. The Certificate of Proficiency in Anti-Social Behaviour (Noise) continues to be run in Scotland by Bel Noise Courses (now delivered by Alistair Somerville and Lilianne Lauder following the retirement of Cameron Procter) and by Strathclyde University, 33 students, 31 passes.

Since 2011, Diploma members have been able, for CPD or other reasons, to register for additional specialist modules. Nobody has taken advantage of this opportunity in 2015. However, in view of recent changes in Planning and Assessment regulations and guidance, there is the possibility of increasing numbers on the Regulation and Assessment of Noise Module by promoting it as “standalone” updating. The committee is also keen to work with groups and branches to support

“formal” CPD, where there is a defined syllabus and assessment of learning outcomes. This may include on-line learning and topics for consideration include “sustainable acoustics”, new acoustic guidance (e.g. BS 4142:2014, BB 93:2014, BS 8233:2014) and devolved guidance (e.g. Eire, Scottish, Welsh and Northern Ireland Building Regulations). In 2012 Council approved the purchase of sets of demonstration equipment to support the “You’re Banned” acoustic workshop for presentation to schools. Five “You’re Banned” presentations were given during 2015. Also, through Acoustics Ambassadors on the committee, opportunities for promotion of acoustics to school children continue to be monitored and pursued (for example the Big Bang Fair). Simon Kahn (Chairman) represented the Institute at a meeting of the Parliamentary and Scientific Committee at the Houses of Parliament for discussion on the Science Legacy for the next parliament. The committee continues to be indebted to the support of its members, course tutors and examiners, the work of the Education Manager Keith Attenborough, supported by Education Administrator Hansa Parmar and other members of office staff.

Engineering Division Committee

The committee met three times during the year, confirming approval of registration for candidates. The number of inquiries for registration from Institute members remained strong, but many potential candidates still deferred or failed to complete their applications, despite the personal support provided. A relaunch of the Engineering Division mentoring policy has seen more, and better prepared candidates through to interview.

The number of formal applications for Chartered Engineer and Incorporated Engineer registration was a record. Eleven candidates presented themselves for Professional Review Interview, of whom six were “Standard Route” candidates, holding accredited degrees, and five were “Non-standard Route” candidates with diverse backgrounds, including physics degrees. Ten candidates were successful and one will return for a second interview.

Medals and Awards Committee

The majority of the 2015 awards were made at the Autumn Conference in October.

The Raleigh Medal was awarded to Professor Sir Harold Marshall and the R W B Stephens Medal to Professor Barry Gibbs. The A B Wood Medal 2014 was awarded to Dr Alexander (Sander) von Benda-

Beckmann and the 2015 to Dr Ying-Tsong Lin. The Peter Lord Award was awarded jointly, to Arup Acoustics and to the Res Team and Villapennisinmusica.

An Honorary Fellowship was awarded to Martin Lester for his exceptional service to acoustics and the Institute. Kevin Howell also received this award.

Siegfried Linkwitz was awarded the Peter Barnett Memorial Award and Daniel Elford and Andrew Elliott shared the Young Person's Award for Innovation in Acoustical Engineering. Jen Taylor was presented with an award for the best performance in the IOA's 2014 Diploma and Manal Alfakhri and Arthur Vermuelen shared the Professor D W Robinson Prize awarded at their graduation ceremony at ISVR in July.

Meetings Committee

The committee met four times in 2015.

The membership of the committee has remained fairly constant since last year's report. The chairman remains Hilary Notley and Chris Turner remains as secretary and young member. Jeremy Newton (deputy chairman), Chris Skinner and Robin Woodward continue to be valued members of the team. They were joined by Martin Lester towards the end of the year and his contribution is already apparent. Peter Rogers has kindly agreed to continue being co-opted to allow the meetings programme to be designed with the aims of the Sustainable Design Task Force in mind at all times. The format of the meetings has recently been restructured with each member having his/her own responsibilities to report on throughout the year.

The committee presided over the organisation of 13 events covering a wide variety of topics. There were nine one-day meetings/workshops and three two-day events: an underwater acoustics conference, Reproduced Sound and Auditorium Acoustics held in France. Last, but by no means least, there was also the annual flagship event – Acoustics 2015. The feedback from the events' questionnaires in general continues to be very favourable and many of the proposals for future meeting topics are passed to the relevant specialist group.

Acoustics 2015 was held in Harrogate and, following feedback, this year took place over one day only. The event was judged to have been a success and sold out in advance. One hundred and eight-five attendees took the opportunity to attend a choice of excellent papers from five parallel sessions throughout the day. Delegates also enjoyed the poster display and exhibition. Feedback was good and those that attended generally found it worthwhile. However, a number of people commented

that they would like to see a return to the two-day format and so this is the challenge that the committee will be working on in the coming months.

The financial performance of meetings has continued to be closely monitored and we continue to review performances and learn from our experiences so that deficits may be minimised in the future and events continue to generate a moderate surplus. This year the committee saw a surplus of around £40,000, about four times the target.

Membership Committee

The committee met four times during 2015, during which Council confirmed Paul Freeborn as chairman for three more years. Chris Stopford resigned from the committee due to pressure of work, but Steve Dance was welcomed as a representative of members from academia and Rebecca Salmon joined as a representative of local authority members.

The Continuing Professional Development (CPD) subcommittee continued its work of reviewing CPD records of five per cent of members and offering advice where appropriate including providing examples of records on the website.

Nine Code of Conduct complaints were received during the year of which six were not proved. One was held in abeyance due to active planning issues and two are still actively being considered.

In order to speed up the approval of new and upgraded members, Council now vote by email on the committee's recommendations rather than waiting for the next Council meeting.

The committee's recommendation to Council that AcSoft should be invited to become a key sponsor of the Institute was approved by Council and AcSoft accepted the invitation.

Following some confusion over the interpretation of rule A1.2 of our Code of Conduct the rule was revised to provide greater clarity.

During the year 328 membership applications were assessed by the committee; a very similar number to the previous year. Of these 318 were elected to membership of various grades, representing a small increase on the previous year's figures.

2015	FIOA	MIOA	AMIOA	Tech	Affil	Sponsor	Total
Applicants	9	117	158	36	5	3	328
Elected	9	111	143	41	11	3	318
New Members	0	44	139	32	5	3	223
Resigned	2	26	12	2	2	3	47

Deceased	1	5	0	0	0	0	6
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Publications Committee

Acoustics Bulletin and *Acoustics Update* continue to provide a high standard of technical content, reporting news and details of the Institute's meetings and affairs.

During 2015 the main changes resulting from publications activities are the library catalogue coming on-line, allowing members to search the website and find out what is in the library at St Albans, and the blog on the website managed by the Young Members' Group. Behind the scenes there have also been improvements in the running and organisation of the committee.

After the uptake of the electronic Bulletin the committee investigated having a specific electronic version. However, following some mock-up work and reviewing the costs and benefits the decision was taken to retain the primary focus on the paper version, retaining the look and format of the current Bulletin for now. As a result the current PDF will remain the electronic version for the near future.

Developments for 2016 include further work on abstracts and proceedings, and the greater use of social media.

During the year the committee has been joined by Matthew Cassidy and Jordan Mayes, with Rebecca Hutt leaving. Thanks are due to all committee members for volunteering their time and enthusiasm throughout the year: Daniel Goodhand, James Hill, Mike Lotinga, Allen Mornington-West, Seth Roberts and Bob Walker. Thanks are also due to IOA office, Charles Ellis, Allan Chesney and Dennis Baylis. Lastly, thanks are due to everyone who contributes to the Bulletin and website with meeting reports, technical contributions, letters, book reviews, blog posts and everything else.

Research Co-ordination Committee

During 2015 the committee met in May and November at the Defra offices in London. The committee welcomed one new Tier 1 member, Jon Richards of KBR, a global technology, engineering, procurement and construction company serving the hydrocarbons and government services industries. This appointment made the committee more balanced in terms of the engineering noise control and technology expertise. The committee proposed an amendment to the Terms of Reference (ToR) document which reflects the new more democratic

mechanism for the election of new members and membership rotation within the RCC. This document was discussed and approved by the committee at the November meeting.

The committee continued to review the current level of research funding related to acoustics and maintained close contacts with the EPSRC. In May 2015 the total value of grants related to acoustics, ultrasonics, audio engineering, noise and vibration funded by the RCUK was estimated at £140.9 million (140 active grants). The committee noted that the government comprehensive spending review (CSR) resulted in approximately 30% funding cuts for Defra and some other government departments. These cuts are likely to affect the UK's capability to carry out noise-related research. No cuts to the RCUK budget were proposed as a result of the CSR. The committee noted that it makes sense for Defra and Public Health England to work more closely with the RCUK and the Horizon 2020 Programme to ensure that the noise-related research in the UK is adequately supported.

In order to promote acoustics as a research discipline the committee is organising the *Acoustics research challenges in the 21st century* workshop which will be held at the Royal Society in London on 15 April 2016. This workshop will bring together both academic and industry researchers working in acoustics. It will enable IOA members and other professional bodies to discuss the challenges that acoustics research faces in the UK in the 21st century and, most importantly, to explore actions which could help mitigate the impact of the funding cuts on this important science discipline. The workshop will be also attended by a representative of the EPSRC (Neil Viner) and KTN-UK (Fiona Kilkelly). Dame Professor Ann Dowling will give a keynote address.

These and other actions are detailed in the meetings notes which were submitted to the Institute in a timely fashion following meetings.

Specialist Groups

Building Acoustics Group

The Annual Conference in Harrogate was sold out and well received. BAG organised a full day of papers as well as contributing to the physical acoustics session which had sessions on cross-laminated timber structures and the acoustic issues associated with them. The multi-room concept worked well but the dinner was missed and we are looking forward to the 2016 Autumn Conference which will be over two days with fewer parallel sessions – and a dinner in between.

We were excited to see the success of the *Acoustic design of sustainable buildings* meeting, which was the first event with a multi-venue link up. We are hoping to learn from this experience for future events to make them more affordable and accessible to a much wider audience.

A special thank you goes to Mike Barron for organising the Auditorium Acoustics conference in Paris on behalf of BAG. This was hugely successful and attracted the best talent from around the globe.

Our members have also been busy with writing and consulting on several acoustic documents including the Acoustic Design of Schools, CIBSE guide B4, good practice guide on the control of noise from places of entertainment and many more.

I would like to personally thank all of my committee members and everyone else who provides their valuable time for free – it is essential for the success of our profession in the years to come.

The acoustics industry in UK buildings is extremely buoyant and we are looking forward to the new opportunities that this brings. We wish you all success for 2016.

Electroacoustics Group

As in previous years, the group's main activity during 2015 was the organisation of the annual Reproduced Sound conference. The organisational tasks were once again spread amongst the committee members, each of whom had a defined role, so making this very much a team effort. The conference took place in November at the Fire Service College in the Cotswolds. This is the first time that this venue has been used for an IOA conference and, although delegate numbers were lower than we would have liked, the atmosphere and "buzz" which are hallmarks of RS conferences were very much in evidence. The Peter Barnett Memorial Award was presented at the event to Siegfried Linkwitz, who gave a fascinating talk on the magic in two-channel sound reproduction. At the EAG AGM, held at the conference, Sam Wise retired from the committee after many years of service, including as chairman, and the committee welcomed back another past chairman, Robin Cross, who re-joined. The group committee met on three other occasions during 2015. On 6 January we met at the Fire Service College to decide the call for papers for the conference, the abstracts were reviewed and the programme was mapped out on 1 June and the details of the conference were finalised on 21 September. The conference is moving venue again for 2016 to Southampton. It will be held on 15-17 November.

Environmental Noise Group

Through 2015 the Professional Practice Guidance on Planning and Noise (ProPG Planning and Noise) committee met regularly drafting national guidance to fill the gap left by the repealing of Planning Policy Guidance 24. The committee has eight IOA members working with representatives from the Chartered Institute of Environmental Health and the Association of Noise Consultants, and has been sponsored by all three organisations. In January 2016 the working group published the consultation draft: *Professional Practice Guidance on Planning and Noise: New Residential Development*. Consultation events in London and Manchester in March will begin the next stage of work to develop the draft into formal guidance.

2015 was a quieter year for public consultations, with the committee considering various consultations but responding to only one, the House of Lords Call for Evidence on the Built Environment, on which we worked with the Buildings Acoustics Group in September.

The group made a substantial contribution to the IOA's Annual Conference, Acoustics 2015, in Harrogate in October with a full day session comprising seven papers.

Measurement and Instrumentation Group

During 2015, the group has organised two one-day meetings and a webinar.

Following a trial webinar amongst the group committee members, the chairman, Richard Tyler, produced a presentation entitled *Are you sure you're calibrating your sound level meter correctly? Are you really sure?* which took place on 20 March. The topic proved very popular as 214 registered for the event, which was broadcast live. Unfortunately, the IOA system at present allows for 100 participants only, so many people were disappointed, which was very unfortunate. This aspect of webinars needs to be properly sorted before more on this scale are worth undertaking. However, the group remains committed to supporting this type of approach.

The other group events were a BS 4142 workshop, held on 19 May at the Royal Society and organised by Mark Dowie and Tony Higgins, and *Sound sensing in smart cities*, held on 26 November at the Old Fire Station, Salford and organised by Ben Piper.

Over the past year, the group committee members have continued contributing to the regular Instrumentation Corner article in *Acoustics Bulletin*. There have been 38 to date, producing some interesting articles and discussions, and they are scheduled to continue in 2016.

For 2016 the very successful BS 4142 workshop will be re-run at Austin Court, Birmingham on 10 March.

My thanks go to all members of the committee for the active roles they take in all aspects of the group's activities.

Richard Tyler, founder chairman, stood down on 27 August, and Martin Armstrong stood down as secretary after 14 years on 8 December. John Shelton was elected chairman on 27 August and Susan Dowson elected secretary on 8 December. My thanks go to Richard for his skill in guiding the group and to Martin for his secretarial skills on behalf of the group, and I am pleased to say they will continue as active members.

Musical Acoustics Group

The group had another fulfilling year in 2015. First up was a visit at the Liverpool workshops of the renowned organ builders Henry Willis & Sons Ltd in February which around 20 members attended. This old-established firm was founded in the 19th century by Henry – “Father” – Willis who rose to fame by his organ built for the 1851 Exhibition at the Crystal Palace. This included a tour of the workshops where members were introduced to the traditional crafts of pipe-making.

Kingston University was the venue for the first ever joint one-day meeting by the Musical Acoustics and the Speech and Hearing Groups held in July. The focus was to address a longstanding need to explore better ways to improve the musical experience for listeners and performers with hearing loss, including those with tinnitus and hyperacusis. However, whilst being successful, it soon became clear that improvements were needed in transmitting the sound from the presenters to some members of the audience and the need for hearing loops at all IOA meetings was very clear. During this meeting, the group held its AGM and Stephen Dance from London South Bank University and Jemma Jones, the Young Person's Representative, were welcomed to the committee.

In September a crammed day of presentations were given in association with Galpin Society, the Royal Musical Association and the University of Cambridge in the glorious surroundings of the university's Faculty of Music. The conference ran over three days and the 29th September was devoted to the acoustics of musical instruments, opening with a keynote paper entitled *Why do light gauge strings sound brighter?* by Professor Jim Woodhouse of the University of Cambridge. This was followed by 11 more papers, poster sessions and a tour of Rubio Harpsichords of Cambridge. In the evening, delegates attended a splendid feast in the refectory at Selwyn College.

Acoustics 2015 at Harrogate saw the Musical Acoustics and Speech and Hearing Groups again joining forces. It attracted four papers on quite a diverse range of topics which included Patrick Gaydecki (University of Manchester) giving a fascinating talk on the “V Sound” system – a DSP package designed to enable an inexpensive electric violin. This was followed by Andrew Morgan giving a paper on the voice as a tool for healing – the role of the voice in holistic approaches to therapy and David Carugo (Oxford Brookes University) describing his development of a three-dimensional microphone array system for making acoustic measurements of musical instruments whilst played “under performance conditions”.

The management committee held five meetings during the year and progress for further meetings in 2016 is under way.

Noise and Vibration Engineering Group

Two full committee meetings were held during the year, by teleconference in both cases, supplemented by a number of sub-group meetings to focus on planning for particular events. Unfortunately, the work commitments of individuals on the committee prevented any stand-alone meetings from being organised, although a contribution was made to organisation of the Autumn Conference.

Over the past 12 months we have been rejuvenated to some extent by Ashley Gillibrand from Jaguar Land Rover and Nathan Thomas from Dyson joining the committee, both of whom have a useful agenda of trying to attract membership from a wider range of industries into the Institute. As a result we are actively planning a meeting on NVH (Noise Vibration and Harshness) in 2016, to complement plans for a session on numerical modelling in acoustics at the Autumn Conference and tentative plans for a meeting on underwater noise from ships.

Physical Acoustics Group

In 2015 we re-established this specialist group by forming a small interim committee to organise a session of papers at Acoustics 2015 in Harrogate. A small start, but hopefully something we can continue in years to come. It is our intention in 2016 to form an established elected committee and support Acoustics 2016 in a similar way to last year, and eventually our goal is to hold our own regular meetings.

Physical acoustics is the fundamental science that underpins all we do as acousticians. We seek to find out how sound is generated, how it propagates and how our measurements are influenced by physical

acoustics-based phenomena. Such examples like fluid mechanics, transfer coefficients, electro-statics, and meta-materials, are not well understood outside specialist circles. Therefore, it is the PAG's responsibility to disseminate useful theory, news of emerging technologies and to raise awareness of what physics acoustics is about, and how relevant it is. The list of potential topics for discussion seems almost endless.

We will continue to coordinate activities with the Institute of Physics who currently play a major part in the UK's contribution to general physical acoustics activities. However, we should strive to have our own programme of events that can link the theoretical science to commercially exploitable technology for our own membership.

We believe that the IOA's position as a professional institute is stronger with active specialist groups and branches that can represent and satisfy the diverse needs of the membership. So we as an institute can provide a sustained service, we would like to hear from the general membership about, ideas for meetings, your papers in the pipeline and offers of help from those who would like to spend a few hours a year to support our activities. We need to show that physical acoustics is relevant to the membership and our objective is to have physical acoustics-based topics more accessible.

Senior Members' Group

All communications have been by email, particularly with the committee, and this seems to have worked well. We also use *Acoustics Update* from time to time.

The AGM was held in conjunction with a meeting entitled *The ear and hearing – a tutorial for acousticians* on 29 January at the Keyworth Centre, London South Bank University.

A one-day meeting, open to all IOA members, was held on 1 October, when the group organised a successful visit to the Farnborough Air Sciences Trust. The trust is a charity dedicated to save most of the historically important buildings and artefacts from the former Royal Aircraft Establishment (RAE) and to make them available to the public. The trust museum, housed in one of the original HQ buildings, was opened in 2003. This successful meeting was fully reported in the Bulletin.

The SMG continued to support the work of the CPD Committee throughout the year.

The revised terms of reference for the group were finally approved by Council.

Chairman Ralph Weston has one more year after which he will stand down. He wishes to thank the committee for its support and contributions to the group, especially the secretary, Mike Forrest. Our AGM and half-day meeting will be on 21 April at IOA headquarters.

Speech and Hearing Group

The group co-hosted one event, jointly with the Musical Acoustics Group, during 2015. This was a one-day meeting entitled *Hearing impairment and the enjoyment and performance of music*, held at Kingston University in July. This attracted a good range of talks and a few poster presentations relating to different aspects of the theme, and was attended by delegates from the musical, clinical and educational sectors who participated in lively discussion on the presentations.

The group continues to liaise with other professional bodies (such as the British Standards Institute, the Royal College of Speech & Language Therapists and the British Society of Audiology) and also other specialist groups (including the Building Acoustics and Musical Acoustics Groups) and local branches of the Institute regarding topics of mutual interest. Joint meetings in collaboration with some of these are being planned for the future.

The group committee met twice (in February and December) during 2015. During the course of the year, long standing co-opted member Roz Commins stood down, and was replaced by Pippa Wilson, a speech and language therapist working on voice care. Dr Bradford Backus, an ordinary member of the committee and specialist in cochlear implants, asked to stand down from the committee. Dr Cleopatra Pike, a speech perception specialist, was appointed a co-opted member in December. Dr Emma Greenland, who had been on the committee since the group had been re-formed in 2007 and a former chairman, returned from maternity leave, but subsequently asked to stand down late in the year. Replacements for Dr Backus and Dr Greenland as ordinary members of are being sought.

Underwater Acoustics Group

The group's main endeavour continued to be the dissemination of knowledge via its conferences and other activities. Members of the committee helped with the organisation of *Oceanoise 15*. Steve Robinson held a session on piling noise and Paul Lepper held a session on marine renewables. Two sessions were organised at UAC 2015 on Crete in June: a hydrophone calibration session run by Steve Robinson and one on fluctuations in underwater acoustics organised by Peter

Dobbins. Both attracted several contributions. The 2014 AB Wood Medal was awarded to Alexander von Bender-Beckman at this conference. A meeting on *Seabed and sediment acoustics* at the University of Bath was highly successful with 90 attendees and 54 papers. The IOA President, William Egan, presented the 2015 AB Wood Medal to Ying-Tsong Lin at this conference.

Several members of the committee are currently in ISO working groups developing new International Standards for underwater acoustics. The group is now dedicating its efforts to future meetings, including a conference on *Acoustic and environmental variability, fluctuations and coherence*, which will be held at the Möller Centre, Cambridge University on 12-13 December 2016, and one on *Synthetic aperture sonar* in Lerici, Italy, to be held in 2017. Beyond that, a bioacoustics conference is planned for 2017 at Loughborough University.

Young Members' Group

The group committee meets quarterly with three meetings by telecom and one meeting in person. In 2015 our face-to-face meeting was held in December in London, which was then followed by a social gathering of the committee.

We held a good number of educational events in 2015 including a successful mock planning appeal event in Birmingham and a CPD event at the V&A Museum, where YMs were given a presentation and tour of the Exhibition Road Project, on the protection of highly sensitive spaces within the museum from the adjacent demolition and construction works. Our biggest achievement of the year was our inaugural Inter-Professional Networking Event held in August. It brought together young members from five different professional institutions – the IOA, Landscape Institute, IMechE, CIBSE and Institution of Fire Engineers – for an evening of informal networking. It was very well received and we are hoping to repeat the event in 2016 with more institutes involved.

To promote the IOA to students we gave presentations at the University of Salford and the University of Southampton about the benefits of IOA membership and chartership. To promote the IOA further afield we took part in an inter-professional football tournament in London.

We have new young member reps for the Yorkshire and North East, Southern and Scottish Branches, who are enthusiastic and interested in being active members of the committee.

For the year ahead we aim to present to students at more universities (e.g. Anglia Ruskin University, Southampton Solent University, University of Derby, University of Liverpool, Edinburgh Napier University,

and University of Edinburgh). We are hoping to organise a joint event with the Research Committee, to provide a day of talks to PhD students on acoustics in the real world. We are also hoping to provide more events outside of London and repeat our successful events by holding a mock planning appeal in Basingstoke and the Inter-Professional Networking Event in London. We've kicked off the year with a monthly blog which is posted on the IOA website and promoted through the IOA social media platforms.

Branches

Central Branch

The branch had a slow start to its 10th year, with the first of the year's six meetings held in May when Craig Storey opened proceedings with an insightful review of some of the challenges of long term monitoring. In June NHBC was our host once again; this time when Andrew Parkin provided an informative update answering the question he posed: *BB93: Are we there yet?* Graham Parry introduced the IEMA Guidelines to a joint meeting with Eastern Branch at Cambridge University in July.

The University of Hertfordshire hosted a joint meeting at Hatfield with London Branch and the Institute of Physics in October for Tim Leighton who presented the lecture he gave when accepting the Rayleigh Medal in 2014 on *Bubble acoustics: from whales to other worlds*. In addition to the usual 20 or so attendees, the auditorium was packed with an audience of about 180 physicists and acousticians of all ages.

We returned to Milton Keynes once again in November, this time to the Open University for Stephen Dance's entertaining talk on *Acoustics and music working together*, when he explained some of the challenges of protecting hyper-sensitive hearing and the high noise levels that professional musicians are exposed to.

Our final meeting was the branch's first full day conference, to celebrate its steady growth over the last 10 years. This was hosted by BRE at Watford and considered *What the numbers really mean*. An eminent group of invited expert speakers explained to approximately 60 delegates the origins of some of the information, systems and guidance that we rely upon daily and its limitations. This provided an invaluable opportunity to better understand acoustic information enabling us to use it properly and reduce the likelihood of its misuse.

This year has been different, with fewer meetings, but one achieving nearly 200 attendees and another a full day conference with around 60 delegates. The meetings were also hosted by a relatively wide range of

venues at throughout the region, which presents a challenge in retaining the usual attendance and attracting new attendees.

As ever, our grateful thanks are extended to all the speakers and the venues for hosting for the meetings.

Eastern Branch

We held seven meetings during the year. First, we ran the now very old favourite trip around the technical lab at SRL. They have a fantastic facility there and are always very welcoming. Adrian James's talk in June on skill, care and good practice in acoustics showcased the diversity of approaches between consultants and some rather "interesting" areas where many of our members may not agree to say the least. This very much covered the good, the bad and the downright wrong. This was followed by a presentation from Craig Storey of Cirrus on *Long-term noise monitoring – issues and potential solutions*. We were then very fortunate to also get Ben Piper from NPL over to talk to us about the work he and his team are undertaking with lasers as a means of calibrating a signal, offering a higher and more stable level of accuracy than current standards. We also had meetings which covered some of the changes in key documents that we've all had to work with (BS 8233: 2014 and BS 4142), with presentations from Simon Kahn and Richard Collman respectively. As they affect many of us in our day-to-day work, these meetings in particular were very well attended. In addition to these talks was a very useful presentation from John Shelton of Svantek UK on the perils of ground and whole body vibration measurements. On the whole, our average attendance was up over 10% compared with 2014, which was one of my key aims in my 2014 chairman's report. I hope to see this trend continue into 2016.

Irish Branch

During the year the branch held four events.

In response to the issue of a consultation on the Irish Environmental Protection Agency [EPA] revised *Guidelines on the information to be contained in Environmental Impact Statements* and the *Advice Note on Current Practice in the preparation of Environmental Impact Statements*, a branch meeting was held on the 7 January, and a response was submitted on 12 January.

The 10th Annual Gerry McCullagh Memorial Lecture was held on 12 February. Richard Perkins (chairman of the IOA Wind Turbine Noise Working Group) gave an interesting summary of the many steps taken in the final production of the IOA Good Practice Guide on Wind Turbine

Noise in his talk *Producing guidance for wind turbine noise assessment*. There followed a good question and answer session. Following the revision to the Irish Building Regulations enhanced Technical Document E, which requires mandatory pre-completion sound insulation testing, the Sound Insulation Testing Register (Ireland) [SITRI] scheme has been set up. John Wickham of the Irish Government's Department of the Environment, Community & Local Government [DOELG] introduced the new regulations and the aspirations of the Department in what it would like to see from an industry-led scheme that would deal with the certification of suitably qualified and experienced testers. Chris Dilworth then outlined the SITRI scheme that has been put in place using the reporting system operated by the ANC in England and Wales, and a dedicated version of the IOA's competence course for building acoustics testing tailored to the Irish Building Regulations. Following the issue of the October 2014 revision of BS 4142, it was considered worthwhile holding a meeting (on 22 October) where the *Reporting requirements under BS 4142, an environmental health perspective* was presented by three branch members who are environmental health officers (Chris Jordan, Paul McCullough and Raymond Smyth)/ The aim was to help acoustic consultants appreciate and take on board what environmental health are requiring, or to challenge the environmental health interpretation if they wished. This meeting was well attended and was considered useful to all.

London Branch

It has been another busy year for the branch. This has included seven meeting presentations, a visit to the Whitechapel Bell Foundry and our annual event, which was a new more informal format, consisting of drinks and buffet at the Star Tavern, Belgravia. This year has also seen record numbers of members joining the committee, which has in turn brought many fresh ideas, and the introduction of the Eventbrite online booking system, which has been very successful.

First, I would like to thank WSP for continuing to provide the branch with a meeting venue at its Chancery Lane offices. We are now in our seventh year there. Second, I would like to thank all members who have attended any of the presentations and events during the year, some of which have attracted around 100 attendees. Finally, without the support of the committee, the dedication of our secretary, and those at IOA HQ, none of this would be possible.

As usual, we have endeavoured to provide a variety of topics for the evening meetings. These have included discussion of new and current industry guidelines; the impact of technology changes on consultancy;

the design of large scale sound systems; noise and vibration of steam locomotives; and presentations of two award winning student projects. The year began with Richard Collman's talk on BS 4142:2014. Entitled *BS 4142 – An opportunity to learn about / discuss the new edition of this widely (mis?) used British Standard*, this meeting proved extremely popular with 105 attendees. The presentation was followed by a lively discussion which focused on how to assess the tonality of a source that does not exist, what happens when BS 4142:1997 is referenced in local guidance documents and where, when and how to measure weather conditions.

Several other presentations looked at the current guidance provided by the Noise Policy Statement for England (NPSE). In his talk, Stephen Turner explained how the NPSE has been applied across government policy since its publication in 2010 and examined how the policy has been implemented in local plans and noise impact assessments. Andrew Buroni of RPS concentrated on noise and health aspects of the guidance, considering the appropriate assessment protocols and the best way to address and monitor health, wellbeing and quality of life outcomes.

In September the branch enjoyed a presentation delivered by Simon Kahn of Mott MacDonald on the topic of *Large sound systems*. Simon discussed important design considerations, giving an introduction to the standards relating to their design, and reiterated that a well-designed system should complement the space, not work independently of it. The subject proved to be very popular with members.

In May, 25 members took a tour of the historic Whitechapel Bell Foundry which was established in 1570. The foundry's business has always been, and still concentrates solely on, the manufacture of bells of all shapes and sizes and their associated fittings. The bells range from very large – to those used in Big Ben, down to the smallest of hand bells. Members were shown how bells were cast, electronically tuned and were taken to the hand bell workshops. An enjoyable and interesting visit!

The traditional formal sit-down dinner held each November was replaced this year with a more informal gathering at the Star Tavern in Belgravia, with drinks and a buffet provided at a more affordable cost. I am pleased to say the event was a sell-out and attracted a lot of new faces. The evening was a real success with the informal nature allowing people to mingle much more than during previous years.

Exciting and interesting talks are already planned for 2016. I would like to wish you all the very best for the coming year, and thank you again for your continued support.

Midlands Branch

The branch had another successful year in 2015 with 10 monthly evening meetings with an average attendance of 36. The meetings included talks on a wide range of topics including a good spread of environmental and building acoustics topics plus occupational noise. In July the branch enjoyed an excellent visit to the EAR Foundation in Nottingham to learn more about the impact of hearing loss and current hearing technologies. The branch held a joint meeting in September with the Young Members' Group which was a very informative and interesting role play of a planning inquiry. Meetings were held at six different venues: six in the West Midlands and four in the East Midlands. The committee continues to aim to appeal to the wide range of members' interests in the region and CPD certificates were provided at all meetings.

The branch committee would like to thank the many speakers for their excellent technical contributions: Simon Kahn (Mott MacDonald), Andrew Parkin (Cundall), Rob Harris (Arup), Stephen Dance (London South Bank University), Andy Symons (British Model Flying Association Club Support Officer), Jon Tofts (Environment Agency), Sheetal Athalye and Suzanne Harrigan (The EAR Foundation), Naomi Candlin (St Phillips Chambers), Dick Bowdler (Dick Bowdler Acoustics), Richard Collman (Acoustical Control Engineers & Consultants), Fiona Devine (Environment Agency), James MacKay (TNEI Services Limited), Chris Hunt (AECOM), Tim Green and Alex Young (Derby University IOA Diploma graduates) and Tim Leighton (ISVR).

Thank you also to the various venues that provide the meeting facilities and refreshments: Atkins Birmingham, Cundall Birmingham, Arup Solihull, Derby University, WSP Birmingham and The EAR Foundation Nottingham. Finally, thank you to branch members who have supported the branch again this year.

At the AGM in December a number of changes were made to the committee for 2016: chairman: Paul Shields; secretary: Fiona Rogerson; CPD secretary: Heather Billin; membership secretary: Brian Hemsworth; young members' representative: Chris Bradley. Other committee members: Mike Breslin, Abigail Bristow, Fiona Devine, Christopher Humphreys, John Pritchard, Mike Swanwick and Young Youn.

North West Branch

The year started with a visit in February to world renowned organ builders Henry Willis & Sons, which included both a factory tour and a presentation on *The design and manufacture of organs for specific acoustic environments* from the managing director David Wyld.

March brought a presentation by Jack Harvie-Clark of Apex Acoustics on *Building Bulletin 93, 2014: Changes and implications for design*. The talk

outlined the key changes for acoustic consultants practicing in the field, and considered the implications for design solutions.

Mike Hewett stepped down as chairman this year and the branch is very grateful for his efforts whilst at the helm; Pete Hargreaves continues as branch secretary.

In November we had a presentation by Colin Cobbing of Arup on *BS 4142:2014 – what do the changes mean for me?* Colin described some of the key changes to the standard and provided an insight into the reasons for the changes. The presentation was very well attended and gave an understanding of the intent of the standard assisting with the interpretation of the guidance.

Many thanks again go to BDP and ARUP for being such good hosts; to David, Jack and Colin for providing such interesting talks and all to those who provide the back-up at the venues.

Scottish Branch

2015 has been a transitional year for the branch committee with the standing down of many long standing members and the introduction of members to new roles.

The most notable branch meetings this year were the BS 4142 workshops held in Glasgow (March) and Aberdeen (November). The joint event with Environmental Protection Scotland and REHIS was well attended at both locations.

The one-day workshop discussed the rationale behind the review and look at the practical implications for acousticians, engineers and regulators undertaking surveys and writing/assessing acoustic reports. The workshop included real life recordings of industrial noise to allow delegates to debate the appropriate use of the standard in practice.

A Scottish Wind Farm Impacts Study webinar with the Southern Branch was planned for November but had to be postponed to February due to technical difficulties.

The committee is looking forward to a more active year throughout 2016 with an increased number of meetings.

South West Branch

A year ago the branch declared 2014 to have been “diverse and interesting”. This threw down the gauntlet for 2015 and we hope members were not disappointed.

Things kicked off with a BS 4142 discussion organised jointly with the Bristol Gloucestershire Somerset and Wiltshire Environmental Protection (BGSW EP) Group, hosted in the unusually salubrious location of Bath’s

Guildhall. Lessons were learnt in not using project examples in discussion that had recently been worked on from either side by two different consultants in attendance.

In June the first of our field trips was held, jointly with the Institution of Occupational Safety and Health, in the twice over subscribed visit to the Glastonbury Festival site. Names were drawn out of an actual hat, by the impartial owner of a Portuguese restaurant, to decide who got the coveted places, with the remainder being given first refusal for a planned repeat trip next year. The attendees were given a tour of the site compliments of the festival organisers and Mendip Council a week prior to the gates opening. This included a visit to the hallowed Pyramid Stage and getting to see “the naughty corner” (the all night area of the site) under construction. This was followed by a trip to Mendip Council’s offices for discussion on the noise monitoring and control during the festival.

September saw three events in quick succession. These included a trip to Dolby’s offices in Royal Wootton Bassett for a presentation on cinema audio and studio certification as well as a demonstration of Dolby Atmos in the underground screening room.

This was followed by an evening at Atkins offices with a talk on audiometry from Insight Health Screening and a talk from branch chairman Dan Pope on the psychology of the acoustics of the paranormal, which predictably lead to some heated discussion.

The final September event was the trip to Fullabrook Wind Farm in Devon that had sadly been cancelled the previous year. It was very informative to see and hear the turbines up close and discuss the mitigation systems with the operator.

The year was rounded off with a visit to Bristol University for presentations from Professor Bruce Drinkwater on acoustic levitation and from Tom Carter on Ultrahaptics.

We look forward to continuing to be the IOA’s coolest branch in 2016.

Southern Branch

The committee has had another strong and active year, focusing on putting on meetings in relevant surroundings, such as the *Matching an organ to its acoustic space* in Winchester Cathedral by John Norman in February (available on the Southern Branch YouTube channel), *Military aviation* by David Patience at the Noise Test Facility in Farnborough, and a demonstration of the Dolby Atmos system in Solent Southampton University’s cinema by James Shannon and a showing of Pink Floyd’s *The Wall* as a great way to finish off the year.

Other meetings included the NPSE update in Basingstoke in April by Stephen Turner, an interactive BS 4142 audio demonstration of ratings by Richard Collman, Derek Nash and Ed Clarke in Winchester in July. We have worked hard to move meetings around the region, and feel confident that we have offered members interesting, varied and high quality offerings.

One of my goals as chairman was to reinvigorate the branch and I feel that with a fantastic committee behind me we have achieved that and widened the benefits of the branch meeting for all members.

The final hurrah is trialling the connection of two hubs in the meeting on 4 February between the Southern and Scottish Branches on wind turbine AM progress. This event aims to be a way to further increase the ability for members to access the content from all branches in time.

I will remain on the committee to assist an ongoing effort to continue the leading work of the branch, but welcome a chance for fresh blood and ideas and feel confident that members will continue to benefit from attending branch meetings long into the future. Thank you to the committee members who have worked so hard this year. We have a developing programme of events for 2016, including a mock planning inquiry in Basingstoke in April, ANC PCT update in May and De-reverberation in July.

Yorkshire and North East Branch

The branch met twice in 2016. In March, after more than a year of inactivity, it convened at AECOM's offices in Leeds, where Jack Harvie-Clark of Apex Acoustics talked about the recent changes in the Building Bulletin 93 document and potential implications for the classroom and school design. In December it met at the University of Sheffield where Dr Sarah Haynes of RHMA Forensic Expert and Witness Service talked about a potential epidemic of occupational noise-induced hearing loss claims. This meeting was very well attended and it was a good opportunity to hold the branch AGM. At that meeting, the resignation by the secretary, Daren Wallis of Cirrus Research, was accepted. Owen Downey of Blue Tree Acoustics, Sheffield, was elected as the new secretary. Giulio Dolcetti of the University of Sheffield was appointed as the new Young Members' Representative. A list of at least three more talks and suitable speakers for 2016 was proposed and agreed.

Welsh Branch

There were no meetings of the branch in 2015.

TABLE 1 Membership

Grade	2014	2015
Hon Fellow	38	38
Fellow	174	175
Member	1761	1789
Associate Member	758	772
Affiliate	58	57
Technician Member	100	125
Student	80	377
Totals	2969	3333
Founding Key Sponsor	0	2
Key Sponsor	2	1
Sponsor	49	46

TABLE 2 Group membership

Group	2014	2015
Building Acoustics	1357	1475
Electroacoustics	387	434
Environmental Noise	1723	1804
Measurement & Instrumentation	641	711
Musical Acoustics	377	433
Noise and Vibration Engineering	1123	1215

Physical Acoustics	246	285
Senior Members	116	122
Speech & Hearing	214	243
Underwater Acoustics	236	264
Young Members	266	324

TABLE 3 Branch membership

Branch	2014	2015
Central	222	244
Eastern	276	291
Irish	126	134
London	843	881
Midlands	397	446
North West	387	404
Overseas	331	341
Scottish	171	193
South West	270	297
Southern	490	517
Welsh	74	80
Yorks and North East	220	243

TABLE 4 Details of employment

Employment Category	2014	2015
Architectural Practice	183	324
Consultancy	1654	1914

Education	419	602
Industry/Commerce	380	634
Public Authority	401	437
Research & Development	428	623
Retired	135	141
Other	142	185

TABLE 5 MEETINGS AND ATTENDANCE IN 2015

<i>Topics, Date & Venue</i>	<i>Attendance</i>
The Ear and Hearing – a tutorial for acousticians 29 January London	57
The Art of Being a Consultant 15 April Southampton	41
Noise Impact Assessment & Development Constraints 13 May Birmingham	80
BS4142 :2014 19 May London	90
Amplitude Modulation in Wind Turbine Noise 11 June Newcastle	36
Hearing Impairment and the Enjoyment of Music 9 July London	29
Seabed and Sediment Acoustics 7-9 September Bath	77
Acoustic Design for Sustainable Buildings 17 September London	71
Acoustics 2015 15 October Harrogate	185
Auditorium Acoustics 29-31 October Paris, France	175

Reproduced Sound 2015 10-12 November Moreton-in-Marsh	66
Sound Sensing in Smart Cities 26 November Salford	66
What the Numbers really Mean 7 December Watford	68

COUNCIL		
Officers		Ordinary Members
President	Mr W Egan MIOA	Dr K Holland MIOA
President Elect	Miss J Webb FIOA	Mr R Mackenzie FIOA
Immediate Past President	Prof B M Shield HonFIOA	Ms H Notley MIOA
Honorary Secretary	Mr J R Richardson MIOA	Mr P J Rogers FIOA
Honorary Treasurer	Mr D Wallis MIOA	Mr A W M Somerville MIOA
		Mr D L Watts FIOA
<i>Vice Presidents</i>		Dr P Lepper MIOA
Engineering	Mr R A Perkins FIOA	Mrs Claire Parsons MIOA
Groups & Branches	Mr G Kerry HonFIOA	Miss Emma Shanks MIOA
International	Dr W J Davies MIOA	
Committees & Sub Committees		Chair
Education		Mr S W Kahn MIOA
Diploma in Acoustics and Noise Control, Board of Examiners		Mr S J C Dyne FIOA

<p>Certificate of Competence in Environmental Noise Measurement</p> <p>Certificate of Competence in Workplace Noise Assessment</p> <p>Certificate of Proficiency in Anti-Social Behaviour (Scotland) Act 2004 (<i>IOA/REHIS</i>)</p> <p>Certificate in the Management of Occupational Exposure to Hand Arm Vibration</p> <p>Certificate of Competence in Building Acoustics Measurement</p> <p>Engineering Division</p> <p>Medals & Awards</p> <p>Meetings</p> <p>Membership</p> <p>Publications</p> <p>Research Co-ordination</p>	<p>Dr M E Fillery FIOA</p> <p>Mr D Lewis MIOA</p> <p>Mr S Williamson MIOA</p> <p>Mr T M South MIOA</p> <p>Mr J Battaner-Moro MIOA</p> <p>Mr R A Perkins FIOA</p> <p>Mr W Egan MIOA</p> <p>Mrs H Notley MIOA</p> <p>Mr P T Freeborn FIOA</p> <p>Mr A Lawrence FIOA</p> <p>Prof K Horoshenkov FIOA</p>	
<p>Specialist Groups</p> <p>Building Acoustics</p> <p>Electro-Acoustics</p> <p>Environmental Noise</p> <p>Measurement & Instrumentation</p> <p>Musical Acoustics</p> <p>Noise and Vibration Engineering</p> <p>Physical Acoustics</p> <p>Senior Members' Group</p> <p>Speech & Hearing</p> <p>Underwater Acoustics</p> <p>Young Members' Group</p>	<p>Chair</p> <p>Mr R O Kelly MIOA</p> <p>Mr K Holland MIOA</p> <p>Mr S C Mitchell MIOA</p> <p>Mr J Shelton MIOA</p> <p>Mr M Wright MIOA</p> <p>Dr M G Smith MIOA</p> <p>Mr M Swanwick FIOA</p> <p>Mr R J Weston MIOA</p> <p>Dr G J Hunter MIOA</p> <p>Dr P F Dobbins FIOA</p> <p>Ms A Lamacraft MIOA</p>	<p>Secretary</p> <p>Mr J Healey MIOA</p> <p>Ms H M Goddard FIOA</p> <p>Mrs S Dowson MIOA</p> <p>Mr D Sharp MIOA</p> <p>Mr S Stephenson MIOA</p> <p>Mr M R Forrest MIOA</p> <p>Mr D Nash MIOA</p> <p>Mr A P Holden MIOA</p> <p>Ms E Keon MIOA</p>

Regional Branches	Chair	Secretary
Central	Mr R A Collman MIOA	Mr M Breslin MIOA
Eastern	Mr M Jones MIOA	Mr H Cass MIOA
Irish	Dr M R Lester FIOA	Mr S Bell MIOA
London	Mr J E T Griffiths FIOA	Ms N Stedman-Jones MIOA
Midlands	Mr P J Shields MIOA	Ms F Rogerson MIOA
North West	Mr M Hewett MIOA	Mr P Hargreaves MIOA
Scottish	Mr A W M Somerville MIOA	Mr M Butterfield MIOA
Southern	Mr P Rogers FIOA	Mr D Saunders MIOA
South West	Mr D C Pope MIOA	Mr D O'Neil MIOA
Welsh	Mr G O Mapp MIOA	
Yorkshire & North East	Prof K Horoshenkov FIOA	Mr O Downey MIOA

Chief Executive: Mr A Chesney