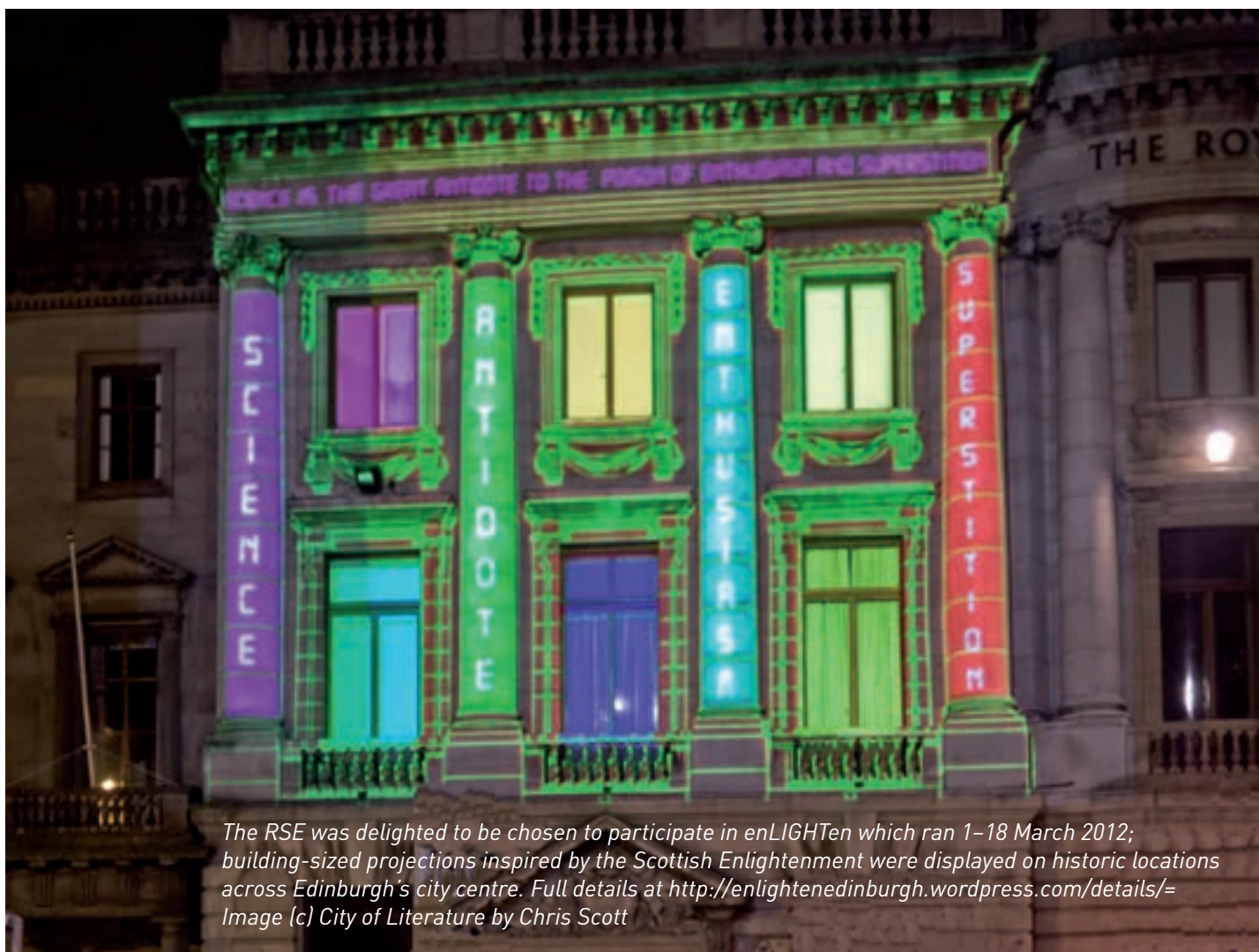


→ → → **ISSUE 35** SPRING 2012

resource

The Newsletter of Scotland's National Academy



The RSE was delighted to be chosen to participate in enLIGHTen which ran 1–18 March 2012; building-sized projections inspired by the Scottish Enlightenment were displayed on historic locations across Edinburgh's city centre. Full details at <http://enlightenedinburgh.wordpress.com/details/>—Image (c) City of Literature by Chris Scott

Featured in this issue:

Announcement of new Fellows

Winners of RSE Beltane Prizes

The Debate on Alcohol Minimum Pricing

THE ROYAL
SOCIETY
OF EDINBURGH

New Fellows 2012

HONORARY FELLOWS

MCALLEESE, Mary Patricia

Former President of Ireland (1997–2011)

SOUTHERN, Sir Edwin Mellor

Founder: Kirkhouse Trust; Edina Trust. Professor of Biochemistry (Emeritus) at the University of Oxford, Founder and CSO Oxford Gene Technology

CORRESPONDING FELLOWS

BARRY, David Andrew

Professor of Environmental Engineering and Director, The Ecological Engineering Laboratory, Ecole Polytechnic Fédérale de Lausanne

ELTAYEB, Ibrahim Abdel Razag

Professor of Applied Mathematics, Sultan Qaboos University

SIMPSON, Evan

Senior Principal Research Fellow, NHMRC; Honorary Professor, Monash University; Group Leader, Victorian Breast Cancer Research Consortium Inc., Prince Henry's Institute of Medical Research, Melbourne, Australia

THOMPSON, Kevin OBE

Director, Hong Kong Academy for Performing Arts

FELLOWS

ARNOLD, Polly

Chair of Synthetic Inorganic Chemistry, University of Edinburgh

BACHTLER, John

Head of Centre and Director, European Policies Research Centre, University of Strathclyde

BIRD, Sheila Macdonald OBE

Programme Leader in MRC Biostatistics Unit, University of Cambridge

BROWN, David William

Wardlaw Professor of Theology, Aesthetics and Culture, University of St Andrews

BROWN, Verity

Professor of Psychology, University of St Andrews

CAMERON, David Allan

Lecturer in Medical Oncology, University of Edinburgh. Clinical Director, Edinburgh Cancer Research Centre

CARTER, Sara Lindsey OBE

Professor of Entrepreneurship and Head of Department, Hunter Centre for Entrepreneurship, University of Strathclyde Business School

CHEUNG, Rebecca

Professor of Nanoelectronics, University of Edinburgh

CLEAVELAND, Sarah

Professor of Comparative Epidemiology, University of Glasgow

CONN, Iain Cameron

Chief Executive of Refining & Marketing and Executive Director, BP plc. Senior Independent Director, Member of Audit Committee and Member of Nominations Committee, Rolls Royce Holdings plc. Chairman of the Advisory Board of Imperial College Business School

COWLING, Michael John

Chief Scientist, The Crown Estate

CRITCHLEY, Hilary Octavia Dawn

Professor of Reproductive Medicine and Head, Division of Reproductive and Developmental Sciences, University of Edinburgh. Honorary Consultant Gynaecologist

CUBIE, Heather Ann

Director, Scottish HPV Reference Laboratory. NHS Lothian Honorary Professor and Head of HPV Research Group, University of Edinburgh

DAWSON, Jane

John Laing Professor of Reformation History, University of Edinburgh

GARSDIE, Paul

Chair in Basic Immunology, University of Glasgow

GORDON, Iain James

Chief Executive and Director, The James Hutton Institute

GREBOGI, Celso

Sixth Century Professor in Nonlinear and Complex Systems and Director, Institute for Complex Systems and Mathematical Biology, University of Aberdeen

HAWKESWORTH, Christopher John

Deputy Principal and Vice-Principal of Research, University of St Andrews

HOUSTON, Robert Allen

Professor of Early Modern History, University of St Andrews

IREDALE, John Peter

Professor of Medicine, University of Edinburgh. Head, MRC Centre for Inflammation Research

KIRBY, Simon Michael

Professor of Language Evolution, University of Edinburgh

KRUUK, Loeske Elizabeth Beatrice

Professor of Evolutionary Ecology, University of Edinburgh

LEDINGHAM, Kenneth William David

William Penney Professor of Laser Nuclear Physics,
University of Strathclyde

LENG, Gareth

Professor of Experimental Physiology and Head of School
of Biomedical Sciences, University of Edinburgh

LIBKIN, Leonid

Professor of Foundations of Data Management,
University of Edinburgh

LOOS, Joachim

Professor of Solid State Physics, University of Glasgow.
Senior Visiting Professor, Chinese Academy of Sciences

MCLEAN, Iain Sinclair

Official Fellow in Politics, Nuffield College and Professor of Politics,
University of Oxford

MUIR WOOD, David

Professor of Geotechnical Engineering, University of Dundee

NOLAN, Stephen Patrick

Professor of Inorganic Chemistry, University of St Andrews

OPPO, Gian Luca

Professor of Computational and Nonlinear Physics,
University of Strathclyde

RUXTON, Graeme Douglas

Professor of Theoretical Ecology, University of Glasgow

SALMOND, George Peacock Copland

Professor of Molecular Microbiology, Governing Body Fellow,
Wolfson College, University of Cambridge. Member, Scottish Science
Advisory Council. President of the British Society for Plant Pathology

SANSOM, Owen James

Deputy Director, Beatson Institute for Cancer Research

SATTAR, Naveed Amjid

Professor of Metabolic Medicine, University of Glasgow

SCOTT, Joanne

Professor of European Law, University College London

STODDART, Alexander

Her Majesty's Sculptor in Ordinary in Scotland

STOREY, Kate

Professor of Neural Development and Head of the Division of Cell
and Developmental Biology, University of Dundee

SWEDLOW, Jason

Professor of Quantitative Cell Biology, University of Dundee

WILKINSON, Caroline

Professor of Craniofacial Identification, University of Dundee

YELLOWLEES, Lesley

Professor of Inorganic Electrochemistry, Vice-Principal and Head
of the College of Science and Engineering, University of Edinburgh.
President-Elect, Royal Society of Chemistry

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If you would like to know more about the Royal Society of Edinburgh's Friends of the Society initiative,
or if your organisation may be interested in joining the scheme, please contact: **Gordon Adam**,
Director of Business Development and Communications, – 0131 240 2781 – gadam@royalsoced.org.uk

Advice and



The Scottish Government's Renewable Energy Targets for 2020

In its 2020 Routemap for Renewable Energy in Scotland, published in July 2011, the Scottish Government set the highly ambitious goal of generating 30 per cent of all Scotland's energy needs from renewable sources by 2020, including the equivalent of 100 per cent of Scotland's gross annual electricity consumption.

The Scottish Parliament's Economy, Energy and Tourism Committee is currently taking evidence on whether these targets are achievable, and whether Scotland has the technology, infrastructure, skills and access to finance it needs to build renewable generation capacity. Responding to the call for evidence, the RSE has commented that:

- Scotland is poised to lose nearly one-half of its electricity generation capacity in the next decade. The issue of ensuring a secure, stable energy supply in Scotland is therefore urgent. Consideration of renewable generation capacity must take place within the wider debate on Scotland's energy future.
- The RSE welcomes the impetus being given to the development and scaling up of renewable energy generation capacity in Scotland. However, while the Scottish Government's renewable energy targets for 2020 are theoretically achievable, they are unlikely to be met within the constraints of finance available or at acceptable cost.
- Only technologies that are already mature or commercially-proven will contribute towards the 2020 targets. This will principally rely on on- and off-shore wind, although hydro and biomass schemes may also have a role to play. But even in these established sectors, significant private sector investment will be needed to scale up industry; and challenges around planning, siting of developments, and access to the grid remain.
- Marine technologies should be an important source of renewable energy generation in the future, but with numerous outstanding technical problems to be addressed and high investment costs, neither wave nor tidal technologies are likely to be commercially available by 2020.
- Regardless of the rate of progress of development of renewables, until major challenges around grid access, capacity, stability and storage are addressed, there will be limits to the contribution that renewable technologies will be able to make to Scotland's energy mix.
- It is crucially important that the focus on renewable generation capacity does not eclipse the drive to reduce energy consumption. Demand for electricity in coming years will be defined by the rate at which transport and heat sectors convert to electric, balanced by the rate at which general energy efficiencies are achieved. The government has a role to play in managing progress on both these tracks and particularly in supporting energy efficiency measures that will help to reduce fuel poverty.
- The costs of creating a fit-for-purpose grid and increasing renewables will be high, and will ultimately be recovered through costs to consumers. But maintaining 'business as usual' is not an option, and significant investment in infrastructure and new technologies is urgently needed no matter what form the future energy sector takes.

Bridging the Valley of Death: the Commercialisation of Research

In December 2011, the UK Government published both an Innovation and Research Strategy for Growth, and a Strategy for UK Life Sciences. Building on this, the Science and Technology Committee of the House of Commons launched an inquiry into the barriers to the commercialisation of research in the UK. The RSE recently responded to the call for written evidence, emphasising the following key points:

- A broad, systemic review of commercialisation, aimed at creating a culture of creativity and entrepreneurship in the UK, is urgently needed.
- There is no one silver bullet: a package of incentives and actions must be combined with a change of attitudes across academia and the private and public sectors.
- Government has a role to play in improving the interface between universities and industry; stimulating industry 'pull' on the research base and encouraging universities to make their research more visible and accessible.
- Government should also focus its efforts on de-risking investment in the commercialisation of research, making it a more attractive option. This may take the form of financial support, such as co-investment, but also calls for long-term policy stability, smarter regulation, or further development of incentives such as tax relief.
- Ultimately, commercialisation will only be successful, and investors will only take risks, if the management team involved have the skills and expertise needed to steer the project. Government should work with universities and industry to ensure that graduates are commercially aware, and equipped with the skills and entrepreneurial spirit that are necessary to a flourishing economy.



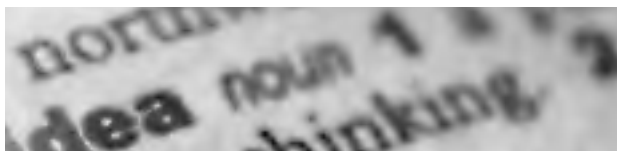
Briefing Papers

Putting Learners at the Centre

In December 2011, the RSE's Education Committee responded to the Scottish Government's pre-legislative paper on reform of post-16 education, *Putting Learners at the Centre: Delivering Our Ambitions for Post-16 Education*.

The RSE's response made the following key points:

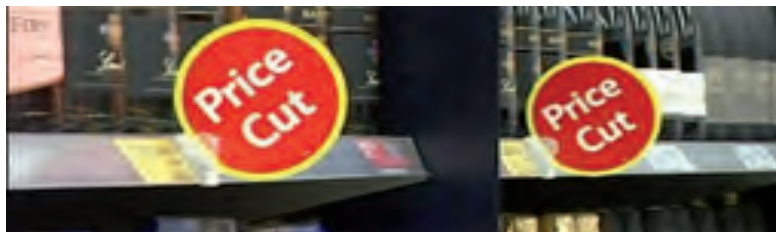
- While the pre-legislative paper contains many laudable proposals and innovative ideas, there is no overall strategy for an education and skills continuum and this should be addressed urgently.
- It is unfortunate that budgetary decisions that will have significant implications for schools, colleges and universities are being made by the Scottish Government without first having identified the strategic priorities and needs of education in Scotland.
- The college sector is expected to play a prominent role in delivering the Scottish Government's commitment to provide every 16-to-19-year-old with a learning or training opportunity. There is however concern about the extent to which this commitment can be achieved in the face of the significant funding reductions that are being experienced by the sector.



- It is crucial that mergers are not forced upon colleges and universities but instead negotiations are entered into voluntarily by all parties. There is a much greater chance of success when mergers are handled sensitively. Ultimately, it is the institutions themselves who are best placed to determine the most appropriate course of action to be taken.
- There needs to be a strategic consideration of the interface between schools, colleges and universities. While it seems likely the "learner journey" will remain broadly consistent with current practice in the short term, it is envisaged that there will be more radical and innovative thinking about how and in what contexts the learner journey will be delivered in the medium to long term. This suggests at the very least a need for improvement of communications between the sectors.
- Much more consideration will need to be given to the factors that influence the decisions which learners make so that future learners are in a position to consider more diverse options and "non-traditional" pathways.

Alcohol Minimum Pricing

In December 2011, the RSE responded to the Scottish Parliament Health and Sport Committee's call for evidence on the Alcohol (Minimum Pricing) (Scotland) Bill. The main purpose of the Bill is to introduce a minimum price of alcohol below which alcohol must not be sold on licensed premises.



The RSE's response made the following key points:

- The evidence suggests a strong relationship between comparatively low cost and easy accessibility on the one hand and alcohol consumption on the other. There is a strong argument for the action that is proposed to control price as a way of reducing consumption and alcohol-related harm. However, it must be accepted there are some uncertainties about the level of minimum price that would be required in order to have a material impact, and the potential unintended side effects.
- Once set, the minimum price and its effect on alcohol consumption should be subject to comprehensive evaluation. Government should plan for evaluation studies from an early stage and ensure that funding is made available for them.
- The modelling work indicates that minimum pricing will result in estimated increased revenue to the alcohol industry. One way to mitigate societal concern about this would be for the Scottish Government to obtain a share of the increase in the profits of those who produce and/or supply alcohol. While the Scottish Government cannot do this through taxation, the RSE proposes a possible means whereby the licensing regime could be adapted for this purpose. Additional revenue to the state could then be spent on public good, including public health interventions aimed at reducing alcohol consumption and alcohol-related harm.
- The legislation being considered is to dissuade, not ban, and its success or otherwise will depend on its capacity to change behaviour. Pricing alone is not enough and minimum pricing should be one component of a broader strategy for reducing alcohol consumption and related harm.
- Concerns have been raised as to whether the proposal for a minimum price of alcohol would be compatible with EU law. While the RSE is not in a position to offer a legal opinion, it believes that the justification for the proposed measure must satisfy the following tests: a clearly identified health problem exists; the problem is specific – though not exclusive – to Scotland; the Scottish Parliament considers that action must be taken urgently to deal with the problem; independent and impartial academic/scientific/medical advice suggests that a minimum price of alcohol would probably have a material effect on counteracting the health problem; and there is no convincing evidence that a minimum price of alcohol would be likely to restrict equal access to the Scottish market of domestic (i.e. UK) products and products from other EEA member states.

For full details about these Advice and Briefing Papers and others, visit the RSE website at: www.royalsoced.org.uk/293_AdviceBriefingPapers.html

International

INTERNATIONAL EXCHANGE PROGRAMME

One of the main purposes of the RSE International Programme is to award short-term travel grants to enable Scottish researchers to establish links with colleagues in other countries with a view to a long-lasting collaboration, through joint publications and joint applications for longer-term funds.

The RSE also supports longer-term collaborations through the Joint Project Scheme with the National Natural Science Foundation of China, which facilitates longer-term international collaboration between researchers based in Scotland and China by providing two years'-worth of funding.



Liliana Fernández Mollinedo and Dr Mervyn Bain

Scottish-based host: **Dr Mervyn Bain, University of Aberdeen**

Overseas visitor: **Liliana Fernández Mollinedo, University of Havana, Cuba**

Ms Fernández's trip to the University of Aberdeen was a great success, as considerable progress was made in the project *A Common European Cuba Policy?* as it allowed the two researchers to have a sustained period of time to work together on this project without facing the difficulties which exist in conducting joint research between Scotland and Cuba. This not only allowed the researchers to formulate the structure of their final research output, but also to begin the actual writing process. In addition to this, Ms Fernández was also able to access information that is problematic from within Cuba. This included sources from the University of Aberdeen library and databases. Moreover, it was also possible to travel to Edinburgh to access the National Library of Scotland. The information that has been acquired will prove invaluable to the ultimate success of this project.

Scottish-based host: **Dr Kevin Read, University of Dundee**

Overseas visitor: **Dr Amos Fatokun, Johns Hopkins University School of Medicine, Baltimore, USA**

Report provided by Dr Fatokun

For the past few years I have been working on a drug discovery project that seeks to identify new chemical compounds that can be developed as drugs to treat disorders of the brain that are related to the death of brain cells, e.g. stroke and Parkinson's Disease. Drug discovery/development is a multi-stage project and my work so far has been part of the early drug discovery stage (design of biological assays, high-throughput screening etc). However, once the leads are identified, the next major decision is whether they should proceed to further stages of development and this is largely governed by their developability properties and how they are predicted to behave in humans (pharmacokinetics). This aspect is what I came to learn in Dr Read's laboratory in the Drug Discovery Unit of the University of Dundee. The useful training would help tremendously to move my current and future projects.

Dr Read's lab has extensive experience and state-of-the-art facilities. I was able to learn a number of *in vitro* assays and also *in vivo* pharmacokinetic techniques. The training is highly beneficial to my next career move, as I will soon be starting an independent Fellowship in drug discovery that requires this kind of exposure and knowledge. I was able to engage in and gain from fruitful discussions with Dr Read and the members of his team.





Scotland–Taiwan Workshop on Electronic Materials and Nanomaterials

6th–7th February 2012

Organisers: **Professor J Paul Attfield,**
University of Edinburgh

Professor Ikai Lo
National Sun Yat-Sen University, Taiwan

The search for new materials with novel electronic properties for applications is increasingly linked to their fabrication as nanoscale objects and devices. Leading scientists from Scotland and Taiwan met to exchange ideas and develop collaborations at a recent workshop sponsored by the RSE and the National Science Council (NSC) of Taiwan. (Delegates pictured above). Renewable and low energy technologies were a strong theme, as new research results on solar cells, efficient white-light LEDs, and photocatalysts for splitting water into hydrogen and oxygen were presented. Practical aspects of growing and manipulating nanoparticles, nanorods and artificial quantum well structures for future electronic technologies were also addressed.

Several bilateral collaborations are already active and potential new links were established through this workshop, with the aim of attracting future joint UK/Taiwan funding from EPSRC and NSC.



Franco–Scottish Science Seminar Series

The RSE and the French Embassy in London are collaborating in a three-year programme of science events designed to explore and publicly present areas of science where both Scotland and France have a powerful presence. These events are intended to stimulate Franco–Scottish collaboration in science, present new scientific ideas and their social and commercial implications to the public and increase awareness of French and Scottish science in each other's country.

Two events in the series took place in Spring 2012, both comprising afternoon workshops, intended for expert audiences of researchers working in the areas, followed by public lectures with more of a slant to a lay audience.

16 February 2012

A New Paradigm of Science Driven by Ultrafast Lasers

This workshop brought together young rising stars whose research highlights some of the unique properties of lasers. The evening speaker was one of the pioneers in high power lasers, Professor Gérard Mourou, from the Institut de Lumière Extrême, ENSTA, who spoke on *Extreme Light – a New Paradigm for Fundamental Physics*. The event provided a fascinating insight into some of the latest advances in the application of lasers in material processing and gene and drug delivery, using lasers, cancer treatment and high field investigations.

A summary report and an audio recording of the evening lecture are available on the website at: www.rse.org.uk/1015_February2012.html

22 March 2012

Systems and Molecular Neuroscience

This workshop brought together young scientists representing some exciting strands of contemporary neuroscience research currently underway in the two countries. In the evening, Professor Jean-Pierre Changeux, from the Laboratoire de Neurobiologie Moléculaire, Institut Pasteur, delivered his lecture entitled *Experimental and Theoretical Approaches to Conscious Processing*.

A summary report of the lecture is available at: www.rse.org.uk/cms/files/events/reports/2011-2012/Franco_Scottish_Series_Changeux.pdf

Events@RSE



Friday 27 April 2012

FULL DAY CONFERENCE

Scotland and the United Kingdom

This conference is a follow-on from one held in London on 28 February. Although covering the same topics, it comprises a different programme. It is intended to bring further academic evidence and analysis to bear on the current debates on Scotland's relationship with the rest of the UK and to inform and challenge the discussions, both inside Scotland and in Westminster, about the future of this relationship. Speakers include: Karen Henderson, University of Leicester; Professor John Coakley, University College Dublin; Dr Lubomir Lizal, Czech National Bank; Professor Colin Kidd, Queens University Belfast; and Roger Gough, Kent County Council.

There is a conference fee of £100 which includes lunch (no concessionary places available).

This is a joint event with the British Academy and is supported by the Scottish Public Law Group.



Wednesday 2 May 2012, 6 pm

An Evening with Diarmaid MacCulloch

Professor Diarmaid MacCulloch Kt DD FBA FRHistS FSA, Professor of the History of the Church at Oxford, Fellow of St Cross College, Oxford, and prize-winning author, has written extensively on the sixteenth Century and beyond it. His *History of Christianity: the first three thousand years* (Penguin Press), and the BBC TV series based on it, first appeared in 2009. His series *The English: How God Made Them* for BBC2 is due for showing shortly. The event will provide an opportunity to meet with Professor MacCulloch, the distinguished historian of Christianity and the University of Edinburgh Gifford Lecturer for 2011–2012, and to discuss with him in a relaxed manner some of the themes of his Gifford Lecture Series, e.g. *Holmes' Dog: Silence in the History of the Church*, (which will be taking place at the University of Edinburgh between 23 April and 3 May 2012). There will also be an opportunity to engage more widely with his many writings and his recent television documentary on the history of Christianity.





Thursday 10 May 2012, 6pm

George Square Lecture Theatre, George Square, Edinburgh

LECTURE

Alan Turing: Legacy of a Code Breaker

Professor Jim Al Khalili, Professor of Physics, University of Surrey

From cryptanalysis and the cracking of the German Enigma Code during the Second World War to his work on artificial intelligence, Alan Turing was without doubt one of the greatest minds of the 20th Century. An extraordinarily gifted mathematician, he is rightly regarded as the father of computer science, having set in place the formal rules that govern the way every computer code ever written actually work. This lecture will be a celebration of one man's enigmatic yet ultimately tragic life – a whirlwind tour of his genius, from whether computers can have consciousness to how a leopard gets its spots.

This is a joint lecture with the University of Edinburgh School of Informatics and is supported by the Gifford Trust.



Friday 11 May 2012 | **FULL DAY CONFERENCE**

The Informatics Forum, 10 Crichton Street, Edinburgh EH8 9AB

Celebrating 100 Years since the Birth of Alan Turing

This research symposium will reflect on four key themes in Turing's work, representing the diversity of Turing's legacy, in Informatics and beyond. The four themes are Artificial Intelligence, Computability and Algorithms, Computer Hardware and modelling the brain, and Morphogenesis. This last topic makes links to colleagues in biological sciences and chemistry, as Turing explored the chemical basis of morphogenesis (how the zebra got its stripes) and predicted oscillating chemical reactions (the biochemical clock). For each theme a distinguished speaker will give a retrospective view of Turing's legacy, complemented by a presentation on a related on-going piece of work from a rising research star.

Tickets: £50

This is a joint event with the University of Edinburgh School of Informatics, organised in partnership with SICSA and supported by Cambridge University Press. Further information on all Turing Events can be found at www.t100.org.uk

TICKETS ARE REQUIRED FOR ALL RSE EVENTS – RSE Lectures and Discussion Forums are open to all and normally free to attend, * but registration is required. To register please contact the Events Team. Please note that many RSE events run to full capacity. If you book a place at any event but are unable to attend, please inform the RSE Events Department so that your place can be reallocated. To book tickets go online at: www.royalsoced.org.uk or phone the events ticket line: **0131 240 2780**. For further information on all RSE events, visit www.royalsoced.org.uk or contact: events@royalsoced.org.uk

*some events may carry a charge to attend; please see individual events for registration details.

School Events

It has been a busy few months for the RSE Schools Programme, with the delivery of the programme's crowning event, the RSE Christmas Lecture, taking place in December, followed closely by the announcement of the winners of the RSE Beltane Prizes for Public Engagement. Pleasingly, the connecting feature of both these events was the Scottish historian Professor Tom Devine: just weeks after delivering the Christmas Lecture to a global audience, the RSE announced that Professor Devine was the Senior Prize winner in the second year of these public engagement prizes.

The RSE Christmas Lecture 2011

Professor Tom Devine delivered the RSE Christmas Lecture *To the Ends of the Earth: Scotland's Global Diaspora* on 12 December at the Glasgow Science Centre. The lecture confronted the intriguing and challenging puzzles of Scottish migration. The Scots have long been one of Europe's greatest emigrant peoples and in the 19th and 20th centuries the Scottish exodus reached truly unprecedented proportions. Interestingly, this was also an era of remarkable material and social transformation in Scotland as the nation became one of the most prosperous on earth during the Victorian era. In his lecture, Professor Devine questioned why so many Scots were leaving the country to make new lives in the New World at a rate only paralleled by emigration from some of Europe's poorest countries.

It is no surprise that a lecture of this sort would have wide appeal, and was delivered twice – once during the day, to over 300 students from the Glasgow area and a global webcast audience, and later in the evening to a public audience.

The daytime lecture was introduced by Mhairi Duncan and Daniel McDermott, the Head Girl and Boy from Our Lady's High School, Motherwell – the former secondary school of Professor Devine. Before the lecture, the students presented him with some gifts on behalf of the school, including a school tie and some of his old report cards!

For the second year running, BBC Scotland supported the lecture, by webcasting it 'live', and this year it went global. Viewers tuned in from across the UK and from Ireland, the United States of America, Canada, Japan, Kenya, and they joined a strong Scottish audience.

One of the most interesting things about this lecture was its applicability to all facets of life and this came across in the feedback, with audiences telling us they were going to apply what they learned in the lecture to their school curriculum, to their university studies, to their research, to their work and to their own personal studies.

The event report and the webcast are available on the RSE website at: www.rse.org.uk/957_PreviousLectures.html

Lecture Legacy

Through the Christmas Lecture, the RSE endeavoured to create learning opportunities both in front of and behind the cameras. In the summer of 2011, a Film and TV Masterclass for students was run as part of the RSE@ Dumfries and Galloway programme. Impressed by the calibre of these students and by the animation they produced, the RSE invited them to the Christmas Lecture for a day's work experience with the RSE and BBC Scotland. Grace King, one of the Masterclass students, who has gone on to study Film and TV at third level education, has put together a short piece, talking about why she took part, her role on the day and what she learned from the event.



I'm a first year Film & TV student at Glasgow University and last August I took part in a Film and Television Masterclass at Drumlanrig Castle, as part of the RSE's week of Masterclasses. With a group of other young people I created an animation advertising Drumlanrig Castle. I was invited to the RSE Christmas lecture to see how the lecture was streamed online by BBC Scotland.

With three other people who went to the Masterclass, I took in questions emailed in by the online viewers and asked these to Professor Devine at the end of the Lecture. I benefitted from the day by seeing the BBC team who set up the cameras for streaming the lecture, and experiencing the action behind the scenes. We were then taken to look around BBC Scotland which was amazing. We saw offices, studios and editing suites. We had a long chat with a BBC producer and a director, who had been in control of the lecture webcasting. They showed us around the building and told about their own careers in media. It was really interesting and useful to hear how they got to where they are now, and being able to ask them about it. Thank you to the RSE for all of these great experiences.

The original animation created by Grace and the other Film and TV Masterclass students is available to view on the RSE website at: www.rse.org.uk/1002_RSEDumfriesandGalloway.html

@RSE



BBC Scotland



To find out more about events in the RSE Schools Programme, contact: **Maggie Twomey**,
RSE Events Officer,
mtwomey@royalsoced.org.uk
phone **0131 240 5035**
or visit the RSE website at:
www.royalsoced.org.uk/440_Schools.html

The RSE Events Team is used to getting all sorts of requests, and so were not surprised by a last minute request from university student, David Lyons.

Here he describes how, when a hurricane struck, the RSE and its Christmas Lecture came to the rescue....

As part of our Production and Presentation module we are required to make a "TV Package." This constitutes a one and a half minute film that would be the report part of a TV News bulletin.

Working in pairs, the piece involved research, reporting, directing, scripting, voicing and editing and camera work. The package had to feature a piece to camera, a voiceover, at least one interview and appropriate captions for all people appearing on camera.

I had originally planned to shoot a piece about a talk by photographer John Beatty. However nature was against me and the cancellation of my shoot was added to the litany of chaos and disruption caused by the hurricane of 8th December, 2011.

Our course is very intensive. We pack everything that the undergrad course covers in four years into one year. This means deadlines tend to pile up. The TV package was due on 16 December. In the same week we had an ethics essay and a feature article to submit. The cancellation of my shoot meant a carefully scheduled timetable which would allow me to finish all three was blown away.

Drowning in panic I began to search for something else to cover. On the morning of 12 December I saw that the RSE Christmas Lecture would be at the Glasgow Science Centre that evening. Assuming it would probably be too late to arrange, I emailed the RSE to see if we could come and shoot the lecture and interview Professor Devine. Luckily the staff at the RSE were incredibly helpful, replying quickly and assisting in making all the necessary arrangements.

Myself and my colleague Craig Telfer had shot his TV package the night before, so by this point we were (or thought we were) a pretty slick operation. Having arrived at the Science Centre we got some shots of the audience mingling and getting stuck in to the mince pies, before setting up our equipment up to shoot the lecture.

Despite having given his lecture twice on the day, Professor Devine was kind enough to let us interview him afterwards. RSE Events Officer Maggie Twomey also granted us an interview to discuss the organisational side of things.

I'd like to take this chance to thank Professor Devine and the staff at the RSE for all their help. They were very friendly (and patient) and helped rescue me from a hurricane-based disaster.

The final edit of David's TV Package is available to view on the RSE website:
www.rse.org.uk/957_PreviousLectures.html

Public Engagement

RSE Beltane Prizes for Public Engagement 2012

The RSE and Edinburgh Beltane launched the RSE Beltane Prizes for Public Engagement in 2011, with the aim of recognising and rewarding the advancement of high quality public engagement with research. In this the second year of the prizes, Resource talks to the recently-announced winners, Professor Tom Devine (Senior Prize winner) and Dr Nicola Stanley-Wall (Innovators Prize winner). The winners will be awarded their prizes at an event later this year. To find out more about the winners and the awards and how to attend the event, visit

www.rse.org.uk/667_RSEBeltanePrizesforPublicEngagement.html



Dr Nicola Stanley-Wall is the winner of the Innovators Prize. Resource chats to her about her career and her interactions with public engagement.

Tell us about your current role and the path you took to get there.

I studied for both my undergraduate degree and postgraduate degree at the University of East Anglia and subsequently moved to Los Angeles. My postdoctoral years were funded in part by an EMBO long-term fellowship. In 2005 I was awarded a BBSRC David Phillips Fellowship to establish my own research group and I moved back to my native Scotland as a lecturer at the University of Dundee. I am currently a lecturer in the Division of Molecular Microbiology at the University of Dundee. I have a research team of six PhD students and a postdoctoral scientist and investigate 'multicellular' behavioural processes that are performed by single-celled bacteria.

How important is public engagement?

I feel it is very important for all scientists to be able to explain to members of the public what they work on and why. In part this is because members of the public are generally our 'funders' and as such we have a responsibility to be transparent with what we are doing. From a personal, more selfish perspective it provides the chance to enhance your communication skills and is a route to an alternative form of creativity.

I want young people to feel the enthusiasm for life sciences that I did when I was a student. I think that visual and hands-on activities work the best to engage younger people, and make science relevant to their own lives. Showing kids the bacteria on their own hands or mobile phones is a great way to make them aware of the microbiological world around them and can open discussions to more in-depth topics.



What challenges have you encountered when disseminating your subject area to the general public?

Funding can be hard to obtain to allow for more elaborate public engagement activities. You have to be imaginative and also have the support of your institute for underwriting activities and also to provide matching funds.

What inspired you to engage with the public in the first place?

I was inspired to get involved in outreach activities by Lady Black when she visited the University of Dundee with her husband to open the James Black Centre in the College of Life Sciences. At this point I became involved in the RSE Schools Talks programme. After having participated in a couple of these events, I wanted to be involved in a more direct or interactive way with school children, so I chose to develop and run an event that morphed into *Magnificent Microbes* in 2010. For this to be possible I had the full support of my colleagues – I have been inspired by them.

Nicola is one of 68 young academics selected to be members of the first cohort of the RSE Young Academy of Scotland in November 2011. Full details of the Young Academy can be found at: www.rse.org.uk/794_The+RSE+Young+Academy+of+Scotland.html

2012



Professor Tom Devine OBE Hon MRIA FBA FRSE is the winner of the RSE Beltane Senior Prize for Public Engagement 2012.

What is your Current role?

I retired from the Sir William Fraser Chair of Scottish History and Palaeography in summer 2011. From January 2012 I have rejoined the University on a part-time basis as Personal Senior Research Professor in History. I will be directing the Scottish Centre for Diaspora Studies, supervising doctoral students, carrying out research and assisting with the preparation of the School of History, Classics and Archaeology's submission to the Research Excellence Framework 2014. In addition, of course, I will be continuing with my public engagement activities.

What your career highlights?

Since the 1970s, at the beginning of my career, I have seen my discipline of Scottish Historical Studies grow in quality, range, academic status and public interest. That has been very satisfying and a real privilege to be associated with such a period of academic transformation. A major highlight in public engagement was my recent RSE Christmas Lecture in the Glasgow Science Centre to the several hundred senior school pupils who were present, together with the untold numbers across the world who tuned in to the BBC webcast of the event.

How important is public engagement?

I would like to see public engagement become a mainstream and expected part of academic activities. The enormous intellectual resources of the Scottish universities contribute much to the economy and culture of the nation, but much more could be done in the area of public discourse on political, ethical, historical and social issues, especially at this time when the constitutional future of the country is on the agenda. The voice of Scotland's intellectuals should be heard and heard loudly.

How has public engagement changed throughout your career and how have you adapted to these changes?

Public engagement hardly existed when I became a university teacher. There was certainly no encouragement to take part in it and writing for the press was not regarded as a respectable pursuit. I was just as blinkered as everyone else. To me, at that time, we 'engaged' with the public through producing well-educated graduates, some of whom would then become schoolteachers and spread the knowledge and concepts they had acquired at university to the next generation of pupils.

The wheel has now come full circle with 'impact' becoming an integral part of research evaluation exercises and research council grant-awarding procedures. The other major change which has stimulated my own endeavours has been the remarkable recent growth in interest of the nation's past, identity and culture. Hence, it is a wonderful time for my trade! One can almost detect a hunger to know among many audiences.

What are your future plans?

I have just published the last volume of a trilogy on the modern history of the Scottish people at home and overseas since the sixteenth century. The entire trilogy will appear in a new paperback format in the summer of 2012. After that effort, there is an opportunity to take stock about future projects. I have some ideas but not yet settled on where the focus will lie.



The winners of both of the Beltane Prizes are presented with glass sculptures commemorating the award.

Research

SCOTTISH GOVERNMENT ARTS & HUMANITIES NETWORKS

Research Networks were added to the RSE programme of Arts & Humanities awards in 2008. Funded by the Scottish Government, they are intended to create and/or to consolidate collaborative partnerships over a two-year period. 'Partnerships' are defined in a range of ways, and involve collaboration between colleagues in different disciplines (which may extend into areas beyond the arts and humanities), in different HEIs, and/or in HEIs and Scottish Cultural Institutions. The awards are used to expand the activities of existing Research Workshops, or to initiate new projects.

Full details of the Arts & Humanities programme can be found on the RSE website at www.rse.org.uk/650_ScottishGovernmentArtsandHumanities.html

In 2011 Dr Alex Marlow-Mann and Professor Dina Iordanova from the Centre for Film Studies, University of St Andrews, were awarded funding from this programme, for the Scottish Film Festival Studies Network (SFFS). As part of this network, a workshop was held at the RSE in November 2011. Attracting over 60 people, this highly successful event received coverage in the Scottish press and is described below by Diana Popa, a PhD student who attended the event.

This day-long workshop, organised by the SFFS, run by the Centre for Film Studies and funded by the Royal Society of Edinburgh, brought together film festival scholars and practitioners from across Scotland.

In a series of three moderated panels, the workshop covered a wide range of issues relating to film festivals in Scotland and beyond. The presentations and accompanying discussions centred around concrete examples such as Screen Machine and the work of filmmaker Želimir Žilnik, but also addressed the potential problems associated with, for example, cooperation and networking between festivals.

Thus, in the first panel, Ron Inglis talked about Screen Machine, a mobile cinema, which brings films to geographically remote areas of Scotland in order to sustain or develop a film-going culture. As an event, Screen Machine also revives a community-level social interaction around cinema.

The second panel centred on documentary film festivals and networks. Sonja Henrici talked about the pyramid structure of documentary film festivals which makes distribution difficult for some documentaries. She argued for the need to foster connections between the documentary industry and the documentary festival programme coordinator in order to counter such difficulties.

The third panel focused on the future of the Edinburgh International Film Festival. Attention fell on building on the event's legacy as the world's oldest, continually running film festival, keeping its vital components and incorporating new work so as to revitalise, even redefine itself.

The last session of the workshop presented filmmaker Želimir Žilnik in conversation with Dina Iordanova.

The debates raised the issue of the tension between filmmaking and academia, more importantly academia's distance from actual filmmakers.

The workshop provided an opportunity to cultivate communication between these groups; not only did it bring together specialists representing both scholars and practitioners, but it also demonstrated the openness each has towards the other and towards communication.



Diane Henderson, David Cairns and Matthew Lloyd discuss the future of the Edinburgh International Film Festival



Professor Dina Iordanova



Filmmaker Želimir Žilnik in conversation with Dina Iordanova



Dr Alex Marlow-Mann

Awards

JM Lessells Travel Scholarship Case Study

Where every drop counts: effective engagement with stakeholders for water and sanitation projects in rural Africa – an engineering perspective

Funding from the Royal Society of Edinburgh through a Lessells Travel Scholarship allowed me to undertake fieldwork in the Eastern Region of Ghana, where I was able to engage with two rural communities and undertake research alongside development projects that were underway in the villages.

Millions of people around the world live without access to even the most basic water and sanitation facilities. As an engineer I felt this ought to be a simple problem to solve, as the technology exists to provide drinking water and adequate toilets. I have learnt that the problem is in fact complex; there are many social, cultural and economic dimensions to water and sanitation provision. Failure to understand and account for these aspects has led to many failed development projects in the past. My objective in going to Ghana was to increase my understanding of the non-technical issues surrounding water and sanitation development projects.

I learned that engineers need to proceed with caution and respect to avoid taking away the community's right to self determination; they need to engage fully with the local community to understand and design appropriately for the local culture; and finally, full engagement with a variety of stakeholders is essential to ensure that development priorities can be ascertained and systems designed to truly meet the needs of the local community. Involving the community at every stage of the project and combining the community's local knowledge with the engineer's technical knowledge means that the resulting engineering solution is more likely to be technically, socially and culturally appropriate and long-term sustainability is more likely to be achieved.

The personal gain being awarded a JM Lessells Scholarship afforded me is vast and difficult to express. The experience of living and working in Ghana with local people has exposed me to an entirely different culture and way of life. On a professional level, my experience in Ghana has taught me that as an engineer I need to be more ready to engage in the broader social, cultural and political issues of development in order to effectively tackle the challenges facing society today. I am extremely grateful to the Royal Society of Edinburgh, the J.M. Lessells Trust, the communities I worked with in Ghana and my supervisor, Dr Martin Crapper, for this life-changing experience.

Alison Furber

Alison Furber, Institute for Infrastructure and Environment, School of Engineering, University of Edinburgh was awarded a J M Lessells Travel Scholarship in 2010



The RSE offers its congratulations to the following Fellows, who have been honoured in various ways:

Honoured in Her Majesty The Queen's New Year Honours List were:

Order of the British Empire; Commander (CBE) – **Dr Robert W Black** and
Professor Alan R Bundy

Order of the British Empire; Officer (OBE) – **Professor Stuart R Haszeldine**

Professor John Brown, 10th Astronomer Royal for Scotland, has been awarded the Gold Medal of the Royal Astronomical Society for his outstanding work in research, leadership and outreach. This is the highest honour of the RAS and a very prestigious award. There have been few Scottish recipients: one former Astronomer Royal for Scotland, (Sampson ca 1830); one former Glasgow Regius Professor, (Grant ca 1840); and Major-General Sir Thomas Makdougall Brisbane (23 July 1773 – 27 January 1860).

Professor Muffy Calder OBE, began her appointment as Chief Scientific Adviser for Scotland on 1 March 2012. Professor Calder's three-day-a-week post will run for three years. The Chief Scientific Adviser for Scotland is an overarching role, championing science as a key driver of the economy, and ensuring the Scottish Government uses science effectively in all policy making.

Professor Mike Forde has recently received a number of prestigious Awards and Honours:

- Bridge Engineering Association (USA) "Bridge Engineering Research Award" for contributions to Non-Destructive Testing (NDT) of Bridges. The award was presented to Mike at a ceremony in New York City in July 2011.
- Elected a Fellow of the American Concrete Institute in November 2011 for outstanding contributions to the NDT of Concrete. Mike is Chair of ACI Committee 228 NDT of Concrete.
- Elected an Honorary Member of the Engineering Institute of Serbia in July 2011.

Professor Andrew Morris, world-renowned Dundee University expert on diabetes, has been appointed Chief Scientist (Health) for Scotland. He will be seconded to the Scottish Government for two days a week, advising ministers and officials on key science issues.

Dr Adam Neville CBE has been awarded Honorary Doctor of Laws from the University of Calgary, Canada and Laurea Magistrale ad Honorem from the Politecnico di Torino. In addition, he has been awarded the Robert Philleo Prize by the Concrete Research Council of America.

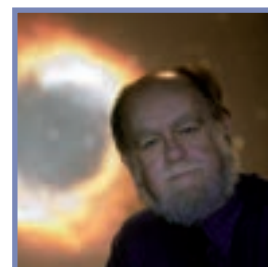
Professor Miles Padgett has been elected to Fellowship of the Optical Society of America (OSA) in recognition of his "experimental and theoretical advances in the interplay of orbital and spin angular momentum of light and its interaction with matter".

Sir Muir Russell was appointed the new Chairman of the Board of Trustees of the Royal Botanic Garden Edinburgh (RBGE) in December 2011 (taking over from Sir George Mathewson, who held the post since 2007). The appointment is for four years.

Professor Roy Watling MBE received the Outstanding Contribution Award for Nature in Scotland, presented at a ceremony in the Balmoral Hotel in Edinburgh in March 2012. The award is one of many organised for the first time by RSPB Scotland, the Outstanding award being sponsored by Scottish National Heritage.



Stuart Hazeldine



John Brown



Muffy Calder



Mike Forde

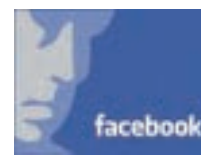


Andrew Morris



Miles Padgett

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The Royal Society of Edinburgh, Scotland's National Academy, is Scottish Charity No. SC000470

The RSE Scotland Foundation is a connected charity, registered in Scotland as Scottish Charity No. SC024636