

resource

The Newsletter of Scotland's National Academy



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Options for Scotland's Gas Future

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Full list of RSE Awardees 2015

THE ROYAL
SOCIETY
OF EDINBURGH

The RSE Comments

Entrepreneurial Education in Scotland

The Scottish Government has declared its ambition for Scotland to become a world-leading entrepreneurial nation. The Business Innovation Forum (BIF) of the Royal Society of Edinburgh welcomes this vision but recognises also that achieving it will require a fundamental shift in the mind set, skills and confidence of Scotland's current, and future, workforce.

Scottish universities have a pivotal role to play in shaping an innovative and dynamic workforce. Research funding bodies, public and private business support agencies and industry are also crucial actors. The BIF, therefore, established a Working Group to discuss the question of entrepreneurial education with stakeholders from across the ecosystem, starting a discussion on how to effectively deliver the key skills and experiences that will support Scotland's students of today to be confident, entrepreneurially-minded leaders in the future.

The report of the Working Group, published in June 2015, set out a number of emerging recommendations that aim to ensure Scotland-wide access to three levels of entrepreneurial skills training:

- Enterprise education for everyone, to encourage basic business awareness, employability skills and a creative mind-set that will benefit students in all future career paths;
- Entrepreneurship education for those interested in applying these skills specifically to the creation of a new venture; and

- Skills for growth for entrepreneurs and business leaders who are ready to scale up an existing venture.

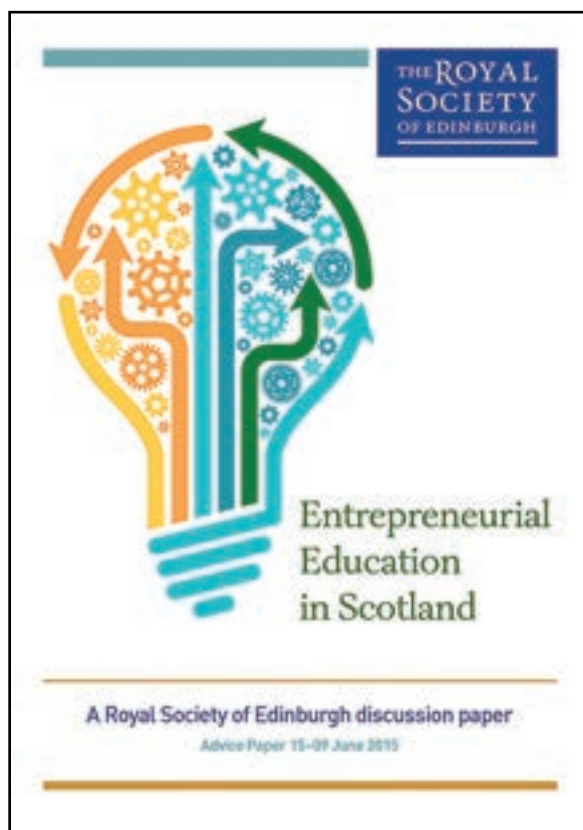
From the outset, it was clear that a joined-up approach is crucial to ensuring the consistency and quality

practitioners to oversee a comprehensive programme for the delivery of entrepreneurial education in Scotland, with the strong endorsement and support of the Scottish Government and Scottish Funding Council.

In addition, the report calls on universities to consider how they can best support all academic staff to understand the relevance and importance of enterprise education across the full curriculum, and to develop their capacity to introduce enterprise skills into courses. Increased engagement with non-academic lecturers, particularly those who have experienced both success and failure in entrepreneurial ventures, would have a particular impact on developing ambitious, confident students who will be more willing to take risks and seize opportunities in the future.

Universities have powerful potential to ensure that world-class leadership capacity and the ambitions for growth, which are crucial to achieving a step change in Scotland's

innovation economy, are embedded at the earliest stages of learning. Through their business schools, and in partnership with Scotland's key support agencies and industry, universities should consider how to deliver such skills to emerging entrepreneurial leaders, both within the formal higher education sector and across Scotland more widely.



of entrepreneurial skills and support across Scotland. The report therefore recommends the creation of an Entrepreneurship Education Forum, bringing together high-level representatives of academic institutions, public and private business support organisations and industry

The full discussion paper, *Entrepreneurial Education in Scotland* (Advice Paper 15-09 June 2015) can be found on the RSE website at: www.royalsoced.org.uk/cms/files/advice-papers/2015/AP15_09.pdf

Options for Scotland's Gas Future

In light of the significant recent public and political debate that has surrounded unconventional gas, and the process of hydraulic fracturing in particular, a working group of RSE Fellows, Young Academy members and other experts was convened to proactively produce an Advice Paper examining Scotland's future options for sourcing gas. The Working Group included members from a variety of disciplines and backgrounds and was Chaired by RSE Fellow, Professor Rebecca Lunn. In June, Professor Lunn presented the findings of the paper to the Scottish Parliament's Cross-Party Group on Science and Technology.

The paper analyses the four choices Scotland has available for sourcing the gas that it will require over the coming decades – demand reduction; import; onshore production; offshore production – and presents the benefits and risks associated with each.

In the Advice Paper, *Options for Scotland's Gas Future*, the Working Group stressed the high level of reliance Scotland has on natural gas for both residential and commercial heating. Gas is further required for both electricity generation and as a chemical feedstock for the



petrochemical industry. The UK currently imports over 50% of the gas it consumes and so to increase energy security in addition to meeting future demand, the UK may wish to increase domestic onshore or offshore production. Reducing the demand for gas across the country should also be considered, albeit in conjunction with one or several of the other options.

Scotland is also committed to meeting statutory climate change targets and any action that is taken must be consistent with these goals, in addition to addressing energy security, cost to the consumer and public acceptance. Sourcing more gas domestically would give Scotland greater control over environmental control measures such as carbon capture and storage.

Demand reduction is vital, but significant government investment would be needed to ensure extensive uptake by the public. It is also important that the positive effect demand reduction would have on fossil fuel consumption is not negated by simply moving heat demand from gas to electricity, as this could result in increased levels of fuel poverty and a higher electricity demand that Scotland would struggle to meet.

Importing would eliminate the adverse impacts of production on the Scottish public, but would serve to move them abroad; leaving Scotland without the ability to enforce strong regulation surrounding the environment and worker safety. Furthermore, this course of action leaves the UK reliant on other countries, with potentially very different values, for its energy and has a greater climate change impact due to transportation and pipeline leakage.



Onshore production would improve energy security and allow Scotland to control regulation, but could cause disruption and face opposition from communities. Offshore production could improve energy security without disturbing communities, but may prove more expensive and potentially uneconomic. Both onshore and offshore industries suffer from large uncertainty over whether significant viable reserves in Scotland actually exist.

Irrespective of which option, or options, Scotland decides to take forward, it is imperative that it is done with the support of the Scottish public. The decision must be made following meaningful participation of a well-informed public. Major decisions over energy must be addressed at a societal level and not be imposed from above, nor left to individual communities to accept or decline on a case-by-case basis.

The Working Group, while wishing to avoid endorsing a particular course of action, made two recommendations:

1. The Scottish Government should consider investing funds to reduce the areas of large uncertainty, notably those surrounding health impacts and potential reserves.
2. Public participatory decision making should be used in reaching a verdict on which option, or options, Scotland takes forward.

The Advice Paper can be found on the RSE website at:
www.royalsoed.org.uk/cms/files/BriefingPaper15-01.pdf

Events for the Public @ RSE

**Tuesday 27 October
2015 at 7 pm at Moffat
Academy, Moffat**

**RSE@THE HOLYWOOD
TRUST – PUBLIC TALK**

*Gravitational-Wave
Astronomy: Opening
a New Window on
the Universe*

Professor Martin Hendry MBE FRSE
Director, Head, School of Physics and
Astronomy, University of Glasgow



Gravitational waves are ripples in the fabric of Space and time, predicted by Einstein and produced by the most violent events in the Cosmos: exploding stars, colliding black holes, even the Big Bang itself. Using a global network of giant laser interferometers – among the most sensitive scientific instruments ever built – astronomers are on the threshold of directly detecting gravitational waves for the very first time. Professor Hendry will describe the remarkable technology that underpins this exciting new field, and highlight the fundamental questions – about stars, galaxies, cosmology, perhaps even the nature of Space and time – that may be answered as we open this new window on the Universe.

Professor Hendry is the winner of the 2015 RSE Public Engagement Senior Prize: both he and the Innovator Prize winner will be presented with their medals at this event.

**Wednesday 4 November
2015 at 6 pm**

**MACCORMICK
EUROPEAN LECTURE**

*Enlightenment:
a matter of urgency*

Professor Gunter Stock
President, ALLEA (the federation of
All European Academies)



The great societal challenges ahead of us, such as climate change and health, can only be tackled if we are able to combine all of our current knowledge and make this knowledge available in a quantitative and timely fashion. This is where modern Academies in Europe and around the globe can play an important role, to present civil society with options and alternatives based on current scientific knowledge and judgement. This is commonly known as scientific advice, but it can be alternatively expressed as modern enlightenment.

The annual MacCormick European Lecture is named after the late Professor Sir Neil MacCormick, in recognition of the contribution made by him to Scottish and European politics and the international work of the RSE.

**Tuesday 1 December
2015 at 6 pm**

**JAMES BLACK
PRIZE LECTURE**

*Sleeping Sickness in
Sub-Saharan Africa*

Professor Peter Kennedy CBE FRSE
Burton Chair of Neurology,
University of Glasgow



Professor Kennedy will describe his work on a new oral drug, which promises improvement in the lives of the rural poor affected by human African trypanosomiasis – sleeping sickness. This killer disease, which occurs in 36 countries in sub-Saharan Africa, putting 70 million people at risk, is transmitted by the bite of the tsetse fly and is invariably fatal if untreated. The current treatment is excruciatingly painful and kills over 8% of people receiving it.



This lecture forms part of an RSE Ordinary Meeting and so will be preceded by Society business, such as Fellows signing the Roll.

**Tuesday 8 December 2015 at 6 pm
at Moffat Academy, Moffat**

**JOINT LECTURE WITH THE
ROYAL INSTITUTE OF PHILOSOPHY**

*Scientific Generalisations: what's so good
about missing out all generalisations?*

Professor Nancy Cartwright

Professor of Philosophy at the Department of Philosophy, University of Durham and at the University of California, San Diego (UCSD), USA

Scientific enquiry is about making generalisations, we are told, about making things look alike: a few short, sharp general claims to deal with a wealth of different cases. We get them to look that way by blurring the details, by distorting all the instances that don't fit the box. This talk will discuss how we come by general truths in science (not by generalising) and explores some of the pitfalls in getting back down to concrete, especially when we want to use science to build a laser or to create a better social policy.

RSE Events are open to all and normally free to attend, but registration is required. To register, please contact the Events Team – 0131 240 2780 – events@royalsoced.org.uk or go online at: www.royalsoced.org.uk. Some events may carry a charge – please check individual details.

Many RSE events run to full capacity. If you book a place at any event but are unable to attend, it would be appreciated if you could inform the Events Team so that your place can be reallocated.

PLEASE NOTE: If you usually book event tickets online, the RSE has recently launched a new online booking system that allows users to update their own account details and register for events. The site is accessed from the RSE website as usual and guidance is provided as you proceed to the new system. You must have an email address if you wish to use the online booking system. Please do not hesitate to contact the Events Team if you have any problems using the new system.

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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:

Alan Salonika, Business Development Officer – 0131 240 2785 – asalonika@royalsoced.org.uk

Fellows in Action

AcademiaNet interview with Sue Black OBE FRSE, Professor of Anatomy and Forensic Anthropology, Head of Centre for Anatomy & Human Identification (CAHID), University of Dundee

A Body of Knowledge

AcademiaNet: Your field of research is forensic anthropology, which is the analysis of human remains for medicolegal purposes. How did you become interested in this potentially gruesome discipline?

Professor Black: My very first job when I was 12 years old was in a butcher's shop. So very early on I became comfortable dealing with blood, bone, muscle, flesh, offal and such things. Later I went to university to study biology, but I hadn't a clue where that was going to go. In my third year I chose to do anatomy, where you dissect the human body from the top of the head to the bottom of the toes. I found that year just so utterly fascinating, to know not only what's on the outside of the human but what's on the inside.

My first exposure to forensic investigation was when a case came along that my supervisor at the time was looking at. You never quite know how you're going to react to your first forensic case, but I found that it just fascinated me. It seemed a very natural progression from a butcher's shop into an anatomy department dissecting room to a mortuary assisting the police.

AcademiaNet: After your postgraduate studies, you spent some time as a lecturer in human anatomy before taking up work identifying victims and perpetrators of conflicts for the Foreign and Commonwealth Office and United Nations. What made you transition from academia to fieldwork?

Professor Black: In some respects, it was simply because of a natural break in my academic career. Around that time I moved away from London back up to Scotland and took some time out to try to finish writing a very large textbook. And when something happens overseas, people don't ask whether you can go out there in six months, they want to know whether you can go out on Friday. While I was writing the book, and didn't have the full time academic demands on me, the cases started coming along.

AcademiaNet: One of your most notable projects during this time, for which you have been awarded an Order of the British Empire, was leading forensic anthropology in Kosovo after the Yugoslav wars. What role did you play in Kosovo?

Professor Black: I headed out to Kosovo not really knowing what to expect or for how long I would be out there. The British forensic team was the first team to go out to Kosovo after the troops had retreated, so we were very much on the periphery of what was still a war zone. We had huge military protection, there were still snipers in the area.

Although there was one unadulterated crime scene that we had to investigate, our main job in the early stages was to record as much information as possible to support any possible war crime cases. We were required to determine what we thought happened at an indictment site, and if what we thought had happened matched with what witnesses said happened, that would act as very strong evidence to support a war crimes case against someone like Milošević or Karadžić.

AcademiaNet: You mentioned about being exposed to snipers in Kosovo. Your fieldwork has also taken you to Sierra Leone and Iraq. Has your work ever felt dangerous?

Professor Black: When I was in Iraq, it was still very unstable. The military quarters were actually quite safe, but it was quite nerve-wracking when we had to venture out to the crime scenes. When we were in Sierra Leone, there was very high security because the rebel forces desperately wanted to get a hold of hostages. It would have been great if they could have got British hostages, because the British troops were stopping the rebels getting into Freetown. And there's so much more psychological damage that you can do to a person and a country if your hostage is female rather than male. So you don't ever take your security lightly, and you have to really trust the people who are around you. But it's great fun.

New to RSE programme – don't miss

**In Conversation: Ian Rankin FRSE
and Professor Sue Black FRSE**

**Wednesday 21 October 2015 at 7 pm
St Matthew's Academy, Saltcoats, Ayrshire
Full details at: www.royalsoced.org.uk/events/**

AcademiaNet: In 2005 you were appointed Professor of Anatomy and Forensic Anthropology at the University of Dundee, where you now head up the Centre for Anatomy and Human Identification. What's an average week like for you at the centre?

Professor Sue Black: Oh I haven't got one! When you're an active forensic practitioner, you don't know what the next phone call is going to be. For example, last February, I got a phone call asking me to be in Doha the next week. Or on a Friday afternoon you'll get a citation for a court case that you worked on six months ago telling you to be in court on Monday. So when you think you've got your week sorted, something like that comes along and everything's got to be moved.

In addition, I run research groups and I try desperately to teach at least one lecture, if not more, to every single student group that we have within my department. I think that it's important to maintain your face at the front line of teaching. So there is no commonality to what a week might look like. I may be in court, I may be overseas, I may be in the classroom.



© David Gross

Professor Sue Black was Head of Profession for the British mission in Kosovo from 1999 to 2000, where this picture was taken. She has also provided anthropological services for war crime investigations in Kosovo, Grenada, Sierra Leone and Iraq, and in Thailand following the 2004 tsunami.

This interview first featured on the AcademiaNet website (www.academia-net.org) in July 2015 and we are very grateful to AcademiaNet and Helen Jaques, who conducted the interview and wrote the article, for allowing us to reproduce it here.

AcademiaNet: You mentioned your research briefly. Teeth and bones spring to mind when considering how to identify a body, but your research is about using anatomical knowledge to develop new techniques for identifying people. What sort of approaches are you working on at the moment?

Professor Sue Black: The biometrics we're working on at the moment are predominantly to do with identification of living people from the back of the hand. A lot of the case work that is coming in to us at the moment is child sexual abuse cases. This is one of the rare crimes where the perpetrator actually photographs themselves, or records themselves, in the act of committing the crime. As a result, parts of the offender's anatomy – predominantly the backs of their hands – appear in the images.

The anatomical information that is embedded in the back of your hand is phenomenal. For example, the creases of the skin on your knuckles are different on every single finger and different across the two hands. If you look at the pattern of superficial veins on the back of your right hand, it will be different to on your left. If you've got freckles, if you've got moles, if you've got scars, if you've got birthmarks – they'll all be individualistic in terms of their position.

When you start to add up multiple aetiological sources of information, it starts to become very very powerful in being able to identify an individual. About 82 percent of the cases that come to us result in a change of plea, because it is so very obvious when you start to look at detailed anatomy that your hands are just so identifiable.

Fellows Honoured

We offer our congratulations to our Fellows who recently have been honoured in the following ways:

Professor Ian Duncan CorrFRSE,

Professor of Neurology, University of Wisconsin, Madison, has received the 2015 Lifetime Excellence in Research Award from the American Veterinary Medical Association (AVMA).

The award honours a veterinary medical researcher for accomplishments in basic, applied or clinical research throughout his or her career.

Professor Duncan's work focuses on the development and disease of myelin, a material essential to the proper function of the central nervous system.

Professor Duncan was presented with his award at the 2015 Meriel–NIH National Veterinary Scholar Symposium held 30 July–2 August 2015 at the University of California, USA.



Professor David Porteous OBE FRSE FMedSci,

Chair of Human Molecular Genetics and Medicine at the Institute of Genetics and Molecular Medicine, University of Edinburgh, and his colleagues have been awarded the 26th Neuronal Plasticity Prize of the Fondation IPSEN.

Professor Porteous, Dr Mark Bear (Massachusetts Institute of Technology) and Professor Thomas Bourgeron (Institut Pasteur – CNRS) have received this award for their pioneering work in the domain of genes, synapses and psychiatric disorders.

The Prize was awarded on 8 July at the IBRO World Congress (International Brain Research) in Rio de Janeiro, Brazil.



Congratulations to our past President and Honorary Fellow, Sir Michael Atiyah and his wife, Lily, who celebrated their 60th (Diamond) Wedding anniversary on 30 July 2015.



Visit to China

The RSE and the National Natural Science Foundation of China (NSFC) have a formal agreement, established to support research collaborations between Scotland and China. Under the terms of this agreement, the RSE and NSFC organise an annual workshop on a topic of interest to both countries. This year, the workshop was held in Beijing, China on the topic of Sensors and Imaging.

The two-day workshop commenced on 24 August 2015 and the full title of the workshop was, *Sensors and Imaging Systems – Hyper spectral imaging technologies*:
 • Remote surveying of marine energy sites;
 • Land use monitoring;
 • Water body surveying including flood monitoring and prevention. Workshop participants presented their work in this area, had time to discuss their work with the other participants, and explored opportunities for collaboration. There were approximately eight participants each from Scotland and China.

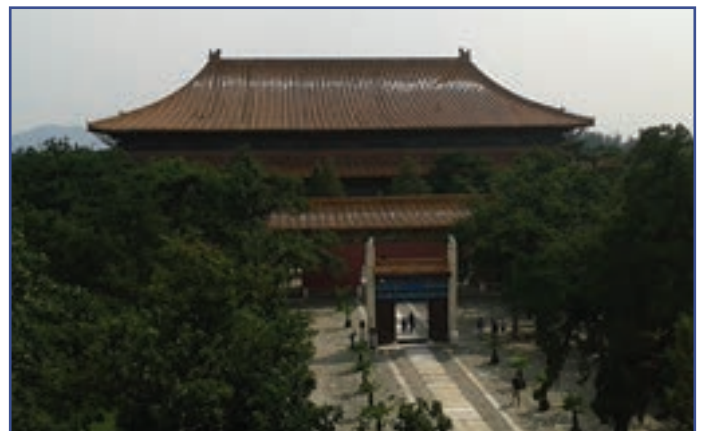
The Beihang University (BUAA) hosted the workshop and facilitated a very successful event, with participants well matched from both sides, leading to excellent opportunities for collaboration. BUAA arranged a very enjoyable ‘cultural visits’ day to the Great Wall of China and the Thirteen Tombs of the Ming Dynasty (pictured).

Following this workshop, the intention is that participants will submit an application to the RSE–NSFC Joint Project Scheme to support a two-year research project in this subject area, based on the discussions that have taken place during the course of the workshop.

The Joint Project funding is designed to facilitate international collaboration between researchers based in Scotland and China. The NSFC provides a similar level



Ming tombs (Thirteen Tombs of the Ming Dynasty) mock ceremony



The Ming Tombs Ling'en Hall constructed using Cedar wood and Ling Xing Archway, believed to be the gateway into the afterlife

of funding to the Chinese counterpart. The funding may be seen as seed money to enable further collaboration and funding in the future.



Further information on this Joint Project scheme and the application process is available on the RSE website at: www.royalsoced.org.uk/801_NSFC.html

RSE–NSFC Workshop participants

RSE Young Academy of Scotland



Four years on since its establishment, the Young Academy of Scotland (YAS) is now a flourishing group of young leaders working for the benefit of society.

The YAS has nine working groups engaged in a variety of interdisciplinary projects.

The YAS has also now produced a five-year strategic plan, *2020 Vision*, which identifies its forward-looking mission, along with its aspirations and priorities. *2020 Vision* was launched at this year's Annual General Meeting. Details of this meeting, as well as other projects which are engaging YAS members, follow.

Open Data: Rethinking Peer Review

On 18 June, the YAS Open Data Working Group held a seminar on the future of the scholarly publishing paradigm, entitled, *Science Open: Rethinking Peer Review*.

Dr Stephanie Dawson, CEO of *ScienceOpen*, a freely accessible internet research network, gave a presentation about her company's vision of the future of scientific communication. While the seminar's main focus was on Open Access and Post-Publication Peer Review, Dr Dawson considered many of the available traditional and new models for scholarly publishing. The event ended with a lively and productive dialogue on the way research is assessed in the scientific community.



Pictured with Dr Stephanie Dawson (left) are Young Academy Scotland member, Dr Alexander Kagansky (centre) and Dr Martin Dominik, member of the Global Young Academy, at the reception following the Science Open: Rethinking Peer Review seminar.

Facilitating Group co-chair, Karly Kehoe (right) introduces 2020 Vision at the 2015 AGM



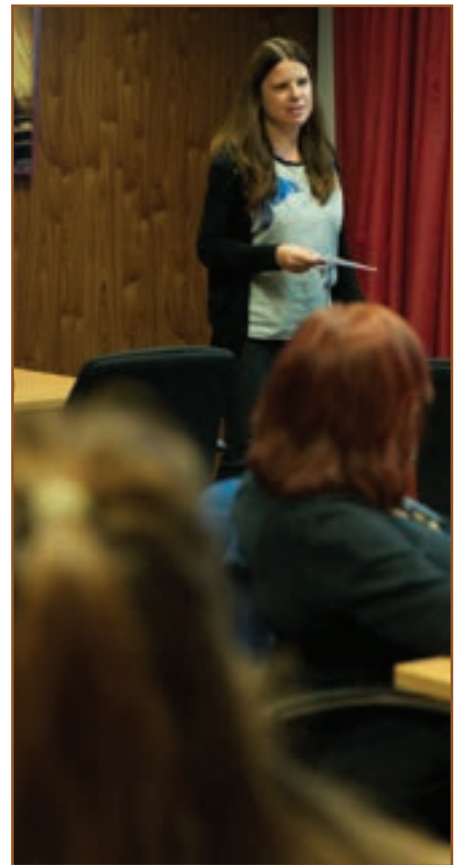
For more information on these projects and other YAS activities, please visit the website: www.youngacademyofscotland.org.uk

Annual General Meeting

The YAS held its 2015 AGM at Heriot-Watt University on 26–27 August. The meeting also served as the internal launch of *2020 Vision*, its five-year strategic plan, and featured a presentation of the YAS's six core strategic themes: healthier; smarter; enterprising; sustainable; equal; and international. After the Facilitating Group introduced the strategic plan, working groups broke away to discuss how their plans align with these strategies.

The AGM also saw the introduction of a new working group on *Food and Drink*. This group will encourage engagement and collaboration with food and drink research in Scotland across universities and sectors, connecting academic researchers with the food and drink industry, public policymakers, charitable organisations and the general public. Their main activities will be to organise themed interdisciplinary networking events and collaborate with other organisations to develop public outreach projects. These events and projects will focus on key topics of current importance in relation to food in Scotland and beyond.

Research the Headlines co-chair,
Sinead Rhodes (right) hosting a
Rewrite the Headlines pilot workshop
for primary school teachers



Rewrite the Headlines Workshop

One of the YAS's activities is *Research the Headlines* (<http://researchtheheadlines.org>), an interdisciplinary blog that explores how research is reported in the media. By looking at media coverage of research from an expert but independent position, the blog aims to give a better understanding of the research behind a variety of stories. Over the two years the blog has been running, 174 articles have been posted, and the site has received over 90,000 views.

Research the Headlines has been awarded funding from the British Academy (a Rising Star Engagement Award given to group co-chair, Dr Alan Gow) to launch *Rewrite the Headlines*. This is a competition aiming to engage young people in evaluating research reported in the media, helping them to understand the potential weak points in the pipeline between research and reporting and, in particular, to identify the responsibilities of

both researchers and journalists in the process of knowledge dissemination. The aim of the competition is to engage young people in the critical consumption of research that may impact their lives. The competition will focus on primary school children (P5–7) in its first year. After a workshop from a researcher, the students' task will be to take a news story related to research and 'rewrite the headline'. Undergraduate students will also be involved in the competition. Their task will be to write a blog post very similar to those the Young Academy publishes.

Rewrite the Headlines was designed by Young Academy members after a series of pilot workshops for teachers and pupils in Scottish schools. The competition launched in September 2015. For more information, visit the blog (<http://researchtheheadlines.org/>) or follow the group on Twitter @ResTheHeadlines.

Scotland's Research Talent and Innovation Talent

RSE Enterprise Fellowships

Highlands & Islands Enterprise (October 2015)

Alasdair Mort

Centre for Rural Health,
University of Aberdeen
*MIME: Managing Information
in Medical Emergencies*

Science and Technology Facilities Council (STFC) (October 2015)

Alexa Alexandrova

Department of Physics,
University of Liverpool
*D-Beam – Advanced Diagnostics
for Changed Particle Beams*

STFC & BBSRC (October 2015)

Peter Childs

Institute for Thin Films, Sensors & Imaging,
University of the West of Scotland
*NanoKick: A nanovibrational bioreactor
for stem cell-derived bone grafts*

BBSRC (October 2015)

Toby Mottram

School of Agriculture, Food and Environment,
Royal Agricultural University, Cirencester
*Integrated biosensor and sampler to
improve cow fertility management*

David I Roper

School of Life Sciences, University of Warwick
*Innovation and Discovery in Bacterial
peptidoglycan biosynthesis as a route to
new antibacterial drugs*



Text input on
Wearable Tech
by Timothy Willis
pictured left and
right.



RSE Enterprise Fellowships

Scottish Enterprise (April 2015)

Salman Tahir

Edinburgh Technology Transfer Centre
(ETTC), University of Edinburgh
Xi: cross-linking analysis software

Lysimachos Zografos

ETTC, University of Edinburgh
Parkure Ltd

Scottish Enterprise & Biotechnology and Biological Sciences Research Council (BBSRC) (April 2015)

Caroline Barelle

School of Medical Sciences,
University of Aberdeen
*Creation of a new biotech company based
on novel therapeutic shark binding domains*

Scottish Enterprise (October 2015)

Richard J Walker

CMOS Sensors & Systems Group, School
of Engineering, University of Edinburgh
Photon Force Ltd

Colin Gray

School of Arts, Media and Computer
Games, University of Abertay
The Podcast Host

Maneesh Varshney

Scottish Eco Innovation Unit (SEIU),
University of Strathclyde
*Resource Efficient Fish Feed Production
to Support Sustainable Aquaculture*

Timothy Willis

School of Informatics/Edinburgh Research
and Innovation, University of Edinburgh
*Tusi by Nautilus Beam – Text input on
Wearable Tech*

Lessells Travel Scholarships

Martyn McLaggan

BRSe Centre for Fire Safety Engineering,
University of Edinburgh
Visiting: School of Civil Engineering,
the University of Queensland, Australia
*Prevention of fire spread through walls
containing novel phase change materials*

Alessandro Peloni

School of Engineering,
University of Glasgow
Visiting: Department of Mechanical
and Aerospace Engineering,
University of Florida, USA
*Study of solar-sail interplanetary trajectories
via direct transcription method*

Renaldi Renaldi

Institute for Energy Systems, School
of Engineering, University of Edinburgh
Visiting: CanmetENERGY, Natural
Resources Canada, Ottawa
*Optimisation model validation of energy
system with seasonal thermal energy
storage*

Katrin Skerl

Division of Imaging and Technology,
Ninewells Hospital, University of Dundee
Visiting: Nightingale Laboratory, Duke
University Biomedical Engineering, USA
*Comparison of Shear Wave Elastography
(SWE) and Acoustic Radiation Force
Imaging in a Phantom Study*

Keith Smith

Institute for Digital Communications,
University of Edinburgh
Visiting: École Polytechnique Fédérale
de Lausanne, Switzerland
*Developing the framework of Signal
Processing on Graphs in EEG functional
connectivity for application towards the
prediction of Alzheimer's Disease.*

Carnegie Caledonian Scholarship

Fraser Kenneth Coutts

Department of Electronic
and Electrical Engineering,
University of Strathclyde
*Extension of Key Signal Processing
Techniques to the Processing of
Broadband Multi-Sensor Data*

Cormack Vacation Research Scholarships

Daniel Carron

Mathematics & Physics,
University of Dundee
Ultrafast observation, spectroscopy and bow wave modelling of events from the August 2015 Perseid meteor shower

Steven Kleinesse

Blackett Laboratory,
Imperial College London
Visiting: The Institute for Astronomy,
University of Edinburgh
The Missing-Baryons Problem

Kyle Martin

School of Physics and Astronomy,
University of Glasgow
Thermal Broadening of EUV Spectral Lines from Solar Flares

Magdalena Menz

School of Physics and Astronomy,
University of Glasgow
Investigation of Lyman-alpha radiation of solar flares

Amy Rankine

School of Physics and Astronomy,
University of St Andrews
Studying the effect of varying alpha-enhanced abundances in full spectral fitting

Piazz Smyth Research Scholarship (Cormack)

Chris Duckworth

School of Physics,
University of Nottingham
Visiting: School of Physics and Astronomy,
University of St Andrews
Galaxy Clustering and Bias in the SDSS-IV Extended Baryon Oscillation Spectroscopic Survey

RSE Personal Research Fellowship funded by Caledonian Research Fund (CRF)

Matthew R Livesey

Centre for Integrative Physiology, University of Edinburgh
Physiological function of human pluripotent stem cell-derived neurones and glia

CRF European Travel Fellowships – Visits to Europe

Lorenza Antonucci

Media, Culture and Society,
University of West of Scotland
Visiting: European Social Observatory,
European Trade Union Institute Brussels
Exploring the new politics of inequality in the European Union

Bethan Benwell

Division of Literature and Languages,
University of Stirling
Visiting: English Seminar,
University of Basel, Switzerland
Healthcare Communication: Scottish and Swiss Perspectives

Fabrizio De Francesco

School of Government and Public Policy,
University of Strathclyde
Visiting: Institut d'études politiques, historiques et internationales (IEPHI),
University of Lausanne, Switzerland
The dynamics of non-proportionate policy response to the 2008–9 financial crisis: a comparative analysis of regulatory reform in six countries

Emile Shemilt

Duncan of Jordanstone
College of Art and Design,
University of Dundee
Visiting: Department of Filosofia Comunicazione e Spettacolo (Philosophy, Communication and Entertainment), Università degli Studi Roma Tre
Celluloid Film Futures in Italy: Italy's current and future capacity to sustain celluloid film practice.

Elaine Webster

Law/Centre for the Study of Human Rights Law,
University of Strathclyde
Visiting: Leuven Institute for Human Rights and Critical Studies,
Leuven, Belgium
Understanding Human Dignity in European Human Rights Interpretation

CRF European Travel Fellowships – Visits to Scotland

Maurizio Arcari

Department of National and International Legal Sciences, Università Milano, Italy
Visiting: School of Law, University of Glasgow
The Responsibility of UN-Mandated or Authorised Peace Support Operations for Human Rights Violations

Zoltan Balazs

Institute of Political Science, Corvinus University, Budapest, Hungary
Visiting: Centre for Ethics, Philosophy and Public Affairs, University of St Andrews
The Political in Aurel Kolnai's Political Thought

Andreas Gofas

International European and Area Studies, Panteion University of Athens, Greece
Visiting: The Handa Centre for the Study of terrorism and Political Violence, University of St Andrews
The Origins and Historical Evolution of Transnational Terrorist Waves

Christophe Guillotel-Nothmann

Institut de Recherche en Musicologie, Université Paris–Sorbonne, France
Visiting: Edinburgh University Library, University of Edinburgh
Instrumentälicher Bettlermantl. c. 1650 (Edinburgh University Library Special collections Dc.6.100/319). Electronic edition, terminology and intertextual networks

Falk Huettig

Max Planck Institute for Psycholinguistics Nijmegen, The Netherlands
Visiting: Psychology, University of Edinburgh
The importance of prediction for language processing

Bjorn-Oliver Magsig

Helmholtz Centre for Environmental Research, Munich, Germany
Visiting: Centre for Water Law, Policy and Science (under the auspices of UNESCO), University of Dundee
Strengthening the International Legal Response to Water Scarcity and Conflicts of Use

Laura Movilla

Public International Law, University of Vigo, Galicia, Spain
Visiting: Strathclyde Centre for Environmental Law and Governance
Legal Proposals for the sustainable governance of transboundary aquifers.

Canan Ezel Tabur

Department of International Relations, Çukurova University, Adana, Turkey
Visiting: The Institute for Advanced Studies in the Humanities (IASH), University of Edinburgh
EU-Level policy-making on migration and development

Research funded by Scottish Funding Council

RSE Personal Research Fellowships

Christoph Busche

School of Chemistry, University of Glasgow

Incorporation of magnetically and redox active molecules in complementary metal–oxide–semiconductor (CMOS) devices

Christos Pliotas

School of Chemistry, University of St Andrews

Opening Mscl: a promising antibacterial target

Lilach Sheiner

Wellcome Trust Centre for Molecular Parasitology, University of Glasgow

Dance with me? Mechanisms controlling mitochondrion – cell-cycle synchrony in Toxoplasma gondii

Arts & Humanities Small Grants

Patricia Allmer

History of Art, University of Edinburgh, Edinburgh College of Art

Lee Miller: Photography, Surrealism, and Beyond

Glyn Davis

School of Design, Edinburgh College of Art, University of Edinburgh

Visiting: Warhol Museum, Pittsburgh, USA

Andy Warhol's Final Painting

Alistair Fair

Edinburgh School of Architecture and Landscape Architecture, University of Edinburgh

Modern Playhouses: New British Theatre Architecture, 1945–1985

Stuart Gillespie

English Literature/
School of Critical Studies,
University of Glasgow
Newly Recovered Classical Translations, 1600–1800: Online

Brian Hoyle

Film Studies,
University of Dundee
Unfilmed Scottish Biopics

Pavel Iosad

Linguistics and English Language,
University of Edinburgh
The phonetics and phonology of short vowels in Irish and Scottish Gaelic

Arts & Humanities Networks

Peter Duff

Law School, University of Aberdeen

Evolution or Revolution: Scots Criminal Evidence Law in the 21st Century

Maria Economou

School of Humanities and Hunterian Museum, University of Glasgow

Scottish Network on Digital Cultural Resources Evaluation

Murray Pitttock FRSE

Pro-Vice-Principal, University of Glasgow

Allan Ramsay and Edinburgh in the First Age of Enlightenment

Anna Vaninskaya

English Literature (School of Literatures, Languages and Cultures), University of Edinburgh

Scotland and Russia: Cultural Encounters Since 1900

Katarzyna Kosmala

School of Media, Culture and Society, University of the West of Scotland

Regeneration and Waterfront Heritage Zones in Northern Europe: Interdisciplinary and Cross-Institutional Research Network

Henriette van der Blom

Classics, School of Humanities, University of Glasgow

Network for Oratory and Politics (NOP)

Graeme B Wilson

Reid School of Music, Edinburgh College of Art, University of Edinburgh

Concurrent: exploring improvisation between performing arts practitioners

Elizabeth Robertson

English Language, University of Glasgow

Understanding the Senses: Past and Present

Fiona Macpherson

Department of Philosophy, University of Glasgow

Graham Jeffery

School of Creative & Cultural Industries, University of the West of Scotland

Ernest Schonfield

School of Modern Languages and Cultures, University of Glasgow

Raymond MacDonald

Reid School of Music, Edinburgh College of Art, University of Edinburgh

Annette Kern-Stahler

Department of English, University of Bern

Research funded by Scottish Funding Council

Arts & Humanities Small Grants

Justin Livingstone

School of Critical Studies,
University of Glasgow
*The Fiction of Exploration:
Travellers in Africa and the
Colonial Novel*

Aideen M O'Leary

Celtic and Anglo-Saxon Studies,
University of Aberdeen
Visiting: Department of Anglo-
Saxon, Norse, & Celtic,
University of Cambridge;
Cambridge University Library;
the Warburg Institute Library,
University of London
*Druidic Apocalypse and Church
Reform in Mediaeval Ireland*

Helen O'Shea

History, The Open University
(Scotland)
*The Scottish Contribution to
Emergency Law and Order in
the Post-War British Empire*

Ruth Pelzer-Montada

School of Art,
Edinburgh College of Art,
University of Edinburgh
Scottish Printmaking at Large

Alasdair Raffe

School of History, Classics
and Archaeology,
University of Edinburgh
Scotland in Revolution, 1686–90

Margaret Stewart

Edinburgh School of Architecture
and Landscape Architecture,
Edinburgh College of Art,
University of Edinburgh
*(Printed book) Lord Mar's plans:
architecture, landscape and
constitutions, 1700–1732*

Lynn Whitaker

Centre for Cultural Policy Research,
University of Glasgow
*Understanding and Regulating
Children's 'In-app purchasing'*

Arts & Humanities Workshops

Elizabeth Elliott

School of Language and Literature, University of Aberdeen

The Evergreen: A New Season in the North

David J Code

School of Culture and Creative Arts,
University of Glasgow

Building a British Audiovisual Research Network (BARN)

Louise Harris

School of Culture and Creative Arts,
University of Glasgow

Sally Foster

History and Politics,
University of Stirling

Future Thinking on Carved Stones in Scotland

Katherine Forsyth

Celtic and Gaelic, School of Humanities,
University of Glasgow

Hazel Hutchison

School of Language and Literature,
University of Aberdeen

*Women, Science, Narrative:
Novel Perspectives on Female Experience in a Scientific Age*

Alexandra Lewis

School of Language and Literature,
University of Aberdeen

S Karly Kehoe

Social Sciences, Media
and Journalism (History),

Landscapes and Lifescapes: linking past rural development in the Scottish Highlands to its global context and its present-day legacies.

Chris Dalglish

Archaeology, School of Humanities,
University of Glasgow

Alexander Marshall

History, School of Humanities,
University of Glasgow

Proxy Actors and Irregular Forces: The Past and Future of Warfare?

Jochen Schenk

School of Humanities,
University of Glasgow

Jacqui Pestell

Department of Education,
Royal Botanic Garden Edinburgh

The Scottish Nepalese Botanical Art Workshop and Exhibition Programme

Claire Banks

Associate of Royal Botanic Garden
Edinburgh

Ingrid Mainland

Archaeology Institute,
University of the
Highlands and Islands

Mark Edmonds

Department
of Archaeology,
University of York

Dave Cowley

Royal Commission on the
Ancient and Historic
Monuments of Scotland

LANDMARKS

Research Awards Reception 2015



Current and past awardees are invited to present posters at the Reception. Dr Muhammad Sadiq, Division of Imaging and Technology (DIT) at the University of Dundee, was awarded a Scottish Enterprise Enterprise Fellowship in 2014 and displayed his poster on *Active Needle Technology for Safe Needle Interventions*.



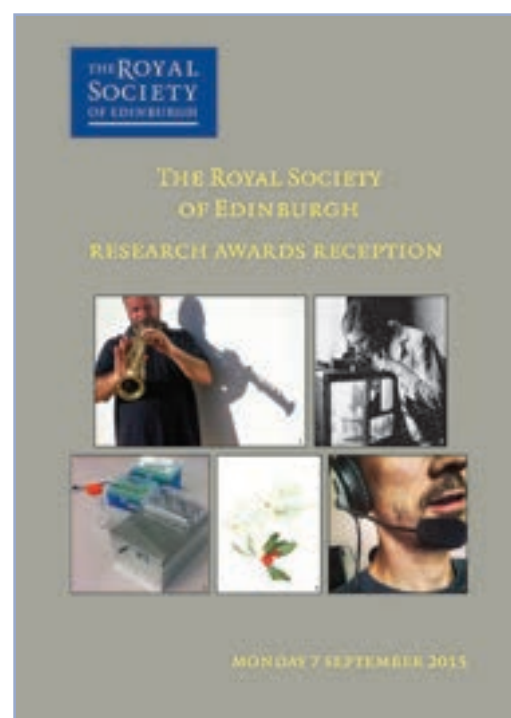
l-r Leighanne and James Calvey, Tim and Kirsti Willis. James held a Lessells Scholarship in 2012 and presented a poster entitled, *IntelliBike: monitoring the condition of cycling infrastructure*. Tim of the School of Informatics at the University of Edinburgh is about to commence a Scottish Enterprise Enterprise Fellowship with his development of an app for smartwatches called *Tusi – Text input on Wearable Tech*.



Scottish Crucible is an award-winning leadership and development programme for Scotland's 'research leaders of the future'. In its seventh year in 2015, it brought together 30 highly promising researchers from different institutions and disciplines. It culminated with the award of funding for collaborative projects through the Scottish Crucible Interdisciplinary Project Fund, the recipients of which were announced at the Reception. Nine of this year's 'Crucibilists' were able to attend and are pictured with (on far left), Dr Ruth Neiland, Scottish Crucible Director, Professor Alan Miller FRSE and RSE President, Dame Jocelyn Bell Burnell. Further information is available at: www.ScottishCrucible.org.uk.

Pictured on the front cover are recipients of various awards, (including four 'Crucibilists'), all from the University of Aberdeen: Back row l-r: Hazel Hutchison; Alexandra Lewis; Elizabeth Elliott; Helen Dooley. Front row l-r: Amy Bryzgel; Aideen O'Leary; Heather Morgan; Wei Pang.

Fuller details of all this year's projects are available in the Research Awards Reception Programme, which can be found on the RSE website at: www.royalsoced.org.uk/66_Publications.html



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