

ISSUE 36 SUMMER 2012

resource

The Newsletter of Scotland's National Academy



Photograph from *Best of Scottish Science*, part of the Edinburgh International Science Festival 2012. Full story inside. Image courtesy of Dr Mark Bowler.

Featured in this issue:

Best of Scottish Science

RSE Fellows Honoured

International Activities

THE ROYAL
SOCIETY
OF EDINBURGH

Best of

Best of Scottish Science at the Edinburgh International Science Festival



The 'Best of Scottish Science' was celebrated in an evening reception held at Our Dynamic Earth, Holyrood, in April 2012, as part of the Edinburgh International Science Festival.

Welcoming all members of the public over the first four days of the Festival, 'Best of Scottish Science' showcased seven scientific exhibits presented by Scottish Universities, that had earlier been selected for the Summer Science Exhibition of the Royal Society, London, the most prestigious of the UK science community's efforts to engage the public in cutting-edge science.

This is the third time that a set of such exhibits has featured both in London and in Scotland. The first, in 2000, was held in the RSE's Rooms on George Street and in 2006 a similar event was held in the Glasgow Science Centre. This year the event coincided with the local school holidays, ensuring a mix of visitors that included families with toddlers and young children, high school students and adults of all ages. This variety was echoed in the substantial rota of over 60 Professors, postdocs, postgrads and undergraduates who enthusiastically talked with visitors.

The Society's reception at Our Dynamic Earth was attended by over 150 guests, including MPs, MSPs, RSE Fellows, members of the RSE Young Academy of Scotland and an eclectic representation of the science communities of Scotland and beyond. Guests were welcomed by the President of the RSE and by the Scientific Director of Our Dynamic Earth, Professor Stuart Monro.



The seven diverse exhibits on display were:

Culture Evolves exhibit led by Professor Andrew Whiten FRSE, St Andrews University;

Fat Body Slim – Shape Matters led by Dr Giovanna Bermano of Robert Gordon University, Aberdeen;

Arctica Islandica – The Longest Lived Animal on Earth led by Dr William Austin, St Andrews University;

Stem Cells for Blood Transfusion led by Professor Marc Turner and Dr Ingrid Heersche, Edinburgh University;

Fast & Furious – Witnessing the Birth of Africa's New Ocean led by Professor Kathy Whaler FRSE, University of Edinburgh;

Diamond Light Source – Enabler of New Science led by Professor Colin Pulham, University of Edinburgh and Laura Holland, Diamond Light Source; and

Invisibility Science – Geometry & Light led by Professor Ulf Leonhardt FRSE, St Andrews University.

Exhibits were typically designed to be entertaining and highly 'hands-on', a characteristic engaged whole-heartedly by many guests attending the reception.

Dr Alan Gow (member of the RSE Young Academy of Scotland) is pictured (right) at the 'Fat Body Slim' exhibit where participants were invited to divest themselves of shoes and socks and step on the special scales which exposed them to a tiny electric current that soon generated a read out of their BMI and percentage of body fat that was then diplomatically interpreted by the exhibitor team.



RSE President, Sir John Arbuthnott, during his welcome speech. Sir John holds aloft the oldest animal on earth, the clam *Arctica islandica*.



Professor Stuart Monro OBE FRSE

Scottish Science

The 'Culture Evolves' exhibit illustrated all we have learned about how the capacity to learn from others and develop adaptive local traditions has evolved among non-human animals, then developed cumulatively and in a uniquely rich way in our own species. Accordingly, some guests were encouraged to try their hand at copying the videotaped tool-use skills of chimpanzees displaying different cultural variations, while others helped pass on a new, artificial language.



The team at the 'Culture Evolves' exhibit



At the 'Invisibility Science' exhibit, guests were encouraged to trawl a net through an apparently empty tank of water, only to discover to their amazement that it contained substantial quantities of hitherto invisible solid objects. This nicely illustrated the theme of the underlying advanced research in optics, subtitled 'the geometry of light'.



The President is pictured (above left) with the event organiser, Andrew Whiten FRSE, Professor of Evolutionary and Developmental Psychology, University of St Andrews and his wife Dr Susie Whiten.

A third of the items in the Royal Society's *Science Sees Further* 350th Anniversary publication were from Scottish Institutions.

Scotland a leader in 'citation impact'

A recent report on the citation impact of animal behaviour research across Europe, 1999–2010 shows Scotland to be a leader (*Lab Times*, May 2012). Expressing the citations reported per million head of population (Wiki data 2012) shows Scotland as earning by far the most citations (4,156) followed by Sweden (2,122) and Switzerland (2,079). The figure for England is 1,261 and a comparator figure for the USA is 793.



Scotland also earns the most citations per article. Three of the 20 most cited authors are in Scotland:

Professor Andrew Whiten FRSE; Professor Graeme Ruxton FRSE; and Professor Kevin Laland FRSE. (all University of St Andrews).

The most cited article among the 19,303 reviewed is *Culture in chimpanzees* by A. Whiten, J. Goodall *et al.*, *Nature*, 1999, with 680 citations in the period reviewed.

Further information on all the exhibits is available at:
www.bestofscottishscience.org

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.

**Professor Ashok K Adya,
University of Abertay Dundee**

**Visited: Professor Ajit Varma,
Amity University Uttar
Pradesh, India**

Visits to five different universities/institutes, viz. Amity University; Punjab Agricultural University (PAU); Indian Institute of Science, Bangalore; Delhi Technological University, Delhi; and Delhi University, Kirori Mal College were made and general seminars of one-hour duration each delivered to a wide audience at each University.

Additionally, four sets of lectures on nanotechnology were delivered to postgraduate and post-doctoral students. These led to several fruitful discussions with a number of academic/administrative personnel, including Deans of Faculties, Heads of Schools, Directors of Research and Vice-Chancellors for future collaborations in research and teaching.

Immediate output resulted in finalising and submitting two UK-India Education and Research Initiatives (UKIERI) and Indian National Science Academy (INSA) funding proposals in collaboration with Amity University.

A third proposal to INSA in collaboration with PAU has been finalised and will be submitted in the next round. Another collaborative proposal with PAU is under preparation for submission for funding under the UK-India or Scotland-Punjab programme. Further follow-up is being actively pursued.



Professor Adya enjoying discussions with the Academic Staff of Kirori Mal College, Delhi University, Delhi (India)



Professor Adya lecturing at Kirori Mal College (KMC), Delhi University, Delhi (India)



Professor Adya lecturing at Kirori Mal College (KMC), Delhi University, Delhi (India)

Scottish-based host:
Professor Peter Smith FRSE,
University of Aberdeen

Overseas visitor:
Dr Nandita Ghoshal,
Banaras Hindu University, India

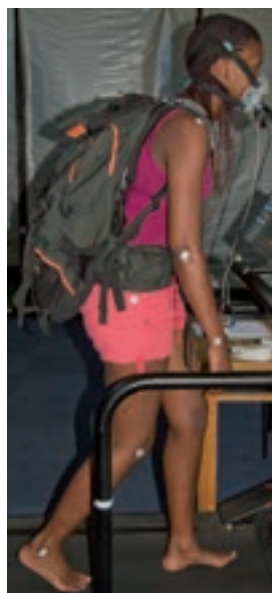


In response to global climate change, there has been a growing concern about the long-term stability of agroecosystems, not only in terms of yield productivity but also environmental, social and economic sustainability. Although ecological models are effective and advanced tools available to predict the impacts of global change on terrestrial ecosystem structure and functions, and to examine their feedbacks to climate change, very few ecological models are available which relate the effect of climate change and management strategies to the structural and functional aspects of agroecosystems in general and on a tropical dryland agroecosystem in particular. This specialised training of ecological modelling will help in developing specific futuristic models which would help in designing eco-friendly management strategies for the long-term sustainability of an agroecosystem on one hand, and suggesting mitigation options of the adverse effect of climate change through mechanisms such as carbon sequestration on the other.

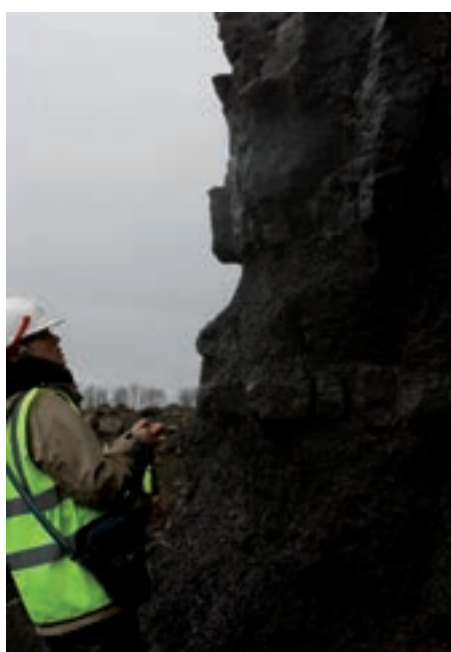
**Professor Ray Lloyd,
University of Abertay Dundee**

**Visited: Professor Simeon Davies,
Cape Peninsula University of
Technology, South Africa
and Dr Jimoh Shehu,
University of Botswana, Botswana**

The main purpose of this visit was to collect data in relation to human load carriage, comparing three load carriage systems. Eighteen participants completed a treadmill-based progressive load carriage task, with loads of 0, 3, 6, 9, 12 and 20kg in three different load carriage conditions (head, back, back and front). Kinematic, expired air and subjective-perceptual data were collected. Analysis of these data will allow not only for a comparison of the loading methods in these three areas, but also for an exploration of the phenomenon of improved economy when light loads are carried on the back.



Discussions were held in relation to extending our current work on load carriage via the establishment of an international network. The network would consider issues of traditional load carriage methods in both Africa and SE Asia, including physiological, biomechanical, social and medical aspects. In addition, the network would seek to use comparisons of traditional and more modern load carriage systems to explore the issue of individual difference in load carriage economy.



Scottish-based host: Dr Alistair McGowan, University of Glasgow (RSE Scottish Government Personal Research Fellow, co-funded by Marie Curie Actions).

Overseas visitors: Dr Patrick Orr and Ms Laetitia Adler, University College Dublin, Ireland

Jellyfish, being soft-bodied animals, have little chance of being fossilised. However, there are a few instances of jellyfish fossils, which yield unique insights in to the evolution of the group. Jellyfish material occurs in 340 million year-old Carboniferous rocks in Trearne Quarry, North Ayrshire. Ms Adler and Dr Orr specialize in the study of the geological and chemical pathways that result in the preservation of soft-bodied animals as fossils. Ms Adler has conducted a series of experiments where modern jellyfish are allowed to decompose in the laboratory to understand how they might become fossils, but such work can only be tested by studying genuine fossils. The material held at the University of Glasgow allowed such work and the exchange visit also allowed the University College Dublin (UCD) team the chance to visit the quarry to collect information on the geology and new specimens for study with SEM elemental mapping back at UCD.

Laetitia Adler is pictured (left) surveying 340 million year-old Carboniferous rocks that yielded the exceptionally preserved jellyfish fossils to better understand the environmental conditions that contributed to this Lagerstätte.

RSE Entrepreneurs' Club

The RSE Entrepreneurs' Club met at the RSE on Tuesday 3 April for a networking dinner. Three after-dinner speakers were invited to share their wisdom with an audience of 60 current and potential entrepreneurs, including RSE Enterprise Fellows and Saltire Foundation Fellows. Each speaker was asked to address the following question:

What are Investors looking for in new Start-up Businesses?



Stuart Hendry, Founder and Partner of specialist law firm, MBM Commercial LLP, is a corporate and IP lawyer and advises many technology companies as well as investor clients, including business angel syndicates and technology companies. Stuart explained that when he started MBM Commercial there was no Dragons' Den and no Alan Sugar with The Apprentice. Until the recession hit in 2008, while other lawyers were working on huge property deals, Stuart stuck with the work for entrepreneurs. Despite the recession, he noted that many entrepreneurs would enjoy great successes and rewards, in some cases making millions in the next few years. Business is a rollercoaster with some cloud-bursting highs and earth-shattering lows. Stuart's advice is to:

- 1) pick the right product for the right market at the right time;
- 2) pick the right advisors at the right time;
- 3) secure the right support and right investors at the right time;
- 4) be prepared to change strategy and adapt all the time;
- 5) don't give up; use the recession to succeed. As Thomas Jefferson said "Your country needs you at its time of need."

On investor readiness, Stuart advised the audience to buy *Young Company Finance* to find out about the financial investments and the deals being done. Good companies can still attract funding. Success is down to a proposition meeting an opportunity, and luck! To maintain a positive attitude Stuart reads a quote from Winston Churchill every day "The pessimist sees difficulties every day, the optimist sees the opportunity every day."

Stuart ended with praise for the RSE Entrepreneurs who, like him, took the risk to set up their businesses even when some said "don't do it!" Stuart didn't listen and has never looked back, he urged the audience to "Go for it!"



Ian Ritchie CBE FRSE, is the new RSE Vice-President for Business and Chair of the RSE Business Forum. A software entrepreneur and Business Angel, he sold his first company for £10 million twenty years ago. He became a Business Angel and is currently involved in four start-ups. Ian stated that Business Angels are looking to spend their investment on:

- 1) something unique and different but that can create big global hits;
- 2) something that can sneak under the radar of the big corporations;
- 3) something where the timing is right, eg Voxar's scanners allowed hospitals to view scans more clearly. However, when Voxar had its product ready to sell, hospitals around the world had long-term contracts for film-based solutions. The market then moved on from film technology and hospitals started using digital networks which allowed the use of Voxar's systems.

When pitching to investors, Ian advises people to have a very clear idea of what they are going to do. Most companies change through time, so find out what the customers want and continually listen to them.

Routes to market have to be built and the business model must be right. You have to get the technology out to the market at the right time – then pray!

Business plans can be the worst documents ever! You have to think about what will sell your idea to investors, rather like an advertisement. The plan should be short (no more than ten pages), punchy and readable. To add to the literary nature of the evening and encourage the audience, Ian quoted J M Barrie "There are few more impressive sights in the world than a Scotsman on the make!"



John Waddell, CEO of Archangel Informal Investment Ltd is responsible for leading investments of around £10m per annum in young Scottish companies. By October 2012 Archangel Informal Investment Ltd will have invested £125 m in Scottish companies. John focused on the business plan and provided four pieces of advice:

- 1) Build a good team – this is vitally important, more important even than the product, as the team will need to sell it, and run the business;
- 2) Product – provide something people want;
- 3) Business Plan document – must be readable and highlight outputs rather than inputs;
- 4) Marketing – this is very difficult but very important. Explain how you are going to get people to buy your product, the routes to market and who the competition are.

John stressed three qualities entrepreneurs must possess:

- a) the ability and desire to work very hard;
- b) intellectual rigour – he quoted J K Galbraith saying "It is a far, far better thing to have a firm anchor in nonsense than to set sail on the troubled sea of thought", ie really think it through; and
- c) emotional strength – sometimes hard decisions need to be made and implemented.

After a lively Q&A session, Edward Cunningham CBE FRSE thanked the speakers for their encouragement, advice and humour in what is a very challenging pursuit.

For more information on the RSE Enterprise Fellowships programme contact: Anne Fraser, RSE Research Awards Manager – afraaser@royalsoced.org.uk or visit: www.royalsoced.org.uk/564_EnterpriseInnovationFunding.html

RSE Prizes 2012

The RSE is pleased to announce this year's winners of the following awards:

RSE/Sir Walter Scott Medal (Senior Prize)

to **Professor Tom Devine** OBE FRSE FBA,
Senior Research Professor in History, University of Edinburgh,
for his outstanding contribution to Scottish History.



RSE/Sir James Black Medal (Senior Prize)

to **Professor Geoffrey Gadd** FRSE, Boyd Baxter Chair of Biology,
University of Dundee, for his outstanding contribution to the
growing field of geomicrobiology.



RSE/Lord Kelvin Medal (Senior Prize)

to **Professor Colin McInnes** FRSE,
Professor of Engineering Science,
University of Strathclyde, for his
outstanding contribution to space
systems engineering.

RSE/Patrick Neill Medal

(Early-Career Prize)

to **Dr Nicola Stanley-Wall**, (below)
Lecturer in the Division of Molecular
Microbiology, University of Dundee,
for her outstanding research work,
leadership skills and public engagement
activities.



RSE/Makdougall Brisbane Medal

(Early-Career Prize) is to be awarded to
two individuals as they were equally
worthy of this award:-

Dr Sharon Ashbrook, (right)

Reader in Physical Chemistry, School of
Chemistry, University of St Andrews, for
her outstanding scientific quality and
leadership record and for her commitment
to excellence in all areas of academic life.

and

Dr Rob Jenkins, (right)

Senior Lecturer, School of Psychology,
University of Glasgow, for his
outstanding scientific creativity, the
inter-disciplinary reach of his research
and his passion for science communication.

The three Early-Career Prizewinners are all
members of the RSE Young Academy of Scotland.



Island Universe Tour



Martin Hendry FRSE (above) recently completed a tour of the Scottish west coast islands, delivering a series of school talks, public lectures and stargazing events. The tour was supported by the RSE, the University of Glasgow, the British Science Association and the Science and Technology Facilities Council (STFC). Through his lectures, Professor Hendry told the fascinating story of the Universe, looking at the latest discoveries and investigating dark matter and dark energy. Before embarking on his tour, Martin spoke about what he hoped to reveal about the night sky ...

On his stargazing sessions...

In giving public talks on what can be a somewhat esoteric theme, and talking about observations made through the Hubble Space Telescope, currently one of the most powerful telescopes, it is easy to lose sight of the fact that there is a whole big Universe that we can view with our own eyes.

I'm visiting the islands and their communities where they have a much greater appreciation of dark skies than people who live in cities. The average person in Glasgow or Edinburgh has so few opportunities to look at a really dark sky that they probably don't recognise very much. In the last few years there have been new initiatives seeking to re-engage people across the whole country with the dark sky – to help them appreciate how beautiful it is and to understand that it is part of our environment to preserve. Light pollution is removing the chance to experience the peace and perspective that you get by just looking up on a dark night under a blazing sky. Many of those who attend the stargazing sessions will be well accustomed to looking at the night sky.

What I am seeking to do is to connect what they see with their eyes in the patterns of the constellations (ideas that go back thousands of years) to the very latest discoveries. For example I will point them towards areas of the sky where you can see light from a little smudge called a galaxy, barely visible to the naked eye. In dark places such as the islands you should be able to see the Andromeda Galaxy (below – photo by write_adam). This is more than two million light years away, which means that the light from that galaxy set off before there were any human beings on earth. Even those people accustomed to the night sky might not appreciate the three-dimensional nature of this.



Additionally, there are familiar constellations, such as Orion the Hunter, that demonstrate some of the astrophysical discoveries made in the last few hundred years. For example, the stars in Orion are different colours, reflecting their temperature and their different stages of the life cycle – there are 'baby' stars being born and massive stars that are reaching the end of their lives. This is the sort of hidden story that even someone who is well acquainted with the sky may not appreciate. Another example is that we are beginning to find hundreds, even thousands of planets going around the stars – few of these can be seen with the naked eye but you can point people towards areas of the sky where those features are and demonstrate that they can be revealed through even a small telescope. This is an evolving story – it could be that in the next few years we begin to discover significant numbers of Earth-like planets, and of course that begs the big question; could they have life on them? Thus the main purpose of the stargazing sessions is simply to show people what is in the sky, but also to chat to them about these bigger issues and raise the question of where we all fit into that.

Martin sums up his Island Universe Tour on his blog. Read about the full tour at <http://thecosmicexplorer.blogspot.co.uk/>

My tour was finally over: 27 talks on nine islands across nine days (and a few more islands traversed too: North Uist, South Uist, Eriskay...). I'd spoken to nearly 1600 people – aged 4 to 84 – and met some wonderfully dedicated, enthusiastic and talented teachers. I'd seen some of the darkest skies I've ever witnessed in the northern hemisphere on the far-flung outpost of Tiree. I'd also seen some of the most spectacular coastal scenery in the world, right here on our doorstep. I can't think of a better way to have spent National Science and Engineering Week. I was reminded of the tales I'd read in my various biographies of his life, of how Albert Einstein had given lecture tours around the world that involved long sea voyages to get him there. I'd been given a glimpse of that world for myself – in the microcosm of the Scottish islands. I'm glad to be going home of course, but the memories of my Island Universe tour will stay with me for a very long time.



Dark sky over Dumfries and Galloway
by Paul Willows

Alan Turing and the 'Twit-Tests'

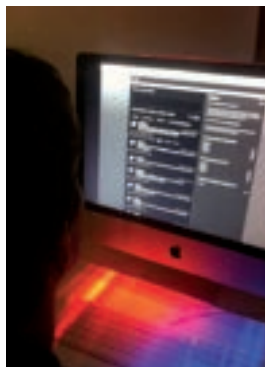
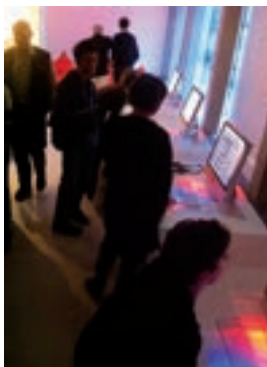


Alan Turing lived an eventful life and it is difficult to be brief when detailing the contributions he made and the lasting consequences of his work. His endeavours at Bletchley Park and his code-breaking efforts as leader of the legendary Hut 8 are among his most remarkable achievements. Indeed, his innovations continued in force up to his death in 1954, and today he is remembered in many roles: mathematical biologist; code-breaker; and pioneer of computer science.

It is this latter element that formed the focus of the celebrations that took place across the country on the centenary of his birth. As part of these, the RSE and the Informatics Department at the University of Edinburgh ran a major lecture and conference in May and schools across the country took part in the national competition – 'Twit-Test'. 'Twit-Test' is a playful project for children and adults about intelligence, based on the use of the social network application Twitter which makes reference to the 'Turing Test' for artificial intelligence. It takes this connection as a starting point for a project in the context of school education and the cultures of young people – testing how intelligence is perceived, transmitted and institutionalised in such contexts.

Throughout National Science and Engineering Week 2012, hundreds of secondary school students and their teachers from across Scotland contributed over 12,000 tweets and 150,000 votes. The competition also featured celebrity tweeters Stephen Fry and Sarah Brown, staff from the University of Edinburgh and four bespoke chat-bots, created just for this event. Prizes were awarded to the best fakers and spotters.

If you would like to have a go, visit <http://www.twittest.org>



What is the Turing Test for Artificial Intelligence?

In the 'standard interpretation' of Turing's imitation game, one player, 'C', the interrogator, is tasked with trying to determine which other player – 'A' or 'B' – is a computer and which is a human. The interrogator is limited to using the responses to written questions in order to make their judgment. Twitter is an ideal channel for carrying out this kind of test – some tweeters may not be who they claim to be: for instance a supposed pupil might really be a teacher; a supposed celebrity might really be an artificial intelligence software bot.

The event has resulted in a research project to determine if there are any particular language patterns associated with being, or being perceived as, one of the groups within Twit-Test (i.e. a student, teacher, celebrity or chatbot).

Examples of the tweets...

Tweet:

My inaugural toe-dip into The Tweet Test, hours before the rest of you. Like an electronic, online Gregor Samsa exploring his new identity.

[Stephen Fry – 83% of voters were fooled by this and 61% of voters thought it was tweeted by a chatbot]

Tweet:

We are not interested in the fact that the brain has the consistency of cold porridge.' Turing has ruined my breakfast.

[Stephen Fry – 60% of voters were fooled by this and 53% of voters thought it was from a chatbot, though occasionally they think he's a student]

Tweet:

Did you know, Rwanda is the only nation where women make up majority of parliamentarians? Go Rwanda!

[Sarah Brown – 83% of voters were fooled by this, with 33% thinking it was from a teacher, and 33% thinking it was from a chatbot]

Tweet:

In 10 years time the most difficult thing for children to do will be choosing an original domain name.

[From a Student – 75% of voters were fooled, 63% thinking it a chatbot, 30% a celebrity.

Tweet:

On this day: it's 49 years ago that The Beatles released Please Please Me. Seems like only Yesterday ...

[Jon Oberlander, University Staff – 89% fooled, 67% teacher, 22% student]

Tweet:

Sometimes such a machine is described as having free will (though I would not use this phrase myself).

[Chatbot – 83% were fooled by this, 44% said student, 22% teacher, and 17% celebrity]

Events@ RSE

Scotland and the United Kingdom

The Society was delighted to work with the British Academy in organising a pair of conferences on Scotland's future in the United Kingdom. The London conference at the British Academy in February was addressed to a mainly English audience, and discussed: independence and the prospect of a referendum; the plans for more devolution under the Scotland Act and the scope for further devolution beyond that; and the implications for membership of the European Union.

The conference at the RSE in April looked at the challenges to all of the present constitutional options. What currency choices would be faced by an independent Scotland, and how constrained would they be? What lessons could be drawn from the history of Ireland after 1923, and what political and economic lessons were there from the more recent example of the break-up of Czechoslovakia in 1992? If Scotland remains within the United Kingdom, with greater devolution as is currently proposed, what are the implications for England, and representation at Westminster? How much equity should there be in public spending across the UK, and what are the implications of the so-called social union or the common UK welfare state? Scholars from England, Wales, Ireland, Scotland the Czech Republic and elsewhere participated, with a very full and engaged audience.

The RSE and the British Academy have agreed to do further work to help bring the insights of scholarship and detailed analysis to bear on these questions in a non-partisan way.

A summary of the contents of both conferences will be published jointly by the British Academy and the Royal Society of Edinburgh shortly.



THE ROYAL SOCIETY OF EDINBURGH

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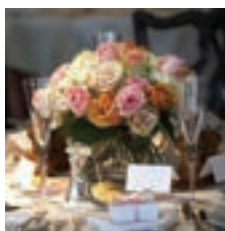


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e: rooms@royalsoced.org.uk
w: www.edinburghconferences.org.uk
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The RSE Conference Centre

Located in the heart of Edinburgh the Royal Society of Edinburgh Conference Centre is a fabulous historic location perfect for any occasion. Whether you are planning an international conference, educational seminar, business meeting, prestigious dinner, wedding or other celebratory event, the facilities can be tailored to meet your requirements. There is a wide range of multifunctional rooms, traditional and modern, from a state-of-the-art lecture theatre and a sumptuous dining room that can seat 100, to intimate spaces for a discreet one-to-one meeting. We also provide a full event support service through an events team that organises, runs and manages the RSE's own regular, prestigious events including lectures, conferences and award ceremonies. From experienced technical support to no-fuss, efficient registration and attendee management we can co-ordinate the whole event if required. We can also organise appropriate catering from our carefully chosen first-class catering suppliers. Please contact us to find out more.



Friday 17 August 2012 1–2 pm
Committee Room One, The Scottish Parliament

Humanising the Workplace

What does the modern workplace look like? Employers need to be persuaded of the value of team spirit, not just team-building, for increased productivity, and also to nourish the human spirit to ensure that work is an enriching experience.

This interactive discussion will bring together speakers from the private and public sector, as well as design and heritage backgrounds, to discuss how Scotland can become a world leader in designing workplaces fit for the future.

In association with British Council Scotland, the Institute for Advanced Studies in the Humanities, RSA UK, the Royal Society of Edinburgh, Museums Galleries Scotland and UNESCO UKNC Scotland Committee. Tickets available at: www.festivalofpolitics.org.uk/



Monday 10 September 2012 at 6 pm

Michael Shea Memorial Lecture

Love's Labour Lost: Why Society is Straitjacketing its Professionals and How We Might Release Them



Dr Iona Heath
President of the Royal College
of General Practitioners

Dr Iona Heath has long been a champion of GPs as rounded professionals, able to express and respond to the humanity in themselves and in their patients. Yet in today's world, this stance seems to operate against the grain of a more mechanistic, technical, targets-, performance- and efficiency-driven culture. This is true not only in medicine but across all walks of professional life. In this lecture, Dr Heath will reflect on the constraints our modern culture imposes on professionals, why society has felt it necessary to impose them and what is lost in the process. She will also suggest how we might release the fully competent professional from this straitjacket, and why it is vital to do so.

In partnership with International Futures Forum

Thursday 27 September 2012 at 6 pm

Fragments of a Lost Past or Evidence of a Connected History: The Role and Concepts of Islamic Art in the Museum Context

Dr Stefan Weber, Director of the
Museum of Islamic Art in Berlin

The first few years of the 21st Century have witnessed an impressive re-evaluation of Islamic Art and Archaeology. Most of the larger collections of Islamic Art have been, or still are, undergoing reorganisation. Museums and galleries have increasingly become important forums for public interest in Muslim cultures. Shifting global societies and the growing presence of Muslims in Europe and North America have meant that museums of Islamic art have assumed new duties and responsibilities, willingly or not. Countries with a Muslim majority, too, are witnessing a renewed interest in the artistic heritage of the past. Yet despite all this, there has been little discussion on content, categories of order, and the new roles played by museums. What are the stories embedded in the objects they exhibit, and how can these stories be told?

The Museum of Islamic Art at the Pergamonmuseum Berlin, the second oldest after Cairo worldwide, will triple in space by 2019. The museum team is currently re-evaluating gallery codes and exhibition practices to develop new spaces for one of the world's pre-eminent collections of Islamic Art.

This is a joint event with the Alwaleed Centre, The University of Edinburgh, in partnership with the Consulate General of the Federal Republic of Germany.



Advice and

Tapping all our Talents – RSE Report on Women in STEM

The Royal Society of Edinburgh published its Report *Tapping all our Talents – Women in Science, Technology, Engineering and Mathematics (STEM)* in April of this year.

The Report recognised that the majority of women with qualifications in STEM subjects do not work in STEM areas, in contrast to men, representing a serious loss to the economy, as well as a loss of opportunity to many well-qualified women. The Report called on Scotland to address the issue.

The Report called for the establishment of a strategy to increase the proportion of women in the workplace qualified in STEM subjects, and to increase the number who rise to senior positions in universities, research institutes, government, business and industry.



Sir John Arbuthnott, President of the RSE, is pictured addressing the launch, along with (l-r) Dame Jocelyn Bell Burnell, Professor Alice Brown, Sir Peter Housden and Professor Muffy Calder OBE.

This Report was produced by an expert Working Group, chaired by the astrophysicist Professor Dame Jocelyn Bell Burnell DBE CBE FRS FRSE, with Professor Alice Brown CBE, RSE General Secretary, serving as Deputy Chair. Both Dame Jocelyn and Professor Brown attended the launch of the report, as did other members of the working group and a wide range of people with a strong interest in the topic.

At the launch of the Report Jocelyn Bell Burnell commented, “Women with science, technology and engineering skills are one of Scotland's untapped resources. Having more women in the science and engineering work place will also increase the diversity – itself a source of strength and success.”

The Deputy First Minister, Nicola Sturgeon MSP, welcomed the Report, observing, “Often women’s achievements in science, technology, engineering and maths can be overlooked and undervalued. For too long many women’s potential in these areas has been cut short. In the modern Scotland we must ensure that the talents of all our people are recognised and used for the benefit of all. That is why I welcome this Report’s contribution to this important issue, and why the Scottish Government will work with key partners to find solutions that benefit women and our wider economy.”

Sir John Arbuthnott, the RSE President, has supported the Report, commenting, “This Report clearly demonstrates that Scotland, like many other countries, currently does not take full advantage of the ability of many talented female scientists. In many cases the career opportunities of women are restricted. The recommendations in the Report are very clear and are directed at Government in Scotland and the UK, as well as universities and industry, for the benefit of the whole of society.”

The RSE is now in the midst of taking the recommendations of the Report around the people and decision makers of the country. Already, dissemination events have been held in Edinburgh, Glasgow, Aberdeen and Dundee. This included a Cross-Party Group which met in the Scottish Parliament in late May.

Further public events will also be held in Fort William and then a final round-up session in Edinburgh.

Meetings are being pursued with key stakeholders such as the Scottish Funding Council, Research Councils, key Government figures in Scotland and the UK, as well as industry representatives. Copies of the Report were also distributed at the Parliamentary Links Day on 26 June at Westminster.

Suggestions of further meetings or request for copies of the Report can be made to Bristow Muldoon, Head of Policy Advice at:
bmuldoon@royalsoced.org.uk
phone: 0131 240 2787.

The full Report can be viewed at:
www.royalsoced.org.uk/1027_Report.html

Briefing Papers

Learned Societies' Standing Group on Scottish Science Education

The learned scientific societies active in Scotland have established a Learned Societies' Group on Scottish Science Education. The standing group currently comprises representatives from the Royal Society of Chemistry, the Institute of Physics, the Society of Biology, the British Computer Society, the Royal Society of Edinburgh, the Association of Science Education and the Scottish Schools Education Research Centre. The group is Chaired by Professor Sally Brown OBE, FRSE, Convener of the RSE's Education Committee. While the establishment of the standing group was initiated by the learned societies of the traditional school sciences, the group is clear that it should be positioned to consider broader developments in STEM education.

This standing group has purposes arising from concerns about, and a need to contribute to, the major reforms in the delivery of science education in Scottish schools. While the member organisations are individually active in this area, it is likely that more can be achieved by a formal collaborative grouping that identifies, discusses and takes action on common issues.

The group is keen to keep its purposes and associated remit at a relatively general level to enable the freedom to explore the range of issues that might arise. In this way, the standing group will be in a good position to engage with, and provide continuing advice to, policy makers and other relevant bodies. Its three-fold remit has been formulated, therefore:

- To be proactive in identifying and promoting priorities for school science education in Scotland and to liaise, where appropriate, with other relevant organisations and groups.
- To consider and monitor school science education initiatives or developments, particularly those from Government and its agencies, and respond to these where appropriate.
- To organise, where appropriate, meetings or other events that stimulate debate on school science education in Scotland.

A launch event was held at the RSE in May to raise awareness of the establishment of the group. The Science and Engineering Education Advisory Group's (SEEAG) recently published report on *Supporting Scotland's STEM Education and Culture*, provided a useful context for the launch. The event was chaired by Professor Sally Brown and there was a panel discussion including Professor Muffy Calder OBE FRSE, Chief Scientific Adviser for Scotland, Dr Ian Wall, Chair of SEEAG, Dr Janet Brown FRSE, Chief Executive of the Scottish Qualifications Authority, Professor Graham Donaldson CB, Leader of the Review of Teacher Education in Scotland, Marie McAdam, HM Inspector of Education, and Stephen Wright, Faculty Head of Science at Deans Community High School.

A Referendum on Independence

In March, the RSE responded to the UK and Scottish Governments' consultations on proposals for a referendum on independence. An RSE working group under the Chairmanship of Lord Cullen of Whitekirk KT FRSE prepared the response. The RSE commented on the practical aspects of the referendum process to assist in ensuring that it is fair, transparent, proper and conclusive. The RSE did not indicate any view as to the merits of the case for an advance towards independence or further devolution, as to which the RSE's position is neutral.

The RSE's response made the following key points:

- That an Order made under section 30 of the Scotland Act 1998 is the preferable approach to legislation for a referendum as this would require prior approval by the UK and Scottish Parliaments, and should remove doubt as to the power of the Scottish Parliament to legislate for the referendum. *Subsequently, Lord Wallace of Tankerness referred to the RSE response during a House of Lords debate in March on the Scotland Bill and he indicated that the UK Government is of the view that a section 30 Order should be agreed to devolve to the Scottish Parliament the power to legislate for that proposal.* The UK and Scottish Governments should seek to arrive at an agreement as to the terms of such an order.
- It is very important that a referendum question is clear and fair. It should not suggest the answer. Provision should be made for independent advice on the appropriateness of the referendum question. Referendum legislation in the Scottish Parliament should include provision for the Electoral Commission providing advice to the Scottish Government in regard to the proposed question, and for the publication of that advice.
- It is not possible to determine at this stage whether or not it would be appropriate to include an additional question on further devolution. Before that, the proponents of such a question would need to define, and explain to the electorate, the nature, extent and implications of the further devolution which they envisage.
- It is essential that voters have all the information they need to enable them to make an informed choice in the referendum. It is of critical importance that the full implications of the alternatives are clearly articulated before the referendum takes place. These considerations indicate that the argument for holding the referendum in the second half of the current session of the Scottish Parliament is persuasive.

The RSE Consultation Response can be viewed at:
www.royalsoced.org.uk/cms/files/advice-papers/2012/AP12_04.pdf

Fellows honoured

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

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

Knight Bachelor:

Professor Jim McDonald,
Principal and Vice-Chancellor of the University of Strathclyde (pictured top);



Order of the British Empire; Commander (CBE)

Professor Irene Leigh, OBE
Formerly Vice-Principal for Research and Head of College of Medicine, Dentistry and Nursing, University of Dundee (pictured second);



Order of the British Empire; Officer (OBE)

Professor Jeremy Peat,
Director, David Hume Institute;

Professor Ian Shanks FRS
Chairman, Science Advisory Group for the National Physical Laboratory; and

Professor Peter Sharp,
Professor of Medical Physics, University of Aberdeen



Order of the British Empire; Member (MBE)

Professor Heather Cubie,
Formerly Research and Development Director, NHS Lothian (pictured third).

Professor Ian Boyd, Director of the Scottish Oceans Institute at the University of St Andrews and the Sea Mammal Research Unit, has been appointed Chief Scientific Adviser of Defra. He will join Defra in September on a three-year contract, replacing Professor Sir Bob Watson, who is leaving Defra after five years in the post.



Michael Clarke, Director of the Scottish National Gallery (pictured second from bottom) has been awarded Commander of the Order of the Dannebrog by the Danish Cultural Institute, after organising an exhibition featuring the work of Danish artist Christen Købke at the gallery during summer last year.

Former Principal, **Professor Robert Cormack** (pictured bottom) was presented with one of the first Honorary Fellowships of the University of the Highlands and Islands by The Princess Royal at the ceremony to install HRH as the new Chancellor of the University, in Inverness Cathedral on 7 June.



The Rt Hon Lord Gill has been appointed Scotland's new Lord President. Lord Gill succeeded the Rt Hon Lord Hamilton who retired on 8 June. Lord Gill is Scotland's longest serving judge. In 2011 Lord Gill was awarded a Papal Knighthood of the Order of St Gregory the Great.

GlaxoSmithKline's R&D site in Ware, Hertfordshire, UK, has been named the David Jack Centre for Research & Development.

Sir David Jack CBE FRS, who died in November 2011, was one of Britain's most successful industrial scientists and a former R&D Director, who spent a substantial part of his career at Ware. Sir David was awarded the RSE Royal Medal in 2006. Andrew Witty, CEO, GlaxoSmithKline is pictured (right) with Lady Lydia Jack, Sir David's widow, in front of the commemorative plaque that Lady Jack unveiled, which will be hung in the conference centre at the Ware site.



Lady Susan Rice CBE, Managing Director of Lloyds Banking Group Scotland was appointed President of the Scottish Council for Development and Industry (SCDI) in May 2012. Lady Rice is the first female to have been appointed to this position.

Professor Philip Schlesinger, Director of the Centre for Cultural Policy Research at the University of Glasgow, was appointed to the Visiting Chair in Communications at the Ibero-American Institute of the University of Salamanca in Spring 2012.

On the nomination of French Minister of Culture and Communication, Frédéric Mitterrand, **Professor Kevin Thompson OBE CorrFRSE**, (pictured right) Director of the Hong Kong Academy for Performing Arts, has been conferred Officier de L'Ordre des Arts et des Lettres by the French Republic.



Professor Crispin Wright, Director of the Northern Institute of Philosophy at Aberdeen University, has been elected a Fellow of the American Academy of Arts and Sciences.

FRIENDS OF THE SOCIETY
CORPORATE PARTNERS OF THE ROYAL SOCIETY OF EDINBURGH







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

New Fellows' Induction

An Induction Day for those elected to Fellowship of the RSE in 2012 took place on 14 May, attended by 41 of the 46 new Fellows.

Following a welcome by RSE President, Sir John Arbuthnott, and a presentation about the Society by General Secretary, Professor Alice Brown, new Fellows were given a guided tour of the building and had the opportunity to meet RSE staff and view an exhibiton of their work and some of the RSE activities.

The official Admission Ceremony was held in the Lecture Theatre, when Fellows were invited to sign the Roll Book and presented with their certificates.

The day ended with a drinks reception for the new Fellows and their guests.

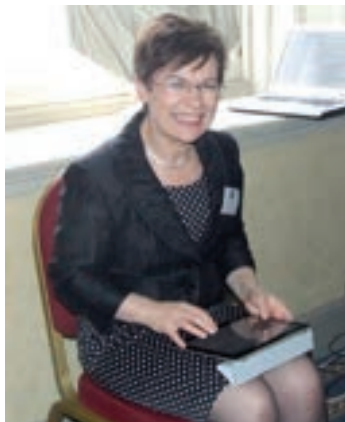
Sir John said "I am pleased to welcome such a talented group of people to the RSE and I encourage them all actively to engage with the work of the RSE for the benefit of society in Scotland and internationally".

A full list of the new Fellows and photographs taken during the day, can be viewed on the web site at: www.rse.org.uk/67_Fellows.html



RSE President, Sir John Arbuthnott MRIA (left) with Professor Alan Miller, Fellowship Secretary

Ibrahim Eltayeb
CorrFRSE,
Professor of Applied
Mathematics,
Sultan Qaboos
University



Verity Brown, Professor of Psychology, University of St Andrews



New Fellows in RSE Reception Hall on tour of the building



(l-r) Professors Lesley Yellowless MBE, Loeske Kruuk and Sarah Cleaveland



Professor Lady Heather Cubie with Kevin Thompson OBE CorrFRSE



Dr Ida Thompson (wife of Professor Andrew Ranicki FRSE), with Sandy Stoddart, sculptor of the James Clerk Maxwell statue in George Street



(l-r) Professors Naveed Sattar, John Iredale and David Cameron

(l-r)
Professors
Iain Gordon,
George
Salmond
and David
Muir Wood

