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resource

The Newsletter of Scotland's National Academy

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Our Patron, Her Majesty The Queen, visited the RSE in July to present the 2017 Royal Medals. Her Majesty is pictured with past and present recipients of RSE Royal Medals. (Details inside)

Also featured in this issue:

Wilfred Owen's Edinburgh 1917–2017

International Relations with Japan

New CEO at the RSE

The Royal Society of Edinburgh

KNOWLEDGE MADE USEFUL

The Royal Visit 2017

We were highly honoured to welcome Her Majesty The Queen to the RSE on Friday 7 July 2017 to present this year's Royal Medals.

Her Majesty was greeted, at the door to 22 George Street, by The Rt Hon Lord Provost and Lord Lieutenant of the City of Edinburgh, Frank Ross.

The RSE Royal Medals were instituted by Her Majesty in 2000, to mark the Millennium, and have been awarded since then with her express approval. These accolades are awarded for distinction and international repute in any of the following categories: Life Sciences; Physical and Engineering Sciences; Arts, Humanities and Social Sciences; Business and Commerce.

Medals were awarded to: **Professor Peter Boyle** CorrFRSE FMEDSci (below left), President, International Prevention Research Institute and Director, the University of Strathclyde Institute of Global Public Health, for his outstanding contribution to global cancer control and public health policy;

Professor Tessa Holyoake FRSE FMedSci, Director (below right), Paul O'Gorman Leukaemia Research Centre, University of Glasgow, for her outstanding contribution to the field of Life Sciences through her discovery of the existence of cancer stem cells in chronic myeloid leukaemia and her development of a new therapy for this condition;

Mr Donald Runnicles OBE (above), Chief Conductor, BBC Scottish Symphony Orchestra, for his outstanding contribution to the art of music at the highest international level. Mr Runnicles was in Wyoming at the time of the visit, in his capacity as the Music Director of the Grand Teton Music Festival; therefore, the RSE President accepted the Medal on his behalf and will present the accolade to him at a later date.

Four-year-old Sophia Govi, granddaughter of Peter Boyle, presented Her Majesty with a posy of flowers, while Fellows and their guests watched from the staircase.

Outside, a red carpet was laid and the crowds gathered to get a glimpse of our most important visitor.

RSE President, Professor Dame Jocelyn Bell Burnell said, "It was a very great pleasure to welcome our Patron, Her Majesty The Queen, to the RSE to present the Royal Medals. This is the third time Her Majesty has visited the RSE, and the second time that she has presented the Royal Medals; we deeply appreciate the interest she has shown in the RSE and her personal involvement in the presentation of these prestigious awards.

"This year's Royal Medallists have all made truly exceptional contributions to their areas. These awards are the RSE's highest accolades that reflect the Enlightenment spirit of the RSE's Royal Charter of 1783 and its remit to advance learning and useful knowledge."

The RSE was pleased to give Her Majesty the gift of an Arran Whitebeam which was presented by David Knott, Curator of the Living Collection, The Royal Botanic Garden Edinburgh. This tree is a specimen of *Sorbus arranensis*, which is native to Arran and is one of Scotland's rarest trees. It will now be planted in the grounds of the Palace of Holyroodhouse.

Her Majesty then signed the RSE Royal Medallists Book in front of the portrait of King George III, which is on display in the RSE Reception. The portrait is on long-term loan from Her Majesty's Royal Collection. George III was the Monarch who granted the RSE its Royal Charter in 1783.

Full details of the RSE Royal Medals and more images from the Royal Visit can be found on the RSE webpage at: www.rse.org.uk/awards/royal-medals/

Pictured on the front page are:

Front row (L-R):

- 2017 RSE Royal Medallist, Professor Peter Boyle;
- RSE President, Professor Dame Jocelyn Bell Burnell;
- Her Majesty The Queen;
- 2017 RSE Royal Medallist, Professor Tessa Holyoake;
- Sir Michael Atiyah PPRSE and RSE Royal Medallist (2003).

Images © Gary Doak Photography

Back row (former RSE Royal Medallists L-R):

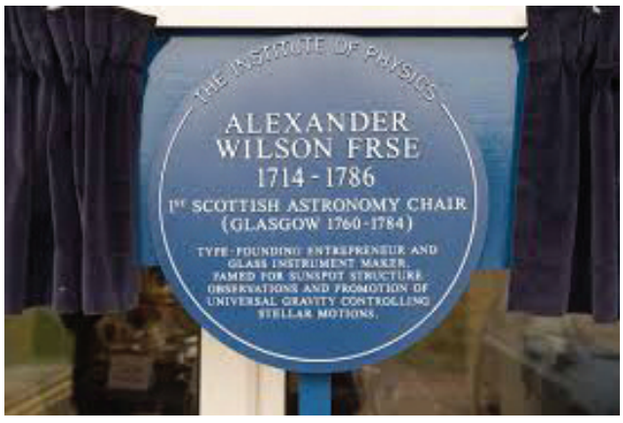
- Sir Alfred Cushchieri (2002);
- Professor Richard Morris (2014);
- Dr David Milne (2012);
- Professor Sir David Edward (2005);
- Baroness Helena Kennedy of the Shaws (2011);
- Lord Mackay of Clashfern (2003);
- Professor Sir David Carter (2006);
- Professor Sir John Ball (2006);
- Professor Desmond Smith (2011)

Congratulations to RSE Fellows recently honoured ...

In March 2017, Professor **John C Brown OBE**, 10th Astronomer Royal for Scotland and former Regius, now Emeritus, Professor, Glasgow University, was named recipient of the 2017 Klopsteg Memorial Lecture Award by the American Association of Physics Teachers (AAPT). The lecture and award were presented during the AAPT 2017 Summer Meeting in Cincinnati, Ohio, in July 2017.

On 15 March, at Marischal College in Aberdeen, a blue plaque sponsored by the Institute of Physics was unveiled for **James Clerk Maxwell** FRSE by Professor **Brown**. Nobel Prize winner, Professor **Peter Higgs** CH spoke in tribute to Clerk Maxwell. The plaque will be placed outside the 129–131 Union Street building in Aberdeen, where Clerk Maxwell lived. Professor Brown is pictured (left) in front of the Clerk Maxwell plaque with Professor Higgs.

An Institute of Physics Blue Plaque was also unveiled, on 28 March 2017, for Professor **Alexander Wilson** MD FRSE, the first Regius Chair of Astronomy at Glasgow University (1760–1784). The blue plaque will be permanently mounted at the entrance of the University's Observatory at Acre Road. Amongst others, the ceremony was attended by Professor Brown and Glasgow University Principal and Vice-Chancellor, Professor Sir Anton Muscatelli FRSE, as well as James Babington Smith, a descendant of Wilson.



... and Fellows recently elected to Fellowship of other Academies

Fellows elected Honorary Fellows of the Learned Society of Wales in April 2017:

Honorary RSE Fellow, Professor **Mary McAleese,** Formerly President of Ireland;

Lord Stewart Sutherland of Houndwood, RSE President (2002–2005).

Fellows elected to Fellowship of the Royal Society, London in May 2017:

Professor **Wendy Bickmore**, Director, MRC Human Genetics Unit, Edinburgh;
Professor **Chris Bishop**, Laboratory Director, Microsoft Research Cambridge;
Professor **Gabriele Hegerl**, Professor of Climate System Science, University of Edinburgh;
Professor **Anne Neville**, RAEng Chair in Emerging Technologies, University of Leeds;
Professor **Josephine Pemberton**, Head of Institute of Evolutionary Biology, University of Edinburgh;
Professor **Peter Smith**, Professor of Soils and Global Change, University of Aberdeen.

New Fellows of the Academy of Medical Sciences announced in May 2017:

Professor **Andrew Biankin**, Regius Professor of Surgery and Director, Wolfson Wohl Cancer Research Centre, University of Glasgow;
Professor **Sheila Bird** OBE, Programme Leader, MRC Biostatistics Unit, University of Cambridge;
Professor **Jill Pell**, Henry Mechan Professor of Public Health and Director of the Institute of Health & Wellbeing, University of Glasgow;
Professor **Owen Sansom**, Deputy Director, Beatson Institute for Cancer Research, Glasgow;
Professor **Kate Storey**, Professor of Neural Development, University of Dundee;
Professor **Rhian Touyz**, Director, Institute of Cardiovascular and Medical Sciences, University of Glasgow;
Professor **Brian Walker**, Professor of Endocrinology, University of Edinburgh.

Kevin Thompson OBE CorrFRSE, (above), Universidade de Macau, has been appointed Knight of the National Order of Legion of Honour, *Chevalier de l'Ordre National de la légion d'honneur*, by the President of the French Republic. The honour was conferred on Professor Thompson in June, for his outstanding contribution to French music, arts and culture. Established by Napoléon Bonapart in 1892, the *Légion d' Honour* is the highest French Order of Merit.

Professor **Evan Simpson**, Director Emeritus of the Hudson Institute of Medical Research, Australia (below), was appointed a Member of the Order of Australia in Janaury 2017.

Corresponding Fellow, Professor **Geoffrey Parker**, Andreas Dorpalen Professor of European History, Ohio State University, USA (below), was elected a member of the American Academy of Arts and Sciences in April 2017.

Emeritus Professor Wilson Sibbett CBE FRS (right), University of St Andrews, has received an honorary degree from City, University of London. He was awarded the Honorary Doctor of Science on 18 July 2017, in recognition of his outstanding contribution to scientific research and development.

The RSE offers its congratulations to the following Fellows who were honoured in Her Majesty The Queen's Birthday Honours List:

Member of the Order of the Companions of Honour (CH)

Ms Joanne Kathleen Rowling OBE HonFRSE
Author. For services to Literature and Philanthropy;

Knights Bachelor (Kt)

Professor Vito Antonio Muscatelli
Vice-Chancellor and Principal, University of Glasgow
For services to Economics and Higher Education;

Order of the British Empire: Commander (CBE)

• **Mr Colin James Stewart McClatchie**
Vice-President, Scottish Opera
For services to Music and voluntary service in the West of Scotland;

• **Professor John Halstead Hardman Moore**
Professor of Political Economy, University of Edinburgh and Professor of Economic Theory, London School of Economics
For services to Economics;

• **Professor Graham Charles Murray Watt**
Norie Miller Chair of General Practice, University of Glasgow
For services to Healthcare;

Order of the British Empire: Officer (OBE)

• **Professor Polly Louise Arnold**
Crum Brown Chair of Chemistry, University of Edinburgh
For services to Chemistry and Women in STEM;

• **Professor Anne Neville**
Chair in Emerging Technologies, University of Leeds
For services to Engineering;

Order of the British Empire: Member (MBE)

• **Mrs Margaret Patricia Stuart Henton**
Lately non-executive Director, Coal Authority
For services to the Environment and Professional Education;

• **Professor Rebecca Jane Lunn**
Professor, University of Strathclyde
For services to STEM.

Wilfred Owen in Edinburgh, 1917

Wilfred Owen (1893–1918) is widely recognised as one of the greatest voices of the First World War. His self-appointed task was to speak for the men in his care, to show the 'Pity of War'.

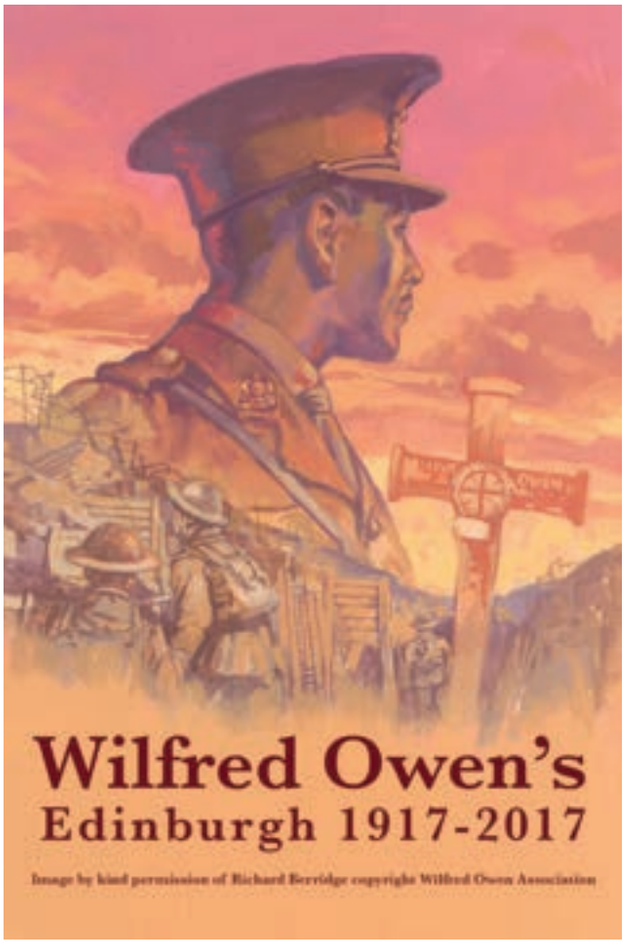
Owen's enduring and influential poetry is evidence of his bleak realism, his energy and indignation, his compassion and his great technical skill.

[Extract from The Wilfred Owen Associaton website: www.wilfredowen.org.uk/home/]

Born in Oswestry on the Welsh borders in 1893, Wilfred Owen knew from an early age that he wanted to be a poet. He worked, first as a lay assistant in Dunsden near Reading, and then taught English in France, in various positions until 1915, after which he returned to England and enlisted in the British Army. He saw active service in France in the early part of 1917, until being sent home in May, having been diagnosed with neurasthenia (shell shock). Owen recuperated at Craiglockhart War Hospital in Edinburgh from June until November 1917, during which he time he taught English at Tynecastle High School for three weeks. He returned to active duty in France in August 1918 but was killed in action on 4 November 1918. Sadly, news of his death only reached his mother, in Shrewbury, as the Armistice was being celebrated seven days later, on 11 November.

Owen had been writing poetry for at least six years prior to his war experiences, but it was his encounters with fellow poets, Siegfried Sassoon and Robert Graves, during his time in Edinburgh and later, that changed the tone and subject of his verse and inspired some of the war poetry for which he is best known.

Neil McLennan, an alumni of the RSE Young Academy of Scotland, one of the members of the first cohort of the Young Academy in 2011 and a former co-Chair, is currently Senior Lecturer and Director of Leadership Programmes at the University of Aberdeen. He previously taught history and led the Scottish Association of Teachers of History. For many years, Neil has also been engaged in his own historical research and, since he was Head of History at Tynecastle High School in Edinburgh, he has been interested in the First World War poets, and particularly in Wilfred Owen.



For a number of years, Neil has been pursuing research to track down Owen's footsteps in Edinburgh during his stay at Craiglockhart War Hospital.

"Many will know about Owen being in Edinburgh and his linking up with Sassoon; however, beyond that, little is written about this period ..... It has been my mission to bring a historian's critical eye to what really was happening."

At a Conference at Aberdeen University in April 2017, *The Fictional First World War – Imagination and Memory since 1914,* Neil shared one of his findings with an international audience of literary scholars. After decades of searching, Neil was able to confirm that the location of the historic meeting between Robert Graves, Siegfried Sassoon and Wilfred Owen was Baberton Golf Club, near Juniper Green in Edinburgh.

Images courtesy of Edinburgh Napier University.
Photograph of Neil McLennan by Tom Finnie

Neil's 'find' came about after numerous trips to Oxford, London and to American archives. One of those trips, to the Harry Ransom Archive at University of Texas, Austin, was made possible by an RSE Grant.

"Many may wonder why this matters, but it is an important piece of the City's literary history. One of Edinburgh's golf clubs can say it hosted potentially the most powerful meeting of English literature in the 20th Century."

Neil chairs the Wilfred Owen's Edinburgh 1917–2017 Committee, which has brought together over twenty education, arts and charity organisations to run a series of events to mark one hundred years since the war poets were in Edinburgh.

The first event was a commemorative overnight sleeper train journey, supported by Caledonian Sleeper on 25/26 June. The train from London to Edinburgh arrived at Waverley at 0721 on Monday 26 June.

After disembarking, a large crowd, many in period dress, were joined by an actor dressed in a replica uniform of Wilfred Owen's; pipers; and Scottish fiddle player, Thoren Ferguson, playing The Wilfred Owen violin [a violin made in 2014 to mark 100 years since the outbreak of the First World War. It was made from a branch of a sycamore tree in the grounds of Craiglockhart, where both Owen and Sassoon were treated]. The group retraced Owen's steps along Princes Street. This started a series of events which will include Neil delivering an RSE lecture at the Craiglockhart Campus of Edinburgh Napier University on Tuesday 15 August, during the week when Owen and Sassoon met 100 years earlier (see lecture details on page 8).

(above) Craiglockhart War Hospital
(below) staff and patients at the hospital

Find full details of all the past and coming events, and more about Wilfred Owen and his fellow poets online at: **bit.ly/WilfredOwenEdinburgh** or the facebook group: Wilfred Owen's Edinburgh 1917–2017

Events for the Public @ RSE

Tuesday 15 August 2017 at 6.30 pm at Lindsay Stewart Lecture Theatre, Edinburgh Napier University

LECTURE

Wilfred Owen's Edinburgh Enlightenment

Neil McLennan
Senior Lecturer,
University of Aberdeen

From late June to November in 1917, the soldier-poet Wilfred Owen recovered from shell shock at Craiglockhart War Hospital, in Edinburgh. Neil McLennan's interest in Owen started when Neil was Head of History at Tynecastle High School, the school where Owen taught, as part of his recovery process. Neil will share his research and his belief that Edinburgh provided Owen with enlightenment and inspiration. Many literary greats are associated with the capital city and Owen and his fellow war poets, Robert Graves and Siegfried Sassoon, can also be linked with this city of literature and enlightenment.

See more on pages 6–7.

Lecture organised in partnership with Edinburgh Napier University

Photograph of Neil McLennan by Tom Finnie

Thursday 7 September 2017 at 6.30 pm at Annan Museum, Annan

THE HOLYWOOD TRUST RSE PUBLIC TALK

'A Rank Reiver': Kinmont Willie's Sword comes Home

Dr Valentina Bold
School of Literature, Languages and Cultures, University of Edinburgh

The key object in Annan Museum's recent exhibition, *Swords in the Stories*, has been Kinmont Willie's sword. Specifically, it is associated with the *Ballad of Kinmont Willie*, first printed in the *Minstrelsy* of Walter Scott. In this lecture, Dr Bold will address key questions about the sword, its provenance, its history and its owner. Dr Bold will be accompanied by well-known singer of traditional songs, Kathy Hobkirk, who will perform Walter Scott's *Ballad of Kinmont Willie*. The talk will be followed by refreshments and an evening opportunity to visit the museum's exhibitions.

The event is free, but booking is required. Phone Annan Museum: 01461 201384.

Monday 18 September 2017 at 6 pm

LORD KELVIN PRIZE LECTURE

Putting the 'f' in Chemistry: Molecular Exploration through the Footnotes of the Periodic Table and our Nuclear Waste Legacy

Professor Polly L Arnold OBE FRSC FRSE, Crum Brown Chair of Chemistry, University of Edinburgh

The subtleties of structure and bonding in compounds of uranium, the heaviest naturally-occurring element, and its neighbours in the f-block, are still poorly understood. A fundamental understanding is needed to develop environmentally cleaner ways to extract technology-critical rare-earth metals, and for the safe, long-term handling of our nuclear waste legacies. Drawing on research attempting to make exotic new molecules from these metals, this lecture will explore what chemistry can teach us about these complicated but important metals.

Professor Arnold has also produced a short documentary film, *A Chemical Inbalance*, funded by a Royal Society Rosalind Franklin Prize.

Tuesday 10 & Wednesday 11 October 2017

TWO-DAY CONFERENCE

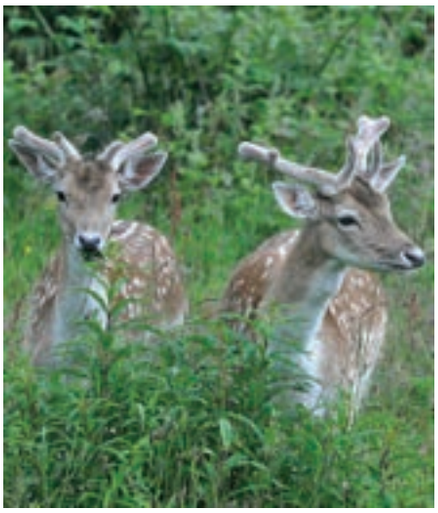
Spotlight on Scotland's Biodiversity

2011–2020 is the United Nations Decade on Biodiversity. This conference, to be held over two full days, will examine Scotland's progress in achieving the Aichi biodiversity goals.
Themes will include:

- General introduction to Scotland's biodiversity.
- Assessing Scotland's progress towards 2020 targets.
- Short individual contributions
- Scotland's contribution to safeguarding biodiversity internationally.

Registration fee: £100; (one day: £70);
Concessions (students/RSE Fellows): £50; (one day: £35)

Please visit the RSE website for full details of the Conference, and to register: **www.rse.org.uk/event/spotlight-scotlands-biodiversity/**



Cervus elaphus – red deer.
Killiechronan, Mull

LECTURES IN OCTOBER

For full details and to register, please visit the RSE website: **www.rse.org.uk/events/**

Thursday 12 October 2017 at 6.30 pm

LECTURE

The Luther Quincentenary: Print and the Reformation. A Drama in Three Acts

Professor Andrew Pettegree FRHistS, Professor of Modern History, University of St Andrews and Director of the Universal Short Title Catalogue

In partnership with the Albertus Institute in Edinburgh

Monday 16 October 2017 at 6 pm

MacCORMICK EUROPEAN LECTURE

The Future of EU Research and Innovation

Carlos Moedas, European Commissioner for Research, Science and Innovation

This annual lecture is named in honour of the late Professor Sir Neil MacCormick, in recognition of his contribution to Scottish and European politics and his international work for the RSE.

Monday 23 October 2017 at 6 pm

SIR JAMES BLACK PRIZE LECTURE

Battling Killer Fungi

Professor Neil A R Gow FRS FMedSci FRSE FRSB FAAM, College of Life Sciences and Medicine, University of Aberdeen

Monday 30 October 2017 at 6 pm

PRESIDENTIAL ADDRESS

Fifty Years of Pulsars (pulsating radio stars)

Professor Dame Jocelyn Bell Burnell FRS PRSE MRIA, President, The Royal Society of Edinburgh; Visiting Professor of Astrophysics, University of Oxford

This lecture will follow the RSE Annual Statutory Meeting which is only open to RSE Fellows.

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@theRSE.org.uk or go online at: www.rse.org.uk/events

Some events may carry a charge – please check individual details.
Unless otherwise stated, events are held at the RSE.

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.

The RSE Young Academy of Scotland

Spring Plenary

The Young Academy of Scotland held its first Plenary meeting for 2017 in April, at the Scottish Government buildings in Edinburgh. The theme for the day was: *For a Progressive and Open Society: A YAS Routemap.*

Leslie Evans, Permanent Secretary to the Scottish Government, gave an official welcome to the venue during the morning session and answered some questions from YAS members. She spoke to the membership about being bold and challenging, encouraging them to be free thinkers. She urged the YAS, "to be fluid and challenging… [rather than] boxed in by political constraints."

The morning continued with an open discussion about YAS' current role, activities and governance, as well as an update on upcoming projects and changes. However, the bulk of the morning session was dedicated to reflecting on, and discussing, YAS' current Working Groups and their activities; each group made a short presentation, aided by posters prepared prior to the day.

The afternoon session took the form of an horizon-scanning workshop. Led by YAS members, Victoria Loughlan, Kate Walker, Maria Dornelas and Alice Konig, the workshop involved a presentation of data collected from YAS members, and group sessions and presentations, in which YAS members helped to explore and begin to create an outcomes-focused workplan for the Young Academy. Several external people were also invited to help facilitate the discussion around the ideas for this workplan, including: Sir John Elvidge, Doreen Grove, Fiona Watson, Brad McKay, Sheila Rowan and Jane-Frances Kelly.

The results of the horizon-scanning workshop are being reviewed and YAS hopes to use them effectively towards shaping forward plans and creating a more purposeful future for YAS.

Brexit: The Impact for Scotland

As previously reported, in January 2017, the YAS issued a Position Statement on Brexit entitled *For a Progressive and Open Society*. The statement focused on the YAS' desire to see Scotland retain its position and reputation, amidst the Brexit discussions, as an international, progressive and open society. (Statement available on the YAS website at: http://bit.ly/YASPositionPaperBrexit)

Led by YAS Treasurer, James Blake, the membership has subsequently worked on a dedicated YAS report on the impact of Brexit on Scotland, to be published in September 2017. The report will comprise ten articles focusing on different areas and sectors in Scotland, each written by a YAS member specialising in that area.

Once published, the report will be available to download on the YAS website: www.youngacademyofscotland.org.uk/

For a hard copy, please contact Sarah Virgo: svirgo@theRSE.org.uk – 0131 240 5027.

Rising Star – Dr Theodore Koutmeridis

Dr Theodore Koutmeridis, Lecturer in Economics at the Adam Smith Business School, the University of Glasgow, and a member of the RSE Young Academy of Scotland, has been awarded a prestigious British Academy Rising Star Engagement Award for his interdisciplinary project on *Inequality, Conflict and Violence*. The project connects economics to applied social science research methods and evidence-based policy making on the pressing issues of socio-economic inequality, criminal behaviour, conflict and violence.

Dr Koutmeridis works on labour economics and the interaction of economics and law, focusing mainly on crime, wage inequality and market failures, such as informational and financial frictions. He holds a PhD in Economics from the University of Warwick, where he has been a Junior Fellow of the Royal Economic Society and an Onassis Scholar. His work has been recognised with research, teaching, impact and engagement awards, such as the Sir Alec Cairncross Prize in Economics, and grants from the European Science Days, the ESRC and the British Academy.

Dr Koutmeridis intends to form an Early-Career Network on *Inequality, Conflict and Violence* to facilitate the exchange of ideas between young scholars, such as YAS Members, and established experts, such as RSE Fellows, from the academic, business and policy worlds.

The award will be used to organise engagement activities and events in Glasgow and London and will bring together scholars from the London Business School, London School of Economics, University of Warwick and King's College London, as well as the University of Glasgow, among others. Activities will include research and policy workshops, seminars, training and grant-writing events.

The approach taken by this project will span conventional disciplinary and methodological boundaries with contributions from economics, political science, law and sociology, among others, and will include network contributors with a theoretical, applied, quantitative and qualitative focus. This network will connect established global experts with some of the best young talents, in an attempt to examine how inequality, conflict and violence intersect and how the institutional framework and policies can lead to equitable and sustainable advancements.

The study of inequality forms a cornerstone for social science research and is a pressing policy issue, especially in view of its association with economic performance, social progress, illegal activity, social unrest and political instability, as these are observed in both advanced and developing economies.

For more information about the RSE Young Academy of Scotland and its activities, visit the website: www.youngacademyofscotland.org.uk.

International Relations

The Global Young Academy

The 7th International Conference of Young Scientists of the Global Young Academy took place at the Macdonald Hotels Resort in Aviemore on 15–19 May, organised by a local committee representing the Young Academy of Scotland, comprising Karly Kehoe, Stefan Hild, Karen Lorimer and Martin Dominik.

Stefan Hild (right) engages with one of the other delegates. Photograph by Daniel Esser

The theme of the Conference was *Social Justice in a Rapidly Changing World*, a theme most appropriate for its setting, given the many changes in Highland landscape and climate over the centuries. The Scottish Government engaged directly with the Conference topic through an address on *Government Policymaking via Community Engaged Electronic Platforms,* delivered by Kenneth Hogg, Director of Local Government and Communities.

Images: directly above – Kenneth Hogg; centre, member of organising committee – Karly Kehoe; and right – Professor Murray Pittock. Photographs by Kit Chan

The RSE International Committee provided sponsorship which allowed ten young scientists from countries as diverse as Uzbekistan and Ghana to attend what was a truly global conference. Professor Murray Pittock, Pro Vice-Principal at the University of Glasgow, welcomed the delegates on behalf of the RSE and its International Committee, stressing the importance of the location and praising the transdisciplinarity and openness of the GYA's working groups on global problems. Later, Professor Gordon MacBean, President of the International Council for Science (https://www.icsu.org/) addressed the conference on *Future-Earth: Research for Global Sustainability.*

Conference delegates were also given opportunities to relax and see more of Scotland on trips to the Highland Folk Museum and Dalwhinnie Distillery; the Conference ended with a Ceilidh, and a final rendition of *Auld Lang Syne.*

The Global Young Academy (founded in 2010) has some 200 members worldwide, who are elected for a five-year term, and 135 alumni. Seventy-two countries have members, and 35% of the membership is female. The spread of expertise is around 50% in science and engineering, 33% in medicine and life sciences and the balance in arts, humanities and social science. GYA has a close association with the Young Academies movement worldwide. It is supported by the German Federal Government as part of its international programme, and is now administered (following a move from Berlin) at the German National Academy of Sciences Leopoldina at Halle. Its researchers and working groups are tackling issues ranging from direct democracy to the eradication of rabies in humans.

Professor Murray Pittock FRSE (member of the RSE International Committee)

International Relations

Japan

The RSE hosted an initial meeting with the Japan Society for the Promotion of Science (JSPS) on 24 May 2017, to explore opportunities to support joint activities and research collaborations between Scotland and Japan.

This fruitful meeting was held at the RSE with the JSPS London Director, Professor Nobuo Ueno, and the International Programme Coordinator, Ms Polly Watson.

JSPS is an independent administrative institution and Japan's core funding agency supporting the advancement of scientific research. The JSPS programmes respond to a variety of needs, such as supporting international joint research, inviting researchers to Japan from overseas, and fostering young researchers who will play active roles in the global arena. The delegation also visited the Innovation Centre for Sensor and Imaging Systems (CENSIS) and the Industrial Biotechnology Innovation Centre (IBioIC), both based in Glasgow.

Following on from this visit, the intention is that the RSE and JSPS will continue with discussions around opportunities and a potential joint agreement.

Friends of the RSE

In 2009, the RSE created a corporate engagement initiative originally entitled 'Friends of the Society'. Over the last few years, a number of carefully selected, prominent organisations have been invited to join the scheme, which was created to develop closer relationships with key businesses in Scotland. The project provides the RSE and its corporate partners with a platform to explore areas of potential mutual interest and a number of beneficial projects are being and will be developed over time.

Find out more in online at: **www.rse.org.uk/support-us**

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If you would like to find out how your company could benefit from engaging with the RSE please contact:

Westaly Duignan, Development Manager – 0131 240 2786 – wduignan@theRSE.org.uk

RSE announces new Enterprise Fellows

The RSE is pleased to announce that it has recently awarded 11 new prestigious Enterprise Fellowships. This takes the total number of entrepreneurs currently on the scheme – which has two intakes a year – to 19; a record number in the history of the scheme.

RSE Enterprise Fellowships enable promising science and technology researchers to grow into successful entrepreneurs. For the duration of the one-year Fellowships, awardees are able to focus solely on refining their business ideas, whilst experiencing some of best commercial training available in the United Kingdom.

For the recent round, as a pilot, the Natural Environment Research Council (NERC) joined Scottish Enterprise (SE) and the Biotechnology and Biological Sciences Research Council (BBSRC) to support Enterprise Fellows working within the NERC's remit of: terrestrial, marine, freshwater, science-based archaeology; atmospheric and polar sciences; and Earth observation. Additionally, the Science and Technology Facilities Council (STFC) – which has, up until now, supported Enterprise Fellows annually – has recently confirmed that it wishes to back Enterprise Fellows in both intakes each year; moving in line with the other funders.

Established in 1997, the Enterprise Fellowship programme has supported over 200 researchers in developing and launching new businesses. Companies have been formed across a wide range of fields, from tidal energy generation to drug-free malaria treatment; heritage barley cultivation to virtual reality audio technology.

Dr Rotimi Alabi, *supported by NERC; hosted by the University of Aberdeen*

Rotimi Alabi developed his commercial prospect during his PhD in the University of Aberdeen's School of Geosciences.

Recognising that traditional wet chemistry techniques for industrial testing and the analysis of oil, use large amounts of samples and solvents, rendering them slow and expensive, Alabi's company, *RAB-Microfluidics*, has developed a microfluidic technology that permits the comprehensive analysis of oil within the environment.

Referred to as a 'lab-on-a-chip', the product could deliver an oil condition monitoring service up to a thousand times faster and ten times cheaper than traditional methods. This advancement reduces the footprint for testing and analysis services, whilst enhancing process efficiency and cost savings.

Dr Steven Hammer, *supported by SE; hosted by Heriot-Watt University*

Prostate cancer is the most common cancer found in men, but is often indolent. Early diagnosis relies on a blood test and a digital rectal examination and may be followed up by a biopsy, which is often subject to false negatives. Up to 76% of men who are sent for biopsy do not have clinically significant cancer and would benefit from non-invasive monitoring.

Steven has therefore developed the *ProstaPalp* test, which aims to reduce the number of men who are unnecessarily referred for further treatment.

Steven has developed an objective point-of-care test device that measures and classifies prostate tissue non-invasively. This disposable device integrates into the current prostate cancer diagnostic pathway, and could make diagnosis and screening more accurate and less uncomfortable.

Dr Leon Baruah, *supported by NERC; hosted by the University of Sussex*

Leon Baruah's company, *Viridian Logic Ltd*, provides modelling and mapping ecosystem services that recognise the need for regional and national plans that provide the framework for natural resource management.

The company utilises algorithms and software to calculate hydraulic flow over land topology, and is able to assess the ability of specific locations in mitigating water quantity and quality problems before the rainfall reaches the river network; thus reducing flooding/sedimentation/diffuse pollution that affects communities downstream. After identifying areas of least ability, the company can then consult on various beneficial habitat planting schemes for the specific sites.

Leon is pictured centre (in white shirt).

Dr John Ferguson, *supported by NERC; hosted by the University of Edinburgh*

John Ferguson's project is called *Novel uses of sisal fibre*. John recognised that sisal is a highly sustainable fibre crop, traditionally used for the production of rope and sacks. However, there has been very little innovation with it over the past fifty years. As the demand grows for more sustainable materials in a range of industries, he believes that sisal has the potential to be commercialised into many innovative materials.

His has identified a wide range of potential commercial products; however, during his Enterprise Fellowship, he will focus on developing the commercial proposition of sisal insulation products, and blends of sisal and recycled polypropylene for sustainable packaging products.

Dr Murray Collins, *supported by NERC; hosted by the University of Edinburgh*

Deforestation is one of the world's most urgent environmental problems, driving climate change and causing irreversible biodiversity loss. Hundreds of companies have recently made commitments to eliminate deforestation from their supply chains by 2020, and the Paris Agreement on climate change commits developed countries to spending billions of dollars to halt deforestation in developing countries. This has created a huge demand for forest monitoring services. However, there is currently no service providing timely deforestation mapping data.

Murray Collins' company *SigmaTree,* will address this unmet demand through its patent-protected deforestation detection system. Using time series of free satellite radar data, the company aims to commercially supply high-quality, cost-effective, large-scale forest monitoring services.

OXFORD ENVIRONMENTAL TOOLS

Dr Peter Long, *supported by NERC; hosted by the University of Oxford*

Peter Long's company, *Oxford Environmental Tools*, provides web-based environmental decision-support tools to inform land use planning by businesses. The mapping tools are easy to use, and provide reliable and actionable information at a spatial scale relevant to decision makers.

The company's Local Ecological Footprinting Tool (*LEFT*) was launched commercially in October 2016. This online mapping tool supports biodiversity risk assessments across landscapes by identifying important ecological features. The tool automatically assembles data, performs analysis and produces a customised report.

The Ecosystem Services Tool (*Ecoset*), which provides information on the provision of key ecosystem services, is near completion, and will be launched this year.

RSE The Royal Society of Edinburgh
ENTERPRISE FELLOWSHIPS

Jordan Smith,
supported by SE; hosted by Glasgow School of Art

Jordan Smith's company, *Oddity Innovations Ltd*, is a product design company with the aim of bringing innovative and unique products to market. The first innovation from Oddity is *pkt,* the reliable and efficient packaging solution for the low volume sender.

The ability to send parcels allows people and businesses to engage with others from anywhere in the world. *Oddity Innovations* feels that current packaging offerings do not encourage people to send items, as they are cumbersome and inefficient; *pkt* removes the hassle of sending items by making it a simplified and enhanced experience. The whole process of packaging an item has been merged into a single process and a few simple steps. It is a disruptive technology for a rapidly expanding market.

Dr David Mahon,
supported by SE; hosted by the University of Glasgow

David Mahon's company, *Lynkeos Technology Ltd*, is a University of Glasgow-based business, spun-out from a £4.8M R&D project funded by Sellafield Ltd and the Nuclear Decommissioning Authority. The outcome of this project was the development of a novel 3D imaging system that uses naturally-occurring background radiation in the form of cosmic-ray muons to characterise the contents of shielded structures that cannot be imaged using conventional techniques.

Through the commercialisation of this system during the RSE Enterprise Fellowship, it is foreseen that this technology will help mitigate the risks inherent with long-term waste storage and, in doing so, deliver significant savings to taxpayers and the nuclear industry, and within other global industries under investigation in a range of diverse fields.

Tomasz Sadowski,
supported by SE; hosted by the University of Glasgow

Tomasz Sadowski's company, *Opinew*, recognises that when shopping online, customers want to make quick decisions without the hassle of trawling through lots of product reviews. It is therefore crucial for internet retailers to help their customers make the best, most informed decision in that short time span.

Tomasz has developed a product that helps reduce customer decision fatigue by using a proprietary predictive text analytics system which learns what indicators (or features) of a review make it appropriate to present to a user by using state-of-the-art machine learning. The product displays text and image reviews, giving customers a more informed review, and the product allows retailers to resolve negative reviews, enabling them to limit reputational damage.

Dr Fiona Rudkin,
supported by SE; hosted by the University of Aberdeen

Fiona Rudkin's goal is to establish and lead a new high-growth company developing antibody-based diagnostics and therapeutics (theranostics) for life-threatening fungal infections.

Invasive fungal infections kill 1.5 million people every year. Clinicians urgently require accurate, discriminative and efficient diagnostics, as well as improved therapeutic strategies, to reduce the high mortality rates. Fiona's team have generated a diverse portfolio of IP-protected monoclonal antibodies (mAbs) against *Candida* – one of the 'Big Four' major human fungal pathogens – and validated their use in early-stage diagnostic and pre-clinical therapeutic settings.

Fiona aims to market her offering into a new generation of single and multiplexed portable, point-of-care diagnostic tests.

Dr Lissa Herron, ***supported by BBSRC; hosted by the University of Edinburgh***

Eggcellent Proteins

Therapeutic proteins, or biologics, make up about one quarter of global pharmaceutical sales, with an expected market of over $250B by 2017. Biologics are expensive to manufacture, primarily due to the high costs of development and upstream production in cell culture systems, and this is passed on to the consumer as a high-cost pharmaceutical product or research reagent. These high costs mean that the agricultural and veterinary markets are largely priced out of accessing these drugs, and research is limited by how much an academic laboratory can afford on tight grant budgets.

Lissa Herron has developed a system using a transgenic hen bioreactor to produce therapeutic proteins. Production costs can be dramatically reduced with this system, due to the large quantity of protein expressed in the egg at much lower capital costs compared to cell culture systems.

YOUNG PEOPLE – *Science: Fiction: Make: Believe* Essay Competition

This annual competition, organised by the University of St Andrews, is a Scotland-wide creative writing competition for S2 pupils. It involves a 750-word creative piece about any Scottish scientist (in science, technology, engineering or mathematics), alive or dead, or the impact of their discoveries or inventions. Pupils were asked to write the piece in any creative format (e.g., blog, twitter, diary, etc.), or as a straight essay, taking a different perspective (e.g., as a member of the research team; as the scientists themselves; or as a newspaper reporter). The competition, organised by Paul Gardner of the University's School of Psychology and Neurology, with support from the Royal Society of Edinburgh, aims to *put the Arts into STEM – STE(A)M*!

Over 500 S2 pupils took part in this year's competition. The winning essay (which can be read below) was written by Alex Connah from Perth Academy and is a gruesome introduction and gripping tale about James Young Simpson, who first used chloroform as an anaesthetic in 1847.

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Numbed on the Table

by Alex Connah, Perth Academy

The horror of the medieval surgical table, the dread of the words "it is infected", the unsettling noise of people's screams.

This was the time when surgery was done whilst you were awake and fully conscious. The time when if any limb became infected it was cut off. You would lay there waiting on the table in the cold damp room, watching the surgeons in their bloodstained clothes. As they picked up their surgical instruments, you knew there was no escape. You would hold your breath and get ready to bite down on the leather, knowing that you might not make it out alive. Petrified, you watched as they raised their saw and began to cut.

The saw went back and forward, in and out as it cut through you, all the while you were sat there watching, feeling as the blade cut deep into your flesh, as blood splattered and the clattering sound of tools as the surgeon picked up instruments of torture. The agony as your bone shattered each time the instrument broke another layer in the bones.

Your nervous system screams at you for it to stop as you lie there watching, unable to close your eyes, unable to escape the horror. You look up and it's over, your infected limb is gone. All that's left is a stub, bleeding as the surgeons prepare to seal the wound with a burning rod.

These are the reasons surgery brings such horrible fear to your eyes, therefore I, James Young Simpson, began my research at the University of Edinburgh.

I am studying the very basics of anaesthetics. Something to make you sleep whilst you are in surgery so the horror is only in waking up with a missing but not that painful limb. I spent a great amount of time on my research testing and testing again and again on the formula, each patient giving back different results:

"It made it worse"

"I couldn't feel as much of the pain"

"It helped but not enough"

"It made me more awake"

But I could not perfect it. By this time my research had become well known. People were lining up to be one of my test subjects, even if it only removed a minimalistic amount pain, but after many a fail, less and less people wanted to try it until I was reduced to testing it on animals just to see if they would fall asleep. It was no use, I couldn't get it to work. I gave up, called myself a failure, submitted to the idea that I could not complete this challenge.

Then I got the call….

"Ah hello, hello. Is this James Young Simpson?"

"Yes."

"I am calling on behalf of the great Queen Eleanor."

"Oh my, well ok, what do you need?"

"Well it has been discovered that she is pregnant."

"Why that is amazing, but what does this all have to do with me?"

"Well the Queen has found out about your research into anaesthetics".

"But that isn't fully compl-"

"Never you mind about that. We will take your next solution of the formula for the delivery of the child. I shall speak with you again later. Good-day."

"Bu-"

And with that the phone line went dead. I panicked; the formula had not even come close to the result that was satisfactory to the requirements that this drug had to match. So I unpacked all of my equipment and began. I took the sample from the test that only numbed the pain a bit and the one that put that mouse to sleep and started to mix them to try and make a drug that would do both.

The day arrived. I took deep breaths as I walked in to the hospital. Unfortunately, the Queen's child was breech which means that the Queen had to be cut open and the baby removed by surgery. The Queen was given the anaesthetic shot and the surgery began.

I heard crying and spent the next 20 minutes worrying. I didn't know if the anaesthetic had worked. Later, the nurse came out. She said that the Queen was asleep for the duration of the surgery, the crying was the child. My anaesthetic had worked! I was thrilled, ready to mass produce the drug to hospitals all around the world, saving all from pain and peril.

Later that day, I was given the honour of becoming Sir James Young Simpson, medical genius to the Queen.

Fin

Ten Years of RSE Funding for Research in the Arts and Humanities

This year, the RSE celebrates ten years of promoting research in the Arts and Humanities; awards funded since 2007 by the Scottish Government.

Scotland is the home of many distinguished scholars in philosophy, literature, languages, history, theology, law and creative arts, and in the theory and criticism of the visual and performing arts. In developing an association with scholars, practitioners and policy makers, and in assisting the promotion of their research, including its practical application and dissemination, the RSE seeks to enhance its mission 'to promote the advancement of learning and useful knowledge'.

The RSE annually awards around £300K to fund Workshop and Network Awards and Small Grants, to individuals in Scottish Higher Education and Cultural Institutions. These awards aim to encourage knowledge exchange and collaboration, acknowledging that successful research projects will engage with issues that enhance understanding of Scottish intellectual, creative and cultural life in ways which will resonate with contemporary Scottish society.

The next round of awards has been announced with a deadline of **Friday 29 September 2017 at 5 pm**. For full details and to apply, visit the website: bit.ly/RSEArtsandHumanitiesAwards

Case Studies

Dr Henrietta Lidchi and Dr Stuart Allan

Baggage and Belonging: Military Collections and the British Empire (1750–1900)

Dr Henrietta Lidchi and Dr Stuart Allan from National Museums Scotland were funded by the RSE to facilitate Research Workshops. Drs Lidchi and Allan brought together specialists from the fields of anthropology and military history to survey and assess the interpretive potential of military collections. Over 130 military museums in the UK preserve the historical collections of British services, corps and regiments. These contain significant assemblages of artefacts acquired by British servicemen on active service and imperial garrison duties beyond Europe. The funding for the Research Workshops supported the academics in developing a methodology for understanding the value of this 'hidden' material.

Dr Lidchi observed, "The RSE award allowed both Dr Allan and me to workshop our ideas, and to develop a critical momentum in developing a large research grant, which overall is very important for our individual research trajectories and the research profile of National Museums Scotland more generally.

"The resulting Research Workshops have allowed us to think about the status and identity of particular collections, and the categorising of objects as trophies, loots, souvenirs or mementos; in some instances falling into more than one category, changing through time. As a consequence, we were confident in applying for a significant Research Grant from the Arts and Humanities Research Council (AHRC) with support from the National Army Museum, and the members of what will be our Advisory Board.

"We were informed at the end of 2016 that we had been successful. Our AHRC-funded project, *Baggage and Belonging: Military Collections and the British Empire (1750-1900),* will focus on military collecting in Africa and South Asia and begins in July 2017."

Dr Elaine Moohan

The Collected Works of Robert Johnson

Dr Elaine Moohan, from the Open University in Scotland, received a Small Grant, which enabled her to publish the complete works of the Scottish composer Robert Johnson (d. *c.*1560). A few of Robert Johnson's works were previously available in older editions, but this is the first time that all of the 36 attributable works have been brought into a single volume.

Dr Moohan said, "The RSE Small Grant allowed me to visit all of the UK libraries that hold manuscripts containing Johnson's works. Without it, I would not have been able to spend time in each of these libraries within a single academic year. Indeed, this part of the project could have taken several years without the financial support from the RSE."

Dr Karen Brown

Museums and Social Sustainability in Scotland and Costa Rica

Dr Karen Brown, from the School of Art History, University of St Andrews, received a Small Grant for her project. Dr Brown's project looked at museums, communities and the cultural landscapes of Scotland and Costa Rica through three key topics: ecomuseology; policy and practice of inclusion; and sustainability. The museums considered work to promote understanding of local culture and ecology, preserve local distinctiveness, and create sustainable relations with the government/state.

Dr Brown commented, "The research project would not have been possible without the support of the RSE. The funding enabled me to travel to undertake primary research and conduct interviews with local museum professionals, volunteers, representatives of the communities and artists. I was also proud to be sponsored by the RSE to undertake the research in both countries."

Dr Brown has subsequently been awarded 2.4 million Euros from the European Comission's *Horizon2020* programme to carry out a four-year project on *Museums, Community and Sustainability in Europe, Latin America and the Caribbean*. Building on connections made with the Skye Ecomuseum during her time funded by the RSE, Dr Brown will now collaborate with the Staffin Community Trust to run monthly workshops to reconnect young people with their heritage. She is then planning to do a physical exchange with the museums in Costa Rica.

Dr Graeme Wilson and Professor Raymond Macdonald

Concurrent

Dr Graeme Wilson and Professor Raymond Macdonald, from the University of Edinburgh, were awarded a Research Network Grant of nearly £20K to support their network. This is a network of key researchers who share approaches and theoretical insights, apply psychological understandings to collaborative performance and consider how performers construct meanings at the forefront of contemporary improvisation. Public events and online dissemination engage a wide range of creative improvisers, academics and audiences interested in transcending disciplines.

Dr Graeme Wilson explained, "If we had not received RSE funding, we would have tried to identify alternative funding sources; however, we were not aware of other funding schemes with the same degree of openness to cross-disciplinary thinking and experimentation. If some of the work had been able to take place outwith the context of the network, it would have been hard to generate the same buzz about the work. The public events in Edinburgh and Liverpool were a particular highlight; the ferment of ideas on display and the enthusiasm of audience responses were overwhelming. *Concurrent#3* at Tate Liverpool, in particular, covered a huge range of new ground…Families, school visits and passing art enthusiasts came to a standstill in the gallery to watch arts therapists exchanging clinical techniques through performance, and share the delight of the city's artists, dancers and musicians exploring novel strategies of choice together. It was inspirational to seeing so many remarkable researchers and practitioners brought together and fully engaged with this audience."

Changes at the RSE

Dr William Duncan was Chief Executive of the Royal Society of Edinburgh (RSE) from 1985 until May 2017. During this time, the RSE expanded its activities and its number of staff members considerably. To support this expansion, the RSE's own premises were also extensively enlarged and refurbished, and William played a key role in this and other developments.

Prior to joining the RSE, he worked in the Treasurer's Department at the Greater London Council, and then at Lothian Regional Council, where he was much involved with the Social Work Department.

He has a BSc and a PhD (in molecular spectroscopy) from the University of Edinburgh, and is a Chartered Member of the Institute of Personnel and Development. His main leisure interests, apart from visiting science centres, are attending organ recitals and listening to contemporary music.

William is now Visiting Professor at the University of Strathclyde and has joined their International Public Policy Institute, which has a focus on the EU and International Issues.

The RSE is delighted to announce that its next Chief Executive will be Dr Rebekah Widdowfield, who will take up post on 1 September 2017.

Following a geography degree at the University of Oxford and PhD at the University of Newcastle, Dr Widdowfield worked for a number of years at the Universities of Bristol and Cardiff, researching homelessness, rural poverty and social exclusion. She joined the Scottish Government in 2001, working in a number of roles before becoming a senior civil servant in 2008; in which capacity she has undertaken roles covering rural and environmental science and analysis, social research (as Chief Researcher), higher education and housing. As a senior civil servant, Rebekah has a detailed knowledge and understanding of the workings of Government and of strategy and policy development.

President of the Royal Society of Edinburgh, Professor Dame Jocelyn Bell Burnell, commented, “This is a splendid appointment for the RSE. We look forward to welcoming her on 1st September and working with her.”

Dr Widdowfield said “”I am delighted to be joining the Royal Society of Edinburgh as Chief Executive in September. The RSE fulfils an important role in civic Scotland and I look forward to working with the Council, Fellows, staff and stakeholders to further enhance the RSE’s reach and impact.”

Pictured, with the current RSE President, are three past Presidents; and one past and one future CEO. (l–r) Sir John Arbuthnott; Sir Michael Atiyah; Dr William Duncan; Dr Rebekah Widdowfield; Dame Jocelyn Bell Burnell; and Sir William Stewart.

Dame Jocelyn and Dr Duncan are pictured in the RSE Lecture Theatre with Professor Sheila Rowan MBE FRSE, Chief Scientific Adviser for Scotland, at the 2017 RSE Fellows’ Summer Reception held in June, at which a presentation was made to Dr Duncan, in recognition of his long years of service at the RSE.

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