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resource

The Newsletter of Scotland's National Academy

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His Royal Highness, The Duke of Cambridge was welcomed by the RSE President, Professor Dame Anne Glover, on his first visit to the Society in July 2018. Read more inside and on back.

Also featured in this issue:

Meet our new President

Prizewinning short stories from Inverness

Building the Queensferry Crossing

The Royal Society of Edinburgh

KNOWLEDGE MADE USEFUL

The RSE Royal Medals

Her Majesty The Queen awarded RSE royal medals for the first time in 2000, to mark the millennium. Each year, the Royal Medallists are agreed by RSE Council and then approved by Her Majesty.

As the royal medals recognise achievement in all intellectual fields, it was decided to unify them by commissioning one design for all of the royal medals. Inspired by symbols on the Society's Coat of Arms, the distinguished designer and engraver, Malcolm Appleby, translated images of the royal crown, radiant sun and stag and deer hound.

Medals for 2018 were awarded to:

David Climie OBE, (right) for his outstanding contribution to the field of Civil Engineering, particularly for his work on the Queensferry Crossing; (read more on pages 14 & 15),

Professor Richard Henderson CH FRS, (far right) for his outstanding contribution to the field of Molecular Biology; and

Thea Musgrave CBE, for her outstanding contribution to the betterment of humankind through music.

David Climie and Richard Henderson received their Medals from His Royal Highness the Duke of Cambridge, at the Ceremony on 5 July.

Thea Musgrave (right, *photograph ©Kate Mount*) is based in New York and, due to other commitments in the USA, was unable to be present at the Ceremony. Her Medal was received on her behalf by the RSE President.

Thea Musgrave will be in Edinburgh in August to attend two performances of her work at the Edinburgh International Festival and it is anticipated that she will be presented with her Medal at one of these concerts in the Usher Hall.

The citation for Mr Climie was read by Sir Duncan Michael FREng FRSE, Trustee of the Ove Arup Foundation. Professor Andrew Miller CBE FRSE, Former Principal & Vice-Chancellor, University of Stirling read the citation for Professor Henderson. The citation for Thea Musgrave was presented by Shonaig Macpherson CBE FRSE, Chair, Royal Lyceum Theatre.

The IEEE/RSE James Clerk Maxwell Award

The IEEE and the Royal Society of Edinburgh created a joint award in 2006 to recognise groundbreaking contributions that have had an exceptional impact on the development of electronics and electrical engineering or related fields. The annual award consists of a gold medal, bronze replica, a certificate and an honorarium. The award is named in honour of the 19th-Century Scottish mathematician and physicist, James Clerk Maxwell, who laid the foundations of electromagnetic wave theory, radio propagation, microwave techniques and radio communications. James Clerk Maxwell was elected to the Fellowship of the RSE in 1856, at the age of 24.

On 5 July, His Royal Highness also presented the IEEE/RSE James Clerk Maxwell medals to the 2018 joint recipients, Thomas Haug and Philippe Dupuis. The awards were made in recognition of leadership in the development of the first international mobile communications standard, with subsequent evolution into worldwide smartphone data communication.

The RSE was very pleased to welcome the IEEE President, Mr Jim Jefferies, who read the citation for the two awardees (left).

His Royal Highness is pictured above (left), presenting Philippe Dupuis with his medal and (right) speaking with Thomas Haug later.
Photographs of Royal Medals ©Gary Doak photography.

About our President

One warm June afternoon, our Editor was fortunate enough to find herself spending a pleasant hour in the company of Professor Dame Anne Glover, with the express purpose of finding out a bit more about our new President, who entered office at the beginning of April this year.

A balanced personality ...?

Although both her parents hailed from the west of Scotland, Anne was born in Arbroath and spent her formative years on the east coast, before also establishing her working career there. Despite the amount of time she has spent in the east, she feels a special affinity with the west and so is peculiarly divided between the two. Reflecting on this, she commented that she likes to think this helps her to remain balanced (rather than in two minds).

Anne loved her years spent in education, enjoying school in Dundee and university in Edinburgh; always appreciating what she recognised, even then, as the amazing opportunity of being able to study so many different subjects that interested her.

She expressed her pride in the Scottish education system: she values the fact that it allows people to be educated according to their ability. One of her concerns is that there are still people who don't think that it's 'for them'; that somehow, they won't fit in. Her interest continues to be in outreach and widening access to education for all.

At the conclusion of her formal education, Anne became Professor of Molecular Biology and Cell Biology at the University of Aberdeen and was subsequently named Vice-Principal for External Affairs and the Dean for Europe.

The building blocks of the body

Discussion proceeded to Anne's research – but how to explain that to a non scientist? The body is made up of millions of cells (building blocks) and essentially Anne's research has centred around how these cells work and, more particularly, how they react to stress, such as chemotherapy or metabolic stress.

One area of her research has been in examining how scientists can exploit responses that have evolved naturally and use them to protect our bodies from the different kinds of stress to which they can be exposed. For example, during chemotherapy, how can these responses be activated so that normal cells are protected from damage while allowing the cancerous cells to be targeted?

Answers to this could also potentially help in conditions such as ageing, Parkinson's and Ahzheimer's.

Professor Dame Anne Glover FRS PRSE
Special Adviser to the Principal, University of Strathclyde

At the same time, Anne has always been fascinated by the huge diversity of microbes in the environment and still wonders "what they are all doing". That interest in the vast number of microbes in the soil led her to set up a small biotech company, which deals with environmental issues: the real-life application of knowledge.

Favourite book:
One Hundred Years of Solitude
by Columbian author, Gabriel García Márquez

Should we stay or should we go?

When posed with the inevitable question of her views on Brexit, Anne was not reluctant to admit that she is very upset by the prospect of no longer being a European citizen. In fact, just that day, she had submitted her application for Irish citizenship (possible, because her father was born in Ireland).

What have I got to lose…?

In 2006, Anne was the first person to be appointed to the new position of Chief Scientific Adviser for Scotland (CSA). A colleague had seen an advertisement for the post in the RSE Bulletin for Fellows and encouraged her to apply – and one of her 'mantras' has always been "what have I got to lose?"

Thus, she embarked on 5½ years that turned out to be among the most interesting she has experienced. In particular, she commented that it gave her a real appreciation of how difficult life in politics can be – being constantly in the public eye and open to challenges. She has developed a real respect for how politicians cope in these circumstances.

Around the time that her term as CSA for Scotland was drawing to a close, at a dinner attended by then President of the European Commission, José Manuel Barroso and then First Minister for Scotland, Alex Salmond, a conversation about scientific advice to government took place between the two leaders.

Not long afterwards, Barroso contacted Anne and asked her to talk him through some of the different models that could be adopted. He then invited candidates from around Europe to apply for the post of CSA to the President of the European Commission and subsequently appointed Anne.

This new post differed in many ways from the one in Scotland. On a very practical note, in Scotland, Anne had worked as CSA for three to four days a week and had been able to keep some connection with her work at Aberdeen University. The new post was full-time and meant that instead of being able to spend more time at the university, she would have far less.

Favourite piece of music: Mozart's Requiem

What's the worst that can happen?

At this point, she took recourse to her second 'mantra', "What's the worst that can happen?" and, having checked that part-time hours were not possible, she offered her resignation to Aberdeen. However, the university was extremely supportive and suggested that she instead take leave-of-absence – which provided an element of stability that proved most welcome. So Anne moved to Brussels for the duration of the three-year term.

Throughout her time in office, Anne consistently emphasised the need for science policy to be firmly based on evidence. Her term came to an end in 2014, around the same time that Jean-Claude Juncker took over as 12th President of the European Commission.

Jean-Claude Juncker took the decision to close the Bureau of European Policy Advisers and not to appoint another CSA. However, recognising the importance of scientific advice determining policy, and encouraged by businesses, NGOs and academics, he asked Carlos Moedas, European Commissioner for Research, Science and Innovation, to look at different models for receiving such evidence. [Commissioner Moedas delivered the RSE MacCormick European Lecture on *The Future of EU Research and Innovation*, in October 2017.]

The model adopted was a group of seven people from throughout Europe, the Advice Mechanism High Level Group, who spent 20% of their time on this task and met occasionally to take advice and discuss what scientific issues should be reported on. This group has recently been renamed as the Group of Chief Scientific Advisers.

Meanwhile, Anne returned to Scotland and to Aberdeen in 2014 and, in March 2018, took up her new post at the University of Strathclyde as Special Adviser to the Principal.

Favourite film: *Babette's Feast* – a 1987 Danish drama directed by Gabriel Axel (or *Paddington 2* for a great 'feel good' film)

And what about Women in Science?

The RSE conducted an Inquiry into Women in STEM in 2012, producing the *Tapping all our Talents – Women in STEM: a strategy for Scotland.* Six years later, the RSE is reviewing what progress has been made on equality in the STEM workforce in Scotland. So, how much has changed since Anne started her career and, particularly in more recent years, since the first Inquiry?

Anne thinks that there have been changes and improvements in this time, but these are not universal and there is still 'a way to go'. There is now a more general understanding and acceptance of the fact that society has to be diverse and this is true for other areas of inequality, for instance ethnicity, as well as for gender.

People now recognise that you can't have an all-male panel and what often started as 'box-ticking exercises' have become the basis of accepted policies. As these changes have increasingly become standard, an unexpected bonus reveals itself: diverse teams are actually more effective.

However, Anne recognises that there is still some distance to go. She recounted a recent conversation, when someone commented to her that it was strange that two women in a row have now been appointed President of the RSE. In reply, Anne pointed out, "isn't it even more strange that only men have been appointed since the RSE was founded in 1783 until now?"

Changes have to be made at an earlier stage, when young people are still at school. The review of *Tapping all our Talents* is examining ways in which this can be done and also considering the problem of retaining women, once they start their careers in science.

With HRH The Princess Royal at the RSE Triennial Dinner in January 2018

Favourite place:
Arisaig
on the West coast of Scotland

A perfect day:

lie-in;
breakfast outside with husband;
a little gardening;
walk/sail somewhere new;
friends round for dinner;
listen to music;
a good book

Welcoming new Corresponding Fellow, Artist Douglas Gordon, at New Fellows' Induction event in 2018

The melting pot

Asked about her aims during her three-year tenure as President of the RSE, Anne started by saying that she is really looking forward to this time and knows she is going to enjoy it.

What she wishes for the RSE is that it should become more visible in Scotland and further afield, and that people, from school pupils to office workers, from academics to civil servants, would be aware of it as a 'go to' place and be interested in what we are doing, recognising the parts that are relevant to their lives.

We have the advantage of being a place that brings all sorts of people together, and we should harness this so that the RSE is increasingly a place – the melting pot – that reflects the society in which we live.

She hopes to see people desperate to read our latest advice paper and queuing at our doors for the next event. Her dream is that the RSE is widely known and recognised as a valuable and indispensable asset for Scotland.

Congratulations to RSE Fellows Honoured in Her Majesty The Queen's Birthday Honours List 2018

Order of the Thistle (KT)
Sir Ian Wood GBE
Chancellor of the Order

Knight Bachelor

Professor James Hough OBE FRS
Associate Director, Institute for Gravitational Research, University of Glasgow.
For services to the Detection of Gravitational Waves.

Professor Sir James Hough was presented with the RSE President's Medal in 2017, for his part in the discovery of gravitational waves.

Order of the British Empire: Commander (CBE)

Dr Alison Janet Elliot OBE
Lately Associate Director, Centre for Theology and Public Issues, University of Edinburgh.
For Public Service.

Professor (Ann) Louise Heathwaite
Professor, Land and Water Science, Lancaster Environment Centre. For services to Scientific Research and Scientific Advice to Government.

Professor Carole Hillenbrand OBE
Emerita Professor, Islamic History, University of Edinburgh and Professor, University of St Andrews.
For services to the Understanding of Islamic History.

Professor Stuart William John Reid
Principal, Royal Veterinary College. For services to the Veterinary Profession and Higher Education.

Professor Robert Steele
Senior Research Profesor, Prevention, Early Detection and Treatment of Colorectal Cancer, University of Dundee.
For service to Public Health.

Dr Alison Elliot is currently the RSE General Secretary. In 2004, she became the first woman ever to be elected Moderator of the General Assembly of the Church of Scotland.

Order of the British Empire Officer (OBE)

Professor Foo Yew Liew
Gardiner Professor of Immunology, University of Glasgow.
For services to Science and Medicine, particularly in Scotland and Hong Kong.

Professor Carol Elizabeth Tannahill
Director, Glasgow Centre for Population Health and Chief Social Policy Adviser, Scottish Government.
For services to Public Health.

Professor Carol Tannahill was welcomed to the RSE Fellowship by then President, Professor Dame Jocelyn Bell Burnell in 2016

Early-stage support ready to be unlocked!

The inaugural RSE Unlocking Ambition Enterprise Fellowship programme achieved a key milestone on Wednesday 2 May with positive news: 115* applications from academic institutions from across the UK – including 18 out of the 19 Scottish Universities – and research institutes were received. This clearly demonstrates the thriving start-up community within academia eager to develop their ideas in Scotland. It also shows the demand and interest in the valuable development and support the RSE offers entrepreneurs to turn their ideas into reality. (*pending eligibility criteria)

On 14 March 2018, then Business and Innovation Minister Paul Wheelhouse had helped launch the inaugural programme funded by the Scottish Government. The £4m Unlocking Ambition Challenge is being delivered by key stakeholders from Scotland's entrepreneurial network, as part of the *Scotland CAN DO* initiative. Backed by the First Minister Nicola Sturgeon, the RSE leads the academic stream of the this new Enterprise Fellowship programme and will invest in up to 20 high-potential early-stage entrepreneurs in this new cutting-edge initiative.

The RSE Unlocking Ambition Enterprise Fellowship Programme will nurture and support early-stage innovators, academics and researchers who have entrepreneurial potential and an innovative business idea. To succeed, the most talented and ambitious people around the world were encouraged to see Scotland as the place where they want to relocate or establish their businesses. The successful applicants will be mentored and led by some of Scotland's leading entrepreneurs and advisors in a year-long intensive entrepreneurial business development programme based on the highly successful Enterprise Fellowship scheme.

During the live application period, an integrated UK-side marketing campaign was delivered, including an awareness-raising outreach roadshow to all Scottish universities and research institutes.

Pictured (above) at the launch, with Rebekah Widdowfield, RSE CEO, then Business and Innovation Minister, Paul Wheelhouse, said:

Unlocking Ambition is a fresh and innovative approach to maximising opportunities for the wealth of talent that exists in Scotland, or that could be attracted by the opportunities here. This programme is a high priority for the Scottish Government, because by tapping into the experience of Scotland's most successful business people, as well as the great companies and institutions based here, we can unlock the tremendous potential of the next generation of entrepreneurs.

What happens next?

The expert judging panel reviewed and shortlisted the eligible applications ahead of the interview process in June. The cohort was announced at an event at the RSE on Thursday 28 June. The successful Unlocking Ambition Enterprise Fellows will start their year-long training with a boot camp at the end of July. Networking and developmental opportunities for the RSE cohort will also follow throughout the year, together with the second-stream cohort of the Unlocking Ambition Challenge led by Scottish Enterprise.

Policy Advice from the RSE

Drawing on the expertise of our Fellows, the RSE provides independent evidence and advice to inform public policy decisions and legislative direction. Our contributions support decision makers in the Scottish and UK parliaments and the Scottish and UK governments.

RSE response to the Scottish Government consultation on the creation of the South of Scotland Enterprise Agency

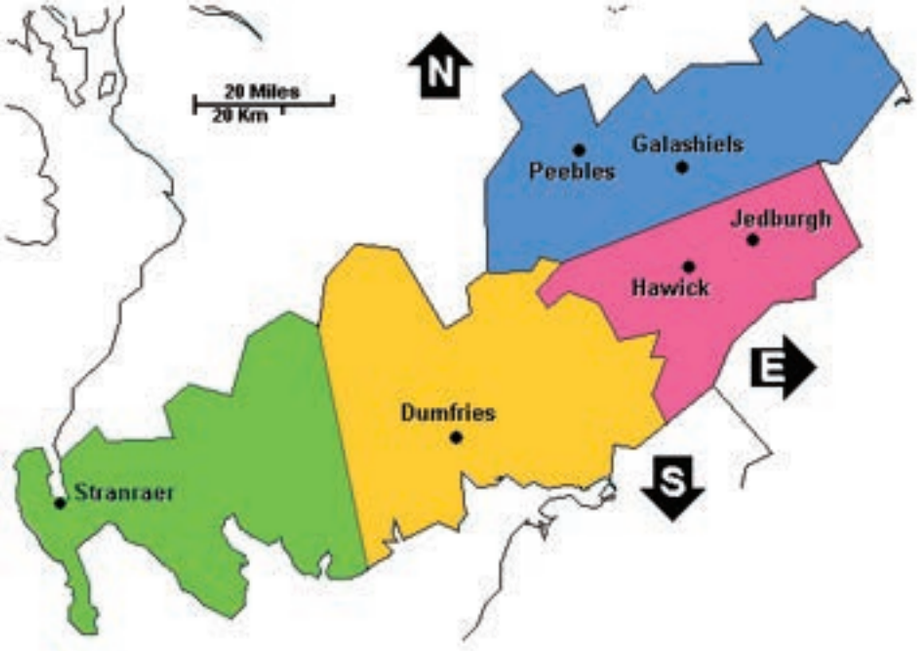
In its Review of Enterprise and Skills, the Scottish Government produced proposals to create a South of Scotland Enterprise Agency. These proposals were then open for public consultation, at which stage the RSE submitted its response. This response was facilitated through a working group chaired by Ray Perman FRSE, and included several RSE Fellows and key stakeholders from the region.

This is an area in which the RSE has remained involved since the First Minister announced the Review of the Enterprise and Skills Agencies in 2016. In phases 1 and 2 of the review, the RSE produced three responses which were facilitated through the Business Innovation Forum (BIF). Throughout each of these responses, the RSE encouraged the Scottish Government to address the challenges in the South of Scotland economy; recognising the different economic context in the South and recommending that the functions of the Highlands and Islands Enterprise Agency (HIE) be expanded to the South.

In responding to the proposals, the Society indicated its support, but also its key concerns and considerations for the shaping and focus of the agency. Support for the principle of creating a new agency is based on the provision of the adequate powers, resources and responsibility for it to be effective. In recognising the success of HIE since its creation in 1991, the response recommended that this model should be replicated for the South of Scotland Agency, stating that the new agency should have a community remit, similar levels of funding to HIE and that the Convention of Highlands and Islands model is replicated in the South to promote collaboration. The agency should also have a statutory right to be consulted on Government decisions which will affect the South of Scotland.

However, it was acknowledged that the South of Scotland does have unique challenges to address which are considerably worse than the rest of Scotland, due to a lack of investment. The agency, in cooperation and partnership with stakeholders, should have a strong role in addressing long-standing issues such as digital and transport connectivity, housing and skills development. The potential challenges to the region from external factors such as Brexit and climate change will also have to be addressed by the agency.

Nevertheless, the creation of the new agency could be a turning point for the South of Scotland. Increased investment in the region will help drive economic development and the agency will have a role in gaining the most from investment opportunities in deals such as the Edinburgh Growth Deal and Borderlands Inclusive Growth Deal. Furthermore, in its early activities the RSE recommends that the agency, in cooperation with key stakeholders, develops a tourism strategy for the region that would aim to capitalise on tourism opportunities in the region. The agency is also encouraged to map and identify local business that contribute to economic development. The agency can then identify possible interventions to help business across the region.



The response highlights that the agency should be provided with the appropriate powers, remit and funding for it to be effective, and the RSE believe that new legislation will be required to provide this.

www.rse.org.uk/policy/advice-papers/

RSE@ INVERNESS

Young People's Short Story Competition

Young people in two age-group categories, 10–13 and 14–18, were invited to write a short story on the subject of the Rosemarkie Man, a body discovered on the Black Isle in 2016. The task was to "tell the story of this man: bring his story to life".

Entries were judged by Ian Rankin FRSE and Professor Dame Sue Black FRSE and the Prizegiving took place on Sunday 22 April 2018 in Cromarty, as part of the Cromarty Crime & Thrillers Weekend. The prizewinners and two runners-up in both age groups were awarded book tokens and given the opportunity to read out their stories at the event.

We are pleased to reproduce the two prizewinning stories here and all six stories can be read on our website at:

www.rse.org.uk/wp-content/uploads/2018/02/Prizewinner-Stories-booklet.pdf

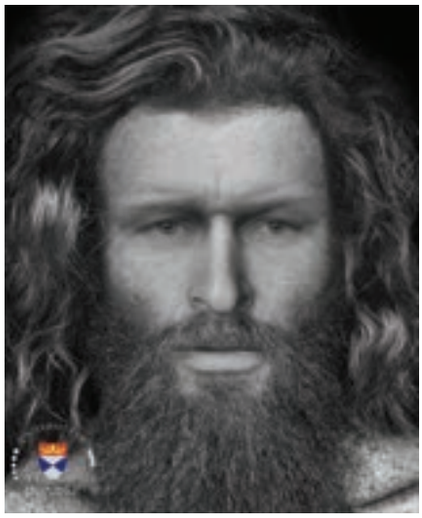


Image of Professor Sue Black's reconstruction of the Rosemarkie Man's face, by Chris Ryan

1st Prize Winner (Age 14–18)

Chelsey Hahmann, Age 15, Buckie High School, Buckie

The Rosemarkie Caves

Selkie: a mythical creature that resembles a seal in the water but assumes human form on land.

Everyone had left. It was almost pitch-black outside and I could already see the stars coming through but there was something so magical about the caves and I couldn't resist going to have one last peek at the ancient structure. It was so easy to imagine someone from thousands of years ago taking shelter here from the rain or settling to sleep beside a roaring fireplace.

The others were all huddling around the fire, begging for warmth and protection from the harsh winds that come along with living beside the raging sea. If it weren't for the stars which were starting to seep through the endlessly dark sky I wouldn't be able to navigate my way there but the caves were sort of enchanting, in their own way. We used to use them as somewhere to make our stone axes but few people used them now, especially my favourite one at the far end, where entrance was covered in long bits of seaweed. The others always say that that's where the selkies hide their skins when they rise out of the sea. I'm not sure I believe them.

Something about the entrance was so… naturally incredible. It was as if it was inhabited by fairies who had nowhere better to hide during the daytime. I carefully tread on the rocky ground, and all at once I was inside the huge, hollow space. It was magnificent, so full of life that could only be experienced at the time the cave was formed and used. It was so large and yet intimate all at once.

I loved the way the seaweed covered the opening, like it was a big secret and I couldn't tell anyone. I could see why everyone chose to believe that this was where the selkies would keep their skins; it has such an enchanting aura surrounding it. I began to step through the seaweed strands and the size of the cave astounded me. It was big and beautiful and fairy tale-like all in one go, breath-taking.

There's something in the corner a small blue, maybe silver colour. It looks like an old blanket. If I didn't know that they weren't real, I would love to imagine a group of fairies or elves using it to keep warm.

On the floor, at the back of the cave lies something soft, scaly. It looks like a bunch of leaves which had been woven together, only a metallic, glistening sliver colour. It is the precise description of a selkie's skin.

I heard a creak echo around the cave.

The noise of footsteps seemingly from behind echoed around me.

It had a knife.

The selkie was holding an axe.

I couldn't see.

I was blinded.

I couldn't breathe.

I was suffocating.

I was suddenly on my back with heavy boulders forcing me down.

It put strong stones on my knees, weighing me down.

Blackness.

Blackness.

1st Prize Winner (Age 10–13)

Miea Coyle, Age 11, East End Primary School, Elgin

The Rosemarkie Man

"Hurry up, we don't have all day" said Steve.
"I'm sorry we have been mining away all day, and my arms hurt" Jonathon said.
"Well we need these stones for our ceremony tonight, if the people come without their stone you know what Billy will do."
"Yes, I know and don't go there about what he did to Max? I still get nightmares because of it" Jonathon said in a scared way.
"Right I think that's it," Steve said, "let's go".
They walked out. The sun shone in their eyes like a torch, right up close at you.
"I will go hand these out and then go home, oh wait here take one" Steve added quickly.
"What is it we have to do again?"
"You have to carve on your stone one of our symbols and explain why you have chosen it. Ok see you at Smelters Sea cave at 8.00 Steve said."

Jonathon's House…

Jonathon was working away on his symbol stone, mumbling away as he did so.

"OK I have four hours until the ceremony which means four hours to carve my stone. Now I could do an animal, eh no I definitely can't because I don't believe in gods and goddesses. How about mythical creatures oh wait I can't if I get one bit wrong Billy would kill me like he did to Richie. He shoved him off a cliff when it was wildly windy literally. I can't do enigmatic symbols because Billy is doing that and am not going to go there about what he did to Jim or Martin. I know, I could make my own. I will create a shield in the first corner, I will put two swords crossing each other to show their weapons what they use to try and kill our animals with. In the next corner I will put the metal hats they wear for extra protection. Now in this corner I will put their horses which they come riding on like a stampede of cows. Finally, I will put NO because we want NO Romans in Pictland."

7.55pm…

Everyone was gathering round the fire with their stones. By the time 8.00 came everyone had gathered ready to share their Symbol stones. Billy walked round in a circle and started with Tahlia.

"What have you brought?" he asked.
"I have carved a mermaid because I believe in life and that you should be yourself."
Billy examined it.
"It's perfect!" He shouted. "Now Jonathon what have you carved?"
"I have actually created my own it's about how we hate the Romans and how weak we think they are"!
Jonathon looked up; Billy's Face was pure red like a tomato.
"How dare you go against our symbols!"
Everyone stood up and took a step back.
"Joe get me my pole!" raged Billy.

Everyone ran away apart from Billy, obviously. Billy pinned Jonathon up against the wall and held the pole above his ear, he gasped. The next minute Jonathon was lying on the floor dead. Billy covered him in stones and left.

After Billy (The leader of the tribe) had killed Jonathon in an unpleasant way, the rest of the tribe kept their distance. No one really could trust or do anything with Billy around. Everyone was scared if they told another tribe member a secret that it would get back to Billy, and that would not be good. So, with everyone scarred for life, no one ever really came together except for in battle.

The RSE@ outreach programme is dedicated to delivering inspirational and educational events and activities in local communities around Scotland.

The programmes are based in different regions of Scotland for a two-year period. Previous programmes have been delivered in the Scottish Borders, Lochaber, Dumfries and Galloway and Arbroath.

The current RSE@ Inverness programme was launched in September 2017 and, to date, has included school talks, story-telling events, writing competitions, discussion events and public talks.

The RSE is grateful to the following organisations for supporting the RSE@ Inverness programme:

- **Hugh Fraser Foundation**
- **Inverness Common Good Fund (The Highland Council)**
- **James Weir Foundation**
- **Lydia Michael Trust**
- **Moray & Nairn Educational Trust (The Moray Council)**
- **Royal Celtic Society**
- **RSPB**
- **Fleck Bequest Fund**
- **Sillitto Fund**
- **Scottish Book Trust**
- **Scottish Historical Review Trust**

International Relations

Belgium

The RSE has a Memorandum of Understanding with the Royal Flemish Academy of Belgium for Science and the Arts (KVAB) to promote and strengthen scientific co-operation between each Academy, and scientific collaboration between researchers in Belgium and Scotland. This formal agreement was signed at the RSE in October 2017.

The RSE and KVAB held their first joint workshop on Privacy, Healthcare and Data Science on 17 April 2018. The programme for the workshop was largely based on two position papers published by KVAB in 2017 and translated into English in 2018: *Privacy in times of internet, social media and big data* and *Data science in healthcare*. Around 70 people attended the workshop, which took place at the Palace of the Academies, Brussels.

Professor Chris Dibben, Chair in Geography, University of Edinburgh, and Professor Colin McCowan, Robertson Centre for Biostatistics, University of Glasgow, travelled from Scotland to Brussels to speak at the workshop, alongside two speakers from Belgium, Frank Robben, CEO eHealth-platform Belgium, CBSS Belgium and Professor Karolien Poels, Professor of Strategic Communication, University of Antwerp.

A lively Q and A session followed the talks, which were both thought provoking and very topical. There are plans for the next RSE/KVAB workshop to take place in Scotland in 2019.

China

Developing the Scotland–China innovation agenda

Collaborations in research and innovation between Scotland and China were very much at the forefront of recent high-level meetings in China. The RSE led a ten-strong delegation to Beijing during March 2018 to meet with distinguished experts from China with considerable experience in science and technology development, technology transfer and commercial exploitation of research.

The Third Forum

There have been three high-level Forums to date. This most recent (third) took place in Beijing 6–9 March 2018. The topics agreed by all three partners were: Big Data and Oil and Gas, offering opportunity for a further two Scottish Innovation Centres to be represented, namely OGIC (Oil & Gas) and The Data Lab. For this Forum, the partnership between RSE, NSFC and CAS has been extended to include the commercial arm of CAS, known as the Chinese Academy of Sciences Holdings Co., Ltd (CASH), who participated for the first time (led by their Vice-President International), enabling meetings with six Chinese companies. Discussions continue between the RSE and CASH around future collaborations to help contribute towards the innovation agenda between Scotland and China.

Led by RSE Vice-President, International, Professor Marian Scott, the RSE delegation included, among others, the Chief Executives of both OGIC and The Data Lab. Forum participants were drawn from a wide range of organisations, with representatives attending from Scottish Development International, Department of International Trade, UK Research and Innovation, UK Science and Innovation Network, China–Britain Business Council, as well as the British Embassy and Scottish Affairs Office.

The Forum has led to a number of outcomes and opportunities for future collaboration.

KVAB
Koninklijke Vlaamse Academie van België voor Wetenschappen en Kunsten

The RSE–NSFC–CAS high-level Forum is a collaboration between the RSE, the National Natural Science Foundation of China (NSFC) and the Chinese Academy of Sciences (CAS).

International Relations

Japan

The Japan Society for the Promotion of Science (JSPS)

JSPS was established in 1932 and is the largest governmental funding agency in Japan for the support of fundamental research in all fields, from postgraduate level and above. JSPS offers a range of international funding programmes at institutional, group and individual levels, to foster collaboration such as: individual fellowships; group level bilateral programme; multilateral programme; Core-to-Core programme; and hosting a Japanese researcher.

An overview of application periods for all of these JSPS International Programmes can be found at the following link:
www.jsps.org/documents/Application_Schedule_Chart.pdf

Organic Optoelectronics: Lighting Up the Future

This joint meeting, on 3 May 2018, followed a series of successful discussions held over recent months involving representatives of the RSE and the JSPS. The symposium brought together leading experts from Scotland and Japan to discuss the current research landscape of organic optoelectronics and its applications. Participants had the opportunity to engage with JSPS and the RSE on their current initiatives and activities in support of enabling international collaborations in this area.

The opening address by Professor Marian Scott, RSE Vice-President International, and Professor Nobuo Ueno, Director of JSPS London, set the scene for the day and was followed by a formal RSE–JSPS agreement signing ceremony (pictured below), further cementing the partnership. Presentations followed by both leading academics and practitioners from Scotland and Japan, Chaired by Professor Ifor Samuel FRSE, School of Physics and Astronomy, University of St Andrews, and Professor Chihaya Adachi, Center for Organic Photonics and Electronics Research, Kyushu University. A poster presentation and networking reception further supported discussions around potential collaborations.

The RSE and JSPS look forward to developing this exciting collaboration, which is our first official RSE–Japan partnership.

To find out more about all of the RSE's global collaborations, visit:

www.rse.org.uk/international

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A Celebration of Engineering

The Annual RSE/RAEng Joint Lecture

The Queensferry Crossing

a unique three-tower cable stay bridge

On Tuesday 1 May, the RSE hosted its annual joint lecture with the Royal Academy of Engineering, this year marking the 25th anniversary of these public events. In addition, 2018 is being celebrated as the Year of Engineering. The societies were honoured to have Naeem Hussain delivering the lecture. Mr Hussain is Arup's Global Bridge Leader and was lead designer of the Queensferry Crossing.

Mr Hussain took the audience through the intricacies and specific workings of designing Scotland's newest bridge, and the different challenges he was presented with along the way. He addressed the issue of different technical details of the design, while explaining how he needed to balance his design for the bridge with changing budgets, shifting sustainability and maintenance requirements.

The lecture concluded with a short Q&A session, when Mr Hussain was joined by David Climie OBE, Former Project Director and Employer's Representative for Transport Scotland on the Forth Replacement Crossing and Michael Martin, MICE Project Director – Forth Crossing Bridge Constructors (FCBC), giving the audience an opportunity to explore and learn more about the teamwork and joint efforts across the board that were involved in the completion of this ambitious project.

Earlier that day, a group of Fellows and guests visited the Queensferry Crossing to hear a series of short talks from David Climie and Alan Shirley, both of Transport Scotland, Michael Martin from FCBC and Professor Gordon Masterton OBE FRSE. A detailed overview of the team work required in the building of the bridge was presented, discussing many of the challenges faced by both contractors and clients. Alan Shirley also explained how the Queensferry Crossing's Educational Centre has been used during the year. Mr Hussain was present at the session, and it was inspiring to get a glimpse of how the designer, contractors and clients had worked together, particularly at the actual site of the Queensferry Crossing.

Gordon Masterton provided a short contextual overview of civil engineering in Scotland, beginning with James Watt and talking the audience through the construction of the Tay and Forth Bridges. On a personal note, he described, as a child, watching from his bedroom window as the Forth Road Bridge was being built, and said that this had had a huge influence on his decision to go on into Civil Engineering.

Special guest at the evening lecture was former UK Prime Minister and Chancellor of the Exchequer, Rt. Hon Gordon Brown. He is pictured (right) with the RSE President, signing the Fellows' Roll Book.
Mr Brown was elected an Honorary Fellow of the RSE in March 2018.

Professor Dame Ann Dowling OM FREng FRS, President of the Royal Academy of Engineering (pictured left, on the right, with Professor Dame Anne Glover and Naeem Hussain), said: *Naeem Hussain's designs complement their environment, benefit communities and combine beautiful form and function. The Queensferry Crossing provides a very practical example of engineering at its best.*

Professor Glover commented: *We were absolutely delighted to hear from Naeem Hussain at this joint lecture. The Queensferry Crossing has had a big impact on the Scottish engineering scene and within the Scottish community; this lecture was a wonderful occasion for us to celebrate its completion.*

Friends of the RSE

The RSE is grateful to its corporate members for their ongoing support. Together, we will continue to explore areas of mutual interest and benefit. From business innovation and policy to supporting entrepreneurs and international links, the RSE is strengthened by its engagement with businesses.

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

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Our Future Scotland

YAS Members Launch Film at Scottish Parliament

James Blake and Siobhán O'Connor from the RSE Young Academy of Scotland and Edinburgh Napier University launched a short film called *Our Future Scotland* at the Scottish Parliament on Wednesday 16 May 2018 (right). **https://ourfuturescotland.com/**

The 15-minute documentary was produced in collaboration with Scotland's Futures Forum **www.scotlandfutureforum.org/** – a think-tank of the Scottish Parliament. It is being combined with a national social media campaign aimed at gathering the aspirations of people everywhere, for what Scotland could look like by 2030. This participatory process will be used to inform parliament debate and policy making.

The *Our Future Scotland* film showcases leading figures from politics, business, education and the arts and reveals their aspirations for Scotland in 2030. It includes: First Minister, Nicola Sturgeon; the actor Brian Cox; writers Chris Brookymre and David Baille; and the Scots Makar Jackie Kay; among others, and can be viewed online: **www.youtube.com/watch?v=Y6QOeS37XvQ&t=1s**

A panel debate on the themes raised in the film followed the screening at the Scottish Parliament, with Chris Brookmyre, Brian Cox, Professor Sethu Vijayakumar FRSE from the Edinburgh Centre for Robotics and Clare Adamson MSP sharing their thoughts. This was Chaired by the Rt Hon Ken Mcintosh MSP.

Anyone can share their vision for the future of Scotland by participating on social media using: **#ourfuturescotland**
or visiting the dedicated website: **https://ourfuturescotland.com/**

This initiative was jointly funded by Edinburgh Napier University, Scotland's Futures Forum and the RSE Young Academy of Scotland, with support from Glasgow School of Art.

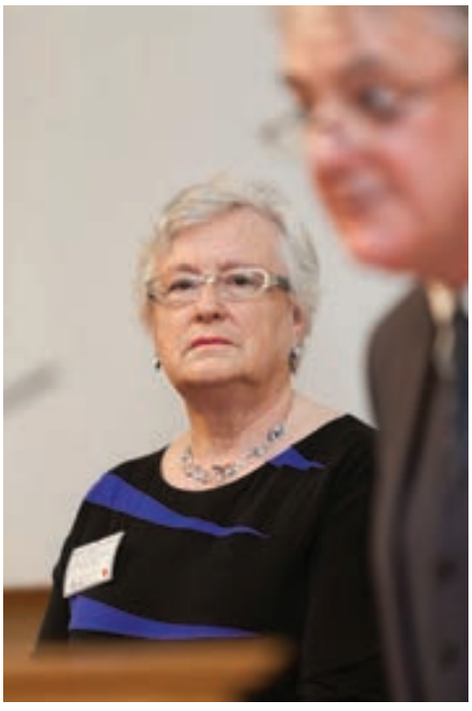
Image at top illustrates several contributors to the Our Future Scotland film: (l–r) Chris Brookymre; Jackie Kay; Brian Cox; Ruth Davidson MSP; Nicola Sturgeon, First Minister; Chris van der Kuyl FRSE; Sethu Vijayakumar FRSE; Richard Leonard MSP; Gillian Docherty, CEO, the DataLab

New Fellows welcomed to the RSE in 2018

On Monday 14 May, 49 of the 66 New Fellows elected to the RSE in 2018 attended the annual Induction Ceremony and were welcomed to the Fellowship by the President. The full list of new Fellows can be viewed at: **www.rse.org.uk/new-fellows-welcomed-rse-may-2018/**

RSE President, Professor Dame Anne Glover said:
"*The RSE continues to strengthen its Fellowship by appointing leading professionals from within the arts, business and public sector, as well as those working at the highest levels of research. International work is also key to the RSE and, demonstrating this, we have several notable individuals joining the RSE as Corresponding Fellows.*

By working with the RSE, Fellows have the opportunity to make a difference to Scotland, through providing independent and expert advice to Government, engaging in debate and communicating with the public, and supporting future leaders."



Four eminently distinguished people were appointed as Honorary Fellows this year, only one of whom was able to attend the ceremony: Carol Colburn Grigor CBE, pictured (top right), as her citation was read.

The Rt Hon Gordon Brown was also appointed, but signed the Roll on a later occasion. He is pictured with the President on page 15.

Five of the seven Corresponding Fellows were able to attend. Professor Hilary Birks is pictured (left); and artist, Douglas Gordon (right), later, in the Fellows Room.

(left to right), Dr Dmitry Fedosov from Moscow; Professor Ying-Cheng Lai from Arizona; and Professor Man-Chung Tang from San Francisco were all welcomed as Corresponding Fellows.

New Fellows at the RSE

New Fellows were welcomed to the Society by the RSE President on the afternoon of 14 May, after which the CEO, Dr Rebekah Widdowfield, presented an overview of the Society and its activities. After lunch, there was an opportunity to meet the staff, followed by a tour of the rooms.

The Admission Ceremony took place early evening and was followed by a drinks reception.

Joerg Feldmann, Head of the Department of Chemistry at the University of Aberdeen, is pictured (left) with Elaine Dzierzak, Professor of Haematological Regeneration at the University of Edinburgh.

Above, Fellows were given a guided tour of the building.

Below (left to right), the President welcomes Giles Hardingham, Professor of Experimental Physics, University of Edinburgh; Ruth King, Professor of Statistics at the University of Edinburgh; and Corresponding Fellow, Douglas Gordon, artist.

John Gillies OBE, Deputy Director, Scottish School of Primary Care Co-Director, University of Edinburgh Compassion Initiative, is pictured (left). On the right is Giles Hammond, Professor of Experimental Gravitational Physics at the University of Glasgow. Giles was one of the first members of the RSE Young Academy of Scotland.

Professors Karen Faulds, (left) and Eva Hevia, both in the Department of Pure and Applied Chemistry at the University of Strathclyde.

Corresponding Fellow, Dmitry Fedosov, Senior Research Fellow, Insitute of General History, Russian Academy of Sciences, Moscow.

New Fellow, Zinnie Harris, Playwright, Screenwriter and Theatre Director, is pictured with her father, Dr Mark Shaw, who became an RSE Fellow in 2004.

Nick Kuenssberg, (above), Chairman, Social Investment Scotland and the Royal Conservatoire of Scotland

Michela Massimi, (left) Professor of Philosophy of Science, University of Edinburgh.

Corresponding Fellow, Professor Man-Chung Tang, was joined by:
his wife, also Professor Tang;
son, Chin Tang;
daughter-in-law Carol;
and two grandsons,
Carter (7) and Cooper (5)

Our Royal Visitor

HRH The Duke of Cambridge was made an Honorary Fellow of the RSE in March 2017. During his visit, he was formally welcomed to the Society by the President and signed the Roll book. His citation was read by the Very Rev Professor Iain Torrance Kt FRSE, Pro-Chancellor, University of Aberdeen.

HRH was then invited to view a showcase of RSE activities, and introduced to four RSE Enterprise Fellows, who provided some details of their start-up companies.

(Above right) Rotimi Alabi, Managing Director, RAB Microfluidics R&D Co Ltd **www.rab-microfluidics.co.uk**

(Above) Michael Tougher, Founder and CEO of Soundbops **https://soundbops.com**

(Below) Michael Harkins, CEO, Turtle Pack Ltd **https://turtlepack.com**

(Below) RSE Fellow, Niamh NicDaeid, Professor of Forensic Science at the University of Dundee, explained a little about the RSE Outreach Programme **www.rse.org.uk/events/rse-at**

(Above) Carmen Cummiskey, Founder and Managing Director of TEQNOX **https://teqnox.co.uk**

Before he left the RSE, HRH was presented with gifts from some of the Enterprise Fellows.

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