

# INSIDE SCIENCE



## LOCAL HEROES FOR 2010

Achievements of Royal Society Fellows and other scientists to be exhibited across the UK

## OUT OF THIS WORLD

The Partnership Grants scheme supports a school science programme that's about to launch into space





This issue of *Inside Science* brings readers up to date with our ambitious Local Heroes programme, part of the Society's 350th anniversary celebrations. Science has always been at the very heart of the Royal Society and its Fellowship has always been at the forefront of ideas. Throughout 2010 we will work in partnership with over 50 organisations around the UK to recognise 'Local Heroes' – Fellows, and those who have an impact on their work, who made an impact on the community.

A Royal Society delegation travelled to Ghana in February for an international conference on the social and economic cost of chronic disease. Colleagues report back from the conference, partly funded by the Society, on what's been labelled 'Africa's neglected epidemic'.

We recognise that the role of science in foreign policy is changing. Many of the global challenges that we now face, from tackling climate change to feeding a rapidly growing world population, have an intrinsic scientific component and the Society, in partnership with the American Association for the Advancement of Science recently held a discussion meeting on 'new frontiers in science diplomacy'.

We are delighted to announce a new venture for the Society – the Kavli Royal Society International Centre at Chicheley Hall. The new residential facility will enable scientists, technologists and engineers from the UK and all over the world to discuss and develop their work. Funded with significant support from the Kavli Foundation, events will start to take place over the summer of 2010 and the Society has an official launch planned for September 2009.

The Society is committed to stimulating innovative and creative science and encouraging knowledge exchange between the UK's science, engineering and industrial bases. We recently announced the winners of Brian Mercer Awards, presented every year at the 'Labs to Riches' event.

A new book by Professor Ottoline Leyser FRS, compiled as part of her Rosalind Franklin prize, tackles common misconceptions which hold women back in science and which Professor Leyser believes partly account for the huge underrepresentation of women at the top of the science career ladder.

We continue to welcome your feedback on the magazine, please contact the Editorial team at [insidescience@royalsociety.org](mailto:insidescience@royalsociety.org)

**Stephen Cox, Executive Secretary**

## PUBLISHING NEWS

In February 2009, following an extensive review of the needs of our users, *Royal Society Publishing* launched its new website. This exciting new development means that, for the first time, the umbrella publishing site and the journal content site are now integrated into one seamless online platform. The new website caters better for the specific needs of scientific researchers, by offering increased functionality, power and efficiency. Readers of Royal Society content now have the ability to track topics, authors and articles of their choice and browse specific subject collections that are pertinent to their own area of research, whilst Royal Society authors can sign up to be notified each time their own published article is cited. It also has the capacity to deliver content faster than ever before – ensuring rapid access to large PDFs, high resolution research images and graphic-heavy tables and charts.

Visit the new publishing site at [royalsocietypublishing.org](http://royalsocietypublishing.org)

As we prepare for our 350th Anniversary in 2010, we are working to achieve five strategic priorities:

- **Invest** in future scientific leaders and in innovation
- **Influence** policymaking with the best scientific advice
- **Invigorate** science and mathematics education
- **Increase** access to the best science internationally
- **Inspire** an interest in the joy, wonder and excitement of scientific discovery

*Inside Science* is organised to reflect those goals



Rhesus mothers and infant  
Image ©Dr Stuart Semple

## DID YOU KNOW?

### TANTRUMS TOO MUCH FOR MACAQUE MUMS

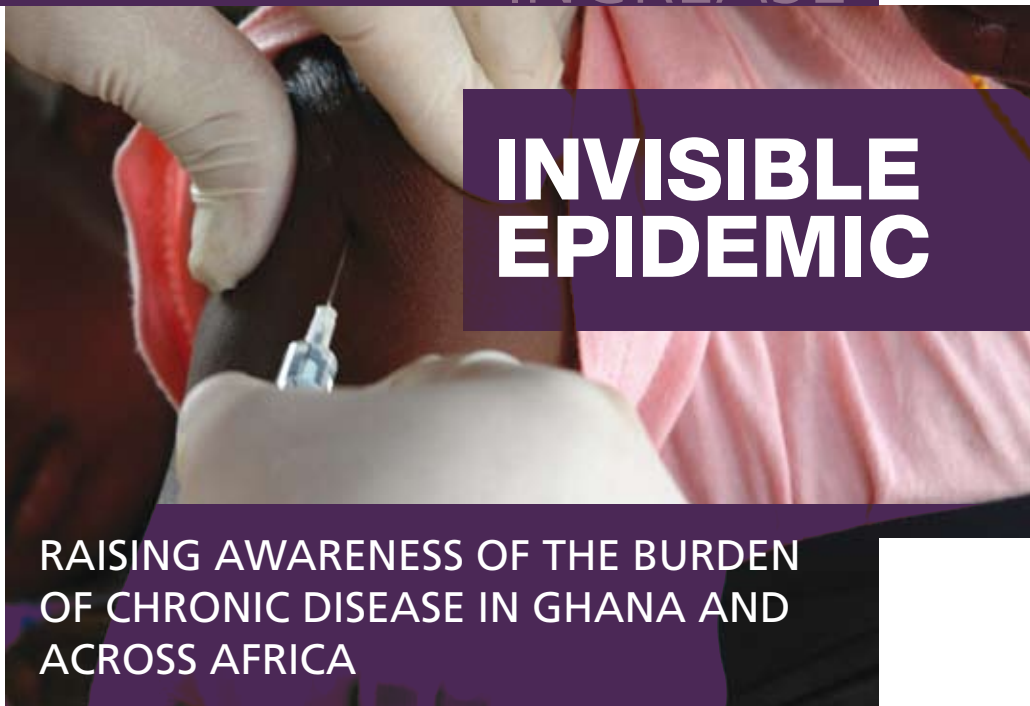
Whilst studying Rhesus macaques it was discovered that macaque mothers, like their human counterparts, have a tendency to give in to their child's tantrum especially when in the presence of onlookers. Research published in Royal Society journal *Proceedings B* has shown that mothers give in to tantrums around half of the time when in the presence of family. However if the group of bystanders contains at least one potentially aggressive adult, mothers give in around 80% of the time. Like human babies, macaque infants have a high pitched cry. Although directed at the mother, bystanders share the pain, and if the crying doesn't stop, things could turn violent. Both mothers and children were more than 30 times more likely to be on the receiving end of aggressive behaviour during a crying bout than at any other time, which would explain why the infants got their own way.

**How many people suffer from chronic diseases such as cancer, diabetes or even hypertension in Ghana? No one knows, and estimates vary wildly but leading health policy experts are increasingly concerned about the enormous imminent social and economic cost of chronic diseases within Ghana, and in Africa more broadly.**

Ian Thornton, Policy Adviser at the Royal Society, travelled to Ghana as part of a Society delegation in February to find out more about attempts to overcome what's been labelled Africa's 'neglected epidemic'. He explains:

"Ghana is often seen as a model for political and economic reform in Africa, a country on the cusp of middle income status. However Accra, the capital city, screams of the contrast between rich and poor as sunglasses clad businessmen in big cars are accosted by hawkers and crippled beggars at traffic lights. The prosperity of recent decades is concurrent with recognition of the 'epidemic' of chronic diseases – conditions like stroke, hypertension, diabetes and cancers. Indeed, changes in lifestyles may have contributed to the problem.

But Ghana, like so many other African countries, is ill equipped to deal with this largely invisible epidemic. Its health system is already overstretched by the burden of diseases we all think of when we think of Africa – malaria, HIV, TB and others. One person leading the calls for a greater awareness of this double burden is Dr Ama de Graft Aikins, a young, female Ghanaian post doctorate at the University of Cambridge. In 2006, the British Academy



## INVISIBLE EPIDEMIC

### RAISING AWARENESS OF THE BURDEN OF CHRONIC DISEASE IN GHANA AND ACROSS AFRICA

awarded a UK-Africa Partnership grant to Dr de-Graft Aikins and Dr Daniel Arhinful, from Noguchi Memorial Institute for Medical Research, to develop a programme of collaborative research on Africa's 'neglected epidemic' – a multidisciplinary research and intervention model for chronic disease.

Professor Lorna Casselton FRS, Natalie Day and I were fortunate enough to see one of the strands of the partnership's work in February – an international conference partly funded by the Royal Society entitled *Africa's Neglected Epidemic: Multidisciplinary Research, Intervention and Policy for Chronic Diseases*. The conference engendered broad ranging debate between historians, psychologists, public health specialists and anthropologists from across the world. In his keynote address Sir Magdi Yacoub FRS spoke of the importance of advancing biomedical research in Africa, and outlined his vision

**Ghana's health system is already overstretched by the burden of diseases, like tuberculosis**

for combining cardiothoracic research and treatment in African centres of excellence.

The burden of chronic diseases is very poorly acknowledged in Ghana, with a lack of good data and limited government policy, expertise and resources to address the problem. The very fact that an international conference was held on this topic, opened by the Minister of Health and attended by some of the country's best minds, is encouraging and will hopefully raise the profile of the issue amongst policy makers in particular. The conference was a success, and a tribute to those that organised it – it is a first, very positive step towards grappling meaningfully with a policy agenda that challenges developed and developing countries alike. Ghanaian policy makers and the wider community would do well to take heed of the recent conference, and plan their responses with the utmost urgency."

[royalsociety.org/capacitybuilding](http://royalsociety.org/capacitybuilding)

## CAPACITY BUILDING: THE ROYAL SOCIETY IN AFRICA

**The Royal Society Pfizer African Academies Programme** is a new partnership with the Network of African Science Academies and Pfizer that aims to build capacity in four national scientific academies: Ghana, Zambia, Tanzania and Ethiopia.

**The Leverhulme – Royal Society Africa Awards** provide funding for UK-Ghana or UK-Tanzania research collaborations, to strengthen the research and training capacity of the African institution.

**The Royal Society Pfizer Award** is a prestigious international award that recognises a research scientist making an innovative contribution to the biological sciences, including basic medical science, which contributes significantly to capacity building in Africa.

## PRIZING INNOVATION

### ROYAL SOCIETY 'LABS TO RICHES' EVENT SHOWS SUPPORT FOR CREATIVE ADVANCES IN UK SCIENCE AND TECHNOLOGY

**Royal Society Fellows have an outstanding track record in innovation. Notable achievements include the invention of genetic fingerprinting by Sir Alec Jeffreys and the pioneering role played by Sir Tim Berners-Lee in the invention of the World-Wide Web. We are committed to stimulating innovative and creative science and encouraging knowledge exchange between the UK's science, engineering and industrial bases.**



We recognise how important it is that the UK develops and retains its position as a leader in science and technology. This will help ensure we are able to meet the challenge of increasing global competition for the most talented individuals. We directly support collaboration between academia and industry through our Industry Fellowship scheme and provide a range of training in innovation and entrepreneurship for our researchers.

In addition to our Fellowship schemes, the Society supports a portfolio of innovation awards which are presented every year at our 'Labs to Riches' event. The Brian Mercer Awards were established in 2001 by a generous bequest from the late Brian Mercer OBE FRS, and marked the Society's first steps towards supporting and encouraging innovation in science and technology. They are presented in the areas of the built environment, clean technology and energy, and nanoscience.

**Professor Balasubramanian, winner of the Royal Society Mullard Award, co-invented a new approach to DNA sequencing**

This year's 'Labs to Riches' event took place on 14 May and the awards were presented by Lord Drayson, Minister of State for Science and Innovation. Professor Kirill Horoshenkov from the University of Bradford and Dr Andrew Nelson from the University of Leeds were presented with Brian Mercer Awards for Innovation, and will receive funding of up to £250,000 to investigate the possibility of commercialising their research.

This year, nine Brian Mercer Feasibility Awards were presented. Award winners include Dr Cornelius de Groot from the University of Southampton, who is working to harvest naturally-produced hydrogen gas from the sea-floor in order to create a sustainable environmentally-friendly energy source, and Professor Christos Vassilicos from Imperial College London, who hopes to create

efficient and low-energy fractal ventilation technology for buildings. We are grateful to the Engineering and Physical Sciences Research Council (EPSRC) for supporting six awards this year and to the ERA Foundation for funding an award in electrotechnology.

The Royal Society Mullard Award is presented every two years and recognises the contribution of a scientist to the UK economy. This year's winner, Professor Balasubramanian from the University of Cambridge, co-invented a new approach to DNA sequencing and his technology is now making a profound impact on both UK and world-wide medical research and development. Vital to this is the speed of the new technology: a single instrument can sequence a human genome within a month at the cost of a few thousand dollars. It took several years and three hundred million dollars to sequence the first human genome.



**Professor Kirill Horoshenkov, winner of a Royal Society Brian Mercer Award for Innovation**

Professor Horoshenkov's project focuses on sewer monitoring, and he hopes to use his award to develop an airborne acoustic sensor that can rapidly and objectively measure in-pipe condition and identify blockages and damage. This technology should offer up to a 100-fold improvement in the productivity of sewer inspection.

Dr Nelson has created a novel toxicity sensor which can be used to detect biomembrane-active nanoparticles in water. There are many potential applications of this device, particularly in the water industry which currently has no way to continuously monitor for nanoparticles and other potentially toxic substances.

## WINNERS OF THE ROYAL SOCIETY INNOVATION AWARDS

### Brian Mercer Award for Innovation

Professor Kirill Horoshenkov,  
University of Bradford

Dr Andrew Nelson,  
University of Leeds

### Brian Mercer Feasibility Awards

Professor Gabriel Aeppli,  
University College London

Professor Jonathan Binner,  
Loughborough University

Dr Cornelis de Groot,  
University of Southampton,

Professor Mohan Edirisinghe,  
University College London

Dr Manus Hayne,  
Lancaster University

Professor David Johnson,  
Bangor University

Professor Russell Morris,  
University of St Andrews

Professor Christos Vassilicos,  
Imperial College London

Dr Qi Zhang, Cranfield University

### Royal Society Mullard Award

Professor Shankar Balasubramanian,  
University of Cambridge

Lord Drayson, Minister of State for Science and Innovation, said: "It is great to see the Royal Society giving such a high profile to applied research. Both the projects will prove crucial to guaranteeing and improving environmental health."

# ADVANCING SCIENCE THROUGH TALK



## THE KAVLI ROYAL SOCIETY INTERNATIONAL CENTRE: A NEW HOME OF SCIENCE

**The Kavli Royal Society International Centre at Chicheley Hall will be a new 'home of science' where scientists, technologists and engineers from the UK and all over the world will be able to meet to discuss and develop their work.**

A new venture for the Royal Society, the Centre represents a long-term joint investment in UK science by the Society and the Kavli Foundation. Significant support from the Kavli Foundation and others has assisted the purchase and development of a Grade 1 listed Georgian Country House, the stately Chicheley Hall in North Buckinghamshire. The building will be refurbished to create a new residential facility, able to accommodate up to 100 participants, to promote scientific research.

The Kavli Royal Society International Centre will enable the extension of the wide range of scientific meetings and events already hosted by the Society in London. It will bring together the world's greatest scientific minds to create the sort of intense thinking and activity that has given rise to scientific discoveries in the past. For the Fellows and Research Fellows of the Society, the Centre offers an opportunity for them to hold

### The Kavli Royal Society International Centre

meetings without distractions and in an informal setting.

Events will start to take place over the summer of 2010 and the Society has an official launch planned for September 2009.

Martin Rees, President of the Royal Society, said the facility would become a world-renowned centre for British science. "Science is at the heart of some of the biggest global challenges that are facing us – disease, food shortages, water shortages, climate change. We will only rise to meet these challenges by getting together the best minds," he said. "We want to bring together leading scientific minds in a residential atmosphere to create the sort of intense thinking and activity that has given rise to major scientific breakthroughs."

The Kavli Royal Society International Centre is part of the Royal Society's 350th anniversary celebrations and symbolises the renewed confidence of British science over the past decade. Find out more at: [royalsociety.org/kavli](http://royalsociety.org/kavli)

# NEW FRONTIERS IN SCIENCE DIPLOMACY



## RECOGNISING THE CONTRIBUTION OF SCIENCE TO INTERNATIONAL RELATIONS

**The role of science in foreign policy is changing. Many of the global challenges that we now face, from tackling climate change, to feeding a rapidly growing world population, to fighting poverty and infectious disease, have an intrinsic scientific component.**

The international networks of cooperation that have long underpinned science are ideally placed to gather scientific evidence and broker solutions to these problems, in ways that go beyond the traditional boundaries of national politics.

Science is also a major driver of the 21st century's most successful economies. Even where political relationships are strained, countries still welcome collaboration on science and technology. Speaking recently at the Royal Society, Harold Varmus ForMemRS, Co-Chair of the US President's Council of Advisers on Science and Technology, stressed the role of scientific cooperation in strengthening countries' diplomatic relations. A growing number of policymakers are recognising the value of science as a source of what the foreign policy analyst Joseph Nye terms 'soft power'. In March, the UK Prime Minister, Gordon Brown, called for a 'new role for science in international policy making and diplomacy' and announced that

Sir Humphrey Davy FRS, a former President, went on regular science missions to France during the Napoleonic wars.  
Image ©Royal Society

the Foreign and Commonwealth Office would be appointing its first ever Chief Scientific Adviser.

The Royal Society itself has a long history of involvement in science diplomacy. In the early nineteenth century, Sir Humphrey Davy FRS, a former President, went on regular science missions to France during the Napoleonic wars. In the mid 1940s, under the Royal Society's direction, Professor Joseph Needham FRS was the Director of the Sino-British Science Co-operation Office in China, which was set up to encourage industrial and scientific activities in China during the Second World War. More recently, diplomacy has been a central strand of the Royal Society's work on security issues like nuclear proliferation, and environmental issues like climate change. It also underpins much of our international networking, particularly where this is directed towards scientific capacity-building in less developed parts of the world.

The Royal Society's new Science Policy Centre is now developing a stream of work to explore the changing role of science in 21st Century diplomacy. To help inform this work, the Society, in partnership with the American Association for the Advancement of Science (AAAS), held a discussion meeting in June on 'new frontiers in science diplomacy'.

By bringing together experts from the scientific and foreign policy communities, the meeting explored a range of international perspectives on the meaning and methods of science diplomacy, identifying barriers and how they can be overcome. Case studies

included the opportunities for positive engagement with the Islamic world through science and technology partnerships, and the contribution of scientific partnerships to developing frameworks for the governance of international spaces, such as the Arctic.

Find out more about the full range of the Society's policy work: [royalsociety.org/policy](http://royalsociety.org/policy)



**The Royal Society has, throughout its history, actively supported the conduct and application of creative and innovative science. A long time funder of world-class research, the Society received its first government grant in 1850 to “assist scientists in their research and to buy equipment.”**

Today, the Society remains committed to supporting and recognising innovative science through a range of funding schemes, awards, and policy initiatives. The underpinning rationale for this innovation policy work has been to demonstrate, and where appropriate, to enhance the contribution of science to the UK’s capacity for innovation.

public services, most notably through the advent of the internet and World Wide Web.

However, the full extent of STEM’s current contribution is under-appreciated by the service sector, policymakers and the academic research community. This ‘blind spot’ threatens to hinder the development of effective innovation policies.

In response, Royal Society recommendations include building common research agendas and communities, the exploration and



## ADDING UK VALUE

### HOW CAN WE MAINTAIN OUR SCIENTIFIC AND RESEARCH STRENGTHS IN THE FACE OF FIERCE GLOBAL COMPETITION?

As part of this mission, the Royal Society will launch a major report into the contribution of science, technology, engineering and maths (STEM) to innovation in the services sector in summer 2009. The services sector now accounts for over 70% of the UK economy and include some of the most innovative and highest performing sectors of recent years – business support services, retail, financial services and the creative industries among them.

But the Society has concluded that the UK lacks a structured policy approach to the promotion of innovation in its services. The report says that the absence of a coherent policy for services innovation threatens to undermine the ability of firms based in the UK to maintain leading positions in increasingly competitive and globalised service industries.

The evidence shows that STEM has an extensive and widely diffused impact on service innovation processes and that scientific and technological developments (many of which originated in ‘blue skies’ research) have precipitated major transformations in services industries and

development of STEM skills in service sectors and examination of the role STEM might play in banking and the financial services of the future. The main message of the study is that the contribution of STEM to service innovation is not merely an historic legacy – STEM will help to define future generations of services.

Building on this project, the Royal Society has recently launched a study which aims to explore the different forms of value created by science, engineering and medicine for the UK economy and society and the role that science will play in equipping Britain to meet the economic, social and environmental challenges of forthcoming decades.

*The Fruits of Curiosity: science, innovation and future sources of wealth* study, chaired by Sir Martin Taylor FRS, will identify areas of science and research where Britain already has, or could soon occupy, a position of global leadership.

*Fruits of Curiosity* will look at how our scientific and research strengths can be maintained in the context of increasingly



***Fruits of Curiosity* will lay the foundations for a new approach to science**

fierce global competition. It will also recommend how more of our world-class ideas can be translated into new products, services and economic opportunities. Importantly, the study will look beyond government’s current 10-Year Investment Framework for science and innovation to assess and then determine the long-term direction of UK research policy and investment. *The Fruits of Curiosity* project will have several smaller outputs such as seminars and workshops, ultimately culminating in the final report to be launched at an event coinciding with the general election in 2010.



## INSPIRED BY ASSOCIATION

THE ROYAL SOCIETY ASSOCIATE SCHOOLS SCHEME FORGES LINKS WITH SCHOOLS ACROSS LONDON

**“We had no idea you did all this stuff! I want to spend a week here just finding out the rest of what you do.”** The words of one Secondary science teacher from Brent echoed the sentiments of teachers from across London – invited to the Royal Society to find out about the new Associate Schools scheme.

In its pilot phase, the scheme aims to create strong links between the Royal Society and one Primary and one Secondary school in each London borough. Based around existing Society projects, Associate Schools will be given assistance in applying for Partnership Grants, our flagship educational scheme, and priority registration for the Summer Science Exhibition. At the launch the first three signed up schools were welcomed into the scheme and they will work with the Society until September 2010.

Why London, and why now? Charlotte Thorley, Education Outreach Manager\* explains: “There is a problem reaching London schools for any enrichment activity, often because there just aren’t the teachers

available to organise and manage the activities. As part of the 350th Anniversary, the Royal Society has set up a whole host of new activities, many in the London area. Rather than see the same two or three keen schools take part in everything, the Associate Schools programme will help schools that don’t normally take a leading role in science, technology, engineering and mathematics (STEM) activity.”

The scheme will also help teachers work creatively across the curriculum, as Charlotte explains: “Associate School status will lend the name of the Royal Society to the school, and could help with recruitment

and retention of teachers. By opening up cross curricular activities, and providing access to cutting-edge science, any teacher participating should feel special, and inspired.”

30 schools have already signed up to the scheme, and the letters keep coming in, all contributing to the target of 64 schools participating by November 2010.

*\*Please note Charlotte Thorley has left the Royal Society. For more information please contact Marie-Claude Dupuis at [associateschools@royalsociety.org](mailto:associateschools@royalsociety.org)*

## SUMMING UP THE FUTURE

**New momentum in maths teaching is called for at the ACME Conference**

Over 150 policy makers, classroom teachers and college lecturers gathered to hear about national policies and discuss future ideas at this year’s conference of the Advisory Committee on Mathematics Education (ACME), held in March.

The theme was ‘The Future of Mathematics in Schools and Colleges – a policy perspective’ and Dame Julia Higgins FRS, the ACME Chair, outlined the importance of mathematics as a vital underpinning STEM subject. She urged the newly announced

Conservative Maths Task Force to return to the ground-breaking Smith Report on post-14 mathematics, which in 2004 outlined a series of recommendations to Government including the introduction of two new Maths GCSEs. ACME is working with the regulator and awarding bodies to develop these as soon as possible.

ACME operates under the auspices of the Royal Society to help raise the level of mathematical knowledge and skills in England.

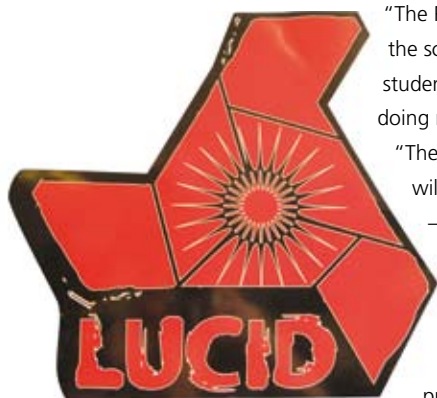
Find out more at: [acme-uk.org](http://acme-uk.org)

# OUT OF THIS WORLD

## SUPPORTING A SCHOOL SCIENCE PROGRAMME THAT'S ABOUT TO LAUNCH INTO SPACE

**Becky Parker, Head of Physics at the Simon Langton Grammar School for Boys in Canterbury, wants all teachers keen to see an increase in students taking up science, technology, engineering and mathematics (STEM) subjects to come and talk to her at this year's Summer Science Exhibition at the Royal Society.**

An impressive 150 students are studying A-Level physics at the Langton. Becky says: "There is a focus on science across the school and there's been a huge increase in the uptake of physics, chemistry and biology at A-Level." The Langton school was awarded a Royal Society Partnership Grant in 2007. Since then her students have been working with Professor Steven Rose, Head of the Plasma Physics Group at Imperial College, London.



"The Partnership Grant ethos and the school's own model is to allow students to work alongside scientists doing real science," says Becky.

"There's the possibility that research will reveal emerging science – which is inspirational for students and enables them to get involved in cutting-edge projects." Students are now leading research projects covering diverse topics including measuring cosmic rays in

space, making designer drugs, understanding how proteins change in Multiple Sclerosis and studying what particles come to Earth from distant galaxies.

The array of scientific projects at the Langton helped the students successfully bid to represent the Partnership Grants scheme at this year's Summer Science Exhibition. Around 4500 visitors will have the opportunity to watch demonstrations of their work. "The students are completely excited about coming to the Royal Society," says Becky. "At the Summer Science Exhibition our theme will be *You're never too young to be a research scientist.*"

The impact of that research work has spread beyond the association with Imperial. Students also travel to CERN and this year incorporated technology from CERN's Large Hadron Collider in a device designed to detect cosmic rays – the LUCID (Langton Ultimate Cosmic ray Intensity Detector). The breakthrough detector was an entrant in a competition organised by Surrey Satellite Technology Limited and the

**Spotlight on science: a Langton school student at work. The school has seen a huge increase in the uptake of physics, chemistry and biology at A-Level.**

British National Space Centre – who were so impressed that they will put it into space in 2011. Peter Hatfield, one of the students heavily involved, was recently named UK Young Scientist of the Year at the Big Bang Fair.

Becky explains: "With the LUCID detector in space a whole new dimension opens up for the LUCID school detector, a smaller cosmic ray detector for schools which puts a piece of CERN detector technology into schools. We will be able to look at correlations between cosmic rays detected on Earth and those in space as the orbiting satellite passes over." The school has established the Langton Star Centre as a base for the project, which it's hoped will provide support for teachers interested in carrying out research-based learning.

"[This kind of learning] has the power to encourage students to get into STEM at all levels," she says. "It gives them the opportunity to see how science research works in the real world and the chance to find pathways for themselves – to run with their own ideas. We need to show science as intellectually stimulating, exciting, and offering wide and diverse opportunities and our students certainly respond to this research-based learning approach."

For more information see: [royalsociety.org/partnership](http://royalsociety.org/partnership)

## A WARM WELCOME

Libby Steele joined the Royal Society as Head of Education in April. Libby comes from the Royal Society of Chemistry where she spent nearly 10 years working in the Education Department. Speaking on her arrival in post she said: "I am delighted to join the Royal Society as it prepares for its 350th anniversary in 2010 and I look forward to working with colleagues to develop our portfolio of education work."

# HAVING IT ALL

## A NEW BOOK TACKLES THE MISCONCEPTIONS THAT PREVENT WOMEN DEVELOPING CAREERS IN SCIENCE

**To most people, the thought of a good work–life balance sounds ideal. But to Professor Ottoline Leyser FRS, a plant biologist from the University of York, the concept is seriously flawed.**

“It implies there’s your work on one side of the scale and your life on the other and for me that’s a totally false dichotomy,” she says. “My work is part of my life and my life is part of my work and I think I would be both a worse mother and a worse scientist if I wasn’t both.”

It’s this thinking that lies behind her book, *Mothers in Science: 64 ways to have it all* which profiles successful women with careers in science who also have children. It aims to tackle common misconceptions which hold women back in science and which Professor Leyser believes partly account for the huge underrepresentation of women at the top of the science career ladder. Indeed at undergraduate level, the sexes are well balanced in STEM courses, but the numbers of women dwindle the further up you look. That means something must be putting them off later on.

“There are a lot of negative messages out there, in the media and more widely, about how difficult it is to combine a career in research science with a family life,” says Leyser. “You’re told you can’t possibly

Professor Ottoline Leyser FRS, launched her book *Mothers in Science: 64 ways to have it all* at the Rosalind Franklin Award Celebration. She is pictured (on the left) with three previous winners of the Award (from left to right Professor Susan Gibson, Professor Andrea Brand and Professor Eleanor Maguire)

be a competitive academic scientist if you’ve taken three years out while you’re having children or if you only want to work three days a week. We are told endlessly it isn’t compatible with a career in science and it simply isn’t true.” Her book aims to prove that, and show there is an infinite number of ways to achieve both.

Leyser compiled the book as part of her Rosalind Franklin prize, awarded yearly by the Royal Society to celebrate the achievements of women in science and tackle the issues behind the gender imbalance. The lives of the women in the book have been represented using a timeline, illustrating their career progression and their family lives in an integrated way.

Professor Carol Robinson FRS is a previous winner of the prize, and one of the women featured in the book. One look at her timeline and it’s clear she doesn’t fit the stereotypical mould.

Relatively early on in her career, Robinson took eight years out to have children. “Everybody told me it would be a complete disaster and I’d never get back,” she says, “but I think my passion for what I was doing allowed me to break through that prejudice.” Since returning to science she became a professor at the University of Cambridge, won numerous awards for her work, and was made a Fellow of the Royal Society. “I firmly believe that you do what you have to do and you make it work for you,” she says.

Many of the women featured in the book wish there had been a similar resource available when they were starting out. Now it exists, it should be easier for young women with doubts to look away from the proportion of women in science, which can be off putting, and look instead at absolute numbers. “There are hundreds and hundreds of women who are very successfully navigating these career paths,” says Leyser, “so the idea that it’s difficult or impossible is very easy to negate – by looking at the many examples of women who have done it already.”

Interviews by Cat de Lange, Royal Society Press Officer.  
Find out more at: [royalsociety.org/page.asp?id=1196](http://royalsociety.org/page.asp?id=1196)

## CHARLES DARWIN RETURNS

**The Royal Society’s portrait of Charles Darwin has returned to Carlton House Terrace, having spent the first half of 2009 in Germany.**

The painting was a centrepiece for the exhibition *Darwin: art and the search for origins* at the Schirn Kunsthalle, Frankfurt.

This major international exhibition celebrated the impact of Darwin’s *Origins* ideas on the visual arts from 1859. It received excellent reviews and the loan allowed the Society to re-frame the painting for Darwin Year. The work captures the elderly naturalist in his habitual winter dress of cloak and soft felt hat.

Science has always been at the very heart of the Royal Society and its Fellowship has always been at the forefront of ideas.

Throughout 2010 the Society will work in partnership with organisations to recognise 'Local Heroes', Fellows, as well as those who have an impact on their work, who have made an impact on the community, whether they are pioneers of the industrial age, geniuses that changed the way we see the world, or contemporary scientists finding solutions to today's problems.

Fifty museums, galleries, libraries and archives will programme a creative mixture of talks, exhibitions, trails, interactive activities, art and theatre – all with science and scientists at the centre.

In Bath, the Herschel Museum of Astronomy will run *Constructing the heavens: the Bath astronomers* where the astronomical work of William and Caroline Herschel will be under the spotlight.

The Thackray Medical Museum in Leeds will celebrate the unknown hero of the city, William Astbury, a molecular biologist. The Museum will strive to ensure that through its innovative activities people in Leeds are able to answer the question, "Who is William Astbury?"



# LOCAL HEROES FOR 2010

## ACHIEVEMENTS OF ROYAL SOCIETY FELLOWS AND OTHER SCIENTISTS TO BE EXHIBITED ACROSS THE UK

**Frederick Stratten Russell FRS, celebrated by the Marine Biological Association in Plymouth, was the first to illustrate new types of jellyfish for identification purposes. He discovered the scyphomed chrysaora, a species found off the coast of Spain. ©Fred Stratten Russell**

In Lancashire, the Queen Street Mill Textile Museum in Burnley will recognise John Mercer, Lancashire's curious chemist.

Mercer started work as a bobbin winder in a factory and later invented the mercerisation process – filtering by caustic soda – which is still used in the textile industry.

In Scotland, the Coats Observatory in Paisley will run *A celebration of science: Renfrewshire and the Royal Society*, featuring the contribution of local

Fellows to numerous branches of science, including astronomy, geology, botany, physics, chemistry and ornithology.

The National Museum Wales, which has seven sites across the country, will run a touring exhibition on the biodiversity of their

sites, including contemporary research in Welsh universities.

In Northern Ireland, Belfast's W5 will host a programme of lectures, interactive talks and events involving current Fellows and highlighting the continuity of developments in science and the issues they face.

Find out more about local events at: [seefurther.org/scienceforall](http://seefurther.org/scienceforall)

In addition, seven large cities (Edinburgh, Cardiff, Belfast, Newcastle, Birmingham, Manchester and Bristol) have been identified to form a focal point for each region and country. Events in each will celebrate contemporary science – recognising that scientific discoveries even in the modern world have been built on the ideas of those that have gone before.

An illustration of a jellyfish, from an original drawing by Frederick Stratten Russell FRS

# VISIT US

## PUBLIC EVENTS

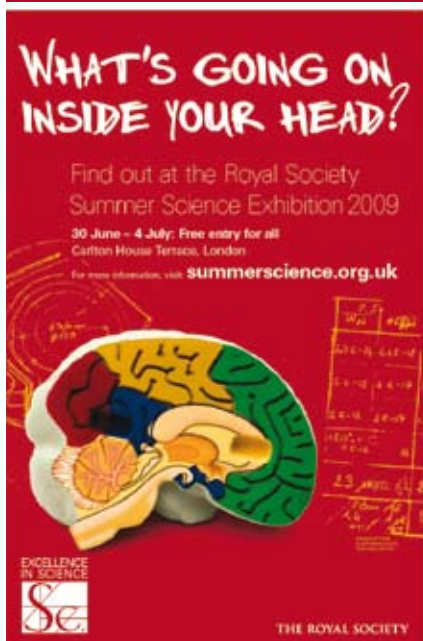
30 June - 4 July 2009

### Summer Science Exhibition

The Royal Society's annual Summer Science Exhibition offers a fantastic opportunity to discover more about cutting edge science in the UK and meet the minds behind it.

Find out more at [summerscience.org.uk](http://summerscience.org.uk)

The exhibition is free to attend and open to all.



## PUBLIC LECTURE

5 October 2009 at 6.30pm

### Fossil, fact and fiction

Chair: Dr Alice Roberts

Discussion by: Tracy Chevalier and

Dr Richard Fortey

## DISCUSSION MEETINGS

All Royal Society Discussion Meetings are free to attend but pre-registration online is essential.

28 and 29 September 2009

### The Spin on Electronics!

Professor Stuart Parkin FRS,  
Professor Gabriel Aeppli and  
Professor Bryan Hickey

19 and 20 October 2009

### The first 4 million years of human evolution

Professor Alan Walker FRS and  
Professor Christopher Stringer FRS

## NOTE FROM THE EDITOR

*Inside Science* is one year old and I am delighted that we have received so much positive feedback from readers since our launch last June.

The magazine aims to give its readers a better understanding of the people behind the work of the Royal Society and illustrate the huge breadth of projects and activities that the Society is engaged in.

We are already working on our next issue which will bring news of events planned for our 350th anniversary in 2010.

**Best wishes, Charlotte**

*Editor: Charlotte Marling*

*Sub-editor: Jason Codrington*

All events take place at the Royal Society, 6-9 Carlton House Terrace, London SW1Y 5AG

For more information and to register for Discussion Meetings:

Web: [royalsociety.org/events](http://royalsociety.org/events)

Email: [events@royalsociety.org](mailto:events@royalsociety.org)

Tel: 020 7451 2683

## REWARDING EXCELLENCE

### NEW FELLOWS 2009

Forty-four scientists have been recognised for their exceptional contributions to society, with their election to the Fellowship of the Royal Society. As Fellows of the UK's national academy of science, these leaders in the fields of science, engineering and medicine join the likes of Isaac Newton, Charles Darwin and Stephen Hawking. Martin Rees, President of the Royal Society, said: "Our new Fellows are at the cutting edge of science worldwide. Their achievements represent the vast contribution science makes to society. They join an outstanding group of over 1400 Fellows and

Foreign Members of the Royal Society, and all rank among the international leaders in their field."

The full list of new Fellows and Foreign Members is available at [royalsociety.org/newfellows](http://royalsociety.org/newfellows)

### OTHER AWARDS

#### Sir Richard Friend FRS

Sir Richard, University of Cambridge, has been awarded the King Faisal International Prize 2009 for Science (Physics).

#### Professor Laurence D Hurst FRS

Professor Hurst, Royal Society Wolfson Research Merit Award Holder, University

of Bath, has been awarded the 2010 Genetics Society Medal, by the Genetics Society of the UK.

#### Professor Ole H Petersen CBE FRS

Professor Petersen, University of Liverpool, has been recognised in a Special Issue of the *Acta Physiologica* (the official journal of the Federation of European Physiological Societies and the Scandinavian Physiological Society). The Issue, published in January 2009, contains the full versions of 17 papers delivered by leading international authorities at an International Symposium held at the Royal Danish Academy of Sciences and Letters in Copenhagen, Denmark on the occasion of Professor Petersen's 65th birthday.

*Inside Science* is the corporate magazine of the Royal Society and we welcome ideas for articles from our readers. Please contact us at [insidescience@royalsociety.org](mailto:insidescience@royalsociety.org). All ideas will be considered by the Editor.

Cover image taken from an original illustration of Frederick Stratten Russell FRS

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