

# Seeing further: 2010 and beyond

Review of the Year 2008/09

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EXCELLENCE  
IN SCIENCE



THE ROYAL SOCIETY

# President's foreword



**This year, while continuing to develop the variety and scope of work across our strategic goals, we have been focusing our efforts on building strong foundations for our 350th anniversary celebrations in 2010.**

The Society's fundraising effort continues apace with our 350th Anniversary Campaign to raise £100 million by 2010 to strengthen all aspects of our work. We have built significantly on the success of the last year, receiving over £18 million in donations to bring the campaign total to nearly £95 million.

In particular, an exceptional gift from The Kavli Foundation has enabled the Society to complete the purchase of Chicheley Hall and start work on the new Kavli Royal Society International Centre. I was honoured to host the inaugural Presidents' Circle dinner in February to acknowledge and thank our leading benefactors who have made such a significant contribution to the campaign.

Despite the changing economic climate, I believe that the generous support of the Fellowship and Friends of the Society along with the outstanding support and guidance from the 350th Anniversary Campaign Board, led by Lord Sainsbury, will enable us to reach our campaign goal of £100 million. Over 30% of the Fellowship have made personal gifts or pledges, contributing £10.5 million to all areas of the Campaign. As always we are extremely grateful for this generosity, which has undoubtedly encouraged many others to contribute to the Society.

Our Parliamentary Grant-in-Aid is another important source of income, allowing us to support active researchers. Our private funds, generously provided by many donors and supplemented by our own activities, enable us to add to the wide range of initiatives we undertake each year.

Officers of the Royal Society and the National Academy of Sciences in the United States gathered for a joint meeting in Cambridge in June. The meeting was an opportunity to share information on matters of global importance including the state of science in the USA and UK, energy and climate change, nuclear security, synthetic biology, communicating science to the public and international work such as both academies capacity building efforts in Africa. Fruitful discussions took place around these areas, which both sides found very stimulating and will lead to possible joint activities. I was delighted to sign, alongside Ralph Cicerone, President of the NAS, the Raymond and Beverly Sackler USA-UK Forum agreement, which underpins the importance of these biennial meetings.

We have ambitious aspirations for the forthcoming year. We hope that the anniversary will kindle a spirit of enquiry, excitement and engagement with science among the public and reposition science firmly as a cultural activity. We are committed to doing all we can to promote and sustain scientific excellence – for its own sake, and because it is crucial for everyone's future welfare.

**Martin Rees**

# Executive Secretary's report



**One of the highlights in a very successful year for the Society has been the launch of an entirely new venture, unusual for an organisation which celebrates its 350th anniversary in 2010. We completed the purchase of Chicheley Hall, a grade I listed house in Buckinghamshire, to create a residential centre for the advancement of science. In recognition of a major donation from philanthropist Fred Kavli, the centre will be known as The Kavli Royal Society International Centre.**

The Royal Society Enterprise Fund was launched in February 2008 to provide financial support to start-up businesses emerging from the science base. Philanthropic fundraising for the Fund has reached a total of £6.5 million in gifts and pledges towards a £20 million initial target.

Publishing continued to perform well in its principal objectives to publish high quality science and provide a first class service to authors and readers. Royal Society journals continue to perform well in the impact factors and publishing achieved a particularly impressive growth of 15% overall since 2007.

The Society is fast approaching the start of its 350th anniversary celebrations. A year-long series of events, exhibitions, and publications to increase both the public's involvement in and the profile of science will begin on 30 November 2009, known in the Society as Anniversary Day. Activities will include a scientific programme based around discussion meetings on cutting-edge science, a series of special publications including anniversary editions of learned journals and a book exploring aspects of the Society's history, as well as a range of programmes delivered with regional museums and a ten-day summer of science at the Southbank Centre.

In the run up to the anniversary, we are establishing a Science Policy Centre to build on the Society's strong international networks and its track record of independent scientific advice to governments. This year policy work has touched on topics as diverse as synthetic biology, climate geoengineering and nuclear security. The Society ran a successful 'Africa Week' in November, which launched two new flagship programmes, the Leverhulme-Royal Society Africa Awards and the Royal Society Pfizer African Academies Programme.

The anniversary has the power to inspire young minds with the excitement of scientific discovery. In the area of education the Society built on the success of the Partnership Grants scheme which has awarded over £1 million to 545 school projects since launch in 2001. About a quarter of the 4,300 visitors to the Society's popular annual Summer Science Exhibition were students aged 16 and over.

People often forget how central science is to all of our lives. Science is about new solutions to the world's energy and food needs, addressing the threats of climate change and making the world a safer place. Our anniversary will be an opportunity to look forward to what science can do in the 21st century.

**Stephen Cox**

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# Invest in future scientific leaders and in innovation

Through its research fellowships and funding programmes, the Royal Society works in partnership with universities and industry, both within the UK and internationally, to support excellent scientists and invest in the future of UK science.

## UK-based research fellowships

As of 31 March 2009, the Society was supporting the following UK-based research fellowships:

### Research Professorships

These fellowships provide 10-15 years' support for internationally recognised scientists of outstanding achievement and promise. A total of 17 Research Professors are currently supported – no new appointments were made in 2008/9.

### University Research Fellowships

These fellowships provide up to eight years' support to outstanding scientists with the potential to become leaders in their field. 36 University Research Fellows were appointed from 1 October 2008, bringing the total number of scientists supported under this scheme to 308.

### Dorothy Hodgkin Fellowships

These fellowships provide up to four years' support and offer a recognised first step into an independent research career for excellent scientists for whom career flexibility is essential. 17 Dorothy Hodgkin Fellows were appointed from 1 October 2008, bringing the total number of scientists supported under this scheme to 60.

### Industry Fellowships

These fellowships are funded by the Royal Society, the Engineering & Physical Sciences Research Council, the Biotechnology and Biological Sciences Research Council, the Natural Environment Research Council,

Rolls-Royce plc and AstraZeneca. They support knowledge transfer between industry and academia. Nine Industry Fellows were appointed in 2008/09, bringing the total number of scientists supported under this scheme to 43.

### Wolfson Research Merit Awards

These fellowships are jointly funded by the Society and the Wolfson Foundation and offer salary enhancements for up to five years with the aim of attracting or retaining in the UK researchers with great potential or outstanding achievement. 21 awards were made in 2008/09, bringing the total number of scientists supported to 166.

### Leverhulme Trust Senior Research Fellowships

Funded by the Leverhulme Trust, these fellowships seek to provide opportunities for academic researchers to be relieved of all their teaching and administrative duties to concentrate on full-time research for up to one year. Seven Leverhulme Trust Senior Research Fellows were appointed in 2008/09.

### Training for Research Fellows

The Society offers a number of training programmes for its Research Fellows. One of the most popular is the 'Innovation and the Business of Science' course, which was developed by the Society (in partnership with Imperial College Business School). The programme is intended to help young scientists work effectively with industry and to better target their research to relevant markets. The three modules (Science and the Economy, Leadership and Entrepreneurship) are taught by business experts, scientists, entrepreneurs and industry heads with extensive experience of the challenges involved in transforming inventions into products. 78 Research Fellows attended at least one module last year, with 25 completing the entire programme.



### Professor Verity Brown – Industry Fellow

A Royal Society Industry Fellow at the University of St Andrews, working with Schering Plough Corporation, Professor Brown's research focuses on the treatment of psychiatric disorders – particularly the debilitating mental symptoms untreated by drugs currently available. Because developing new drugs can take years, Professor Brown is working with Schering Plough on process innovation to improve the predictive validity of preclinical research, a key step in drug development. Professor Brown explains that the aim of the project is to "develop new tests which will enable more rapid identification and progression of drugs that will improve symptoms of diseases such as schizophrenia. This is especially important since current medications do not alleviate some of the most serious symptoms of the illness."

### Media training

The Society's Communication Skills and Media Training courses trained 109 post-doctoral scientists (many of whom are Royal Society funded researchers) through ten courses to interact and engage non-specialist audiences. An additional two courses (one communication skills and one media training) were arranged for the University of Lancaster at their request.

### Research Grants

The Research Grants scheme provides 'seed corn' funding to enable young scientists to initiate new projects. 146 grants were awarded in 2008/09. Additionally, a new strand of £50,000 Research Grants for second year Research Fellows was successfully launched this year with 20 grants awarded.

### Wolfson Laboratory Refurbishment Scheme

Funded by the Wolfson Foundation, this scheme aims to improve the existing physical infrastructure in UK universities to promote high quality scientific research. Nine new awards were made in 2008/09 for the renovation and modernisation of laboratories on the theme of *Reduction in Carbon Emissions*.

### Discussion meetings

Royal Society discussion meetings are interdisciplinary international conferences on novel and innovative areas of science, engineering and technology. Leaders in the subject come from all over the world to present the latest advances in the area and meetings are attended by up to 300 participants. The meetings are published in *Philosophical Transactions of the Royal Society*. During 2008/09, 2000 participants attended 12 two-day scientific discussion meetings held on a variety of topical science subjects including *Synthetic Biology*, *DNA deamination in immunity*, *Virology and cancer* and *The Evolution of Society*, a joint meeting with the British Academy.

### Publishing cutting-edge scientific research

Royal Society Publishing continued to perform well in its principal objectives to publish high quality science, provide a first class service to authors and readers and deliver a financial surplus to the Society.

Journals continued to do well in the 2007 impact factors. *Biology Letters* continued to increase in only its second year of having an impact factor and is well on the way to 3.00. *Interface* now exceeds 3.00 and *Philosophical Transactions of the Royal Society B* is over 5.00 for the first time. *Proceedings B* is now above 4.00.

We have more than doubled the number of submissions to the research journals since 2003 and author marketing efforts helped us to achieve a particularly impressive growth of 15% overall this year, compared to 2007. *Interface* has performed especially well, with submissions up by 50%. Output of published articles increased by 22% to 1,576.

In 2008, the editorial team has reduced finalisation time by a week, resulting in an average total publication time of just 79 days (or 62 days for the Biological journals). We are considerably faster than all our major competitors (including *Science*, *Nature* and *PNAS*) and this is a very powerful selling point when attracting the best authors.

2008 has seen a continued increase in our revenue lines thanks to over £200k of new business and a strong demand for paid open access. We also managed to arrest the recent growth in our cost base resulting in a considerably above budget surplus of over £1.2 million, or some 34% of turnover for the year.



### Dr Simon Lewis – University Research Fellow

A Royal Society University Research Fellow in the School of Geography at the University of Leeds, Dr Lewis' work explores the impact of environmental changes like climate change on tropical forests through the first comprehensive investigation into forest composition. Currently tropical forests absorb carbon dioxide from the atmosphere (equivalent to about 18% of the world's fossil fuel emissions) but it is feared that rising temperatures may cause them to become future carbon sources. Climate change will also have implications for biodiversity since tropical forests house over half the world's species. Dr Lewis explains: "As temperatures rise and atmospheric carbon dioxide concentrations reach unprecedented levels, the implications could be staggering. My research will help us understand how and when changes in composition and carbon balance of tropical forests happen."

### Awards, medals and prizes

The Society's premier medal, the Copley medal, was awarded to Sir Roger Penrose OM FRS whose work has given original insights into many areas of mathematics and mathematical physics. Professor John Pickett FRS (2008 prize) and Professor John Murray FRS (2009 prize) were awarded the Croonian and Bakerian lectureships respectively. Professor John Barrow FRS was awarded the 2008 Michael Faraday Prize in February 2009. Professor Eleanor Maguire received the Rosalind Franklin award and Dr Chris Smith was awarded the 2008 Royal Society Kohn Award for Excellence in Engaging the Public with Science.

The Royal Society Pfizer Award was given to Dr Enock Matovu from the Department of Veterinary Parasitology and Microbiology at Makerere University in Uganda for his work on drug resistance in trypanosomes that cause sleeping sickness in Africa. The Royal Society hosted the Royal Society and Académie des sciences Microsoft Award ceremony in London, where Professor Nicholas Ayache, based at INRIA (the French National Institute for Research in Computer Science and Control) was presented with the award for his outstanding achievements in the field of Medical Imaging Analysis.

Copley Medal	Sir Roger Penrose OM FRS
Royal Medals	Sir Alan Fersht FRS, Sir Philip Cohen FRS FRSE and Professor Robert Hedges
Davy Medal	Sir Fraser Stoddart FRS
Rumford Medal	Professor Edward Hinds FRS
Leverhulme Medal	Professor Anthony Cheetham FRS
Hughes Medal	Professor Michele Dougherty
Rosalind Franklin Award	Professor Eleanor Maguire
Buchanan Medal	Professor Christopher Marshall FRS
Pfizer Award	Dr Enock Matovu
Kohn Award	Dr Chris Smith
Darwin Medal	Professor Geoffrey Parker FRS
Michael Faraday Prize	Professor John Barrow FRS
Royal Society Académie des sciences Microsoft Award	Professor Nicholas Ayache



### Dr Deirdre Black – Dorothy Hodgkin Fellow

A Dorothy Hodgkin Fellow in the High Energy Physics Group at the University of Cambridge, Dr Black's research focuses on tiny subatomic particles called scalar and pseudoscalar mesons which, like protons and neutrons, have very strong interactions. By understanding the scalar mesons, Dr Black hopes to gain an insight into the interactions of the particles which make up protons and neutrons. She explains: "This research will give us an understanding of what our universe is made of on the tiniest scales. Furthermore, the complex machines and computer programmes required to probe the subatomic world will lead to technological advances which benefit many people: the World Wide Web was born out of high energy physics research, for example." Despite her hectic schedule, Dr Black recently found time to take part in the Royal Society's MP-Scientist pairing scheme (see *Influence*).

Dr Semali Perera of the University of Bath, previous winner of a Royal Society Brian Mercer Award for Innovation



### Enterprise Fund

The Royal Society Enterprise Fund was launched in February 2008 to provide financial support to start-up businesses emerging from the science base. Philanthropic fundraising for the Fund has reached a total of over £6 million in donations towards a £20 million initial target during the year, following generous gifts by a number of prominent business leaders.

While fund-raising continues, the Fund opened up for investment activity in October 2008 and has already received over 100 business plans for review. The launch of the Fund has been well-received by the academic community, who welcome additional early-stage business funding where the financial returns are recycled for the benefit of future innovative businesses and where the investment timescales are not limited by the Fund structure.

The review of business plans is supported by the unrivalled network of Fellows, University Research Fellows and other networks of the Royal Society, who are providing expert advice and support. The Fund expects to be able to announce its first investments over the next months.

This initial phase of operation of the Fund has been encouraging, confirming the real need for such business funding and the important role that the Royal Society can play in attracting additional sources of finance to this critical area of economic activity.

Professor Kirill Horoshenkov receives a Royal Society Brian Mercer Award for Innovation from Science and Innovation Minister, Lord Drayson



### Other Awards

The Brian Mercer Awards are funded by the Royal Society to provide initial support for researchers who wish to commercialise an aspect of their research, or investigate the technical and economical feasibility of doing so. Two Innovation Awards of up to £250,000 and six Feasibility Awards in the general areas of the built environment, energy and clean technology, and nanotechnology are supported by the Society. A further feasibility award, supported by the ERA foundation, is given in the field of electro-technology.

# Influence policymaking with the best scientific advice

The Royal Society provides independent advice, based on the best scientific evidence available, to those determining policy. This year the Society has undertaken a variety of policy activities within an ever increasing range of topics. Our work has touched on topics as diverse as synthetic biology, climate geoengineering, nuclear security, and the role of Science, Technology, Engineering and Maths (STEM) in service sector innovation. We have produced major reports, workshops, consultation responses, letters to Government and summaries.

## Climate change

We began the year with a letter to Secretary of State for Business, Enterprise and Regulatory Reform, John Hutton, highlighting the potential risks of building new coal-fired power stations on tackling climate change and the importance of developing and deploying carbon capture and storage technologies as fast as possible. The Society is keen that the UK Government adopts an integrated energy strategy for the future, and in November 2008 held a two-day discussion meeting, entitled *Towards a low carbon energy future*, with an aim to review the current and potential technology options to ensure we can meet future energy needs while tackling climate change. This work forms part of our wider programme of climate change policy activities.

In October 2008, we published both a major report and summary for policy-makers, entitled *Ground-level ozone in the 21st century: future trends, impacts and policy implications*. The report provides a review of why control efforts in many parts of the world have failed to reduce ozone and its impacts. Using state of the art scenario and modelling analysis, it evaluates how important ozone is likely to be for human health, climate and the environment by the end of the 21st century. The Society raised this issue to the Convention on Biological Diversity (CBD) by responding to a call for parties to nominate new and emerging issues for consideration under the Convention.

Exploring the burgeoning field of climate geoengineering, the Society launched a study to provide the most authoritative global assessment to date of the feasibility, efficacy and potential unintended consequences of geoengineering schemes. The report, which is expected to be published in September 2009, will form the centrepiece of our climate change activities in the run-up to the United Nations

Framework Convention on Climate Change (UNFCCC) talks in Copenhagen in December 2009.

Building on the Society's 2007 report, *Strategy Options for the UK's Separated Plutonium*, evidence was submitted to the Nuclear Decommissioning Authority's (NDA's) consultation on management options for the UK's separated plutonium. The submission urges the Government to develop and implement a suitable strategy as an integral part of its energy and radioactive waste policies. The Society also wrote to Secretary of State for Energy and Climate Change, Ed Miliband, to highlight its concerns.

## Biosciences

A study into biological approaches to enhance food-crop production provides a balanced assessment of the challenges of food security over the next 30 years and the contribution that next-generation biological approaches could make to food production. As part of the evidence gathering process for this study the Society held a two-day multilateral workshop on food-crop production at the National Institute for Plant Genome Research, Delhi. This event brought together sixty scientists from the UK, India, Brazil, South Africa and Mozambique to discuss the current and predicted challenges to world food-crop production, scientific possibilities for enhancing production and barriers to the application of science and technology. A summary report of the meeting is available; it is expected that the main report from this study will be published in November 2009.

An increase in scientific and public policy interest in synthetic biology has led the Society to take an active role in this field during the year. The Society's synthetic biology policy coordination group met several times to discuss some of the issues surrounding this area, such as the low level of awareness of activities in the UK. To help address this the Society set up a synthetic biology online resource to summarise recent synthetic biology activities undertaken by a range of organisations in the UK and internationally. The Society also held a two-day synthetic biology discussion meeting to showcase some of the most exciting research in the field. Participants discussed technical advances, applications including novel ways to produce bioenergy, materials and drugs; and the social contexts of this research. A summary report of the meeting details the technical work presented and the issues raised during the discussion.

### The role of STEM in service sector innovation

A study into the role that Science, Technology, Engineering and Maths (STEM) play in service sector innovation was launched in June 2008. Services account for approximately 70% of the UK economy but the UK lacks a structured policy approach to the promotion of innovation in services, partly as a result of a poor understanding of innovation processes in these sectors. The Society issued a call for evidence to both academics and firms, requesting evidence of how and when STEM has contributed to service sector innovation; over 60 submissions were received in total. The report of the study explores the role of STEM in the development of a number of cross-cutting innovation capabilities and produce policy recommendations on ways to enhance the contribution of STEM to services sector innovation.

### Public Affairs

During the last year, the Society has formalised the work it does to engage with Parliament and Government, and created a Public Affairs portfolio. It encompasses a number of activities which were already happening, such as the MP-Scientist pairing scheme and the annual dinner for Chief Scientific Advisers, and adds to them an overarching view of Parliamentary engagement, including liaising with Select Committees on relevant inquiries, and strong links with Ministers', Chief Scientific Advisers' and senior civil servants' offices. The portfolio also provides a single point of contact for those within Government, Parliament, and elsewhere as well as overseeing our relationships with these important audience groups.

The Society believes that those making decisions about science related policy should always have access to the latest scientific evidence. To help foster links between the laboratory and Westminster the Society established a MP-Scientist pairing scheme in 2001. This year 13 pairs took part in the scheme. The scheme comprised of a 'week' in Westminster as well as reciprocal visits to the Scientist's research centre and MP's constituency. It is hoped that the pairs will maintain useful links and establish mutually beneficial working relationships.

As part of the Society's aspirations to become an influential and dynamic hub for science policy we have held several events this year. A new monthly series of 'Policy Lab' meetings was launched in February 2009. These meetings will bring together scientists, policymakers and opinion formers to hear from leading thinkers and debate the emerging questions in science policy. We held several other events during the year including *Restoring science to its rightful place: Harold Varmus in conversation on science, politics and society* with John Beddington CMG FRS and Sir Mark Walport. The event was chaired by Susan Watts, Science Editor for BBC *Newsnight*.



### G8 Statements

Statements from the national science academies of the G8 nations and Brazil, China, India, Mexico and South Africa during the year focused on global health and climate change adaptation and the transition to a low carbon society. The statements were aimed at world leaders, particularly those that met at the G8 Summit in Toyako, Hokkaido, in July 2008.

On global health the statements call for increased international collaboration, capacity building and technology transfer to achieve results as well as a commitment to continued global monitoring, communication and sharing of information on all health-related issues.

On climate change the statements urge leaders to make maximum efforts to commit to halving global greenhouse gas emissions by 2050. They call for an agreement, by 2009, on a timetable, funding and a coordinated plan for the construction of a significant number of Carbon Capture and Storage demonstration plants. They urge governments to support research on greenhouse gas reduction technologies and climate change impacts.

# Invigorate science and mathematics education

**This year the Society developed the partnerships of SCORE and ACME and built on the success of the Partnership Grants scheme as its flagship Education outreach activity.**

## Education Research Fellowships

As a result of generous support received from The Ogden Trust and the Shuttleworth Foundation, in January 2009 the Society launched a new Education Research Fellowship scheme. The Ogden Trust will support a Fellowship in the area of physics education research, while the Shuttleworth Foundation will support a Fellowship in the field of science, technology, engineering and mathematics education. The call for proposals closed in March 2009 and a review process followed. These will initially be available for two talented postdoctoral researchers to develop their STEM (Science, Technology, Engineering and Mathematics) education research skills from autumn 2009 for a period of five years. It is hoped that the scheme will be expanded with additional support from other funders, including the Economic and Social Research Council, with whom the Society has been in continuous discussion since a new programme was first proposed in 2007.

## Education research and policy

In June 2008, the Society published the report of a seminar exploring the relationship between socioeconomic status and participation and attainment in school science education, supported by Sir Ewen Fergusson and the Gatsby Charitable Foundation.

In September 2008, the Society published the second in a seminal series of *'state of the nation'* reports assessing the health of UK science and mathematics education. This report provided a compendium of national data and research evidence pertaining to trends in participation and attainment in 14-19 science

and mathematics education since 1996. It showed that the raft of educational reform over this period, particularly in England, has failed to increase post-16 participation rates as Government desires and industry demands, and that less than 10% of all 17 year olds in England take A-levels in core science subjects or mathematics. The report has been widely distributed in the UK and internationally.

## Working with schools, teachers and young people

The Partnership Grants scheme remains strong as the flagship Education activity for the Society, having awarded over £1 million to 545 projects since it launched in 2001. Over the last year £106,085 was awarded to 30 Primary School and 27 Secondary School projects across the UK. Additional funding from the Mercers' Charitable Foundation will see Partnership Grants expand further over the next year, increasing the numbers of grants awarded.

London has been highlighted through evaluation of the Partnership Grants scheme as an area that has difficulty engaging with this scheme and other engagement and enrichment activities. To address this the Society has produced a special edition London case-studies booklet for Partnership Grants and developed the Associate Schools scheme, which to date has recruited 32 schools (18 secondary and 14 primary) from across the city. Associate Schools are being offered assistance with their applications to Partnership Grants, as well as priority booking for the Summer Science Exhibition and more. They are targeted as schools that show excellence but have not been recognised for their achievements in teaching science.



**The Summer Science Exhibition 2008 saw over 1,000 schools visitors interact with the scientists and their work. Over 50% of the attending students were female, and 62% were more positive towards a career in science as a result of their visit. The schools exhibit at the exhibition was Childwall Sports College showcasing their Partnership Grants project *Nutrients in the Irish Sea*. Their project was the result of a long standing partnership with the nearby Proudman Oceanographic Laboratory, and for which they later received the Liverpool John Moore's Good Citizenship award.**

In partnership with the Royal Society and the Association for Science Education, Derek Bell gave his Professorial Inaugural Lecture for the College of Teachers. The lecture, *Engaging teachers, engaging pupils, engaging science: are we learning our lessons?* was hosted by the Society for a mixed audience of teachers and educationalists at the end of the Summer Term. The annual Association for Science Education conference also saw a new collaboration for the Society, where the first *Talking Education* stand was delivered in conjunction with the Nuffield Foundation, National Science Learning Centres and the Wellcome Trust.

#### **ACME (Advisory Committee on Mathematics Education)**

The Advisory Committee on Mathematics Education (ACME), operating under the auspices of the Royal Society, has maintained its profile as the leading advisory body on 5-19 mathematics education in England.

*The Future of Mathematics in Schools and Colleges* was the theme of ACME's annual conference in March 2009 at which Baroness Delyth Morgan, Parliamentary Under Secretary of State for Children, Young People and Families was the keynote speaker. ACME produced a number of statements, reports and submissions throughout this period and provided advice to the Department for Children, School and Families (DCSF) and Department for Innovation, Universities and Skills (DIUS) and their agencies on key STEM education issues as they arose and based on the Committee's long-term thinking.

Professor Adrian Smith FRS resigned from the ACME Chair when he became Director General of Science and Research at DIUS in September 2008. He was succeeded by Professor Dame Julia Higgins FRS. ACME recruited a new Head of Secretariat, Dr Nick Bowes, who started in July 2008.

#### **SCORE (Science Community Partnership Supporting STEM Education)**

As a member of the Science Community Representing Education (SCORE) partnership, the Royal Society has been playing a major role in supporting the Government's STEM programme. SCORE has been leading on work to coordinate and increase access to activities which enrich and enhance the science curriculum, as well as developing a strategy to strengthen practical work in science education.

SCORE commissioned a report reviewing practical work in science during 5-19 education. This discussed what is meant by practical work in science, what factors facilitate good quality practical work and what militates against it. SCORE, in collaboration with the Science Council, has commissioned a report into progression routes into Higher Education. Following the introduction of new GCSE science specifications in 2006 and the current review of GCSE science examinations, SCORE has commenced a study of the 2008 science examinations.

The future of ACME and SCORE until April 2011 has been secured through the promise of funding from the Gatsby Charitable Foundation and the Department for Children, Schools and Families.



During December the first Royal Society International Expedition Prize trip took place and winners James Stefaniak and Elizabeth Muller travelled to New Zealand to explore science in the North Island, including the volcanic central plateau, the Tongiriro Crossing, the Leigh Marine Institute and the Liggins Institute for Medical Research. Jamie and Lily met staff from the Ministry of Science and Crown Research Institute GNS Science and worked alongside staff at the Royal Society of New Zealand. The second and final prize was awarded at the Big Bang: UK Young Scientists and Engineers Fair in March 2009 to Sam Bedford and Hannah Stuart who will be joining a Royal Society trip to the South East Asia Rainforest Research Project in the Danum Rainforest, Malaysian Borneo in 2010.

# Increase access to the best science internationally

The Society held a Frontiers of Science meeting in Japan in October 2008



**The aims of the Society's international policy work are to encourage global cooperation on science policy, bring an international voice of science to the global policy debate, promote individual and institutional scientific capacity building in developing countries to help their scientific communities engage in policy discussions, and facilitate collaboration with partners from outside the UK.**

## **Working multilaterally**

The Society continued to work closely with European partner academies, playing a leading role in and hosting the secretariat for, the European Academies Science Advisory Council (EASAC). During the year, EASAC released reports on *Combating the threat of zoonotic infections and Drug-resistant tuberculosis: challenges, consequences and strategies for control*, building on past work tackling infectious disease. EASAC also produced a report on *Ecosystems services and biodiversity in Europe*. Other project work continued across a range of policy areas, including bulk electrical energy transmission, groundwater sustainability, health-affected infections and synthetic biology. EASAC has also been active in efforts to analyse the implications of proposed revisions to the Animals in Research Directive. Discussions have been ongoing with the Joint Research Centre on working in nanotechnology and toxicology and EASAC is exploring a range of partnership opportunities to continue to raise its profile in Europe. The Society was

also represented at the TWAS (Academy of Sciences for the Developing World) 25th Anniversary meeting, where the President delivered the anniversary address.

The Society followed up its previous successful work with the G8+5 academies of science by contributing to the release of two joint statements under the Japanese G8 Presidency, on *Global health and Climate change adaptation and the transition to a low carbon society*.

The Society worked constructively with global scientific organisations such as the International Council for Science (ICSU), the Interacademy Panel (IAP) and the Interacademy Council (IAC). The Society's delegation played an active and influential role at the ICSU General Assembly in Mozambique in October 2008. In its position on the Executive Committee of IAP, and as chair of the Programmes and Strategic Planning Committee, the Society used its influence to hone the strategic direction of the organisation, and move it into closer collaboration with others such as the Inter-Africa Committee (IAC). The Society also oversaw a successful second round of competitive project and workshop bids for IAP and started work on the IAP Strategic Plan 2010/2012. Collaborative work included working up a statement on ocean acidification to feed into COP2009 (the International Climate Change Conference in Copenhagen) negotiations and participating in an IAP workshop on sharing best practice among academies.

The Royal Society supports the South East Asia Rainforest Research Project, which has secured additional sponsorship for its continuation after Society funding comes to an end



The Society remains an active member of an EU-funded multilateral network, CO-REACH (Coordination of Research between Europe and China), and is leading the task of commissioning an independent evaluation of the project. The Society is in the process of joining another, SEA-EU-NET, which has been established to expand scientific collaboration between Europe and South East Asia.

The Society continues to fund, for a final phase, the South East Asia Rainforest Research Project (SEARRP) and the programme has secured significant sponsorship for its continuation.

#### **Working bilaterally**

The Society held two Frontiers of Science meetings – in Germany and in Japan – stimulating contacts between the young scientific communities in each country. The programme, unique in the UK funding portfolio, is cross-disciplinary and provides opportunity for researchers to discuss the big questions in their fields from a purely scientific (and not policy-driven) point of view. It is also ‘bottom-up’ – the content of the meeting is driven by researchers themselves.

2008 was the 150th Anniversary of the Treaty of Amity between the UK and Japan and alongside the Frontiers meeting, the Society was delighted to contribute to the celebrations. The Foreign Secretary undertook the Japan Academy Senior scientist exchange, visiting Kyoto, Okayama, and Akita in March, and then returned to Kyoto in October for the Frontiers meeting and the annual STS (Science and Technology

in Society) Forum. In June, the Society published an issue of *Philosophical Transactions B* dedicated to current research in the Biological Sciences in Japan. In September the third joint Royal Society-Science Council of Japan workshop on new and emerging technologies, *Emerging technologies and social innovation*, was held at Carlton House Terrace.

The Royal Society’s links with China and India continue to be of importance and relationships with partners in these countries grow in strength. The Society has been delighted to welcome a number of delegations from the Chinese Academy of Sciences (CAS) throughout the year, and in particular, the President was pleased to meet with Professor Lu Yongxiang, President of CAS, during his visit to Cambridge in January. In April the Society celebrated the 30th anniversary of formal relations with our Chinese partners with the exhibition *China and the Royal Society: a history of mutual respect*. Displaying many treasures from the Society’s archives, which demonstrate the depth of links between Fellows of the Society, the Society secured support and loans for the exhibition from HSBC, the Victoria and Albert Museum, and the Needham Research Institute.

We participated with a Royal Society delegation and reception at the annual American Association for the Advancement of Science (AAAS) meeting in Chicago, jointly with the British Embassy, highlighting UK science to the US scientific community and media representatives from around the world.

### Capacity-building in Africa

The Royal Society ran a successful 'Africa Week' in November 2008 and hosted the Annual Meeting of the African Science Academy Development Initiative (ASADI), a programme run by the US National Academies of Sciences. The week was a celebration of the Society's work in Africa and also a chance to launch two flagship programmes building on existing projects: the Leverhulme-Royal Society Africa Awards (see *International Grants*) and the Royal Society Pfizer African Academies Programme. The Royal Society Pfizer African Academies Programme is a new partnership, with the Network Of African Science Academies and Pfizer (US), aiming to build capacity in four national scientific academies: Ghana, Zambia, Tanzania and Ethiopia. The Programme will extend the broader skills base within scientific academies whilst building vital policy links and understanding between institutions, scientists and policy makers.

Scoping for the Royal Society Pfizer African Academies Programme has begun, with visits to Ghana and Ethiopia this year. The highlight to date was a conference held in Addis Ababa on the establishment of an Ethiopian Academy of Sciences. Well attended, and opened by the Minister for Science and Technology, the Ethiopian science community have invested an impressive amount of thought and effort in driving the creation of an Ethiopian Academy of Science.

The Society also co-funded a conference in Ghana, run in partnership with the British Academy and the Ghana Academy of Arts and Sciences in February 2009. *Africa's Neglected Epidemic: Multidisciplinary Research, Intervention and Policy for Chronic Diseases* raised the profile of the hitherto 'invisible epidemic' of chronic diseases in countries like Ghana and made direct policy recommendations to government.

Jointly with the Parliamentary Office of Science and Technology and the Ugandan National Academy of Sciences, the Society ran a pilot of the MP-Scientist pairing scheme in Uganda, in September 2008.

### UK partnership work

We have continued to work closely with our network of UK partners on international science activities, in particular the Foreign and Commonwealth Office (FCO), Department for International Development (DFID), the Government Office for Science (GO-Science) and the Department for Innovation, Universities & Skills (DIUS), UK Trade and Industry (UKTI), the Research Councils and other academies and learned societies. We have continued as active members of the Chief Scientific Adviser's Global Science and Innovation Forum (GSIF) committee, and participated in project groups under its auspices.



The global scientific community gathered in Mozambique in October 2008 for the 29th General Assembly of the International Council for Science (ICSU). The UK was represented by a Royal Society delegation including Dr Tamsin Mather: (shown second right in the photo) a Dorothy Hodgkin Research Fellow at the University of Oxford. She said of the experience: "I had not really heard of ICSU before the email came round offering the chance to apply to be part of the Society's delegation attending the General Assembly in Mozambique. In fact this lack of visibility, especially amongst younger scientists, is a problem that ICSU is aware of.

For me the highlights were the interactions with people. There was much to learn, from representatives from many of the other delegations. But talking to the scientists from the less developed nations and in particular Africa was particularly fascinating for me having much less experience working in this area of the world.

There were certainly many things that I was impressed by during the trip. One was the role that the Royal Society plays in this forum. Its name was brought up several times during the meeting as an example of good practice, including its efforts to involve young scientists in ICSU. Many of the other European delegates seemed to look to the Royal Society delegation for leadership. Another impressive thing about ICSU is the calibre of the scientists willing to devote time to its activities."

Dr Enoch Matovu (far left), winner of the Royal Society Pfizer Award (see *Invest*)



### International grants

The Royal Society's International Grants programme enables high-calibre UK scientists to initiate collaborations, exchange ideas, develop new skills and gain experience through working with the world's leading researchers.

The **Newton International Fellowship scheme** aims to attract the very best early stage post-doctoral researchers from around the world to UK research institutions. This new scheme is run in partnership with the British Academy and the Royal Academy of Engineering and covers the broad range of natural and social sciences, engineering and the humanities. A total of 51 Fellows were appointed in 2008/09 (of which 13 awards were made in the area of social sciences and humanities, 13 in the area of engineering, and 25 covering all areas of basic natural sciences). Research Fellows are appointed for two years with the aim of developing long term relationships with UK institutions.

The **International Joint Project Scheme** supports the travel and subsistence costs of collaborative research between a UK research group and one overseas. Each two year grant gives scientists an opportunity to link two centres of excellence, encouraging international collaboration. A total of 182 new awards were made for UK scientists to work with colleagues in Europe, the countries of the former Soviet Union and East and South East Asia, and under new agreements with India and Russia.

In September 2008, a new **International Travel Grants scheme** was implemented following the merger of Conference Grants and Short Visits. This scheme supports a wide range of international travel activities. The Society introduced the first round in September 2008 and a total of 138 awards have been made.

A further 68 scientists were supported under the **International Networking Grants scheme**, established to help UK scientists develop partnerships and collaboration with overseas counterparts (16 China-UK, 6 India-UK, 46 South Africa-UK). In addition, 33 collaborations were supported under the **Ghana & Tanzania Science Network Award scheme**, which represents the first phase to implement a new capacity building programme for Ghana and Tanzania.

In October 2008, a new capacity building scheme for Ghana and Tanzania, **The Leverhulme Royal Society Africa Award**, was launched. This new programme provides support for UK – Ghana and UK – Tanzania research collaborations. The three year awards will offer support for up to £150,000 covering the costs for research, travel and equipment.

# Inspire an interest in the joy, wonder and excitement of scientific discovery

**Our innovative programme of inspirational activities continues to help us reach a wider audience. From discussion meetings, talks, lectures, prizes, awards and exhibitions, to increased use of new media, we stimulate interest in and debate around major scientific issues.**

## Summer Science Exhibition

The Royal Society Summer Science Exhibition proved to be as popular as ever over the three and a half days that it was open in June and July, with 4,300 visitors, about a quarter of whom were students aged 16 and over. In addition 15,000 viewers from all over the world explored the Exhibition website.

This year's Soirées, the Society's premier social occasions, were a great success, attracting captains of industry, ambassadors, MPs, senior members of learned societies and professional bodies, university vice chancellors and, of course, the Society's own Fellowship. Guests enjoyed the opportunity of a private viewing of the Summer Science Exhibition.

The exhibition comprised 22 competitively selected exhibits showcasing some of the best UK science. Visitors were able to investigate exhibits from how electrical stimulation of the skin can reduce pain, to whether picture passwords are the solution to identity fraud and to try out these new technologies themselves. Exhibitors brought their research to life through hand-on activities, including dressing visitors as penguins to demonstrate new systems for tracking individual penguins in colonies. The exhibitors included students from Childwall School in Liverpool with their project about nutrient levels in the Irish Sea, funded through the Society's Partnership Grant Scheme.

In addition to the exhibits, the Kohn Centre hosted an interactive talk, entitled *Climate Change: what can space teach us about our own planet?* by Dr Maggie Aderin, Senior Research Fellow from University College London. The talk, with practical experimentation on how climate change works, showed how the planets tell us about the future of Earth.

There were two displays from the Royal Society's archives. The first highlighted the discovery in 1796 by Edward Jenner FRS of a new method of vaccination against smallpox. The second celebrated the pictures that made scientific history, demonstrating how science has introduced us to new worlds, from atoms to the birth of stars.

## Public communication

The Royal Society's public programme of lectures and debates consisted of 17 events between 1 April 2008 and 31 March 2009 attracting an audience of over 3,500. In addition to those attending in person, **royalsociety.tv** (which hosts the live web casts and video archive) has been viewed by 17,500 people. In January 2009 this area of the website was redesigned to make it more accessible – reflected by larger numbers of viewers. Highlights of the programme included the Royal Society lecture at the Cheltenham Science Festival on *Our Earth, the big bang, and beyond* by Lord Martin Rees PRS, the Royal Society and Royal Society of Literature joint event entitled *Proof-reading: Telling stories with numbers, telling stories with words* by Professor Marcus du Sautoy and Mark Haddon, the *Talent and Autism* panel discussion chaired by Professor Uta Frith FBA FRS (a joint event with the British Academy) and Professor Robert Mair FREng FRS's lecture on *What's going on Underground? Tunnelling into the Future* which filled the Society's lecture theatre and has been accessed by over 1,200 people online.



**In March 2009, Professor James Murray FRS, from the Universities of Oxford and Washington, held a public lecture about the practical applications of mathematics in the real world. Giving the lecture on receipt of the Royal Society Bakerian Prize for physical sciences, his talk detailed how mathematical models can predict marriage success and be used to determine the best treatment options for brain tumour patients.**

**The event was covered by national newspapers including *The Daily Mail*, *The Daily Telegraph* and *The Independent*. The story was also picked up in weekend coverage in *The Sunday Times* and had strong online and broadcast coverage, including BBC Radio 4's *Today Programme* and a number of radio stations across the UK. There was also international interest including *Le Figaro* in France and Polish Television.**

Students from Childwall School in Liverpool, who exhibited their Partnership Grants project, *Nutrients in the Irish Sea*, at the Summer Science Exhibition in 2008



### Media relations

The Royal Society continues to influence and inspire policy makers, opinion formers and other important audiences through its profile in the media. The Summer Science Exhibition and Royal Society Book Prizes brought science to people across the UK. Public lectures and discussion meetings on issues such as *Mathematics in the real world* and achieving a low carbon energy future featured in the press, bringing the role and benefits of science to the public's attention.

There was also a successful partnership with the Royal Shakespeare Company to promote their new play *The Tragedy of Thomas Hobbes*, about the founding of the Society, through the media. This brought us to the attention of new audiences, less aware of the history of the Society, as we approach our 350th anniversary. The launch of a study on geoengineering kept the Society to the forefront of the debate on tackling climate change. Another policy issue where the Society maintains a high public profile through the media is the need to sustain funding for basic science. The Society's journals go from strength to strength in terms of profile in the media. Popular stories over the last twelve months have looked at animal behavior and the influence of nutrition, as well as the ever popular paleontology. The year ended with the Society's plans for the establishment of the Kavli Royal Society International Centre highlighted in the national media.

### Website and new media

The website was the principal medium through which the Society communicated with its global audiences attracting nearly 1.4 million visitors over the last 12 months.

The homepage underwent a redesign to aid more efficient navigation. A full web site redesign is scheduled for later in 2009. The Society launched new web sites including [seefurther.org](http://seefurther.org), [score-education.org](http://score-education.org) and [newtonfellowships.org](http://newtonfellowships.org)

### Science book prizes

The Royal Society's Prizes for Science books 2008 award ceremony was held in May. Awarded for the 21st time, the Prizes continue to encourage reading, writing and publication of high quality, accessible science books and are one of the world's most prestigious non-fiction literary prizes. The prizes were sponsored by Adrian Beecroft in 2008. The Society continues to seek a new sponsor to carry the Prizes forward.

The Junior Prize, selected by judging panels of young people nationwide, went to *The big book of science things to make and do* by Rebecca Gilpin and Leonie Pratt, (Usborne). The General Prize was awarded to *Six degrees: Our future on a hotter planet* by Mark Lynas (Fourth Estate).

Judges of the Junior Prize of the Royal Society's Prizes for Science books 2008 take a closer look at some of the shortlisted titles



### History of science

Plans to refurbish the Library and Archives to create the Royal Society's Centre for the History of Science have progressed, and we expect the work to begin in 2009/10.

The programme of events and exhibitions in the history of science has been expanded in the run-up to anniversary celebrations in 2010.

Accessions included several interesting 20th century collections of scientific illustrations, including drawings of shells and mollusks with electron microscope images collected by Alistair Graham FRS and donated by his widow Elizabeth. A second major donation of a large collection of field notebooks and photographs came from the Society's 1967-69 expedition to Matto Grosso.

The first specially commissioned non-Presidential portrait of a living Fellow, Sir Tim Berners-Lee FRS was unveiled at a gathering that included the sitter in late 2008. Stephen Hawking FRS is the subject of a second portrait instigated by the same donor, Dame Stephanie Shirley, which was completed in 2008. It is hoped that further donations will allow additional commissions to strengthen the collection.

An important activity has been the transfer of contract for the storage of the Society's modern hard-copy filing to the Cheshire based company Deepstore Ltd. This will greatly improve the physical environment in which this important 21st century archive is stored.

The Library expanded its programme of conferences, with three events organised during the year including a seminar on *The Biography of Science* in April 2008 to inaugurate the new Biographical Memoirs Board. The Society collaborated with the National Maritime Museum to produce an international conference on *Scientific Voyaging* during July 2008. This area of activity culminated in a conference with King's College London on *Thomas Beddoes, Doctor of Enlightenment* in December 2008 and will form a special issue of *Notes & Records of the Royal Society* during 2009.

The Library's Spring and Autumn lecture series routinely attracts audiences of over 50 people. These talks are now building up to be a significant audio resource on the Society's website and can be accessed via iTunes.

# Summarised financial statements



## **Independent auditors' statement to the fellowship of the Royal Society**

We have examined the summarised consolidated financial statements of the Royal Society on page 19.

This statement is made solely to the Council members (as trustees), as a body in accordance with the terms of our engagement. Our work has been undertaken so that we might state to the Council members those matters we have agreed to state to them in this statement and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the Council as a body, for our work, for this statement, or for the opinions we have formed.

## **Respective responsibilities of Council and auditors**

The trustees are responsible for preparing the summarised consolidated financial statements in accordance with the recommendations of the Charities SORP.

Our responsibility is to report to you our opinion on the consistency of the summarised consolidated financial statements with the full consolidated financial statements and Trustees' report. We also read the other information contained in the summarised annual report and consider the implications for our report if we become aware of any apparent misstatements or material inconsistencies with the summarised consolidated financial statements.

## **Basis of opinion**

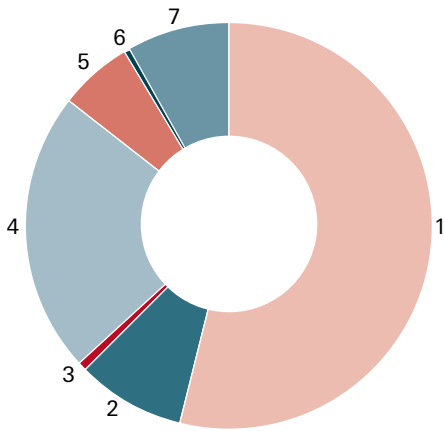
We conducted our work in accordance with Bulletin 1999/6 'The auditors' statement on the summary financial statement' issued by the Auditing Practices Board for use in the United Kingdom.

## **Opinion**

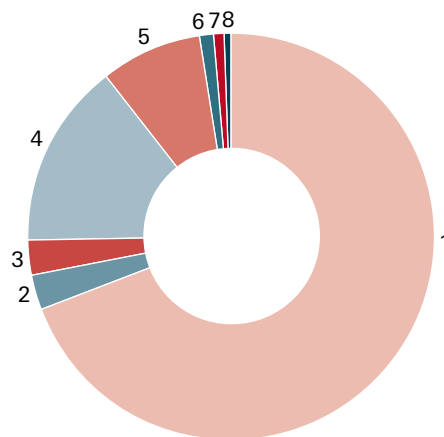
In our opinion the summarised consolidated financial statements are consistent with the full financial statements and the Trustees' report of the Royal Society for the year ended 31 March 2009.

**PKF (UK) LLP**  
**Chartered Accountants and Registered Auditors**  
**London**  
**2 July 2009**

# Income and expenditure statement



Income	£'000
1 Parliamentary Grant-in-Aid	43,322
2 Other grants for activities	7,032
3 Fellows Contributions	184
4 Donations and Legacies	18,250
5 Investment Income	4,687
6 Realised Foreign Exchange Gain	257
7 Publications and services	6,642
<b>Total</b>	<b>80,374</b>



Expenditure	£'000
1 Invest	43,735
2 Influence	1,815
3 Invigorate	1,751
4 Increase	9,266
5 Inspire	5,205
6 Governance	599
7 Fundraising	544
8 Investment Management	304
<b>Total</b>	<b>63,219</b>

# Fundraising and support

The 350th Anniversary Campaign has raised almost £95 million in gifts and pledges to date, with over £18 million received in the past financial year. Over 30% of the Fellowship has supported the Campaign, contributing £10.5 million in donations and pledges. The Society has also received a number of leadership gifts including a substantial gift from the Kavli Foundation which has enabled the purchase of Chicheley Hall, the home of the Kavli Royal Society International Centre.

2008 saw the launch of the Royal Society Enterprise Fund, which has secured £6.5 million in philanthropic support including several leadership gifts. The Society was also able to announce the establishment of a new USA/UK scientific forum to be operated jointly with the National Academy of Sciences in the US, which was made possible thanks to a generous gift from the Raymond and Beverly Sackler Foundation.

In February 2009, the Society launched the Presidents' Circle to acknowledge and thank benefactors who have made significant leadership gifts to the campaign.

The Wolfson Foundation has continued its long partnership with the Royal Society and in 2008 renewed its support for the Royal Society Wolfson Research Merit Award.

## List of donors

The Royal Society is grateful to all those who have pledged contributions to the 350th Anniversary Campaign during the period 1 April 2008 – 31 March 2009. We are honoured to recognise the generosity of individuals and organisations listed below, as well as those who have chosen to remain anonymous.

We would particularly like to acknowledge members of the Presidents' Circle for their exceptional leadership support during the 350th Anniversary Campaign.

BP plc  
Clare Duffield Foundation  
EP Abraham Cephalosporin Fund  
The Daiwa Anglo-Japanese Foundation  
The Gatsby Charitable Foundation  
The Hauser-Raspe Foundation  
The Kavli Foundation  
The Kohn Foundation  
The Leverhulme Trust  
Microsoft Research

The Ogden Trust  
Pfizer  
The Raymond and Beverly Sackler Foundation  
Shell  
Wellcome Trust  
The Welton Foundation  
Wolfson Foundation

Mr Adrian Beecroft and Mrs Jacqui Beecroft  
Mr Roger Brooke OBE  
Mr Michael Crowley-Milling CMG  
Dr Elizabeth Graham  
Sir Tom McKillop FRS and Lady Elizabeth McKillop  
Professor Howard Morris FRS  
Sir Kenneth Murray FRS & Professor Noreen Murray CBE FRS  
Mr Mark Shuttleworth  
Mr Stelio Stefanou OBE  
Professor Adrian Sutton FRS  
Mr Eric Winkler  
Sir Martin Wood OBE HonFREng FRS and Lady Audrey Wood

## Organisations, trusts and foundations

American Friends of the Royal Society  
Amgen Limited  
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The de Laszlo Foundation  
ERA Foundation  
The Ian Karten Charitable Trust  
The John S Cohen Foundation  
Mercers' Company  
Rolls-Royce Group plc  
Royal Bank of Scotland Group plc  
Salters' Company  
The Sino-British Fellowship Trust  
James Weir Foundation

## Individuals

Professor Martin Aitken FRS  
Sir Geoffrey Allen FREng FRS  
Professor Michael Alpers AO FRS  
Sir Michael Atiyah OM HonFREng FRS  
Ms Olwen Badziak  
Professor Grigory Barenblatt ForMemRS  
Sir Tom Blundell FRS  
Professor Martin Bobrow CBE FRS  
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Lord Broers FREng FRS  
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 Lord Chorley  
 Professor David Cockayne FRS  
 Professor Edward Cocking FRS  
 Sir Philip Cohen FRS  
 Professor Richard Cookson FRS (Deceased)  
 Sir David Cox FRS  
 Professor Stuart Cull-Candy FRS  
 Mrs Valda Dalitz  
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 Professor Charles Ellington FRS  
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Mrs Shirley Zangwill  
Sir Christopher Zeeman FRS  
Professor Olgierd Zienkiewicz CBE FREng FRS  
(Deceased)

The Society is grateful for those bequests received,  
and to those who have contributed to the campaign in  
memory of others.

Professor Edward Broadbent FREng FRS  
Sir Howard Dalton FRS  
Marianne Ford, in memory of Sir Brinsley Ford  
Professor Paul Polani FRS  
Rink bequest  
Professor John Ziman FRS

## The Royal Society

The Royal Society is a Fellowship of 1400 outstanding individuals from all areas of science, engineering and medicine, who form a global scientific network of the highest calibre. The Fellowship is supported by a permanent staff of 136 with responsibility for the day-to-day management of the Society and its activities.

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

- **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

## For further information

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$$x \in \mathbb{R} \setminus \{0\}. \text{ Also } \log(1-x)$$

$$\text{then } \log(1-x) \approx -x$$

Mathematical explanation of symmetry of polynomial equations.  
Sir Martin Taylor, 1979. © The Royal Society



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