

Annual Review 2010



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Professor David Phillips

OBE CSci CChem FRSC

“It is vital that we make a strong case for continued investment in the chemical sciences to generate a sustained economic recovery.”

Welcome from the President

Throughout 2010, we worked harder than ever to represent the chemical science community and promote the importance of our subject to a wide audience. In the wake of the worst global recession in 60 years, we know that both industry and research institutions face very tough challenges, so it is vital that we make a strong case for continued investment in the chemical sciences to generate a sustained economic recovery. Provision of chemical sciences courses in UK universities is also likely to change over the next few years, as the impact of increased fees and tight funding for infrastructure begins to take effect. Our UK university colleagues need all the support we can give.

With such serious issues in mind, we staged special parliamentary debates on science in the lead up to the UK General Election. After the election, our annual Parliamentary Links event, held at Westminster on behalf of the scientific community, featured some of the most important political figures in UK science. It's very gratifying to hear the testimony from Andrew Miller MP in this review that the RSC's timely and informative activities, including our events and responses to select committee consultations, are perceived to be immensely valuable in Westminster.

We build links at all levels, local, regional and international, drawing on the knowledge of our members and authors and helping them to develop relationships with other scientists. We strengthened our links with China by sending UK researchers to Chinese universities to exchange teaching and research expertise. We sent a UK delegation to India for a strategic workshop on developing UK-India talent, exploring opportunities for both countries. And we launched the report on Africa's water quality with the Pan Africa Chemistry Network as part of the United Nations World Water Day.

But to continue our aim of advancing the chemical sciences we need to attract, and retain, talented chemists. A career in chemistry needs to be a stimulating journey. Young people must be taught by knowledgeable, talented teachers and should experience the delights of hands-on science. We support teachers and students with specialised training and innovative learning tools. We show the public that chemistry is a vibrant, modern and relevant subject through our events and wider media initiatives. The Chemistry Centre in London is a beautiful venue for holding public lectures, which attract experienced chemists and novices, young and old.

We have campaigned for continued investment in chemistry, publishing the excellent report, *The Economic Benefits of Chemistry Research to the UK*, which was commissioned from Oxford Economics by the RSC and Engineering and Physical Sciences Research Council (EPSRC). Hard-hitting evidence that 'one in every five pounds in the UK economy is dependent on chemistry research' proved valuable in securing both media and political attention in the lead up to the UK Government's Comprehensive Spending Review, contributing to the Government's decision to protect the research budget for science.

We continue to face huge challenges in chemistry, but with 2011 designated the International Year of Chemistry we will continue to show that investing in chemistry means investing in all our futures.



Dr Robert Parker

CSci CChem FRSC

“I’m pleased to say that membership grew to 47,514 by the end of the year – its highest ever total.

A message from the Chief Executive

The RSC’s extraordinary success over the last few years continued through 2010, thanks to a clear vision, ambitious goals and the contribution of our members. We encourage all members to be involved with our activities, through interest groups, younger member networks and RSC local sections, and I’m pleased to say that membership grew to 47,514 by the end of the year – its highest ever total. Many of our member groups are finding new ways to share knowledge through our professional online network for chemists, MyRSC. A great example of its success was the online careers event, ChemCareers, which resulted in a four-fold increase in the number of people learning about career opportunities in chemistry.

In 2010, we invested in our IT infrastructure, launching a new online publishing platform which gives scientists powerful, fast access to more than one million journal articles, as well as books and databases from RSC Publishing. Our online database for chemical structures, ChemSpider, allows chemists around the world to share information, hosting data on over 25 million structures, and with the launch of Synthetic Pages in 2010, ChemSpider will be better placed to support the chemical science community.

We added four new journals to our portfolio in 2010, including a new flagship journal, *Chemical Science*, focusing on findings of exceptional significance to chemistry. This was launched at International Symposia on Advancing the Chemical Sciences (ISACS), which were held in Budapest, Hong Kong and San Francisco.

With offices already in Philadelphia in the USA, and Beijing and Shanghai in China, in 2010 we opened a new office in India and we plan to open an office in Japan in 2011. The Pan Africa Chemistry Network (PACN), our key involvement with the European Association for Chemical and Molecular Sciences (EuCheMS) and our International Cooperation Agreements with chemical societies around the world further enhance our global network. Such strong global links are essential for us to grow our publishing activities, to understand the education and scientific issues chemists face in other countries and to develop scientific collaborations.

In 2009, we launched *Chemistry for Tomorrow’s World*, our roadmap for the chemical sciences. This now drives much of our work to support chemical science and education. With the help of our members, we are focusing our efforts on some of the global challenges where the chemical sciences have a leading role to play, such as conserving scarce natural resources and developing new sources of energy.

I was appointed interim Chief Executive in March 2011 and it’s a real pleasure to take the time to look back at our achievements in 2010. I would like to thank Richard Pike for his dedication to the RSC during his five years as Chief Executive; he has left us in excellent shape to face the future. I would also like to thank our members, trustees and staff for their passion, effort and drive, and I look forward to working with you all in the coming year.

Supporting

a strong membership

Our members, whether in the UK or abroad, are at the core of our activities to advance the chemical sciences and we are continually improving the support that we provide for them.



A growing membership is the sign of a healthy, active society, and this grew to an all-time high of 47,514 by the end of the year, thanks to the efforts of volunteer members and staff in attracting new people to join the RSC.

Our biennial membership survey tells us why members join the RSC, the services they need and how they want to interact with us. In recent years, we have seen a shift in the balance of communication that members want, from printed materials towards more online and interactive communications, and we are developing our online services in response to members' feedback.

The RSC's online professional network for chemical scientists, MyRSC, is one of these new tools, and members are finding new ways to use this site. Many of our interest groups and local sections are using MyRSC as their principal means of communication, issuing meeting papers and holding virtual meetings online using discussion groups. With over 8,000 users accessing MyRSC from 119 countries, MyRSC helps members to exchange ideas and stay in touch with each other.

We are also using MyRSC to enhance careers advice for members and to support their continuing professional development. In November, we held our first virtual careers fair, ChemCareers, on MyRSC. Students looking for their first job, graduates and postgraduates exploring their career options and industry recruits looking for a change of direction met online with employers, including Novartis, Shell and BASF. ChemCareers surpassed our expectations, with over 2,300 candidates logging on to the site during the five days of the virtual fair.

The main event for volunteers to learn about our activities and to influence our strategy is the Annual General Assembly, which took place in November in Birmingham. Delegates, who represent each local and international section, our interest groups and other networks, participated in discussion sessions on our

Over 5,000 school students are members of ChemNet, our network for 16-18 year-olds. Membership of ChemNet includes a subscription to *Chemistry World*, a ChemNet newsletter and access to industry events.

Volunteers support RSC members in need through a network of 30 local section representatives and 108 volunteer visitors. 879 individuals received one-to-one careers support in 2010.

Influential guests address RSC members at the General Assembly. Plenary speakers in 2010 were Peter Cook, former Sheriff of the City of London, and David Clary, Chief Scientific Adviser to the Foreign and Commonwealth Office.



You can get the most out of membership by joining one of our 75 interest groups, run by members around the world. Every member can now join three groups at no additional cost.

8,000

users on MyRSC, accessed the site from 119 countries

2,307

candidates accessed the ChemCareers site

47,514

members by the end of 2010

strategy, and these discussions continued in the RSC Regional Meetings the following winter and spring. This helps us to adapt our strategy swiftly to address issues affecting chemical scientists.

One of the best ways for members to advance the chemical sciences is by joining one of our 75 interest groups. Run by members around the world, these groups work on topics ranging from chemical education research and biotechnology to computational chemistry and law. We encourage all our members to participate and, from 2010 onwards, members are able to join up to three interest groups as part of their membership fee. This will increase the number of ways in which members can develop their networks, engage with our activities and advance their areas of interest.

Our Younger Members' Network was active in 2010, exhibiting at the RSC General Assembly, organising a Younger Member Symposium in Manchester and holding a careers day for younger members in Liverpool.

In 2010 the Council's Working Group reviewed our governance structure. The new structure enables our board and committee members to work more effectively with staff to provide advice, guidance and oversight of our activities. This is already proving a success, with the RSC being able to develop policy and respond more swiftly to consultations, government announcements and other events.

2010 saw us implement a new development strategy to introduce the RSC to individuals, trusts and foundations as well as legacies and corporate fundraising. The strategy includes an individual giving campaign, which was launched in November. New funds have been created to support science and education activities, the Chemistry Centre public programme and archives, a President's Fund for areas of greatest need plus the Benevolent Fund to support members and their families. These funds enable donors to contribute to specific parts of the RSC that are most relevant to them.



Another way the RSC supports young people with their career in chemistry is at the annual 'Meet the Universities' event. This gives 16-18 year olds the chance to meet representatives from universities from around the UK at one central venue.



Mark Jackman

RSC member

Mark Jackman has worked as an analytical chemist in AstraZeneca's Process R&D department since graduating from the University of York in 2002. With the announcement of a company reorganisation, and the closure of the site he works at, Mark sought help from the RSC to work out what to do next.



Without realising it, a completely new section on my CV had appeared thanks to the RSC.

Right now, I am an analytical chemist, but all that is coming to an end in April 2011. Last year, AstraZeneca announced that it would close its Charnwood site and I decided to take the plunge and opted for voluntary redundancy to see what else was out there. It was difficult to see a life outside the pharma bubble until the RSC stepped in.

I'd spent nearly a decade focused on one tiny area of analytical chemistry, and the RSC proved to be an incredibly important and powerful lifeline. Ten years of analysing white powder (and the occasional black tar from students on work placements) led to a degree of tunnel vision.

After a one-to-one with a careers adviser, I discovered a world which doesn't revolve around chromatography. I indulge in a bit of writing: I blog and I've had a couple of novels published, with a couple more in the pipeline. My RSC careers adviser picked up that I was interested in the written word, and we discussed the possibility of a career in science communication. Last year I wrote a monthly, light-hearted science blog for MyRSC, and I enjoyed interacting with chemists from all walks of life and at different stages of their careers.

After the careers interview, I was put in touch with the guys at *Chemistry World*, and I am extremely grateful to them for their advice and encouragement. I was fortunate enough to have a piece published in *Chemistry World's* Last Retort section. I even got to star in a video for RSC ChemCareers where I detailed my life as a pharmaceutical analyst. Without realising it, a completely new section on my CV had appeared thanks to the RSC.

So what am I actually going to do? After becoming interested in science communication, I read *Chemistry World* fervently, trying to garner knowledge about the style and the technical aspects of the writing. This led to me reading more publications and scouring the internet for information. I learned a great deal, but the most important benefit from all this was a rekindled love of science, which, if I'm honest, had been lost. Out of the blue, I was yearning for a research lab.

I started applying for PhDs at the end of last year, and I've been accepted at the Nanoscience Doctoral Training Centre in Manchester. I pick up my student card in September, and I hope to continue my involvement with science communication, and the RSC, throughout my studies.

Leading

the global chemistry community

The RSC brings scientists together from academia and industry to support collaboration, share new ideas and encourage best practice.



The international presence and influence of the RSC has continued to grow throughout 2010. In July, the RSC and the Chemical Society of Japan (CSJ) marked the start of a new formal partnership by signing an International Cooperation Agreement (ICA) at a ceremony held in the Chemistry Centre, London.

Connections with China continue to strengthen. We renewed our ICA with the Chinese Chemical Society (CCS) a year ahead of schedule at the 27th CCS Congress in Xiamen. Our links with the chemistry community in China strengthened with a pilot project with the State Administration of Foreign Expert Affairs (SAFEA), where four researchers from the UK visited Chinese universities on the Visiting Researchers Programme to exchange teaching and research expertise.

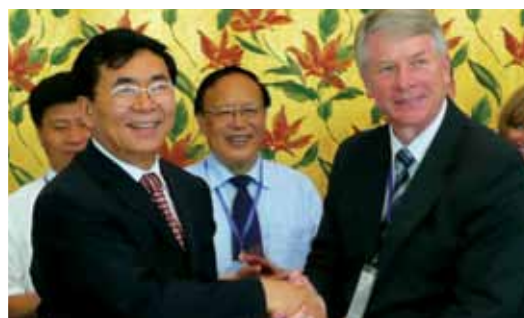
As part of a continuing drive to expand the RSC's international network in publishing, scientific and educational activities, the RSC opened its first Indian office in Bangalore in September and recruited a local member of staff to develop relationships between Indian chemical scientists and the rest of the global chemistry community. The RSC already has an ICA with the Chemical Research Society of India and a base in Bangalore will help us to build links with local scientists.

The highlight of our events in India in 2010 was the India-UK Developing Talent Workshop, held at the National Chemical Laboratory (NCL) in Pune. We organised this event with the NCL, the Indian Institute for Science, Education and Research (IISER), and the British Deputy High Commission. The workshop highlighted structural, cultural and financial issues, which hinder education, research and innovation in the chemical sciences. Delegates for the workshop included the Executive Director of GSK India Ashoke Banerjee, Dr Ramesh Mashelkar of the National Chemical Laboratory in Pune and Professor Hagan Bayley of the University of Oxford. The aim was to explore how the UK and India could collaborate more effectively and the recommendations will be published in 2011.

RSC Prize Winners from around the world joined delegates and special guests in Birmingham for the Annual Prize Ceremony. Here, David Phillips congratulates Professor Gary Hieftje from Indiana University, winner of the Robert Boyle Prize for Analytical Science.

Professor Chunli Bai and Dr Richard Pike renew the cooperation agreement between the RSC and the Chinese Chemical Society.

MACRO 2010 was the largest international multi-symposium conference dedicated to all aspects of polymer science.



Our new Indian office in Bangalore helps us to develop relationships between Indian chemical scientists and the rest of the global chemistry community.

1,597

scientists from 57 countries attended MACRO 2010

14

African newspapers and websites covered the launch of the latest PACN report

800

delegates attended the 1st Unilever-RSC symposium in Shanghai

The Pan African Chemistry Network (PACN) is a partnership between the RSC, Syngenta and leading chemical scientists in Africa. Following the Sustainable Water Conference in August 2009, the findings and recommendations of the 180 delegates were compiled into a report entitled *Africa's Water Quality – A Chemical Science Perspective*. His Excellency, Joaquim Chissano, former Mozambique President, introduced the report and helped us to launch it in Kenya in March, as part of the United Nations World Water Day.

Green Chemistry has become an integral component of research in the developed world; however, the concept of green science and technology is still in its infancy in many African countries. The PACN Green Chemistry Congress brought together 190 scientists from 22 countries to consider many of the problems that Green Chemistry should be addressing in Africa.

The RSC recently awarded the first international accreditation of a Bachelor's programme in Chemistry to the United Arab Emirates University (UAEU), Al-Ain. Following this first award outside of the UK, we will

expand to other regions around the world, fulfilling our charitable objective of upholding qualification standards. A further submission from Fudan University in China is expected and we hope to accredit other leading universities from 2011. This will help us to uphold standards of competence and qualification beyond the UK.

We organise a large number of conferences, workshops and symposia, which bring leading scientists together to discuss cutting-edge research. One such event was MACRO 2010 (The 43rd IUPAC World Polymer Congress) – the largest international multi-symposium conference dedicated to all aspects of polymer science and engineering, at which we launched the new RSC journal, *Polymer Chemistry*.



By hosting events in different countries, the RSC is forging links and encouraging collaboration with scientists, research institutions, companies and chemical societies around the world.



Annie Bligh

Professor at London Metropolitan University

The RSC continues to develop links with the Chinese scientific community. Here, Annie Bligh, professor in the Institute for Health Research and Policy at London Metropolitan University, describes her role in the Visiting Researchers Programme, a joint project between the RSC and China's State Administration of Foreign Expert Affairs (SAFEA).



Over five days the RSC had provided me with a packed schedule. By the end of it I felt like I had known my hosts for a very long time.

For me, the Visiting Researcher Programme with China was a chance to further develop connections I had made in the country. I'd actually worked with Chinese universities before, in 2003. At that time, we had started a very successful collaboration with the Shanghai University of Traditional Chinese Medicine. So from this experience I knew I could gain something positive from the project, and had seen for myself the kind of high quality research Chinese scientists are capable of producing.

I was also aware that scientific research in China is well funded. While funding is at risk in the UK, it's being increased in China. They have huge resources, particularly in the area I work in, with some excellent facilities so it makes sense to seek fresh collaboration opportunities there.

My visit took me to Sun Yat-Sen University in Guangzhou, specifically to the School of Pharmaceutical Science which fits in quite nicely with my particular area of expertise. Over five days the RSC had provided me with a packed schedule of meetings, working lunches and talks on topics ranging from the RSC itself, to writing papers for international audiences.

One of the highlights for me was the opportunity to speak to so many enthusiastic chemistry students. They worked on chemistry-related pharmaceutical science research and were very keen to succeed. They wanted to know more about research in the UK and the work that I did, for example at GSK or in Shanghai. It is very rewarding to be able to speak to the younger people – the researchers – and to be able to share the experience I have as a person who has been working in research in the UK for some time and to explain how research is carried out over here.

While I was in Guangzhou, I wasn't just having formal meetings with the researchers. For example, each morning I travelled into the university with one of their senior professors, so every day we had 30 minutes in the car talking about research. By the end of it I felt like I had known my hosts for a very long time.

That kind of experience is what makes programmes like this so useful for exploring collaboration opportunities. To build a successful collaboration you need to spend time with other researchers, get to know them and build up trust, so that they'll be willing to share their ideas and results in an open way.

Of course there are limits to how much you can achieve in just five days and challenges to overcome, such as securing long-term funding. However, I'm still in contact with some of the groups I met. We are at an early stage but we've been doing some work together around potential cancer treatments and I will certainly be making more visits to China in the future.

Engaging

people with chemistry

We help teachers to inspire the next generation of chemical scientists and we engage the public to demonstrate the vital role that chemistry plays in our society.



In the UK, we are the largest non-governmental supporter of chemistry education, helping to ensure that there is an appropriate supply of people equipped to practise chemistry competently at all levels.

One of the most effective ways of doing this is by supporting teachers. The RSC Chemistry for Non-Specialists programme, which is supported by GSK, is specifically designed for teachers without a background in chemistry. It helps them develop the confidence and enthusiasm to carry out demonstrations and inspire students. To date, over 1,800 teachers from 1,000 schools have attended this course.

We have played a leading role in the debate on education standards in recent years. In 2010, we produced a draft framework to describe the chemical knowledge and skills all 11 to 16 year-olds should have; this was based on the challenges outlined in our roadmap for the chemical sciences, *Chemistry for Tomorrow's World*. The framework now forms a basis for our campaigns to enhance school science curricula and improve examination standards.

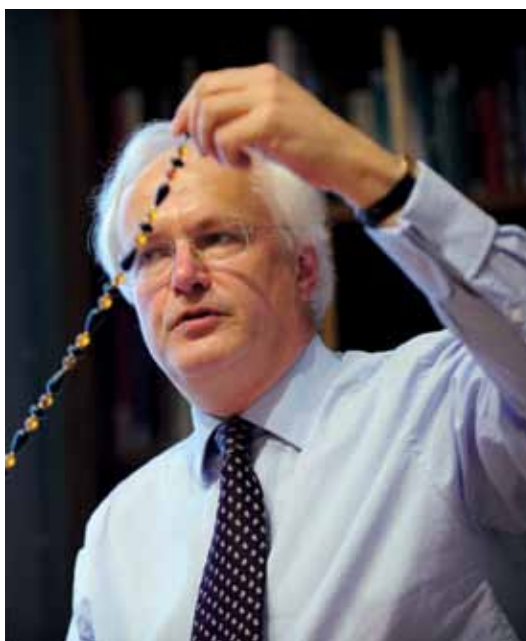
We encourage excellence by running the competition to select the UK team for the Chemistry Olympiad for post-16 year-old students. With funding from INEOS, the RSC has been widening the selection process by giving more support to schools that would not normally have taken part. Efforts are paying off as more schools than ever took part in the UK heats in 2010 and students from two state schools made it to the international final. This was held in Tokyo, Japan, and the UK team competed against students from 70 other countries, sitting five-hour practical and three-hour theoretical exams. Ruth Franklin of Manchester High School for Girls was awarded a gold medal, and her outstanding performance also secured her the title of the world's best female chemistry student.

In October, Discover Chemistry, a three-year educational initiative between the RSC and Pfizer came to a close. Discover Chemistry activities centred on equipping young people with the skills needed for a career in chemistry.

Professor Chris Dobson from the University of Cambridge reveals the fascinating science behind age-related diseases during a public lecture at the Chemistry Centre.

Lady Wolfson-Townsley and Professor Dave Garner, RSC President 2008-10, at the official opening of the Chemistry Centre in April, where guests were entertained by a chemistry demonstration by Professor Hal Sosabowski from the University of Brighton (see front cover).

Olympiad gold medal winner, Ruth Franklin of Manchester High School for Girls, is presented with her certificate by Jim Dawson, Director of INEOS Capital.



In 2010, we gained national media coverage on mice looking for food in your office at night and on the evidence of the health benefits of goji berries.

£2.4m

estimated value of media coverage in 2010

17

universities working together on *Discover Maths for Chemists*

1,812

teachers have attended Chemistry for Non-Specialists courses

This included the Discover Maths for Chemists project, which brought together 17 UK universities to improve the maths skills of chemistry undergraduates. This project generated 8,600 visits to its website from a community of approximately 14,000 chemistry undergraduates.

Throughout the year, we generated many stories in the media, from mice visiting your office at night to look for scraps of food in your computer keyboard, to evidence of the health benefits of goji berries. We also used the media to help protect the image of chemistry, such as by publicly condemning the stereotype 'Crazy Chemist' imagery and text used in the Government's campaign on the dangers of 'legal highs'. These stories helped us to generate media coverage worth an estimated £2.4m last year.

The new Chemistry Centre at our London headquarters was formally opened in April. A grant of £1m from the Wolfson Foundation has enabled us to create a versatile venue for scientific meetings and to bring chemistry to the public. Since then, we have

opened our doors every month for public lectures on topics from the chemistry of beer to the chemistry of the atmosphere. These lectures are broadcast live via our new website, The Reaction, which we launched in May to support our public engagement activities. The Reaction also includes articles by RSC chemical historian, Professor Alan Dronsfield, and a regular column by former astronaut, Dr Helen Sharman.

In November, we awarded a commemorative Chemical Landmark plaque to the chemistry department of the University of Oxford to mark the discovery of the Lithium-ion battery. We also awarded Chemical Landmark plaques for 50 years of drug discovery and development at Pfizer's research and development site in Sandwich, Kent, and for the pioneering work that Sanofi-Aventis performed over 75 years at its site in Dagenham, London.



One of the most effective ways to enthuse young people with chemistry is through hands-on experiments. The RSC Chemistry for Non-Specialists course, which is supported by GSK, gives teachers who have not specialised in chemistry the confidence to carry out inspirational demonstrations.



Catherine Smith

Teacher, John Cleveland College

The RSC's Spectroscopy in a Suitcase scheme gives school students the chance to meet university research students and to learn through hands-on experience. Here, Catherine Smith, a science teacher at John Cleveland College in Hinckley, explains how these resources help her to inspire the next generation of scientists.



For a learning experience nothing can replace doing it yourself.

Hinckley was an industrial town where employment opportunities were traditionally dominated by manufacturing. Recently, many of these industries have gone, meaning that the town's young people do not have a natural route for career progression.

As a chemistry teacher, a major challenge that I face is to provide my students with an insight into the breadth of career opportunities available to them through science. At the start of year 12, a large number of students want to be doctors or vets; very few say that they would like to do a degree in chemistry. This is not necessarily a result of a particular passion for medicine or animals, but more a product of the careers they are exposed to in the media or everyday life. Due to the town's history, very few of the students' friends and family have a career in a pure science.

Limited funding and rundown facilities mean that much of the practical equipment we use in schools is very dated, and we therefore struggle to expose the students to the latest innovations in chemistry through the standard A-level experiments. Consequently, modern chemistry is normally taught in theory only, using computer and paper resources.

The RSC online teachers' resources for Spectroscopy in a Suitcase, and the associated SpectraSchool website, are excellent for allowing the students to see real examples of spectra. Discussions with students looking at real spectra throw up endless questions that require explanations, stretching them beyond the core A-level teaching. These discussions enthuse students to consider chemistry as a degree, particularly if they enjoy problem-solving and mental challenges.

Despite the excellence of these theoretical resources, for a learning experience nothing can replace doing it yourself – and this is the real strength, from my point of view, of arranging a Spectroscopy in a Suitcase visit to the school. The hands-on experience is the thing the students all remember. Through this outreach initiative the students are exposed to, as they would see it, 'real scientists' who demonstrate the experiments; it enables them to get a feel of what a pure science degree would involve, and where the skills they would learn could be applied in real life. Spectroscopy in a Suitcase has visited our school twice in the last two years and in both cases the students have found it a very positive experience. Where students used to find the spectroscopy section of A-level chemistry very challenging, they now find it very straightforward. Their increased confidence means they are no longer overwhelmed when faced with a spectroscopy question.

As a result of numerous RSC initiatives and strengthened links with Leicester University, along with our Specialist Science status, we have noticed a definite rise in the profile of chemistry within the school and an increase in the number of students who have gone on to study a chemistry-related pure science at degree level.

Setting

the agenda for the chemical sciences

We lead the debate on important issues where chemistry can benefit society and ensure that policy makers have access to the best possible advice and evidence from our members.



2010 saw a change of Government in Westminster and a national debate on public spending, which will have a profound impact upon the future of the chemical sciences in the UK. We brought our expertise right to the heart of Government to make our case for investment in chemistry, with events such as Science and the General Election 2010 – a debate in Portcullis House on science policy between the science representatives of the three major political parties.

In June, the Speaker of the House of Commons, the Rt Hon John Bercow MP, joined RSC members including Professor Dave Garner, RSC President 2008-10, and representatives of the UK's other major science and engineering organisations for Parliamentary Links Day. Speakers included the Chair of the House of Commons Select Committee on Science & Technology, Andrew Miller MP, the Minister for Science, the Rt Hon David Willetts MP, and frontbench Labour MP the Rt Hon Ed Miliband MP. Representatives of the Parliamentary Office of Science and Technology, Royal Society and Royal Academy of Engineering also gave presentations, and the morning session was concluded by the Government's Chief Scientific Adviser, Sir John Beddington.

The RSC Council, Boards and Divisions play a central role in creating our policies. We also consult with our in-house specialists, members and other professional bodies and experts to identify important areas and develop our campaign approach.

David Phillips chaired the steering group behind a joint study with the EPSRC on the economic benefits of chemistry research to the UK. The resulting report showed that 15 sectors, including health, electronics and aerospace, are wholly or partly reliant on the chemical sciences, supporting six million jobs and contributing an amazing £258bn, or 21% of GDP, to the UK economy in 2007. Information from the report was sent to MPs, civil servants and business leaders, and David Willetts cited the report as evidence when he appeared in front

The Rt Hon Ed Miliband addressed guests at Portcullis House in Westminster during the Question Time style debate, Science and the General Election.

Chemistry for Tomorrow's World provided the themes for four lectures on science policy at the Chemistry Centre, bringing together politicians with experts from across science and engineering and members of the public.

Parliamentary candidates for Loughborough joined members of the public in April at a debate entitled, Who Cares About Science? RSC President 2008-10, Professor Dave Garner, hosted the event, which was chaired by Science Editor of the *Observer* newspaper, Robin McKie.



Wow! Huge audience. Great atmosphere. Science IS an election issue.
Lord Drayson on Twitter at the RSC's Science and the General Election event

6 million

jobs supported by UK chemistry research

£258bn

or 21% of UK GDP is due to chemistry research

31.7%

average funding deficit for UK chemistry departments from 2007-08

of the House of Lords Science and Technology Committee in October.

We also published *The Finances of Chemistry and Physics Departments in UK Universities*, with the Institute of Physics. This study showed that many departments face a precarious future because they receive significantly less funding than they need to cover the costs of their research and teaching activities. This highlights the importance of securing sustainable funding for chemistry in our universities if we are to retain our strength in this discipline and students, across the UK, are to have access to chemistry in higher education.

Both reports provided important evidence in our submission to the Comprehensive Spending Review, contributing to the UK Government's decision to freeze, rather than cut funding for research over the lifetime of this Parliament.

Our key scientific objectives are described in *Chemistry for Tomorrow's World*, which is our

roadmap for the development of the chemical sciences over the next 15 years. In 2010, we appointed individuals with world-class expertise as RSC champions to oversee our work on the 10 most important challenges for chemistry.

In September, Dr Richard Miller, RSC champion for the challenge of the Conservation of Scarce Natural Resources, participated in the Chemical Sciences in Society Symposium (CS3). Hosted in the UK by the RSC and the EPSRC, this event brought together a select group of leading scientists and funding bodies from the UK, US, Germany, Japan and China. The resulting report outlines five key areas in which materials chemists, through collaboration with other scientists, industry and policy makers, can seize exciting opportunities to address global challenges. The report will be published in several languages and launched internationally in 2011.

Advancing the Chemical Sciences



In June, the Speaker of the House of Commons, the Rt Hon John Bercow MP, addressed politicians and representatives from major science and engineering organisations at the RSC's Parliamentary Links day in Westminster.



Andrew Miller MP

Chair, Select Committee on Science & Technology

The RSC organises several parliamentary events each year, bringing politicians together with the scientific community. Here, Andrew Miller MP, Chair of the House of Commons Select Committee on Science & Technology in Westminster, describes his experiences of working with the RSC.



I was asked what advice I would give to organisations that wanted to improve their relations with Parliament. I told them that they should try to become like the Royal Society of Chemistry.

The 2010 General Election brought an entirely new Parliament into being – and in some important areas it also brought new ways of working. One of them was that, for the first time, the Chairs of Select Committees were elected. I am privileged to serve as the first elected Chair of the Science & Technology Select Committee.

When the Select Committee was re-established, all but two of our members were newly-elected MPs. This gave us a fresh start as we embarked on a wide range of activities, combining our oversight of Government with specific long-term and shorter-term inquiries. We are fortunate to have a very able and hard-working staff on the Select Committee and they bring their own scientific expertise to bear on the issues with which we deal. But I am also very conscious of the fact that there is a very considerable body of scientific expertise 'out there' in the scientific community – and it is vital for us to be able to access that expertise if we are to be effective in the job that Parliament wants and needs us to do.

Among the sources of advice on which we can draw are the many learned and professional organisations, and one of the most prominent is the Royal Society of Chemistry. They tirelessly work within Parliament not only to promote the chemical sciences but also to promote science in its entirety and this can be very useful to a Select Committee. The Society's annual Parliamentary Links Day is a classic demonstration of the value of a scientific society acting 'to serve the public interest' by bringing together the UK's leading scientific and engineering organisations in a way that doesn't happen anywhere else in the House.

But there are more specific ways in which the Society is helpful. For example, when we decided to conduct an inquiry into Strategically Important Metals [SIMs], I attended a very helpful lecture in the RSC's Chemistry Centre on exactly this subject by Dr Mike Pitts, whom we subsequently had before us as a witness when we held our oral evidence sessions. This lecture, the discussion that followed and the accompanying material produced, formed a helpful introduction to our inquiry and well illustrates how useful a role a scientific society can play in informing a Select Committee.

More generally, organisations like the RSC help build bridges between the scientific community and Parliament – and this is invaluable. Some of the bridges have surprised even me. It was through the auspices of the RSC that I was able to meet my opposite number, the Hon Bart Gordon, who chaired the Science Committee of the United States House of Representatives.

I was asked at a recent interview what advice I would give to learned and professional organisations that wanted to improve their relations with Parliament.

I told them that they should try to become like the Royal Society of Chemistry.

Enhancing knowledge

We are at the forefront of science publishing, continually developing new products to promote understanding of emerging areas of the chemical sciences and launching new services so that scientists everywhere can access this knowledge.



RSC Publishing is one of the largest and most dynamic publishers of chemical science information in the world. A continued rise in citations, Impact Factors and immediacy indices provides a clear indication that more researchers than ever are recognising our journals as key resources to access the very best research. Our success in publishing is vital in meeting the needs of practising chemical scientists and in enabling us to fulfil our charitable objectives.

Our publishing output continued to grow throughout 2010, with over 13,000 scientific articles published; an annual increase of 30%. The quality of published articles also showed improvement, with Impact Factors, which reflect the average number of citations for articles in a journal, increasing to 5.4 from 4.9 a year earlier. This compares with the average of 2.4 for all chemistry journals. Of particular note were *Chemical Society Reviews* with an Impact Factor of over 20, and *Energy & Environmental Science*, with an Impact Factor of 8.5, placing it in the leading position for journals covering research in environmental sciences, and in second place in energy and fuels research.

2010 saw our journal portfolio become broader with the launch of four new journals, all of which achieved or exceeded their launch submission targets.

MedChemComm, launched in partnership with the European Federation of Medicinal Chemistry, concentrates on medicinal chemistry, drug discovery, pharmacology and pharmaceutical research. *Polymer Chemistry* appeals to readers across academia and industry, and includes synthetic and biological macromolecules. *Food & Function* provides a unique combination of research from the interface of the chemistry, physics and biology of food, focusing on the interaction of food components with the human body. *Chemical Science* is our new flagship journal, dedicated to publishing findings of exceptional significance across the chemical sciences. The journal will

Delegates from around the world attended our new International Symposia on Advancing the Chemical Sciences (ISACS), in San Francisco, Hong Kong and Budapest.

We launched four new RSC journals in 2010, addressing emerging areas of science and publishing the best research in the chemical sciences.

ChemSpider and ChemSpider Synthetic Pages are both available through a mobile version, so information on millions of chemical structures can be accessed without a PC.



More researchers than ever are recognising our journals as key resources to access the very best research.

help to define important areas by publishing the most significant cutting-edge research.

To support the launch of *Chemical Science*, we developed International Symposia on Advancing the Chemical Sciences (ISACS). The first three symposia were held in Budapest, Hong Kong and San Francisco over consecutive weeks. Each ISACS event presented an opportunity to hear from dynamic, internationally renowned speakers discussing recent topical developments and challenges in their area of research.

2010 saw the expansion of our book collection, with 84 new book titles, including *A Healthy, Wealthy, Sustainable World* by John Emsley and *Garlic and Other Alliums: The Lore and the Science* by Eric Block. 20 books have been translated, into languages ranging from Russian to Japanese, bringing our chemical knowledge to a global audience.

We also launched a new online publishing interface, giving the international scientific community fast

and easy access to over one million RSC journal articles and book chapters, with new ways of filtering information, alerts and blogs on the latest news.

Chemistry World continues to deliver the latest chemistry news, being rated by our members as our most popular service. The *Chemistry World* team produces podcasts, an e-magazine, and our Chinese edition, *Chemistry World China*.

Our online database, ChemSpider, now contains over 25 million chemical structures. ChemSpider delivers this information free of charge and we received three publishing industry awards for the market-leading service in 2010: The Bio-IT Award for Community Service to the Life Sciences, the iExpo Award for Innovation and the Association of Learned and Professional Society Publishers Award for Innovation.

25 million
chemical structures on
ChemSpider

84
new RSC books on the
chemical sciences

13,402
articles published in RSC
journals



The RSC continues to use new technology to enhance knowledge, such as a new online publishing interface, as well as through ChemSpider and Synthetic Pages, and the latest chemical science news in podcasts from *Chemistry World*.



David MacMillan

Editor-in-Chief, *Chemical Science*

In 2010, we launched our flagship journal, *Chemical Science*, establishing a world-leading group of associate editors directed by Editor-in-Chief, Professor David W. C. MacMillan, the A. Barton Hepburn Chair of Organic Chemistry from Princeton University. Here he reflects on the impact that *Chemical Science* has had in its first year.



It was truly one of the most inspiring meetings I have been to in a long time. The breadth and quality of the chemistry was breathtaking.

Professor Chris Hunter, University of Sheffield on ISACS1

RSC Publishing has always listened to the views of the scientific community, and *Chemical Science* was launched as a result of continued feedback – particularly that a leading not-for-profit publisher serving the chemical science community must have a journal that attracts and publishes the most exciting research.

So what has *Chemical Science* been able to deliver that's new? From day one we realised that the way science is communicated is changing. Researchers, from every sub-discipline of chemistry, need a flexible, friendly format to showcase their frontier and novel research. Their research needed to dictate the length of their articles and nothing else. So, in a break from the norm, we created the 'Edge' article, which allows just that.

We remain focused on engaging with and serving the whole chemical science community by attracting and publishing the highest quality research. With my team of 17 associate editors, who are leading scientists with expertise across the full breadth of chemistry and related disciplines, we are perfectly placed to do this.

In partnership with *Chemical Science*, and coinciding with issue one, we launched the first of a new global conferences series, the International Symposia on Advancing the Chemical Sciences (ISACS). Three symposia were held in three continents and each gave scientists the chance to hear world-leading researchers showcase their latest results and discuss some of the challenges being faced within their disciplines. ISACS have helped to establish *Chemical Science* in the scientific community and at the forefront of chemical research. The overwhelming response from both delegates and plenary speakers was very positive; 95% of those that gave feedback indicated they would choose to attend future ISACS meetings. We look forward to this exciting partnership, between journal and conference series, blossoming further in 2011.

By the end of the year, we had published six issues of *Chemical Science*, and we have been absolutely delighted with the response to these; but most importantly, we are delighted with the quality of the Edge articles submitted. The support has been truly international with submissions from over 20 countries, far exceeding our expectations in the first year. The associate editors remain committed to dealing with every article as efficiently as possible, ensuring the quality bar is maintained, and the level of service remains true to the RSC's standards.

Moving into 2011, our goals remain unchanged. Key to our success will be maintaining the quality and service expected of any RSC journal. My associate editors and I will continue to listen to feedback to ensure *Chemical Science* becomes the high impact journal we set out to create and that it truly serves the whole of the chemical science community.

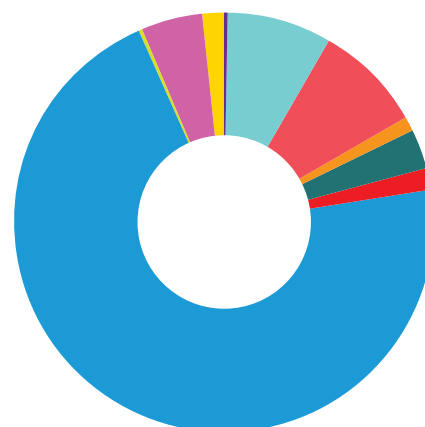
Summary of financial information

Thanks to sterling efforts by the RSC's staff and members, in 2010 we were able to devote resources of £36.5 million to our charitable activities. Furthermore, an operating surplus of £3.1 million was achieved. RSC Publishing revenues increased, returning a surplus of £6.4 million. Membership revenues were £3.4 million, and investment income £3.3 million.

Income (£000)

Voluntary Income	146
Investment Income	3,319
Membership	3,431
Chemistry World	425
Conferences	1,262
Qualifications and Education	627
Publishing	28,864
Library	159
Scientific Affairs	1,943
Other	573

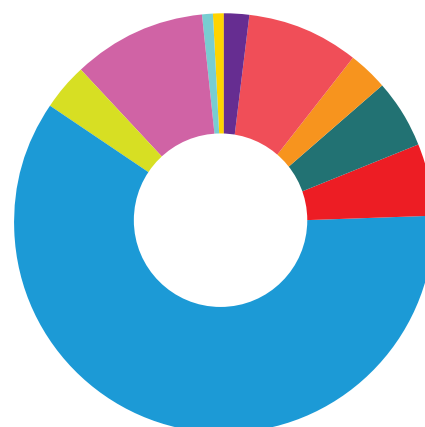
Total Income 40,749



Expenditure (£000)

Total Cost of Generating Funds	780
Membership	3,259
Chemistry World	1,183
Conferences	2,019
Qualifications and Education	2,064
Publishing	22,479
Library	1,430
Scientific Affairs	3,828
International Development	262
Governance Costs	308

Total Expenditure 37,612



Consolidated Net Assets 66,467

The value of the RSC's investments increased from £61.7 million to £71.9 million; this increase resulted from an additional deposit into a property fund from cash funds of £4 million and investment gains for the year. Favourable investment experience of the Defined Benefit Pension Scheme assets has resulted in the pension liability reducing to £15.3 million from £17.3 million; the RSC is committed to funding the scheme. Overall, the RSC's reserves increased from £56.4 million to £66.4 million. I am confident that the RSC will continue to have the financial resources to play a major charitable role in advancing the chemical sciences.

Dr P J Machin, Honorary Treasurer

Trustees' statement

This financial information is taken from the audited and published statements for 2010 which were approved on 12 May 2011. The full financial statements contain an unqualified audit report and will be submitted to the Charity Commission after the RSC's AGM. This summary information may not contain sufficient information to allow a full understanding of the financial affairs of the group and parent charity, RSC. The 2010 Trustees' Report is available for download from www.rsc.org/aboutus/corppubs

Members who require a print copy or who have any questions regarding the financial statements should contact the RSC Finance Department in Cambridge.

Contacts

Members of Council

President

Professor David Phillips OBE CSci CChem FRSC

Immediate Past President

Professor Dave Garner CChem FRSC FRS

Honorary Treasurer

Dr Peter Machin CChem FRSC

Appointed Members

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Dr John Dixon CChem FRSC

Professor Helen Fielding CChem FRSC

Dr John Green CChem FRSC

Professor Ray Jones CSci CChem FRSC

Professor Carole Perry CChem FRSC

Professor Annie Powell CSci CChem FRSC

Dr David Prest CChem FRSC

Professor Keith Smith CChem FRSC

Staff contacts

Dr Robert Parker CSci CChem FRSC

Interim Chief Executive

Tel: 020 7440 3301 | parkerr@rsc.org

Wynne Beaumont ACMA

Finance Director

Tel: 01223 432330 | beaumontw@rsc.org

Jacqueline Mitchell FCIPD

Director, Human Resources and
Organisational Development

Tel: 01223 432229 | mitchellj@rsc.org

Dr James Milne

Interim Managing Director, Publishing

Tel: 01223 432377 | milnej@rsc.org

Dr Neville Reed CSci CChem FRSC

Managing Director, Science Education and Industry

Tel: 020 7440 3319 | reedn@rsc.org

Royal Society of Chemistry

Registered Charity Number: 207890

Burlington House
Piccadilly, London
W1J 0BA, UK
Tel: +44 (0)20 7437 8656
Fax: +44 (0)20 7734 1227

Thomas Graham House
Science Park, Milton Road
Cambridge, CB4 0WF, UK
Tel: +44 (0)1223 420066
Fax: +44 (0)1223 423623

Email: info@rsc.org
www.rsc.org

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