



Bulletin Issue 7 October 2011

Editorial

We started the new season in style with a superb lecture by Professor Andy Parker and can look forward to another varied and interesting programme.

Members

We welcome the following members who have joined the Society since the previous Bulletin: Peter C Wyman, Margaret Walters, Professor David James, Chris Martin, Alex Martin, Daphne Morton, Thomas Nicholas, Rev Ian Aveyard, Malcolm Ford, Keith Sharp, John Down, Tony Gillett, Stuart Richmond and David Lloyd.

It is with regret that we note the death of Dr Phillip Kingston, a member since 1999. Professionally, he was held in high regard at Gloucester Hospital, where he was consultant haematologist, expert in treating Acute Myeloid Leukaemia. In the wider Gloucestershire community, he was valued for his work as an Advisor to [the Summerfield Trust](#).

Forthcoming Events

The next Society lecture is the Public Lecture on 20 October in the Boutflour Hall given by Jonathan Porritt on "Putting Population at the Heart of Sustainability".

The postponed visit to the "Big Pit" will now take place on 25 October – details from Herbert Mould.

The Cheltenham Literary Festival is on until 16 October and whilst there are few specific science related events, there are more than 500 events and over 600 speakers to choose from.

Next year's Science Festival will be 12 – 17 June so make a note in your diaries.

Chemistry with a BANG with John Kilcoyne and Dr Hugh Hunt.

The now annual Christmas lecture for budding young scientists will take place on 14 December at the University of Gloucester. It promises an entertaining and mind-expanding two hours of spectacular science for key stage three pupils throughout the county that will inspire and engage inquisitive minds.

The ever popular **John Kilcoyne**, star of popular show *Brainiac*, brings chemistry to life in a show that sometimes *fizzes* and sometime **BANGS!** With plenty of explosions, flashes, howling noises and spontaneous combustion, it's chemistry... and fun!

Hugh Hunt talks Boomerangs, bouncing balls and other spinning things! Spinning things are very strange. How do ice-skaters spin so fast? Why does a boomerang bounce back? What happens when you bounce a spinning ball? And how do things turn around in space when there's nothing to push against? Get in a spin with Hugh Hunt as he looks at what links all spinning objects with a dizzying amount of live demonstrations.

To book tickets for your school contact **Philippa Claridge** on **01242 775891**

News/Comments

The Cheltenham Science Festival which ran from 7 – 11 June again produced a very wide ranging and challenging programme with over 170 events.

On Monday September 26 the Bristol & Bath Science Park was formally opened by the Rt Hon David Willetts, Minister for Universities and Science. Bristol and Bath form one of the six Science City regions in England, recognising the many achievements in world class scientific research, innovation and development.

To date, it has been the only Science City in the country not to have a science park and creating one is a major step forward in promoting the region's concentration of highly-skilled people as well as creating a hotbed for future innovation. The Science Park will be the hub for the region's many science and technology businesses, connecting entrepreneurs, fledgling businesses and established brands with vital investors, academia and design. The Universities of Bath, Bristol and West of England are key stakeholders in the science park.

Formometrics a scientific consultancy that helps formulate new and improved products, BPE Solicitors, YFM Equity Partners and Science City Bristol are among the first companies to move to the Park. Apitope, a company which focuses on the discovery and development of treatments for autoimmune and allergic diseases, including multiple sclerosis and Graves' disease, will be moving into the Innovation Centre later in October. Partner companies to the new National Composites Centre are also beginning to come on site and this will expand the scientific and business community.

In January this year Professor Paul Valdes talked to us about geo-engineering and members might be interested in the following development in this area.

The Oxford Geo-engineering Programme, a new interdisciplinary initiative of the Oxford Martin School, has issued a press release to call for an internationally accepted code of conduct for geo-engineering research.

The threat of climate change has led academics and policy makers to begin to explore geo-engineering – the deliberate, large-scale intervention in the Earth’s natural systems to counteract global warming. Recent news that an experiment will be undertaken to assess a potential delivery mechanism for a geo-engineering technique ([SPICE Project](#)) draws attention to the need to create adequate governance arrangements for the research, and potential deployment, of such techniques. As a first step, a global code of conduct for research relating to geo-engineering is urgently required.

Academics at the [Oxford Geoengineering Programme](#) at the Oxford Martin School are calling for the ‘[Oxford Principles](#)’ to provide the basis for such a code. The Oxford Principles are a set of principles for the conduct of geo-engineering research drafted by a UK-based team of scholars and presented to the House of Commons Science and Technology Select Committee’s report on “The Regulation of Geo-engineering”. They state:

1. Geo-engineering to be regulated as a public good.
2. Public participation in geo-engineering decision-making.
3. Disclosure of geo-engineering research and open publication of results.
4. Independent assessment of impacts.
5. Governance before deployment.

These principles were endorsed by the Committee (with a recommendation that they be developed further) and by the government in their response to the committee’s recommendations. They also formed the basis of the principles agreed at the [Asilomar International Conference on Climate Intervention Technologies](#) in March last year. The authors of the Oxford Principles believe that the need now is to further develop such governance arrangements in an international context and with broad engagement to ensure that such research has a social licence to operate.

“Adoption of a code of conduct built on the Oxford Principles would help mitigate the major environmental, social and knowledge risks associated with geo-engineering” said Tim Kruger, James Martin Fellow at the Oxford Geo-engineering Programme at the University of Oxford.

The Oxford Principles are already being used by people working in this area. UK Research Councils put a [stage-gate into the funding of the SPICE Project](#) to ensure that public dialogue and consideration of the ethical issues associated with the experiment were demonstrated through an independent piece of public engagement research before the go-ahead was given for the test to proceed.

The Oxford Principles, or whatever develops out of them through interaction with society, can be transformed into a code of conduct for geo-engineering research. Agreement to such a code of conduct should become a necessary condition of funding for such research going forward.

Risks associated with geo-engineering research:

Environmental risks from known or unknown consequences of experiments can be mitigated by performing small-scale experiments in the laboratory before any intervention in the open - in a similar way pharmaceutical research for a new drug goes through a series of trials - only when it is established that it is sufficiently safe when tested in a contained laboratory setting can research progress to further trials.

Social risks arise from the interpretation of such experiments. Some people will wish to see geoengineering research as an excuse to delay reducing emissions. It is important that those working in the field of geoengineering are clear that it is no panacea for climate change and express that clearly in their interactions with the media and society. Emission reductions are essential - geoengineering research is required because, while essential, reductions alone may not be sufficient to avoid dangerous climate change.

Knowledge risks arise from what would happen if we were not able to undertake such research. Due diligence suggests that we need to assess the social and technical aspects of all proposed geoengineering techniques to establish which, if any, of them could be employed without creating countervailing side-effects. Failure to conduct research may leave us in a situation where some parties might be tempted to view geoengineering as a cheap or fast-acting means to counter climate change and seek to implement an inadequately researched technique. Conversely we may decide not to implement a technique which would have been able to counteract climate change safely, but not do so as we had not conducted adequate research. Either way ignorance could pose an existential threat to our society. There are, of course, knowledge risks which arise from such research. The development of techniques that can intentionally modify the climate opens the Pandora's box of climate manipulation for nefarious purposes. It is essential that such research is carefully monitored and any deployment strictly controlled.

One of the first sessions of this year's Cheltenham Literary Festival was given by Vivienne Parry, Professor Peter Johnson and Adam Wishart and was based on the latter's book "One in Three". The book itself traces the path of cancer, its discovery and treatments, through the history of medicine up to the present day in a compelling narrative of exploration set alongside the story of the author's father's own illness with the disease.

Visit Reports

On 21 September 13 members and friends thoroughly enjoyed a visit to the Didcot B power station which uses both coal and gas generation. It was fascinating to learn how the station has adapted its production control to enable it to respond to the demands of the National Grid.

Tailpiece

Quotes to forget

"Drill for oil? You mean drill into the ground to try and find oil? You're crazy." --
Drillers who Edwin L. Drake tried to enlist to his project to drill for oil in 1859.

"Heavier-than-air flying machines are impossible."

Lord Kelvin (1824-1907), ca. 1895

"This 'telephone' has too many shortcomings to be seriously considered as a means of communication. The device is inherently of no value to us." --
Western Union internal memo, 1876.

"Airplanes are interesting toys but of no military value."

Marechal Ferdinand Foch, Professor of Strategy, Ecole Superieure de Guerre.

"I think there is a world market for maybe five computers."

Thomas Watson, chairman of IBM, 1943

"There is no reason anyone would want a computer in their home."

Ken Olson, president, chairman and founder of Digital Equipment Corp. 1977

"640K ought to be enough for anybody."

Bill Gates, 1981

Two final jokes

The Official Unabashed Scientific Dictionary defines an elementary particle as the dreams that stuff is made of.

Q: What is the name of the molecule CH₂O?

A: Seawater