

## DINNER/DISCUSSION SUMMARY

Thirtieth Anniversary Foundation Discussion  
Standing on the shoulders of scienceHeld at The Royal Society on 27<sup>th</sup> November, 2007

We are grateful to

GO Science, Department for Innovation, Universities and Skills, National Endowment for Science, Technology and the Arts, QinetiQ, Research Councils UK and The Wellcome Trust for supporting this event

- Chair:** **The Earl of Selborne KBE FRS**  
Chairman, The Foundation for Science and Technology
- Speakers:** **Sir David King KB ScD FRS**  
Chief Scientific Adviser to the UK Government  
**The Rt Hon John Denham MP**  
Secretary of State for Innovation, Universities and Skills, DIUS  
**Iain Conn**  
Group Managing Director, Chief Executive Refining and Marketing, BP  
**Pallab Ghosh**  
Science Correspondent, BBC News

SIR DAVID KING recalled that when he was appointed in October 2000 the Government was still dealing with the repercussion of the BSE outbreak. In their analysis of that outbreak the Phillips Commission described the hallmarks of good scientific advice as openness, honesty and transparency, words which summarised his own intentions throughout his term of office.

The challenges of animal disease to the UK and worldwide are becoming more prominent, with avian flu becoming increasingly endemic. If human to human transmissible variants of H5N1 evolved then the spread would be rapid. He had therefore devoted much effort as UK Chief Scientist to ensuring that our preparations for an influenza pandemic are underpinned by robust science. Although in October 2000 the UK had not had an outbreak of foot and mouth disease for over 23 years, by early the next year foot and mouth began to grip the UK. He had assembled scientific advice, from epidemiological modellers, virologists and logistics modellers, to support COBR and that had been the key to convincing government to switch to contiguous culling and thus eradicate the outbreak. The modelling had even influenced election timing, possibly the first time that a General Election has been called based on scientific advice. Another notable moment had been when after eight years of world-wide experiments samples of sheep's brains had apparently been found to contain BSE. Sir David recalled that he had asked the simple question, was it certain the samples belonged to sheep? DNA analysis had not been done, sample mislabelling was then found, and a mass cull avoided. TB in cattle was another example where sound scientific advice was the key to rational decision making. Although controversial with the public, his scientific advice was that we should cull not just infected cattle but a proportion of the badger population that scientific studies had conclusively shown passed the disease to cattle. That was his advice; the decision was for the Cabinet.

Sir David spoke of the need for a third 'green revolution' (including GM technologies) in response to the issues of population growth, water stress and climate change. The GM Science Review, which he had chaired, had reached the sensible conclusion of regulation of products case by case, not denial of the new technology. Public attitudes had been cautious, but it was time the government revisited the issue and he urged it to take a more positive stance.

Such examples showed the practical, real-time application of science. Sir David described his Horizon Scanning system and his creation in 2002 of a new Foresight programme to address current or future issues that science, technology and the social and eco-

nomics could help address. Each study had sponsoring Ministers with responsibility for taking action thus influencing both policy and funding decisions by government. There was a general lesson here: there is little point producing such multidisciplinary scientific reports if nobody on the political side has committed themselves to listening. As a result the Foresight and Horizon Scanning activity was embedded in government thinking and was the best example of how government can use science.

Continuing, Sir David described global climate change as the single biggest challenge for our species. He had therefore been actively involved in the science of climate change and in related issues around energy production, supply and research, in technology development and diffusion and in climate change and energy policy. The public had now understood the scale of the problem. The UK private sector had led the way, and recognised that new products and services, from low carbon technologies to new insurance products, represent great business opportunities. The urgent priority now was culture change, to take the steps to turn the corner towards a low carbon global energy economy, using mechanisms such as emissions trading. The time to act was now for the benefit of future generations. Developing this theme, Sir David pointed to the need to invest more in energy R&D (for the UK currently running at the level of Belgium). He applauded the partnership represented by the new Energy Technologies Institute. Even so, other low emission ways of making energy were essential. The UK had significant nuclear materials stocks: better to use them to generate power than waste resources in storage. It was time to give the green light to nuclear energy.

Sir David drew attention to the role of science in the Civil Service. In the past, the concept of "the judge over your shoulder" had increased awareness of the law; today the Civil Service needed to be comparably scientifically literate and able to use evidence. We must not get into a situation where Civil Servants try to second-guess Ministers' wishes and try to fit the evidence to the answer. Sir David argued for promoting innovation; perhaps by ring-fencing 1-2% of government procurement spend to assist companies pull through promising technologies. That could help the most successful grow into the next Nokia. Another government priority benefiting from science and technology was counter-terrorism. He had set up Scientific Advisory Panels for Emergency Response (SAPER) to help ensure science and innovation, including social science in relation to winning hearts and minds, are used to maximum effect.

Concluding, Sir David reiterated his conviction that science and a good evidence base is integral to tackling the challenges of the 21<sup>st</sup> century. Nationally, he had set out the Science and Innovation Framework 2000-2014, and internationally that had led to the Global Science and Innovation Forum (GSIF) and identification of the need for scientists and engineers as a development priority. There was much to do and each policy still needed to be scrutinised to see what science could add, but the direction of the journey was clear.

JOHN DENHAM congratulated Sir David on his outstanding contribution in government, on which his Department, DIUS, would draw heavily. Sir David had not shirked controversy, from his early years opposing apartheid to the latest attempts to win the hearts and minds of organic farmers, the anti-nuclear movement, and badger lovers everywhere. Being forthright, and occasionally controversial, was not that hard, but it was much more difficult to be listened to seriously as well, as Sir David was. John Denham recalled that as a health Minister he had valued his advice and at the Home Office had supported his case to appoint a Departmental Chief Scientist, noting that now there were nine such posts across Whitehall. He had left a significant legacy, with greatly expanded and ring-fenced science budgets, the Science and Innovation Strategy, the Energy Technologies Institute, the Council for Science and Technology, the Global Science and Innovation Forum and leading the development of the G8 science Carnegie group. Some might perhaps fear that the role of science in public policy meant devolving policy-making to scientists, marginalising the democratic process in favour of committees of experts. But scientific advice as practised by Sir David meant simply enabling better understanding of the issues by policy makers and of the real choices open, forcing sometimes them to confront issues they would rather not think about or that were not yet subjects of popular concern, such as his early advocacy of climate change science. Sir David had worked tirelessly to get understanding of that advisory role and we should all be grateful for his efforts.

IAIN CONN spoke of the value of Sir David's contribution from the perspective of business. That was a world where scientifically sound judgments are needed at short notice. More than expertise was needed, it was necessary to know how the political game was played, and that Sir David had fully demonstrated. He had shown how highly complex issues could be made comprehensible to laymen – including most Ministers and Civil Servants. It was important for business to know that there was such an individual at the heart of government able to communicate effectively with government, business and the public, and to argue for the education of the next generation of scientists and technologists on which Britain's future would depend. On the key issue of climate change, Sir David's had been a pioneering voice, and had identified early the opportunities from public/private partnership, a model that was being adopted elsewhere notably in China. Likewise, Sir David had put the nuclear issue back on the table recognising its materiality. He was leaving a big legacy in climate change and energy security policy on which the UK was now a leader. Sir David was that unusual embodiment of scientific rigour with political sensitivity and the skills of a great communicator.

PALLAB GHOSH, responding from the perspective of the media, congratulated the Foundation on its apt choice of speaker for its 30<sup>th</sup> anniversary reflecting the mission of the Foundation. Sir David had ensured that scientific advice was available and accessible, translating and filtering complexity into clear policy related language for government. That was what in their sphere good journalists tried to do, but Sir David had carried real responsibility for his advice and had not shied away from highlighting controversial issues, all the more important after BSE when trust in scientific advice was low. His key contribution among many would probably turn out to be on climate change. His phrase that this “posed a more serious threat than terrorism” had resonated around government and influenced the Gleneagles agenda. Some might argue that advisors should not show such passion, nor should the system have to depend on one individual to prevent crucial and avoidable mistakes in government. But in a world of too much consensus, when there were too many timid cogs in a broken scientific machine, we should be glad David King had been there to speak for science.

In discussion there was widespread tribute given to Sir David's work. The following additional points were made:

- a. Policy-making had to contend not only with objective risk assessment, as it would be understood by the insurance industry, but also with the public perception of risk. If these were out of kilter then there could be a heavy price to be paid in economic terms, as originally with GM. It was necessary to take public concerns on board and with GM that had now resulted in a world beating regulatory regime. The public often asked why it was necessary to incur risks at all. When the benefits were clear, as with mobile phones, then public attitudes to risk were likely to be robust and a sound regulatory regime could be constructed. Other issues such as longevity would similarly need attention.
- b. Nuclear power would have a significant contribution to make to a cleaner energy mix. Support had been obtained for international cooperation (at the Cadarache centre) on fusion research and although still some years away from fruition progress would be faster with greater funding. Now was the time to be considering the private sector becoming involved to help advise on how basic technology could be taken to market.
- c. The learned Societies had much to contribute to public understanding and to the encouragement of the next generation to take up science and engineering. They could act together to help the Chief Scientific Adviser with work on developing an accepted ethical code for scientists. But there were too many different learned Societies in the fields of science, engineering and technology. It would help too if leading engineering companies backed their rhetoric by paying their graduates more, thus stimulating a supply response from the careers market-place.
- d. There were plenty of controversial topics of public interest in science left for future Chief Scientists: for example, countering creationism, assessing homeopathy, data protection and information technology and not least establishing gender balance across the field.
- e. All Chief Scientific Advisers had to walk a thin line between keeping the confidence of Ministers in their discretion and keeping the confidence of the public in their independence. Controversial public statements were like the nuclear deterrent, to be kept in reserve and only brought out when other avenues seemed too slow, as had been the case in the early debates on climate change science.

Concluding, Sir David King welcomed the wide-ranging discussion. He encouraged others to think about science, as he did, in its pre-1860s sense of 'knowledge' embracing all the disciplines including arts and humanities. Sir David ended his valedictory by expressing his thanks to his Private Office and his science teams, his fellow Permanent Secretaries and Chief Scientists and all those Ministers, officials and executives inside and outside government who had supported him so well on his stage of the journey. The evening ended with much appreciated warm tributes and bad jokes from Phil Willis MP and Lord Krebs FRS and a final toast proposed by Sir David King to the continued success of the Foundation and responded to by the Earl of Selborne.

Sir David Omand GCB

Details of past events are on the Foundation web site at [www.foundation.org.uk](http://www.foundation.org.uk). Other links are:

**GO-Science, DIUS:**

[www.dius.gov.uk/policy/science.html](http://www.dius.gov.uk/policy/science.html)

**NESTA:**

[www.nesta.org.uk](http://www.nesta.org.uk)

**QinetiQ:**

[www.qinetiq.com](http://www.qinetiq.com)

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[www.rcuk.ac.uk](http://www.rcuk.ac.uk)

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