

Science and Globalisation

The Attlee Suite was standing room only for the annual Parliamentary Links Day on 27 June organised by the Royal Society of Chemistry on behalf of the whole scientific and engineering community and co-sponsored on a bipartisan basis by Dr Brian Iddon MP and Mark Lancaster TD MP with the support of the Commons Science and Technology Select Committee.

The highlight of the day was the first public speech given by the new Foreign Secretary, **Rt Hon Margaret Beckett MP**, who addressed the audience of Members of Parliament, scientists and engineers, on the subject of the **Globalisation of Science**. She said Links Day is the most important science-related event in Parliament, and the UK's position and influence abroad is linked with our science skills. Six of the top ten European universities are in the UK and they produce 12% of all scientific paper citations. China and India are becoming the new science super powers as China produces more science graduates than the whole of Europe. The Foreign and Commonwealth Office Network helps to attract R&D investment and to bring in know-how. This increases the profile of UK science. The Partners in Science scheme organised 130 events in China in 2005 with significant bilateral links in subjects ranging from climate modelling to astronomy. The FCO appointed John Ashley to work in partnership with countries where energy demand from coal fired power stations is increasing, with a budget of £3.5 million for this work. The FCO is working with the Hadley Centre on climate modelling and renewable energy sources. Young people are enthusiastic about the environment and this is an opportunity to demonstrate the



contribution that science and engineering can make to caring for the environment.

The President of the RSC, **Dr Simon Campbell**, indicated that the RSC is the most effective international organisation for the Chemical Sciences, with 43,000 members (8,000 overseas). The global chemical industry is driven by market opportunities and legislation concerning R&D and innovation. Quality, efficiency and R&D are more important than low wages when selecting locations for manufacturing. For example, Pfizer started in Germany, moved to the US and is now established in Kent. R&D follows the market, but under present UK legislation, industry is reluctant to pay for innovation. The REACH proposals will create barriers to trade and leadership in the chemical industry will move out of Europe. Singapore, where R&D is 3% of GDP, has now become a major manufacturing centre despite being a high wage economy.

Dr Robert Kirby-Harris, Chief Executive of the Institute of Physics, which has 35,000 members (9,000 overseas), indicated that the UK is a world class player and the industry employs 1.8 million people in the UK. Physics underpins almost all technology; it is interdisciplinary,

innovative and international, but the exploitation of inventions in physics is a non-linear process. The IoP supports sustainable development and science education with a mobile Lab-in-a-Lorry that brings science to young people, and training in entrepreneurship and economic development, and a centre for maths in South Africa. The UK supports many European facilities including CERN and the Large Hadron Collider which is due to start work in 2007, and may help discover the elusive Higgs boson.

The Chief Executive of the Institute of Biology, **Professor Alan Malcolm**, presented a case history about GM crops. There were no GM crops ten years ago. There are now 1 million sq km of GM crops, about 4 times the area of the UK. There are none in Europe, apart from about 60,000 sq km of animal maize in Spain. Throughout the world GM comprises 50% of all soya, which is herbicide tolerant, 25% of maize and 10% of cotton, both insect resistant. GM crops reduce labour costs, water consumption, exposure to toxic chemicals and increase yields. GM cotton is popular in China and India. In the UK 75% of processed food contains soya bean. The Chinese economy is expanding

enormously and the people have more money to spend. Meat consumption has doubled in China recently, along with the need to import Brazilian soya beans. GM technology will preserve the environment by helping to reduce the need to cut down more of the Amazon forest to grow soya.

The Foreign Secretary of the Royal Society, **Professor Dame Julia Higgins**, described how the Royal Society co-operates with the Government and NGOs, and works closely with the OST, FCO and engages with other academics on matters of policy, with expenditure of £7 million on international work. This includes stimulation of international scientific collaboration, promoting international lectures, providing science commentators and supporting public engagements. The Royal Society has initiated a pairing scheme with MEPs in the European Parliament and intends to expand the scheme to MEPs of other nations. Helping the developing world is another major overseas activity of the Royal Society, by strengthening the role of African academics in Ghana and by helping them to provide advice to their governments. The RS has funded, and is looking forward to developing a partnership with a party of African scientists who are visiting in October 2006. A prize to encourage young African scientists has been given by Pfizer.

The Vice President and International Secretary of the Royal Academy of Engineering, **Professor Peter Saraga**, stated that members of the RAEng are equally divided

between academics and the engineering industry and contribute to every part of the UK economy by raising our performance. The markets are global and the economy and engineering future depend on maintaining a competitive edge and the capacity to manage international R&D. The R&D base must be encouraged and strengthened as global companies such as IBM can undertake their research in any country. The national R&D base also needs to understand the requirements of the users including the need for multi-disciplinary contributions working in effective and open partnerships.

The First Secretary for Science and Technology, Embassy of the People's Republic of China, **Mr Zhiyong Jin**, presented a summary of China's industrial activity and output. The GDP last year was \$2,279 bn, up by 9.9% from the previous year. Oil production and energy consumption and generation have all increased, the latter boosted by the Three Gorges hydro-electric project. The Tibet railway, which is 1,142 km long and rises to an elevation of 4,000m, has been completed. China's investment in R&D for science and technology was \$29.59bn in 2005, which is 1.3% of GDP and the number of graduates will increase from more than 3 million in 2005 to more than 4 million in 2006. China is establishing diplomatic ties and connections with many overseas countries to carry out co-operative projects.

The Science & Technology Counsellor, United States Embassy, **Mr Jason Hahn**, reminded the

audience that Benjamin Franklin was an early member of the Royal Society. He discussed the possibility of a virtual science library which would include developments to encourage economic growth such as international meteorological measurements and global earth observations.

The Chairman of the House of Commons Select Committee on Science and Technology, **Mr Phil Willis MP**, emphasised that the future of mankind depends on science to solve problems such as energy, global warming and disease and research should be shared with the global community. The Government's priority is to reduce carbon emissions as a response to climate change. It is working with China to build a carbon capture power station in China. The ITER fusion power project is an example of international co-operation.

The Chief Scientific Adviser, **Sir David King**, said that science, technology and innovation impacts on government. He emphasised the role of advances in the medical science on the world population, which doubled from 1bn in 1800 to 2bn by 1930, doubling again to 4bn in 1975. The population is over 6bn and is expected to reach 9bn by 2050. The Chinese economy is increasing. It will equal the combined economies of the EU and the USA by 2045. The UK's R&D target is 2.5% of GDP by 2014 with a further 1.9% of private R&D. The service sector is growing faster than the manufacturing sector, which accounts for half of our exports. High value-added products and services are needed. The Global Science and Innovation Forum (GSIF) has an overarching approach to flooding and coastal defence. Many overseas scientists are involved in the detection and identification of infectious diseases and tackling obesity. Science writers are required to communicate this information to the public.

Report by Robert Freer (Royal Institution of Great Britain)

