

# Annual Luncheon of The Parliamentary and Scientific Committee

## The Guest of Honour at the Annual Lunch on Tuesday 5th November 2013 was the Government's Chief Scientific Adviser, Sir Mark Walport

In his address, he made the following points:

"Thank you for the invitation to speak to you, and for your introduction.

Your reference to the controversy about neonicotinoids in my first few weeks illustrates a key feature of the job.

One of the main challenges of the job as Chief Scientific Adviser is the distinction between hazard and risk – two concepts which are often confused.

Our lunch has been surrounded by hazards. Salt is very dangerous if consumed in large quantities, and as for knives – we all know about how dangerous they can be.

Risk is of course hazard times exposure.

The specific issue I had to deal with was not whether neonicotinoids were hazardous to insects – they are designed to be so. The question is at the field levels used, do they kill insects which we do not wish to harm? Regrettably the evidence at present is simply not sufficient.

It is one of the problems of the job. Uncertainty is one of the issues.

We can sort such things out with more experiments. The scientific approach is not to take a reflex decision and to ban substances, but to go ahead and do the science. This will enable us to determine the correct answer.

Let me say a few words about the role of the Government Chief Scientific Adviser.

It is of course to advise Government about all aspects of science, engineering, technology, and social science as it applies to all aspects of Government policy. It is clearly a small job!

I thought I might start by considering what is it that Government cares about?

I think there are two things which governments really care about. The first is the health, well being and the resilience of us, the UK population. And the second is the economy.

These two issues then drive the agenda.

If we then think about what it is that drives the health, well being and resilience of populations it is to a very significant extent our infrastructure. It is our infrastructure that we take for granted, until it goes wrong.

Advanced societies fail to work very quickly when the electricity



Sir Mark Walport

supply fails. Then we have cascading failures, and everything else stops. We survive by just-in-time supply lines. Supermarket shelves would empty very quickly and water would stop pumping.

So our built infrastructure is extraordinarily important to our resilience and wellbeing.

This includes energy, buildings, transport, cyber security and waste disposal.

Then there is also the natural world which is vital for humans.

This natural infrastructure includes weather, climate, biodiversity plants and animals.

These two sets of factors then drive the science and technology agenda. An important part in preserving our health and well being is identifying and managing national risks and emergencies.

Here I would like to pay tribute to my predecessor, Sir John Beddington, who, during his tenure, set up SAGE, Scientific Advice Groups in Emergencies. This is now an established part of our national resilience. It feeds science in to COBRA in emergencies.

On the economy, I don't think I need to persuade you that science and engineering are important.

I think that a key role of the GCSA and the Government Office for Science is to bring together Industry, Academia and Government so that we can try to get the best policies and the best environment for our truly great sciences and the utility and economic benefit which they bring.

Another important aspect of the Government Office for Science is to provide advice on Horizon Scanning and Foresight.

It is not just about getting advice when you are in trouble, it is also about working with the community at large to identify the future risks and opportunities. We have recently initiated a Foresight programme on "Future Cities" which I think is a very exciting topic.

There are two additional areas of the job which I think are important. One is making better use of both quantitative and qualitative analysis by Government, so using evidence properly.

There is also a role for the GCSA in providing leadership of

the very few posts at Permanent Secretary level which works right across Government, and I think that is a key aspect of the role. I work closely with the Cabinet Secretary and with the Treasury, because they have responsibilities to work across Whitehall, and also with Number 10.

A lot of the job is about finding the right people to work with. I work closely with the Permanent Secretaries and that community, and I am trying to work out who are the people who get things done. One of the challenges is execution. It is one thing to have a good idea, it is quite a

of CSAs in almost every Department of Government. Between us we have most of the domain skills that are needed. For example, Robin Grimes is a Nuclear Physicist, and he is CSA at the Foreign and Commonwealth Office. Rod Smith is an Engineer, and he is in Transport. Between us we do therefore have most of the expertises, though not quite all of them.

Then there are many scientists in and around Government – Met Office, DSTL, Public Health England, and an important part of the role is as Head of the

Cornford in 1908, because he feared that it might ruin his reputation as an academic, if his name were attached to it. It is only 40 pages long and readily available, and I encourage anyone who has not read it, to do so.

There is a fine balance between working inside and working outside Government.

People are sometimes disappointed if the GCSA does not make lots of statements publicly. I do of course think it is an important part of the role.



Lord Jenkin, Andrew Miller MP and Professor Michael Elves



Rt Hon Liam Byrne MP



Stephen Metcalfe MP, Chi Onwurah MP and Dr Stephen Benn



Ms Fiona Nixon and Stephen Mosley MP

the scientific community in the broadest sense.

One of the questions I was asked on leaving the Wellcome Trust was, 'How will you cope with moving from an endowment of £15bn to zero?'

The main tool of the GCSA and GO-Science is 'Communication' and so that is a really key part of the role. The question therefore is 'to whom does one communicate?'

It is a very unusual role in Whitehall, because it is one of

different thing to make sure it happens.

It has been pointed out to me all too often 'What can an ignorant medical scientist know about the physical sciences?' I point out what can an ignorant physical scientist know about the medical sciences. Any GCSA is going to have his or her own narrow area of expertise – it goes with being a scientist.

The work can only be done with a network of other advisers, and we have a terrific network

scientific community. And then there are of course many scientists, engineers and technologists outside Government – in the Academies, Universities, Industry, science advisory committees and councils (about 70 of them). The key challenge is how to effect results.

I would strongly recommend the key textbook for almost anyone in Government is *Microcosmographia Academica*, a great book written anonymously by Francis

If we are really to effect change, we need to work effectively within government. I learned fairly quickly that if you want to change things, you need to work with Government Departments rather than doing things to other Government Departments. There is a partnership role in getting things done.

The other trick is getting other people to help – and learned academies and societies are very helpful here. They are often able to say things from an



independent position, that are harder to say from inside.

The machinery, of course, is the Government Office for Science and the tools are:

- Foresight and Horizon Scanning
- Council for Science and Technology
- SAGE
- The office itself has a very strong team who provide expertise across a wide range

### What is the work programme so far?

There have been cross cutting themes in several areas:

- Risk and resilience
- Energy and climate change
- Data and analytics
- Demography, lifecourse and cities
- Innovation and infrastructure
- Trade and finance

The challenge is to turn that risk register into a living document. A risk register is no use if it is six inches thick and sits on a shelf. The trick is to prevent things happening, as best as you can and mitigating the effects when things go wrong, and clearing up afterwards.

It is very difficult to find risks where there is not a significant science, engineering, technology aspect. We get the public engagement wrong on topics such as GMOs when we treat them generically. The question should be what gene, what organism, for what purpose. It is not that GMOs are either a good thing or a bad thing.

This is true for all technologies. Is nanotechnology a good thing? Clearly asbestos as a nanoparticle is not a very good thing.

Fukushima. UK citizens in Tokyo were told they did not need to pack their bags and evacuate, because there was no significant risk from the plume from Fukushima. This was very important, not only for British citizens, but it also helped to calm the crisis in Japan. If you look at other countries' response to nuclear energy in the aftermath of Fukushima, the UK was the one country where public opinion remained steady.

Energy and Climate Change is undoubtedly one of the defining policy issues of our time. The

decisions which are for all of us to decide – we are the electorate.

We could make the decision that we do not care about the world for future generations. It is a legitimate decision, although not one with which I personally agree, but it is for the population to decide. But we must not approach the issue by pretending that the science is wrong – it isn't.

Nick Pidgeon and his group in Cardiff have done good work looking at public values around



Lord Jenkin



Lord Waldegrave and Lord Jenkin



Mrs Katrina Methven, The Lord Willis of Knaresborough and Dr Charles Evans



Baroness Perry and Dr Richard Worswick



Mr Ian Taylor with Sir Mark Walport

I will select just two of these:

### Risk and resilience

We have the National Risk Register. I have only recently become aware of how many people near here who are spending their lives working on the safety and security of the population. The topics on which they are working include civil contingency planning – flooding, space weather, pandemics, terrorism – and considering prevention, mitigation, handling and clear up.

In the case of synthetic biology, making a new toxin may not be very helpful. Developing an organism which could remediate arsenic in the environment would be a very good thing.

We tend to treat technologies as generic, whereas in fact they are specific. They are neither a 'good' thing nor a 'bad' thing – they are 'it all depends' thing.

There is a key role for science to play in diplomacy.

This was shown very clearly in John Beddington's advice after

IPCC report came out recently, and the conclusion is absolutely unequivocal. The effect of human behaviour on climate change is clear.

The challenge is to move from the science to the communication to the policy. There are some who are unwilling to face up to the policy conclusions and react by denying the science.

This is completely nonsensical. We have to agree the science. We then need to recognise that there is a whole range of policy

energy. There are three concerns for the public. They worry about security of supply, affordability and sustainability. Any policy maker needs to look at the issues through all three senses simultaneously. We have set up an energy subgroup of CSAs and within CST, working with key Government Departments.

The job is fascinating, and I would like to record my thanks to all those who have already given me so much support."