

The appliance of science

Professor Sir David King advises the Prime Minister directly on science, but his remit goes well beyond research policy. Simon Hodgson caught up with him in his Westminster office.

I'm a scientist – at least I was some time ago – and I guess many of you are too. But Sir David King's description of managing the UK's Foot and Mouth epidemic sounds much closer to a Hollywood movie than my experience of lab work. "I picked up the phone, called people into the office, talked to them, provided computer time and got modellers up and running – in real time – and they were working 24 hours, round the clock – it was a frantic period," he says. His team rapidly charted the epidemic, making two parallel computer models to predict its spread, testing one against the other until they were confident of their realism.

"We had meetings every day, hourly meetings in the middle of the day," he recalls, "and I was satisfied as soon as [the two models] agreed. Then we ran the model and tried different control procedures until we found one that minimised the number of animals culled and got the thing over as quickly as possible." It turned out that the probability of the disease spreading to a neighbouring farm was 0.15, but ten times lower than that to spread to the next nearest. The key – the models showed – was to cull the animals on farms adjacent to the infection as quickly as possible.

"We came forward with a new control procedure," King remembers. "Once the Prime Minister said 'here's somebody who has a solution, I'm going with this' he called a meeting of COBRA and all departments and asked them to get behind it. It worked a charm. Literally within two days we had turned an exponential growth into an exponential decay."

There's an interesting political side-



Professor Sir David King

story too. "I showed the PM three curves," explains King, drawing me a sketch graph of the rapidly growing infection numbers reversing and going into predicted decline. "This is where we were when we spoke to the Prime Minister and this is where the election was expected (5th May that year), and here's the 6th of June. The PM looked at the curves and he said 'I think we'll go for the 6th of June'. I think it is the first time ever that the date of an election has been set by a computer model," he adds chuckling.

Professor Sir David King is 'Chief Scientific Advisor to the Prime Minister and the Cabinet', so we shouldn't be surprised to hear of him bringing science directly into the highest levels of government as his story illustrates. But he also oversees the Office of Science and Innovation which allocates the £3.5bn government science budget spent principally through the Research Councils.

Not bad for his first job in government. You see, for the past 35 years, Sir David has been a professional scientist, with a distinguished career researching the physical chemistry of materials surfaces, with a particular interest in how chemical reactions occur on them (very valuable information

when designing catalysts). He was appointed to this huge and political post in 2000, and felt it was "like walking into a room with no lights on, I had no idea what the job involved", but goes on to add that it was the "best decision I've made, it's been absolutely tremendous".

He has never severed his academic ties. "I've got a dozen PhD students up in Cambridge," he grins, explaining how he gets a car back at ten o'clock every Thursday night and spends all day Friday and Saturday morning in the lab. "That works exceptionally well," he says. "I get my total break from all the high-tension stuff; I

get up there and I'm back in my comfort zone." You might be noticing that Sir David has a certain easy frankness about him, a very refreshing un-spun style – a fact I'm sure is not lost on his press officer sitting with us at the table.

That directness is to the fore when I ask him what drew him into science. "My father was involved in running a paint business in South Africa," he explains, "and from the age of 12 I was sent into the factory here, the factory there, the paint laboratory, the accounts division. They said 'which bit did you like?' and I said the paint laboratory, so they said 'right – you can go to university and do a degree in chemistry and physics'." His brother, I think, must have answered for accounts, since he eventually rose to become Financial Director of Anglo-American, the international mining conglomerate.

Since Sir David's appointment, he has been a prominent and vocal advocate for the need to address human influence on the changing climate. Where did this come from, I ask him.

"When I took this job in October 2000, if anyone asked me 'so why are you taking it?' I said 'there's a big issue [in climate change] and I don't think the profile is at all high enough'," he

explains. "The chemistry department at Cambridge has probably one of the world-leading groups in atmospheric chemistry which modelled the ozone hole expansion due to CFCs." King had become involved with that group when his professional expertise was needed to make the equations work. "Interestingly when they started, the modelling showed that CFCs had no effect on ozone in the upper atmosphere," he says. "But at that point they had left ice crystals out, and actually all the reactions were taking place at the surfaces of ice crystals." Working on this was a useful introduction to climate science.

"Having seen how effective the modelling was, I got very interested in what was happening at the Hadley Centre [for Climate Change research] and the modelling on global warming. It became very apparent to me that CFCs was an important issue but nothing like as important as this one [CC]". King brought this view with him into government, immediately commissioning a review of the state of energy research

in the UK, speaking publicly on the need for action and even giving the Greenpeace business lecture in 2004.

This is even more un-spun and it's clear that he is often pushing further and faster than the rest of the Government on this topic. I wonder how free he is to say precisely what he thinks now he receives the government shilling. "It's a good question that I asked – fortunately – before I took the job," he admits. "If I'm to gain the trust of the public and the trust of the ministers and the PM, I have to be able to spell out my position in the public domain. So the PM knows that if I give my advice to him, that advice is also going to go into the public domain unfettered by political decisions. As soon as you allow politicians to determine what you put into the public domain, you've lost credibility. And very much to the credit of the Government, that position was accepted."

"That's not to say that there haven't been difficult times," he continues, glancing across at his press officer meaningfully. But he feels that he has

been able to maintain a position as a trusted, independent voice which has in fact been useful to government. King cites the example of his frequent media appearances around the time of the avian flu scares.

And he's obviously seen as a success. The post is a five year job but King was asked to remain when his term expired at the end of 2005. "I will be leaving at the end of this calendar year," he says, when I ask him about future plans. "I will continue the research up at Cambridge, but I will probably continue it on this current level." There is clearly something in the pipeline, and I ask him what he will do with the rest of the time. "I will continue my four days a week engagement with policy issues, which is probably as much as I can say now," he smiles across at his media advisor. Perhaps the disciplines of politics have rubbed off after all.

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