When did you decide you wanted to be a scientist?
I have always had a curiosity about the world into which I was born and how it works. Although there are other methods, such as pure philosophy, that will satisfy this, I discovered fairly early that the scientific method is the best way to answer questions such as what is the world like and why does it behave in the way does? That then led on to a scientific career, and enabled me to work as a scientist. I went to university to read chemistry, but, in my gap year, I worked at the Hammersmith Hospital and discovered ‘bio-hyphen-chemistry’. I decided it was far more interesting and when I went up to Oxford I changed to reading biochemistry, which lost the hyphen in 1952. Although biochemistry and enzymology have rather moved out of centre stage during the era of molecular biology, it is clear that it needs to move back towards the centre of our thinking. Indeed, I see that the inter-actions between chemistry and biology will increase rather than decrease in the coming years. The fields of chemical genomics and metabolomics make this particularly clear.

Why did you take the job as Chief Executive of the BBSRC?
Much of my scientific career has been involved in the development of methods so that I can attempt to understand the world around me. In general, this has given me a broad overview of a number of scientific fields, rather than my concentrating on the minute details of one specific topic. This background makes running an organization such as the BBSRC a rather attractive proposition for me, and perhaps more attractive than it would be to other scientists. With the exception of the animal sciences panel, I have been successful in grant applications to every one of the BBSRC responsive-mode committees. This broad range of experiences does, I believe, put me in a superb position to have an overview of the activities of the organization.

The BBSRC has been without a scientifically trained Chief Executive for some time now. Does this cause any particular problems for you?
Steve Visscher, the interim Chief Executive, has done an outstanding job, despite not having a full scientific training. At a high level, you do not need a scientific training to, for example, know that increasing crop productivity is desirable. You do not need to know what transcription factors are and how they may contribute to increasing crop productivity. I do not think that not having a trained scientist in charge has been at all damaging. I am also a specially pleased that Steve is staying on to cover a number of the areas that the Chief Executive has to look after – such as finance and back-office activities – as our Chief Operating Officer. These are not my strong suit in comparison with the promotion of science.

What do you think the main function of the BBSRC Chief Executive is?
The main role is to sit in the middle between the funders (the Government and Treasury) and the community who will deliver the science that we have been given money for. We are given money partly for the health of the science base, but partly, over the long term, to show economic and policy impact. The government is not giving us money just to do interesting things. It is giving us money, ultimately, because our activities contribute to UK PLC. This is important because, when I go back and ask for more money, questions will be asked as to how well we have done in the past. We have done very well in the past and have had comparatively good settlements in the last two spending rounds. So, I see the role as bridging multiple audiences – the Government, university scientists, the BBSRC Institutes, industry, etc. Our core business, however, is the delivery of good science – by any means.

How would you describe your management style?
Devolved down to the optimal level. There is a splendid book called The Starfish and the Spider in the Web 2.0 genre which I com-
recommend to people. It is somewhat similar to *Wikinomics, The Wisdom of Crowds and The Long Tail*. The arrival of the Internet and the web means that, to a first approximation, all knowledge is available to us at the click of a button. This changes completely the way that we do, or ought to do, science in the future. At the BBSRC, we are taking notice of this and trying to drive the agenda of Web 2.0 and the semantic Web as applied to the solution of biological- and biochemical-related problems. There are two papers per minute being added to Medline. Obviously, individuals cannot read all of these. Therefore how can we do integrative biology when nobody knows the literature completely? The answer, in part, is that we get computers to do it for us.

**Will systems biology ever be able to truly replace bench science?**

That is an extreme view that is held by some partly for didactic and heuristic reasons. I do think, however, that there will be movement in that direction. We are under-exploiting our ability to infer the structure of systems from the known facts because most people do not know all the facts. In the future, we will begin to be able to build models that will be able to incorporate all of these facts. This could culminate ultimately in something that I am very keen on — the digital human. This will be a, more or less, accurate model that will be able to make predictions that can be tested against existing data or used to devise new experiments. This is an engineering way to tackle biological problems. If an engineer is asked to build a bridge, and does not model it first, then two things will happen. First, the bridge will fall down, and, second, the engineer will be expelled from their learned society for professional misconduct. On the other hand, a biologist will happily do experiments on infinitely more complicated living systems without having modelled them in the first place. There will be a time when people will say, “You used to experiment without doing the modelling first?”

**Are the days of successful single protein grant applications now gone?**

That would be grossly overstating it. We are still finding out about the functions of gene products whose existence we have only recently come upon – partly as a consequence of genome sequencing, but also partly as a consequence of unearthing novel protein functions. There are many proteins for which once a function is found, the temptation is to stop there. However, proteins often have multiple functions. We will not be giving up reductionist molecular biology any time soon, but we will be recognizing where its role lies in the pantheon of scientific activity.

**Scientists are usually not trained to assess the economic impact of the research that they do. Is this something that needs to be altered?**

The ability of scientists to assess the economic impact of their research will certainly benefit those that are able to do so. The title of the BBSRC delivery plan which describes how we are going to spend the money we got from the last spending review is ‘Excellence with Impact’. We are not going to abandon supporting excellent science, but excellence with impact will certainly do better than excellence without! People who badge their science appropriately and recognize where impact might occur, however generally and however long term that might be, will fare better than those who will not even contemplate the idea. Some science has more obvious and immediate impact than others, but I would invite people to think a little more about the impact of the work they undertake than they do at the moment. It is recognized that there is a very non-linear relationship between the funding of responsive-mode, blue-skies, curiosity-driven science and the places where the impact may come. Therefore impact must be assessed on a case-by-case basis.

**What challenges do you foresee for the Council in the forthcoming year?**

There are scientific challenges and there are social challenges. The social challenges include environmental change, food security, the digital economy and healthy aging. The BBSRC would wish to, and would be expected to, respond to these so far as our scientific activities can deliver outputs that address these issues for society’s benefit. There are always challenges when scientific discovery is proceeding at such an explosive pace. The model of scientific funding that essentially says that universities can appoint as many individuals as they choose to enter responsive-mode funding regardless of whether there is enough money or not cannot continue. It is not for me to say that there are too many university appointments, it is just that the appointment and funding processes are uncoupled. This does not allow optimal control of either. The UK funding rates remain high, but a system in which the funder has little control over the money that it is given and little control over the amount of money that is requested of it is not, of itself, a particularly good one for sustainability in the long term. On a more immediate level, the Council is currently restructuring its funding committees and operations. We are embarking upon a series of roadshows to engage the community about this process, but hope that our proposed changes will be warmly received. As soon as the roadshows are finished – by mid-November – there will be information on the BBSRC’s website about these changes.

**How will the current global financial crisis affect the workings of the BBSRC?**

The Prime Minister is on record as stating that spending on health and education will be protected. Hopefully, this will remain the case. There is a view that says that the knowledge economy will be created by scientists, including biochemists, and that we are the solution, not the problem. It is to be hoped that Research Council Chief Executives will be successful in conveying that message to protect our budgets. Of course, I will be doing precisely this. Historically, we can make a very good case for continued funding. I personally have no problem in deploying the argument that the sorts of science that the BBSRC funds benefits the economy as a whole. We have a great number of success stories, even measured by simple crude commercial outputs.

**Will you continue as a scientist during your 4-year tenure at the BBSRC?**

Very definitely. I am contracted to devote 4 days per week of my time to the BBSRC, but I expect to be able to continue in a pared-down laboratory in Manchester during my secondment to the Council. About 80% of my laboratory currently works on ‘dry’ projects, and it is relatively straightforward for me to continue looking after these on a more part-time basis.