

**Science and the comprehensive spending review : minutes of evidence,
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WEDNESDAY 28 OCTOBER 1998

SCIENCE AND TECHNOLOGY COMMITTEE

My Right Honourable
Dr Ian Grieve
Dr Lyne Jones

Professor Kumar
Dr Alan R. Williams

SCIENCE AND THE COMPREHENSIVE SPENDING REVIEW

MINUTES OF EVIDENCE

Wednesday 28 October 1998

THE WELLCOME TRUST

Dr Michael Dexter FRS, Ms Linda Arter and Ms Dianne Hayter

OFFICE OF SCIENCE AND TECHNOLOGY

Lord Sainsbury of Turville and Sir John Cadogan

*Ordered by The House of Commons to be printed
28 October 1998*

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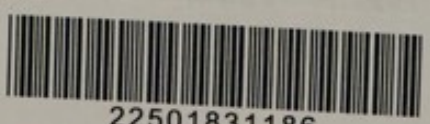
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WEDNESDAY 28 OCTOBER 1998

Members present:

Dr Michael Clark, in the Chair

Mr Nigel Beard
Dr Ian Gibson
Dr Lynne Jones

Mr Nigel Jones
Dr Ashok Kumar
Dr Alan N Williams

Memorandum submitted by the Wellcome Trust

INTRODUCTION

The Wellcome Trust ("the Trust") is the largest charitable non-governmental funder of biomedical research in the world, currently spending approximately £300 million pa on research. The Trust's acknowledgements in UK biomedical research papers rose from six per cent to 10 per cent between 1988 and 1995.

The Trust's objectives are:

- to fund biomedical research
- to improve the health and welfare of mankind

BACKGROUND INFORMATION

It is well known that the UK has a strong track record in scientific research, particularly in the field of biomedicine. Much of this valuable research is conducted within universities or Higher Education Institutions (HEIs) and its excellent quality has been put under threat due to a decline in "real term" funding from the Higher Education Funding Councils over the past decade. This decline, which has been a consequence of previous changes in the "dual support" system, has resulted in a decline in the research infrastructure of UK universities. Since 1992, Research Councils have made a fixed contribution (currently 46 per cent) of the direct staff costs on grants towards overheads, but this has not been enough to offset the reduced funding available through the HEFCs for equipment and other infrastructure costs¹. In recent years a number of independent reports have expressed concern about the state of the university research infrastructure^{2,3,4}, and in its evidence to the Dearing Committee the Trust re-iterated the importance of scientific research for the UK economy.

The Trust spends 95 per cent of its funds in the UK, although its terms of reference allow it to fund anywhere in the world. In its evidence to the Dearing Committee the Trust stated that its continued support for UK research would be dependent on a positive partnership with a Government that was prepared to demonstrate its commitment to the science base by providing an adequately funded basic infrastructure, upon which others could build. In its dealings with other countries, the Trust's general policy is to gain leverage when investing large sums of money. Funding initiatives in Australia, New Zealand and Ireland have secured matching funding from their respective governments, and this has not previously been the case within the UK. It is not the Trust's responsibility, as an independent charity, to make good deficits in public funding.

In its final report, the Dearing Committee stated that "... public expenditure on research in higher education has hardly risen over the past decade, and internationally, expenditure on research in the UK compares unfavourably with competitor countries. The lack of increased investment by Government in research is surprising over a decade when the opportunities for discovery and technological progress have continued to expand rapidly and global competition has increased". The report also highlighted the effect that poor investment has had on the research infrastructure and the implications of this, in particular for the future of fast-moving fields such as biomedicine.

This (Science and Technology) Committee's own report on the Implications of the Dearing report for the Structure and Funding of University Research repeated evidence that the Trust's witnesses had given regarding its contribution to university research infrastructure (at the time this amounted to £123 million for building and £90 million for equipment). The Association of Medical Research Charities (AMRC) stated that

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¹ Parliamentary Office of Science and Technology (1997) *Striking a Balance: The Future of Research "Dual Support" in Higher Education*.

² PRISM (1995) *Equipping UK universities: An evaluation of the Wellcome Trust's equipment scheme*.

³ PREST (1996) *Survey of Research Equipment in United Kingdom Universities*.

⁴ NAPAG (1996) *Research Capability of the University System*.

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the charities' contribution to infrastructure amounted to about 17 per cent of their total funding for research. The Committee stated that "while we do not wish to denigrate the importance of such investment, or to discourage it, we believe that it is primarily the responsibility of Government to fund basic research infrastructure and that research charities should see fully funding the research they commission as their first priority".

Also in the above-mentioned report, one of the Committee's conclusions was that "we are convinced that there is still a real and urgent need for the Government to provide additional resources to resolve the immediate crisis in research infrastructure in the UK's universities. We recommend that this issue be treated with the utmost priority in the Comprehensive Spending Review. We further recommend that the Government allocate a total of between £410 and £430 million of new money, earmarked for research infrastructure, over the next three public expenditure rounds".

THE COMPREHENSIVE SPENDING REVIEW AND JIF

In view of the evidence presented above, mindful of the urgent need to reverse the fortunes of the university research community and recognising the significance of the Comprehensive Spending Review's 3-year structure for the security of universities, the Trust approached the Government to see whether there was the possibility of a one-off funding partnership with them, to redress the imbalance in funding. The outcome of discussions with the Government along these lines was the Joint Infrastructure Fund (JIF), which the Trust has supported for three main reasons:—

- because of the willingness of the Government to take science seriously and its obvious acknowledgement of the recommendations of this committee in its report on the implications of the Dearing report.
- because of the Trust's desire to continue supporting the best biomedical science in the world, and acknowledging the fact that much of the expertise is found within the UK, the Trust has an interest in ensuring that the university research infrastructure is of a high enough quality to support excellent service.
- because of the positive relationship with the Government over the University Challenge Fund (announced in June 1998), a competitive seed venture capital fund which aims to "unlock the commercial potential and innovation of British universities by enabling them to increase the number of research projects taken from the laboratory to the marketplace".

The Trust has always been willing to consider applications for grants for major pieces of research equipment and for the building or refurbishment of new laboratories or research buildings. Previously the larger applications would have been considered by the Trust's Equipment Working Party and then latterly through the Infrastructure Panel. In addition, the Trust had previously awarded capital grants for the erection or renovation of buildings. As a result of the withdrawal of funds for major infrastructure purposes by the previous government in November 1995, the Trust felt obliged to put a moratorium on further commitments of this type, but was active in attempts to persuade Government to reverse its decision. It should be noted that what the Trust has never condoned is the funding of overheads, which it has always considered to fall within the remit and responsibility of the Government.

The Trust's revision of policy on the issue of infrastructure funding is a direct result of the present Government's willingness to rectify historical underspending in this area. However, it remains the Government's responsibility in the long-term to provide adequate funds for the upkeep of those facilities which are brought up to standard by the JIF. The Comprehensive Spending Review is a three-year plan and therefore the JIF is a three-year agreement between the Trust and the Government. It is a one-off goodwill gesture to ensure that the science base is enhanced, past declines in funding are rectified and the Trust is assured of an excellent working environment for its funded researchers and research groups.

The Trust welcomes the support of the Government for UK science and is pleased to be able to contribute in this way. It should be noted at this point that the Trust's £300 million contribution to the JIF is additional money to its annual spend (currently approximately £300 million).

THE CSR, EDUCATION AND HEALTH

In addition to the Joint Infrastructure Fund, the Treasury has additionally agreed to provide a further sum of £400 million to the Office of Science and Technology/DTI baseline funding (ie extra funding for the Research Councils) over the next three years. Any research funding provided by this additional money will be extra to any distributed via the JIF. The Trust has also agreed to provide a further £100 million for the funding of a new third-generation synchrotron, bringing the total additions from the joint action by the Trust and the Government for the UK science research base to £1.1 billion over the next three years.

In addition to prioritising university research as an area with an urgent need for additional funding, the Comprehensive Spending Review continued its positive theme with the extra £19 billion for education over

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the next three years, including an extra £300 million available for universities through the Higher Education Funding Councils (HEFCs). The National Health Service (NHS) will receive an extra £21 billion over three years, with the aim of modernising and improving the nation's healthcare. It is not yet known how this increased funding will impact on the resources available for clinical R&D within the NHS.

The Trust therefore welcomes the Government's Comprehensive Spending Review for its support of the UK's science base, its commitment to improving the nation's education system (particularly Higher Education) and healthcare system, and its acknowledgement, through the JIF, of the importance of the university research environment.

ABOUT THE JOINT INFRASTRUCTURE FUND

The Joint Infrastructure Fund (JIF) scheme covers research infrastructure in as broad a sense as possible, i.e. new building, refurbishment of existing buildings and facilities, new equipment (general use laboratory equipment, development of facilities for cross-departmental use, state of the art equipment), technology development, and upgrades to existing equipment. Staff to run/manage equipment may be requested, as may equipment related service contracts and running costs, but project related costs may not be requested.

Covered by the scheme are all areas of science and engineering encompassed by the remits of the Wellcome Trust and the UK Government funded Research Councils. The proportionate split of £600 million between the life sciences and physical sciences will depend on the nature and quality of the proposals received; there is no pre-set quota for any discipline. However, the Trust's £300 million can only be spent on research in the biosciences, according to its charitable remit and funding policies.

Those institutions eligible to apply to the JIF are all universities in England, Scotland, Wales and Northern Ireland which are associate members of the CVCP and receive funding from the Higher Education Funding Councils. Research laboratories outside the university sector are not eligible, although Research Council Units, research council funded External Scientific Groups and fellows "embedded" in Universities are eligible to apply in association with the University.

The number of projects funded by the JIF will depend upon the nature of the requests submitted and is therefore extremely difficult to assess at this stage. The minimum bid allowed under the JIF is £750,000, although awards may be made below this level. There is no pre-set upper limit for the cost of an award, but all proposals must be science led and the levels requested justified by the scale and quality of science which will benefit from the new/improved facilities.

In addition to its scientific merit, each individual proposal for a new building, laboratory, piece of equipment or refurbishment will be expected to show that the university has considered and provided for the financial implications of these large awards (eg running costs for buildings, staffing costs). The Trust will be making use of expert advisers on building issues, technical issues on equipment, legal matters, etc, to ensure that each proposal is viable, adequately costed and achievable within a reasonable time and to budget. Planning permission will need to be obtained before any application is considered.

All applications for the JIF in the biosciences will be handled by a team at the Wellcome Trust. These will include applications that fall within the remits of the BBSRC and the MRC as well as applications covering chemistry related to biosciences which fall within the remit of the NERC. The team at the Trust also includes staff seconded from the Research Councils. All other areas of science, including the remainder of chemistry, will be handled via the relevant Research Councils, ie EPSRC, ESRC, NERC and PPARC. The final funding decision will be made by the Joint Executive Committee which comprises the Director General of the Research Councils (Chairman) and the Director of the Wellcome Trust together with nominees from the Trust and the Funding and Research Councils. Observers from the Higher Education Funding Councils will also attend. Recommendations for funding will be made to this committee by the International Scientific Advisory Board (ISAB) and its equivalent in the non-biological sciences. The ISAB will be chaired by an independent scientist drawn from outside the UK, and members of the Board (which will be composed of international and UK individuals in a ratio of 60:40) are being chosen to cover the full biomedical and biological remit of the fund.

ABOUT THE SYNCHROTRON

As part of the Joint Infrastructure Fund, the Trust has committed an additional £100 million to the UK's proposed new synchrotron facility, bringing its total pledge to £110 million. The UK's existing facility is the Synchrotron Radiation Source at Daresbury, which is nearing obsolescence.

Synchrotrons are used by a diverse range of researchers, including structural biologists, materials scientists and other physical scientists, allowing analysis of molecular structures at atomic detail. As genome sequencing begins to identify new genes, a new synchrotron facility is a vital resource to allow the interpretation of this novel data.

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[Continued

The Wellcome Trust is currently conducting a worldwide consultation exercise with a variety of users and operators of existing synchrotrons, to help decide where the new facility should be built and the basis on which beam-line allocation should operate.

ADDITIONAL COMMENTS: ISSUES OF ACCOUNTABILITY AND TRANSPARENCY IN GOVERNMENT FUNDING OF SCIENTIFIC RESEARCH

The Dearing Committee, as well as organisations giving evidence to the Committee, have pointed to the lack of transparency in how the "overhead" element of research funding is calculated or used. The Wellcome Trust has made clear that, whilst it is happy to fully fund the research costs of its university awards, it will not meet the general running costs or general infrastructure of the host institution. Most discussion of "overheads" appears to cover these running costs rather than research costs—but it has been hard to access the information from universities. We therefore welcomed the government's proposal to identify specific costs, and the Trust's Director, Dr Mike Dexter, who attends OST's Science and Engineering Base Co-ordinating Committee which is overseeing this review, will be involved in this initiative.

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ANNEX 1

Joint Infrastructure Fund

ABOUT THE JOINT INFRASTRUCTURE FUND

MEMBERS OF THE JOINT EXECUTIVE COMMITTEE

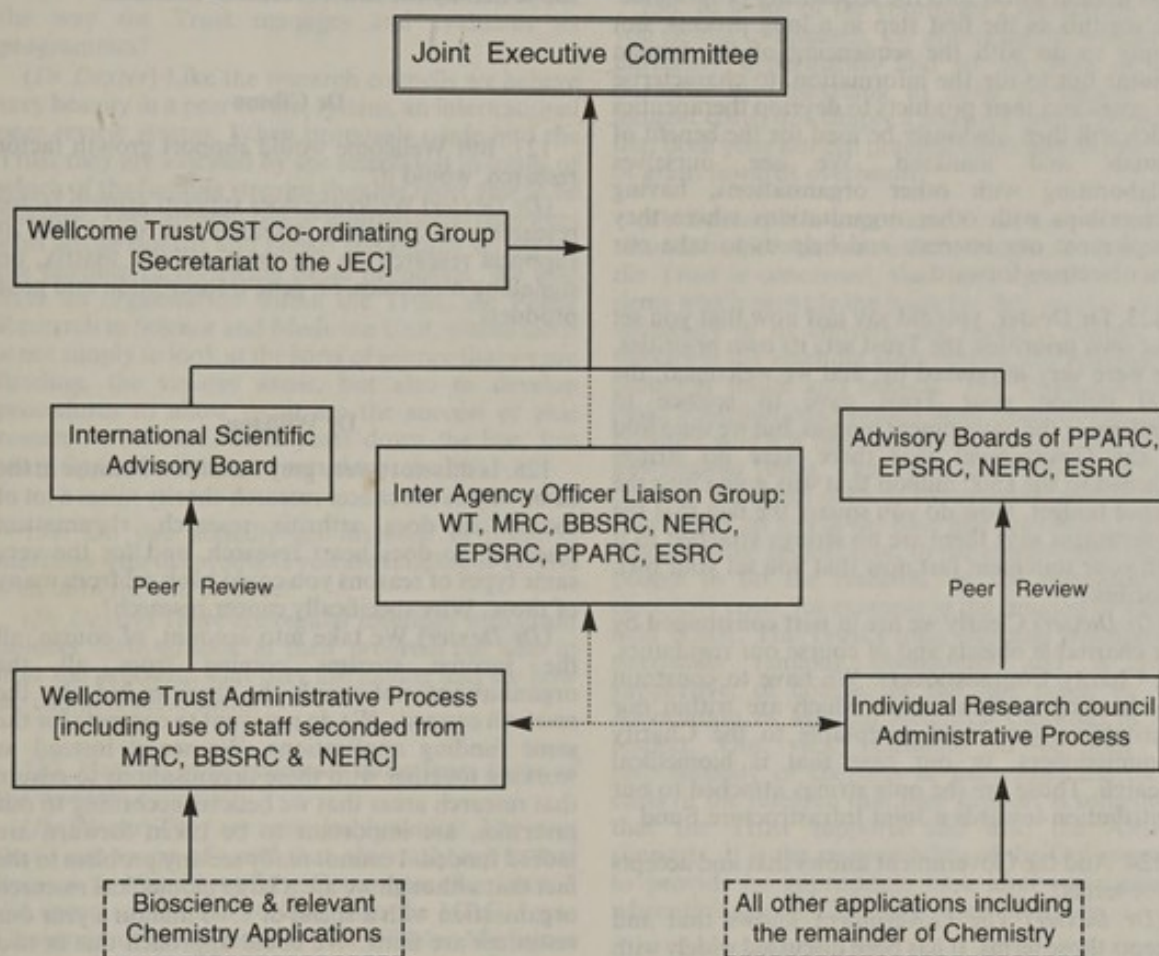
<i>Name</i>	<i>Institution and Position</i>	<i>Status</i>
Prof Sir John Cadogan	Director General of the Research Councils	Chairman
Dr Mike Dexter	Director of the Wellcome Trust	Deputy Chairman
Prof Ronald Amann	Chief Executive of the ESRC	Member
Prof Ray Baker	Chief Executive of the BBSRC	Member
Prof Richard Brook	Chief Executive of the EPSRC	Member
Prof Ian Halliday	Chief Executive of the PPARC	Member
Prof John Krebs	Chief Executive of the NERC	Member
Prof George Radda	Chief Executive of the MRC	Member
Mr Craig Pickering	HM Treasury	Member
Prof Christopher Edwards	Governor of the Wellcome Trust	Member
Dr Robert Howells	Programme Director of the Wellcome Trust	Member
Prof Julian Jack	Governor of the Wellcome Trust	Member
Dr Richard Lane	Programme Director of the Wellcome Trust	
Mr Ian Macgregor	Chief Investment Officer of the Wellcome Trust	Member
Prof Sir Michael Rutter	Governor of the Wellcome Trust	Member
Dr Richard Flavell	Chair of International Scientific Advisory Board	Member
Prof John Andrews	Chief Executive of HEFCW	Non-voting Member
Mr Nigel Hamilton	Permanent Secretary of Dept of Education for Northern Ireland (DENI)	Non-voting Member
Mr Brian Fender	Chief Executive of HEFCE	Non-voting Member
Prof John Sizer	Chief Executive of SHEFC	Non-voting Member

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[Continued

ANNEX 2

Organisational Chart for the Joint Infrastructure Fund



Examination of Witnesses

DR MICHAEL DEXTER FRS, Director, and Ms LINDA ARTER, Director of Grants Administration, were examined. Ms DIANNE HAYTER, Director of Corporate Affairs, The Wellcome Trust, was further examined.

Chairman

121. Dr Dexter, may I thank you and your colleagues for coming along this afternoon. I wonder if, before I ask the first question, you would just very briefly like to say a word about yourself and your new position, on which we congratulate you, and perhaps introduce your two colleagues to us?

(Dr Dexter) Thank you for inviting us here and for giving us the opportunity to appear before the Committee. Linda Arter, on my right, is the Director of Grants Administration in the Wellcome Trust. Dianne Hayter is the Director of Corporate Affairs. As you know, I became Director of the Trust towards the end of June and I have enjoyed my time there since.

122. Thank you very much indeed. We all know the Wellcome Trust very well. We know it is the largest research charity organisation in this country, possibly in the world, and it has a significant impact upon biomedical research in this country. I wonder if

you could tell us how you see this Trust continuing to operate with government in supporting medical charity research?

(Dr Dexter) Yes. If I could say, first of all, that you are right, we are indeed the largest biomedical research charity in the world. You may know that we currently spend some £300 million on research of which about 15 per cent goes on overseas collaborations. We are, and will remain, an independent organisation. We establish our own priorities but we do believe in working in collaboration and in partnership with other organisations where this helps to meet our objectives. We support research, of course, over a very broad area from malaria in developing countries to infectious disease, neurosciences, human population studies, bio-archaeology, functional genomics, the history of medicine and also the public understanding of science. In all these areas obviously we set out our own priorities, we determine our own long-term aims and objectives and ensure we have the policies in place to meet those aims. As an

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DR MICHAEL DEXTER, MS LINDA ARTER
AND MS DIANNE HAYTER

[Continued

[Chairman Cont]

example perhaps I can mention the human genome sequencing project where we have committed some £200 million so far into the sequencing programme. We see this as the first step in a long process, not simply to do with the sequencing of the human genome but to use the information, to characterise the genes and their products to develop therapeutics which will then obviously be used for the benefit of animals and mankind. We see ourselves collaborating with other organisations, having partnerships with other organisations where they complement our interests and help us to take our own objectives forward.

123. Dr Dexter, you did say just now that you set your own priorities, the Trust sets its own priorities. We were very impressed by, and we welcomed, the £400 million your Trust gave to science to supplement the government monies, but we were told by the Government that there were no strings attached to the £300 million that was going into the science budget. How do you square the fact that the Government says there are no strings attached to it with your statement just now that you set your own priorities?

(Dr Dexter) Clearly we are in part constrained by our charitable objects and of course our regulators, the Charity Commissioners. We have to constrain our funding to those areas which are within our charitable objects and acceptable to the Charity Commissioners. In our case that is biomedical research. Those are the only strings attached to our contribution towards a Joint Infrastructure Fund.

124. And the Government knows that and accepts those terms?

(Dr Dexter) The Government knows that and accepts those terms. It has been discussed widely with OST and other organisations, all of whom know and accept those terms.

125. I think that does square the two, does it not? You have stuck to your own objectives and the Government has got no strings attached provided it stays within that very broad parameter.

(Dr Dexter) Correct.

126. Thank you very much indeed. Finally from me, for the time being, can you tell me why your Trust does not support cancer research? Do you think in failing to support cancer research it is discouraging to those who are working in cancer compared to those who are working in other life sciences?

(Dr Dexter) Can I first stress that the Trust is not against cancer research funding. I would like to point out that in the UK there are several other cancer research charities which together have an income, a spend, of over £100 million per annum. That is a significant amount of money which along with the spend on cancer research by the MRC obviously makes it much higher. Because of this we prefer to use our resources to support other, sometimes more neglected, areas of research. Having said this, we do spend very substantial amounts on basic cell and molecular biology which in turn is leading to an understanding of not simply normal cell behaviour but how cells become variant and therefore how cells become malignant. In other words, the basic research

that we are supporting, and is also supported by the MRC, underpins much of the research which is then supported by the cancer research charities.

Dr Gibson

127. But Wellcome would support growth factor research, would it?

(Dr Dexter) Wellcome does support growth factor research. It supports research on cytokines, it supports research on the extra cellular matrix, on signalling molecules, on gene transcription and gene products.

Dr Williams

128. Is this not a very grey definition because in the same way as the cancer research charity raises a lot of money so does arthritis research, rheumatism research, so does heart research, and for the very same types of reasons you could back off from many of those. Why specifically cancer research?

(Dr Dexter) We take into account, of course, all the income streams coming from all the organisations, not simply the charities but also the research councils. We do not want to compete for the same funding applications. We see it instead as working together with these organisations to ensure that research areas that we believe, according to our priorities, are important to be taken forward are indeed funded. I cannot really see any problem in the fact that although we are a large biomedical research organisation with a spend of £300 million a year our resources are finite. We could approach this in two ways. We could say: "we are going to support the whole of the biological sciences", which of course includes the research funded by the Medical Research Council, by the BBSRC and by the NERC, dilute our resources and almost certainly see modest gains from the use of those resources. Or we could say: "we want to focus our efforts and concentrate in certain areas that we believe, after informed debate, are going to have the greatest impact and therefore the greatest benefit to what is our primary objective, the physical improvement of mankind".

Dr Gibson

129. In that case do you talk to the Imperial Cancer Research and the Cancer Research Campaign about their programmes of research? Do you think that is well done at the minute?

(Dr Dexter) I speak with them on a regular basis. I have meetings with Paul Nurse, who as you know is Director General of the ICRF. I have meetings with Trevor Hince and I have meetings also with Gordon McVie. Also I have to stress that we have collaborations with these organisations. For example, in Cambridge we have the Wellcome/CRC Institute where the Wellcome Trust and the CRC go together, not simply for the fabric and refurbishment, but also in terms of taking the science forward in a complementary, a synergistic way.

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DR MICHAEL DEXTER, MS LINDA ARTER
AND MS DIANNE HAYTER

[Continued

Mr Beard

130. I wonder if you could tell us something about the way the Trust manages and evaluates its programmes?

(Dr Dexter) Like the research councils we believe very heavily in a peer review system, an international peer review system. When proposals come into the Trust they are assessed by the secretariat in terms of which of the funding streams they are most able to be put into. They are sent out to international reviewers who advise boards and panels specifically set up for the purpose of reviewing those proposals. We also have an organisation within the Trust, the Policy Research in Science and Medicine Unit, whose job it is not simply to look at the sorts of science that we are funding, the various areas, but also to develop procedures to allow us to see the success of that research with time, three years down the line, five years down the line, ten years down the line.

131. Do you actually get involved in progress meetings with the products you are funding or do you wait until the end and see?

(Dr Dexter) There are regular meetings with grant holders, both to look at their progress but also to hear the problems that they are having and see how we can best solve them.

132. How do your processes differ from those of the research councils?

(Dr Dexter) They are remarkably similar. The ones that I am aware of—and that obviously is a caveat because as Members of the Committee may know I did spend some time working with the MRC, I was Chairman of the Molecular and Cellular Medicines Board of the Medical Research Council—also have the peer review system, also have analysis by boards, by committees of peers before recommending funding to the Council.

133. Will the Wellcome Trust welcome subvention of the government programme that has been the subject of discussion?

(Dr Dexter) I am sorry?

134. The Wellcome Trust's subvention of the government programme, the £400 million. Does that extra cash that you are putting into science along with the Government mean that funding through your normal processes is going to be reduced in the next few years?

(Dr Dexter) No, it is not. I can assure you that the money from the Wellcome Trust towards the Joint Infrastructure Fund, like the money from the Government we were assured to the Joint Infrastructure Fund, is new money. It is not being taken, certainly for the Wellcome Trust, from sources that are going to constrain our present or our proposed funding patterns.

135. That would go on entirely as it would have done otherwise?

(Dr Dexter) They are going on as they would have done otherwise.

Dr Williams

136. In terms of the enormous £300 million that you devote to research, the grants that you make to university departments and so on, you do not normally give anything to cover overheads, the indirect costs, it is simply a research grant. Why has that been your normal practice when pay 46 per cent of grant towards overheads?

(Dr Dexter) It is important, Chairman, to first of all understand what we mean by overheads. As far as the Trust is concerned, that term applies to those items which provide the basis for the running of the university in its entirety: the security guards, the refectory, the teaching laboratories, the painting of buildings inside and outside. The Trust does not make contributions towards those base line costs and facilities which it believes should be provided from government funds. The Trust does believe in fully funding the direct costs of the research and, in fact, those costs on top of the base line provision directly related to the project cost, to the employment of the people to do the research, or for extraordinary electricity costs, for example in the running of a high field NMR. The Trust's long standing position on overheads remains unchanged and is fully supportive, of course, of the line taken by the Association of Medical Research Charities in this respect. Our view continues to be that the responsibility of charities to fully fund the direct costs of the research that they support is something that the Trust supports and also the AMRC supports. It is the responsibility of the Government to provide an appropriate base level environment where this research can take place effectively.

137. When we as a Committee looked at the Dearing Report and made our recommendations earlier this year it was our strong view that everybody sponsoring research within higher education should be paying the full overhead costs and that universities, these departments, should develop proper accounting methods, transparent accounting methods, so that you can see where the costs accrue and which ones of those you should reasonably contribute towards or pay in full. If there is that greater transparency and that becomes the policy across the board would you be willing to modify your existing policy?

(Dr Dexter) First, we do not sponsor or commission research. Let us get that absolutely clear. We do not sponsor or commission research. We do believe in the universities adopting a much more transparent system in their accountancy. It is important both for the Wellcome Trust and for the other medical research charities that we can really work out what the true direct costs of the research we fund actually are. I fully support the working party that has been established, I believe under Sir John Cadogan, under the auspices of the SEBCC, that will be looking into and reporting on the mechanisms through which universities spend their funds and to ensure that there is more transparency in how that money is spent. We fully support that.

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DR MICHAEL DEXTER, MS LINDA ARTER
AND MS DIANNE HAYTER

[Continued

Dr Gibson

138. I am interested in the word "transparency" because it seems to me that universities for some time now have been run on management models which take in the whole gamut and it is not like the old days. There is a hardness there in universities now in terms of managing their funds. What do you think is missing in the university system from your own experience?

(Dr Dexter) There is, within some universities, a degree of accountability that is lacking in others and what we want is a simple formula which we do not simply apply to one or two or the few universities where this transparency has become more apparent, but to all universities.

139. So you have a list, do you?

(Dr Dexter) It is a simple formulaic response. I suspect that you would really have to address this question very seriously both to OST and to the Higher Education Funding Councils.

140. But there is a list available. You say "some universities", so it is in your head or somebody has got a league table somewhere.

(Dr Dexter) That is in my head.

141. That is secret, is it?

(Dr Dexter) Absolutely not. But without the data to fully support it I would be rather hesitant to present it to this Committee.

Mr Jones

142. What other funding do you provide to support research infrastructure? You have already said that you pay the full cost of the people and the electricity or whatever, but is there anything else that you do to support the infrastructure because that was one of the things we homed in on when we were looking at the Dearing Report?

(Dr Dexter) It is important to stress that for many years we have been providing infrastructure to the university system, both in buildings, in laboratory refurbishments and in facilities. The fact that we have now joined in partnership with the Government in this Joint Infrastructure Fund simply carries on from our previous practice of supporting, albeit limited, infrastructure within the universities. We also support essential secretarial support if necessary and also travel money associated with research grants. There is a range of things in which we have contributed towards the efficient running of the university system in terms of infrastructure and infrastructural support for the research projects.

Dr Williams

143. Is there, in Wellcome's decision to venture into this private-public partnership, a kind of implicit admission that over the decades you have benefitted from research on the cheap from the universities where you have not been paying their full costs and, in a sense, over those 10/20 years or whatever you have contributed to the run down of infrastructure?

(Dr Dexter) I would argue very strongly that we have not contributed towards research on the cheap. If it were not for the Wellcome Trust's contribution

towards infrastructure in a variety of universities, along with the Wellcome Trust's contribution towards advancing career structure of scientists within those universities, they would be in a much poorer state than they are at the moment.

Chairman

144. But can you see the thread going through Dr Williams' question that if I were able to set up a trust, if I had the wherewithal to do it, I would probably insist that I only pay for scientists who are going to come out with results and I would not want to get involved with paying for the painting of the refectory or the security because that would not win my scientists a Nobel Prize. There can easily be a feeling that it is taking the cream off the top just going for direct costs and trying to get the credit for the research and not going for the bottom of the pyramid without which the top cannot function. Do you see my point? You do not necessarily have to agree with the accusation but do you understand what I am saying?

(Dr Dexter) I understand exactly what you are saying. I would ask you to take into account the fact that many of the researchers who apply to the Wellcome Trust for grants or for senior fellowships or for principal research fellowships do a great deal of teaching and training. We do not go to a university and say "we want you to pay us for what they have to do in teaching and training", they are contributing in that way, in a remarkable way; they are training and teaching the next generation of young researchers.

Dr Kumar

145. Dr Dexter, this £300 million that the Wellcome Trust is allocating to the Joint Infrastructure Fund is a significant amount, a great contribution over three years. What are the advantages for the Trust to allocate this money in partnership with government? Would you like to reflect on what proportion of the Government's contribution to the Fund you would expect to be allocated to biomedical research proposals?

(Dr Dexter) The advantage to the Trust in allocating this money is that the Trust, like many other organisations, realises that biomedical science simply does not go forward on its own, it requires input, major input, from all the other sciences, from chemistry, from physics, from engineering. Certainly the visits to the universities made by my predecessor, Bridget Ogilvie, and my own visits to the universities and the Dearing Report all highlighted the poor state of university infrastructure. Something had to be done. There are clear benefits for the Trust in that something being done. That was best done in partnership with the Government; no doubt about that. What I would say is that if the Wellcome Trust had not developed this partnership with the Government I believe it most unlikely that the Government would have committed £600 million in this CSR exercise towards improving university infrastructure. In fact I think it likely that they would have contributed substantially less. Obviously I do not know the figures, I cannot know the figures. With

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[Dr Kumar Cont]

the partnership with the Wellcome Trust, with this £600 million Fund, what we have is an opportunity to ensure that not only the needs of the biomedical community are met via the Wellcome Trust contribution to the Fund but that is leaving very significant resources available for the physical sciences.

146. Can I just ask, did you actually approach the Government or did the Government approach you for this allocation of money?

(Dr Dexter) The initial contacts, which were informal, were by the Trust to the Government. That was before I took over as Director. When I took over as Director of the Trust towards the end of June I became engaged in three weeks of detailed discussions and negotiations with respect to a partnership on the Joint Infrastructure Fund where we also sought reassurances from the Government that they did have a commitment to not simply maintaining but improving the science base, they had a commitment to the Higher Education Funding Councils, they had a commitment to OST and the research councils. When these reassurances came, both the governors and the staff of the Trust welcomed the opportunity of a partnership.

Dr Gibson

147. Before it was announced by the Government, how many days before that did you know that they had bitten the bullet? You said you had long discussions with them. For history I think it would be interesting to know just how many days before the announcement in the House that decision was ratified.

(Dr Dexter) I would have to look up the precise timing.

148. Twenty-four hours before?

(Dr Dexter) Three or four days.

(Ms Arter) Over a weekend.

149. It was that close?

(Dr Dexter) They were detailed negotiations and discussions.

150. So it was like that until then?

(Dr Dexter) Yes, but I am not sure how that is going to go down.

151. It is amazing how tight it gets really, is it not?

(Dr Dexter) Yes, but that is what you expect when you are having discussions at this level. That did not surprise me at all.

Chairman

152. Dr Dexter, just before I ask Dr Jones to put her questions, can I just go back to one point for clarification. I think Dr Kumar did ask about what proportion of the government contribution to the Joint Infrastructure Fund you would expect to be allocated to biomedical sciences and I am not sure I heard the answer.

(Dr Dexter) The primary consideration in assessment of the proposals coming to the Joint Infrastructure Fund is the quality of the science. That is constrained by the fact that the Wellcome Trust, according to its charitable objects and various

policies evolved from those, spends its part of the money on the biomedical sciences. We have got to say that at least 50 per cent of the Joint Infrastructure Fund will be going to the biomedical services, interpreted as flexibly as we are able.

Chairman: That is very clear. Thank you very much.

Dr Jones

153. Are you saying, Dr Dexter, that without the intervention of Wellcome the Government would have presided over a continuing deterioration in the research infrastructure in our universities?

(Dr Dexter) I did not say that. I said that in the absence of the Wellcome Trust coming into partnership with them, which of course gives a fund of £600 million, it was unlikely that the Government would have made a commitment to that degree. I also said that it is impossible, of course, for me to try to judge what the Government would or would not have done without the agreed partnership of the Wellcome Trust.

154. You are going to appoint an International Scientific Advisory Board to assess the applications and I understand that the Chair is going to be Richard Flavell of the Yale School of Medicine. What progress have you made in appointing other members? On what basis have you made the appointments? How will they work with the expert advisors you are going to appoint on building technical issues and legal matters? Answer that and I will ask a further one.

(Dr Dexter) We have made excellent progress, and thank you for raising the question. First of all with respect to how we chose, with OST, the members of the International Scientific Advisory Board. First of all we did seek nominations from a wide variety of sources, including the heads of pharmaceutical companies both in the UK and outwith the UK, from the chief executives of the research councils, from scientific members within the European Union, from charities, from international foundations such as the Howard Hughes, from Harold Varma who is the Head of the National Institutes of Health in the United States of America. A list of all those nominated, including their areas of scientific expertise, was then considered by the Wellcome Trust and the OST and a list of members agreed between the Trust and the OST paying particular attention to the breadth of interests of the members of the board. We agreed early on in the discussions that ideally 60 per cent of the ISAB members should come from overseas.

155. Can you explain why?

(Dr Dexter) I think it is important to have an international dimension in a review process that is going to look at the quality of science. This is fairly standard practice in the scientific review process. One of the problems is in the past there have been concerns about possible conflicts of interest if indeed all the members came from within the UK system and protection of personal UK interest rather than thinking "what is the best thing for science in the UK", not now but in the future. We have got to think of the future, not simply the present.

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[Dr Jones Cont]

156. I mentioned about working with the other expert advisors that you say you are going to appoint in your briefing.

(Dr Dexter) What happens is the applications will come into the Wellcome Trust and will first of all be considered in terms of biological sciences by the secretariat and then in a majority of instances will almost certainly have to site visit the institutions concerned. We are talking about large amounts of money here. We want to see that they have the land available, that they have got the planning permission, that they can do what they say they are going to do in those applications. As part of that, and as part of the team being developed within the Trust, there will be quantity surveyors, various engineers, there will be lawyers, who will give us advice on all aspects of any building or refurbishment work. The site visit team itself will obviously contain members of the International Scientific Advisory Board and other scientists and industrialists will be co-opted on as required for the particular field of interest that we are going to examine.

Dr Gibson

157. Can I just ask about conflict of interest? What aspects of conflict of interest were you looking at? The universities they went to, the clubs they joined, how far and wide did you go?

(Dr Dexter) One of the problems is that applicants will be universities so the applications will come from the university system. We certainly have found in the past that it is ill-advised to have many of your International Scientific Advisory Board having to leave the room and not be able to take part in active discussions because they may in some small way or some large way be compromised.

Dr Jones

158. Can I urge you to ensure that you do have some women on this Board? I note that the Joint Executive Committee overseeing this is entirely male and I hope that will not be the case with the Advisory Board.

(Dr Dexter) I can assure you that we took that very carefully into account. So far we have quite a significant number of women who are being approached. We cannot say yet if they will serve. This is going to be a lot of work for members. We are approaching a significant number of women.

159. Will Wellcome be telling the Board the criteria for acceptance of bids or will they be able to draw up their own criteria?

(Dr Dexter) No. Wellcome will not interfere at all. Wellcome has got no pet projects that the Trust specifically wishes to see taken forward, it is the quality of the science that will be judged by the International Scientific Advisory Board in association with the external peer review system.

160. Have criteria already been established because applications have been invited?

(Dr Dexter) Yes, criteria have been established based upon other funding systems agreed between the Trust, the OST and the research councils. Details are given in an information pack which will be

provided to you. These are conventional ranking systems on which the Joint Executive Committee will make the eventual funding decisions. The scientific quality of the proposals, at least in the biological sciences, will be assessed by the International Scientific Board. They will do a ranking of the proposals that will then go before the Joint Executive Committee that will also look at strategic interests and national interests involved in the proposal.

161. That seems quite a complex process. I understand that the application form is 71 pages long and applicants are given two months to put together their proposals. Is two months enough time?

(Dr Dexter) They are actually given three years. The first round of applications has to come in by December. We are expecting, of course, many institutions to take much, much longer to develop the proposal, to obtain the planning permission if it is for a new building, to make sure that they have got the science right that they want to present to us. I think for the first time the universities can afford to be imaginative and not simply think about getting the universities to where they should be today but to think about where they want the universities in five or ten years' time.

162. I think that the universities have got to get their applications in by December, but can you give assurances that there will be an even release of funds over the five funding rounds?

(Dr Dexter) We cannot give the assurance for the even release of funds. This was discussed by the Joint Executive Committee. We did discuss the possibility of releasing funds in tranches, i.e. £100 million the first year, perhaps £200 million the second and £300 million the third year. The strong feeling is that to turn down applications of high quality that both the International Scientific Advisory Board and the Joint Executive Committee saw as a priority would be somewhat foolish. Having said that, I doubt that the £600 million in the fund is all going to be used up in the first round of applications. If it is, perhaps we have all under-estimated the problem in infrastructure in the university system.

Chairman: We must move on now because we are running out of time. I am going to ask Dr Gibson if he would move us to a new subject.

Dr Gibson

163. The synchrotron was another great partnership initiative. I am interested in how it is going to be managed and where it is going to be located. Would you dispel the rumour it is going to the Millennium Dome, please?

(Dr Dexter) I can dispel that one instantly. Both the Wellcome Trust and the OST have been carrying out very important preliminary studies over the last few months. Our officers meet on a regular basis. In fact, I will be meeting with Sir John Cadogan on 2nd November to discuss various issues related to the synchrotron. It is likely that this preliminary work will be completed by Christmas and certainly by then the Wellcome Trust hopes to get together with OST to do a thorough joint appraisal of the options. I would like to assure you that no decision has been made with respect to location and no decision has

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[Dr Gibson Cont]

been made on final specifications. Discussions between OST and Wellcome have been most helpful and will continue. OST and Wellcome are determined to get this right.

164. You are still short of a bob or two. Has the OST told you when and how much it is going to provide for this?

(Dr Dexter) Yes, we saw the £35 million allocated in the budget and of course that is only over the three years of the CSR. Our assumption is that the remainder of the government money will be provided after the current round of CSR expenditure runs out and before the next round of expenditure for the science budget.

165. Is this facility going to be principally or totally for biomedical uses or is it going to have a more general use than other areas of science?

(Dr Dexter) We do not have any intention at the moment to have a facility that is only for biomedical use. Obviously OST and the Wellcome Trust are looking at all the options. One of the things we are looking at is the present and projected use by the biomedical research community. Obviously that has to be taken into account as much as the use by the physical scientists.

166. Do you foresee these decisions being made by Christmas this year?

(Dr Dexter) I see by Christmas that OST and Wellcome will be getting together to do a thorough appraisal of the options. I would stress once again that we do not want to rush this. We want to get the user communities on board. We want to make sure we are making the right decisions for UK science, not for one section of the community or the other.

Mr Jones

167. Can I ask you about the University Challenge Fund which is a joint Wellcome/Gatsby/Government fund of £50 million in which you are contributing up to £18 million. On what basis will the decisions on how to allocate the fund be made? Will previous history in successful spin-outs be taken into account?

(Dr Dexter) All of those will be taken into account, i.e. the quality of the science, the management team that they hope to put in place to run the programmes. I am delighted to say that their response to the first, indeed only, call for the University Challenge Fund, has really been remarkably good. There are some good proposals in there. We will be meeting in a couple of weeks time to go over all those proposals and make funding decisions.

168. We went to the Massachusetts Institute of Technology earlier this year and saw the way they spin out ideas. Would you like to compare this University Challenge Fund with what they do over there?

(Dr Dexter) I think that is a difficult comparison to make. Like most of the things I have been involved in since joining the Trust, the University Challenge is a new venture. I think that we really ought to wait

and see the development of the University Challenge and see the proposals that are funded and then perhaps we can make a much more informed decision as to whether or not we believe that the correct decisions are taken.

169. Will universities need to present a case for a specific investment to spin out technology in order to gain Challenge funding?

(Dr Dexter) No, they will not.

Dr Kumar

170. You mentioned the Joint Infrastructure Fund. How will you evaluate the success of this fund and monitor its success to help you make further decisions in reply to the questions?

(Dr Dexter) That is a good question. This is being developed with the OST at the moment and we are looking at various criteria we might adopt to look at success in the future. Of course success may well be ten years down the line.

171. Can you give us some sort of idea as to what sort of thing you would be looking for?

(Dr Dexter) I think one could look at both output of scientific papers and the impact of scientific papers. From the Trust point of view I think one outcome may well be our ability to attract the very best scientists from overseas and I see no reason why we should not be doing that.

Chairman

172. May I put a final question to you, Dr Dexter. When we talk about University Challenge—and Mr Jones was mentioning the fact that there was a £50 million project where the Gatsby Charity Trust was involved, the Government and you were involved—do you have any plans for any similar partnerships in the future or will it to some extent depend on how that one works out?

(Dr Dexter) We have plans for other partnerships in the future but it would be unwise for me comment on them at this Committee meeting.

173. I do not ask you to comment on them; I respect the need for confidentiality. I am just asking you really about the principle. You quite like the principle of broader partnerships?

(Dr Dexter) I like the principle of broader partnerships as long as there is complementarity with our own interests and it helps us to achieve our objectives as it does the other party.

174. Thank you very much indeed for being so succinct in your answers and so comprehensive. You did not call on your two colleagues although I suspect they did assist you from time to time so we are very grateful to both of them. Thank you for coming to see us. Thank you for the work you do for the Trust. Once again we congratulate you on your new post and hope you will have a long and happy tenure in that office.

(Dr Dexter) Thank you very much.

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[Continued

Examination of Witnesses

LORD SAINSBURY OF TURVILLE, a Member of the House of Lords, appearing by leave of that House, Minister for Science, and SIR JOHN CADOGAN, Director General of the Research Councils, the Office of Science and Technology, were examined.

Chairman

175. Good afternoon, Lord Sainsbury. Thank you very much indeed for coming along to see us this afternoon. At the very outset may I on behalf of the whole Committee congratulate you on the post and office that you now hold. Thank you also for the letter that you have written to me and I believe to other members of the Committee offering to work in a co-operative manner with this Committee for the general benefit of science. We much appreciate that. May I also say that there may be divisions in the Lords that you have to attend to and we shall of course be tolerant and patient of that when that happens. I have to leave the chair at about 5.25 for private reasons and Dr Jones will be taking the chair and I hope you understand that too. Thank you very much indeed. I do not think we shall ask you to introduce the responsibilities of your office. I think what we will do is go into a series of questions that will tease out the responsibilities of your office. May I also welcome Sir John once again to the Select Committee and say that we look forward to any contributions that you wish to make as well. Minister, what do you think your main objectives are in your role as Science Minister and what do you envisage the role of the Ministerial Science Group to be?

(*Lord Sainsbury of Turville*) I think that I see myself as having three priorities at the moment. The first is really to maintain the excellence of the science base. I feel that we still do produce extremely good science in this country but I think one has to have concerns that if we are not funded in the way we are at the moment in the long-term that excellence might disappear. So my first priority really is the excellence of the science base. That is partly about money but also partly about making certain that the people are outstanding people in the science base. The second area is knowledge transfer. Clearly, in terms of wealth creation in this country we need to make certain that the knowledge transfer is as good as it can be. A lot of steps have been taken over I suppose the last ten years but I think there is still more to do in that area. And really the third priority is the use of science within government. I do not think there is a great deal of confidence in the country that scientific information is used as well as it should be within government. Again, steps have been taken but I think there is more to do in that area.

176. I hope when we do eventually produce our report on the quality of scientific advice to government that you will enjoy reading it. When we seek a response—and I am sure it will be coming from you—I think there will be a bit of synergy between what we are doing and what you want to do.

(*Lord Sainsbury of Turville*) I do genuinely think this is a very difficult area, an area where over the next ten years there will be a series of very difficult decisions which will need to be taken and I think it is an area in which I would be delighted to work with

you to make certain that we have a structure in place where everybody is confident in the way those decisions are taken.

177. Does the move of the Chief Scientific Adviser to the Cabinet Office imply a change of role for the person himself and does it imply any change of government strategy on science thinking?

(*Lord Sainsbury of Turville*) I think it only reflects really an attempt to make it clearer what that role is and perhaps in some minor way make it more convenient. I think it has always been understood that the Chief Scientific Adviser reports directly to the Prime Minister and that his remit covers the whole of science across government, as I think it should do. I think the most important thing is involvement in the various Cabinet committees which consider key areas here. In giving him an office in the Cabinet Office I think this is merely to make certain that this point is understood and in terms of the convenience of being on the spot that is easier but it is no change to the fundamental way that the job is seen.

178. Do I take it, as I am sure I can, that even though the Chief Scientific Adviser will respond directly to the Prime Minister it in no way bars you from ready access and ready confidence with him?

(*Lord Sainsbury of Turville*) No, we meet on a very regular basis and I see one of my jobs as co-ordinating between Sir John Cadogan, Bob May and myself so we have a very clear view within government of scientific issues.

179. Finally from me before we go to Mr Beard, what progress has been made in the government-sponsored consultation initiative to seek views on the wider issues arising from developments in the biosciences and have any conclusions been reached on that so far?

(*Lord Sainsbury of Turville*) We have got to the stage where we now have a very clear view of both the particular research that we want to do and the method of doing it and I had a meeting last week with the Advisory Committee we have on this and I think they are now happy and I am happy that this is going in the right direction. It could look at a whole series of different issues. What we have focused it on is people's perception of their sources of information about what is happening in biotechnology and how they view the regulatory system and other sources of information so we are very deliberately not looking at any of the particular issues, whether it is to do with transplants or genetic engineering of plants, we are looking very specifically at the regulatory system, sources of information people have, and whether they think all the issues have been taken account of and I think that will produce a very interesting result on the issue I was talking about before, which is the difficult decisions that will have to be taken over the next few years.

Chairman: Thank you. Mr Beard?

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[Continued

Mr Beard

180. Lord Sainsbury, could you say what input the Office of Science and Technology has been making to the forthcoming Competitiveness White Paper?

(*Lord Sainsbury of Turville*) I think it has been making a major contribution to this. Obviously it impinges in a number of ways. It impinges obviously on the basic science. There are clearly areas where we have in this country world class industries and we want obviously to make certain that the science is being done which will support that. The most obvious example of this I think is the human genome project and the post-genome work. I think it is very important that that is seen in the context not only of the vast improvement in quality of life in medicine but also in terms of the pharmaceutical industry which it will revolutionise. So there is a link there. Also we have of course some responsibilities that are directly in the fields of knowledge transfer and we are feeding information on that into the White Paper.

181. The research and development scoreboard that your Department published earlier this year, however, produced some very worrying figures for different sectors of industry; for instance chemicals where the percentage increase in research and development in Britain was 12 per cent but it was 30 per cent in the United States, or in electronics where the percentage increase was 12 per cent compared to the United States where it was a 41 per cent increase. Even in pharmaceuticals, which is one of our noted strengths, we were being outpaced by the Americans substantially across the board. Do you see the way forward to proposals that will try to remedy that kind of position coming up in the Competitiveness White Paper?

(*Lord Sainsbury of Turville*) I think, as you know, there has been a paper produced jointly by the Treasury and DTI on the whole question of whether one can have incentives for R&D. Consultation has been taking place on that and I think the reaction of that consultation will come through both in the Competitiveness White Paper and other government pronouncements as to how we see that. It is clearly an extremely intractable and difficult problem and we need to look very seriously, as we are, at whether the incentives can be given which will encourage people to do more R&D. I think that is one issue. I think of course, as with capital investment, probably the most important thing is a stable economic framework so that people have confidence that they can look forward and see a fairly steady economic climate. That is certainly the most important thing in investment and I suspect in R&D expenditure also. That clearly is part of the Government's policy to try and create that stable economic framework.

182. Behind these figures, very frequently, the various investigations that have been done have shown up the difficulty of transferring research and development results to the small- and medium-sized enterprises and the EPSRC, the Engineering and Physical Sciences Research Council have been funding a pilot engineering programme of Faraday Institutes which is rather parallel to the German system of Fraunhofer institutes where they are an intermediate between universities and small companies which very often have difficulty in

receiving technical information because they do not have people to do that and therefore they contract back to these institutions. Do you see this as a way forward in Britain for overcoming some of these problems?

(*Lord Sainsbury of Turville*) Yes. I think there are obviously a number of ways in which knowledge gets transferred. Obviously spin-out companies is one of them, but direct technical input or scientific input is another. I think the lesson of Fraunhofer is that you need some intermediate body between the academics and the small business to make certain that the situation works right, because for a very small business to go to a major university and say, "I have this particular technical problem", or, "I want to develop this particular product", is extremely difficult. You almost certainly will not find the person who knows about it. It will take you a lot of time. What the Fraunhofer does is provide people who act as an interface, who can do some of the work and then can turn to the academics for high skilled bits of input or creativity. I do not think we have ever really developed a system which works very well in this country like that. The Faraday Centres are one way of trying to do that and I think it is early days to say how well they are doing at it, but as a concept it is certainly one that we want to pursue further to see if we can make a real success of it.

183. Would you be willing to contemplate putting more government funding into nearer market work in universities to try and help that process along?

(*Lord Sainsbury of Turville*) I actually believe rather strongly that universities should not get too heavily involved in work which companies should be doing, but I do think that having that intermediary body is a way of solving that problem. That is not to say that universities and particularly non-research orientated universities should not get involved in applied work, but it is a bit dangerous if universities get too involved in applied work. When we come to talk about the allocations which we have just made you will see that we are making some modest steps towards putting more into engineering fellowships. The reason for doing that is that in some cases engineering departments have become too heavily involved in consultancy and applied work and that is leading to some deterioration in the quality of their research and we want to avoid that. Equally, we want to make certain knowledge transfer is taking place.

184. I think there are many important measures outlined there, but I did not see in the list the proposal for these sort of intermediate institutions between universities and the smaller companies.

(*Lord Sainsbury of Turville*) On the Fraunhofer model?

185. Either.

(*Lord Sainsbury of Turville*) That is an issue which really comes up in the Competitiveness White Paper which will come out in December.

186. You were talking of allocations. I noticed and welcomed the allocation towards work in the public understanding of science. Plainly this is very important given the importance of biotechnology and its applications which is creating a great deal of public anxiety. Could you outline to us how you would envisage the Office of Science and Technology

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[Continued

[Mr Beard Cont]

and yourselves promoting public understanding of science and more public confidence in the sciences as it has not been a significant exercise by the Ministry in the past?

(*Lord Sainsbury of Turville*) I think there are two different issues here. One is trying to raise the quality of people's understanding of science in the sense of things like SET Week and so on, which I think are extremely important and we need to work very hard on those. I think there is a more fundamental issue which is the confidence of people in science and, I have to say, I think that relates much more to the use of scientific advice by government. It is extremely important that people have confidence in that system. I do not think I am saying anything controversial when I say that I think as a result of the BSE crisis confidence is at quite a low ebb and that is why one of my main priorities is to make certain that that system of advice to government is working as well as it can in the future. I think what leads to the lack of confidence is two things. One is a sense that the Government is not wholly on top of the issues and the second is any sense that information is being kept from the public and we must make certain that those mistakes are not made again in the future.

(*Sir John Cadogan*) In the OST initiatives you see in the allocation which is coming out at £2.7 million, £1.25 million of that, by far the biggest component, goes into this area of public understanding. In addition to that the research councils have a key objective which is also to put money into public understanding and that amounts to some £2 million or £3 million across the councils.

Dr Gibson

187. How are you feeding into the NESTA then?

(*Sir John Cadogan*) Again there is a strong connection into that also. So public understanding is being looked at along a variety of fronts. Indeed, on the other side of the house, outside the science budget but elsewhere within DTI, again public understanding of science figures very, very highly.

Dr Williams

188. I understand, Lord Sainsbury, that you are enthusiastic about genetics and have a good background and believe that schools and the general public need to know very much more and I agree with all of that. What if, in this growing area of genetically-modified foods, you found in three years time or five years time, despite a greater level of public knowledge and understanding, people did not want GM foods? Understanding science is one thing, but by then maybe people's imaginations will be greater than what they believe is good for them.

(*Lord Sainsbury of Turville*) I have always had a very strong sense that one of the most important issues here is choice. I think it is the responsibility of the Government to look at issues like safety and also biodiversity. I have absolutely no responsibility for that whatsoever and I am not even considering it at all because of a possible conflict of interest. It has always seemed to me that the issue here is choice and if consumers do not want to eat genetically modified foods, either because they are worried about the

safety or for other reasons, then they ought to have the opportunity to do so. I think this is going to be very difficult to maintain long term, but I have to say that I think it is very important that people at this stage should have real choice in this matter.

Dr Jones: We will move on now to Dr Gibson.

Dr Gibson

189. About five years ago there was a White Paper called Realising our Potential and out of that came the reorganisation of the research councils and Foresight. I wonder, with all this new enthusiasm for science that is reaching all sorts of quarters, whether it might not be time to look at the whole of science and have a review again. Have you any views on that? All these issues have changed, obviously, they move so fast. Do you not think it is time now to re-look at that issue of a new White Paper?

(*Lord Sainsbury of Turville*) I think it certainly is the time to look at this. I think that was a very successful White Paper and I think that most of the things it set out, including the appointment of a Director General of Research Councils, has been extremely successful. I think there is always a moment to re-look at these issues and this would be one of them, but I do not think there is any point in doing it unless there are some really substantive issues that we want to lay out policies on.

190. Let me throw two at you then. We should look at the research council structure perhaps again. Is there a need to re-look at that? The human genome project keeps coming up. The plant genome project is equally important too. Do you not think that some of these councils could work more together? It has been indicated today that there are areas of joint interest across traditional research councils.

(*Lord Sainsbury of Turville*) I think they do work very well. You will see that in the allocations and some of the letters and instructions we are giving them we are giving them very strong steers to work together on particular issues. I would have to say that I think whichever way you divide it up you will always end up with boundaries. I have a strong predisposition not to keep moving the boundary lines and wasting time on reorganisations when you will always have boundary lines and the question is how to manage those sensibly. Perhaps, John, you would like to comment on that.

(*Sir John Cadogan*) I think we have moved a long way in the way that Dr Gibson would want us to do. We no longer have a series of research councils who sit inside their own walls and protect their patch fiercely. They work as a team and we have a particularly good team effort involving EPSRC and BBSRC with the interface in biological sciences and bio-medical sciences and, indeed, we are encouraging that to go further with chemical engineering and bioinformatics. MRC and BBSRC work extremely closely together and of course one of the big advantages of the partnership we are striking up is the fact that Wellcome are also in the broad partnership. It has always been my ambition that we would end up having two by two making five and the best way of doing that is through co-ordination. It has also been my experience in another place that

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[Continued

[Dr Gibson Cont]

reorganisations do have to be looked at very carefully because you do have to take your eye off the ball and it is better to evolve—evolution rather than revolution—so my feeling is that by all means look at it but it would not necessarily mean things being done very much differently.

191. How about if I said to you "Foresight stalled?"—discuss. Would you agree with that? That was another of the big ideas from the White Paper.

(*Lord Sainsbury of Turville*) We have just been reviewing that. It has not realised all its potential but it has had a major impact on people's thinking. We have now developed what we are going to do in the second round which will make some changes but not huge changes in the way we are going to do things and there is a lot more to go for and we will be making an announcement soon about how we are going to do that. There has been considerable enthusiasm for industry to continue with this and I think there is a lot more to go for.

Mr Beard

192. Is it not an important topic in this context to review the way in which this very large public spending in science now is complemented by what is going on in industry especially in the light of the figures I quoted earlier. Foresight was in part intended to do that and I agree in many ways it succeeded but overall there is this worrying decline in emphasis on R&D in industry which ought to be going the other way.

(*Lord Sainsbury of Turville*) I agree. I do not think it is anything new. I think if you look back over the last 20 years you will be able to point to figures which say we under invest in R&D in this country and in a world which is becoming more and more technological and more and more knowledge driven I think one has to be concerned about that. It is a question of how one can alter that and really get incremental R&D coming in from business because ultimately that is the most important part of it.

Dr Gibson

193. Sir John, in the new challenges for your successor, what advice have you for this whippersnapper who has come in?

(*Sir John Cadogan*) Without endorsing your adjective in any way of course, Dr Taylor has been involved and we have made sure he is fully on board in terms of the allocations that we have got and he has had a lot of good questions to ask. My advice is to keep at it and particularly have his eye firmly fixed on a point about twenty months from now when he will have to do again the work for a further CSR, and that will involve a great deal of discussion and consultation with all the users and all the participants and he will want to know how far we have moved in this very short period with this excellent allocation. Of course, he will have a key role to play because he will succeed me as the Chairman of the JIF. The JIF is going to put £600 million into the Science Base and that is going to lead to a lot of great opportunities in the next few years and indeed a lot of problems and therefore he will be paying particular attention to the way that is going because that will set the scene for

the next bid and, as you know, this was the largest percentage allocation given to any government department and my advice to him, if he wants to protect himself against tough questions and not be called a whippersnapper, is to make sure it is twice that next time!

Dr Jones: We will move on to discuss the allocation of the science budget. Dr Kumar?

Dr Kumar

194. Lord Sainsbury, could you comment on the allocation of the science budget especially regarding the areas of the research funding you want to give a high priority to. Will there be any cuts in any particular research councils' budgets. I am giving you an opportunity to say as much as you like.

(*Lord Sainsbury of Turville*) Perhaps I can refer you to pages 10 to 12 of the booklet where we set out some of the scientific priorities we have tried to take into account in this. I would like to make the point that while the post-genome challenge is extremely important there are other very major considerations that we have taken into account in terms of scientific priorities. These include IT and communications, the whole issue of ageing, environment and climate change. We also think that the Economic and Social Research Council is now very focused on dealing with very important and major social issues and of course health, physical sciences and engineering are also important areas. So we have tried to take all of these into account in the allocations. Because, as Sir John has said, we have had a very good allocation it is very pleasant for me coming in as the new Minister of Science to be able to give new money to the expanding and growing areas and the ones we want to put more money into without having to cut back on any other areas where good science is also being done. So all the councils are getting real increases other than PPARC where we are maintaining their domestic programmes in real terms. Of course they benefit at the same time from the cuts in their fixed costs which give them an extra about 3.75%. So we have been able to give the money to the growing and new areas without having to cut back on any other area. Of course within that the point that Dr Gibson made is very important. Of course, there is a lot of interaction between the councils and we have put a lot of weight on that as well. So work within EPSRC is quite as important in terms of the basic science because it will not least of all back up the genome and we have put money into that as well.

195. How widely will life sciences be defined? Will the OST fill the gap in the cancer field with the Wellcome Trust? At the moment it does not.

(*Sir John Cadogan*) MRC has a significant cancer programme which will continue. As Dr Dexter correctly said, the underpinning science particularly in cell biology for example, signalling, gene function—all of these things underpin any advances in cancer. Although you have a specific programme associated with cancer, the fundamental cell biology for example, which will underpin it will continue and, indeed, I am expecting it to be enhanced somewhat by quite a significant amount.

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Dr Jones

196. We have obviously been very pleased at the allocation to the OST and research councils but wearing your hat as Science Minister with a remit across the departments, could you comment on allocations to other departments for science, on what input you and the Chief Scientist had into that, you and your predecessor?

(*Lord Sainsbury of Turville*) It is a situation where the decisions about the amounts that go into R&D are being taken by departments now that they have got their allocations from the comprehensive spending review. I think it is a matter of importance both to myself and the Chief Scientific Adviser that the right decisions are made on that R&D by a particular department because it is a very considerable sum of money in terms of scientific research done in this country and Sir Bob May has been looking at this very carefully and talking to Ministers about it.

197. I understand there is a cut, for example, in the MAFF science budget. Is that something that has been accepted by yourself and Bob May?

(*Lord Sainsbury of Turville*) I believe that this has been looked at and Sir Bob May has made his views known on this. I think it is, of course, always a question not only about quantity but where it is going as well. I do not think we yet have any final figures on this but it is an issue that I think we need to make very clear our views about.

198. Are you aware of any departmental budgets that may have their science research budgets cut?

(*Lord Sainsbury of Turville*) No, I am not aware of it, but obviously when people are looking at what they have got under the Comprehensive Spending Review they look at all areas and one wants to make certain that the option of cutting back research is not taken unless it is truly warranted.

199. So we still do not know the final outcome in departments?

(*Lord Sainsbury of Turville*) We still do not know what the outcomes of those are.

Mr Jones

200. Given the increased emphasis on wealth creation, how much of the new money for science will go to "blue skies" research?

(*Lord Sainsbury of Turville*) I do not think we are changing that balance at all. It is probably a mistake to say that if you want to put more emphasis on wealth creation that means one should do more applied research. It seems to me the important thing is maintaining, first of all, the quality of the science base and then making certain that the mechanisms are in place which will make the transfer of knowledge take place. If you look at the biotechnology area where we are still doing extremely well in this country, I do not think that has come from applied research so much as fundamental research. If you look, for example, at America and you look at where the best fundamental science is done, those are often the places where you get most spin-off companies and most knowledge transfer. Places like Stanford or Berkeley or MIT are all places where excellent fundamental science is done and

there is a lot of spin-off. I am more worried about making certain that the science base remains excellent and that in some cases means doing fundamental research and then making sure that these mechanisms of knowledge transfer—whether it is something like University Challenge which will lead to spin-out companies or what Mr Beard was talking about in terms of Fraunhofer institutes—are in place to make the transfers. I think if you get too much applied research there is a danger, as we point out in this document, that the fundamental research will suffer.

(*Sir John Cadogan*) Leaving aside the engineering which the Minister has already referred to, in the case of BBSRC there is a specific new objective which is to increase the proportion of BBSRC budget committed to responsive mode funding where there was a feeling it had slipped away a little bit due to other pressures. There is a specific instruction there which has been agreed with the council. Also, Ministers have insisted throughout that there is a high priority on studentships responsive mode funding and these should not be cut.

Dr Jones

201. I understand that the amount of bursary has also been increased; is that correct?

(*Sir John Cadogan*) Yes. As part of the CSR settlement we were fortunate enough to obtain some money this year and a decision was taken by Ministers, upon advice of the councils and myself, that we should do something pretty soon about the level of bursaries for the students and we have raised the minimum by £1,000. It has been unchanged in real terms since 1966 and all councils agreed that this should be the highest priority so money went into that immediately. Of course that does commit something like £12 million per year, £36 million over three years, once we get going.

202. Nonetheless, it is a very welcome development if we are to attract students.

(*Sir John Cadogan*) It was unanimous and it was very, very pleasant indeed to have sufficient money to be able to do this.

Dr Jones: Can we move on to the Joint Infrastructure Fund and Dr Williams.

Dr Williams

203. Dr Dexter earlier explained to us how the International Scientific Advisory Board will be responsible for allocations in the biosciences. Will there be a similar board for the physical and engineering sciences?

(*Sir John Cadogan*) We have got into the use of the term the left-hand side and the right-hand side. As you look at the organigram you have this Joint Executive Committee which is going to make the recommendations finally to the Government and to Wellcome. On the left-hand side we have the International Scientific Advisory Board which covers all of the biomedical chemistry which is related to biomedical, as Dr Dexter outlined. On the other side of the house we did not set up a separate mechanism on the grounds of why have another mechanism when you do not need it and there the individual

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[Dr Williams Cont]

research councils will be the recipients of applications and the mechanism for considering bids. So, for example, if a particular physical scientist feels that there is a big case for some amazing widget which has got to be housed in an equally amazing structure then that bid will come up to PPARC or EPSRC or NERC or whoever it is and will be considered by the normal peer review mechanisms and that will be ranked by the council and that will go up with a one star or two star allocation from the council to the JEC where they will all be looked at together; the chief executives of the councils of course have a seat on the JEC. So rather than set up a new mechanism which we did not need and is costly, we are using the same mechanism.

204. You said earlier that your successor would be the chair of the overseeing body.

(*Sir John Cadogan*) The DGRC is the Chairman of the JEC and the Deputy Chairman is the Director of the Wellcome Trust. We have had one meeting already and it is working very well.

205. Does this mean that the minimum limit for a bid that applied to the biosciences of £700,000 will not apply here?

(*Sir John Cadogan*) Yes. If you are coming into the JEF it has got to be £750,000 minimum.

206. How do you decide on how much should be PPARC, EPSRC?

(*Sir John Cadogan*) That is going to be a job for the JEC body which will have members of the Trust and the chief executives and indeed it will be, as always, a very difficult one because we will have a one star bid from PPARC and a one star bid from EPSRC and one from someone else and you have got to rank them. That is something which we will have to look at at the time. There will be a further iteration. We managed to do it quite well on the Joint Research Equipment Initiative which is jointly funded by the research councils and the four funding councils. Again, bids come in and they have to be allocated. All I can say is that we have managed to do it in the past and I expect that my successor and my colleagues will be able to do it in the future. There will no doubt be cases where it will be even-Stevens, maybe it should be this one that should be successful, maybe it should be that one and that is the time where priorities, as established through the Comprehensive Spending Review, will be taken into account, but I do not think there can be any question of a beta going above alphas, but between alphas you may well at the end of the day have to say, in terms of the priorities in the Comprehensive Spending Review—after all, this is our bargain with government, this is where we got the money and we will have to bear that in mind.

207. Has there been a decision yet as to five tranches and no re-application if you are rejected?

(*Sir John Cadogan*) It will be uniform both sides, on the biomedical and the molecular side, same procedures, same application form.

208. And 71 pages long again?

(*Sir John Cadogan*) I really hope not. The thing I have seen is really quite short.

209. But the same criteria?

(*Sir John Cadogan*) Same criteria with scientific excellence number one.

210. In terms of how much of this £600 million will eventually end up in biosciences and how much in the physical and engineering, there is no decision at this stage, is that right?

(*Sir John Cadogan*) There is no prejudgment on this except, of course, that £300 million of it must be spent in the area which is of particular interest to the Wellcome Trust.

211. So that is a minimum?

(*Sir John Cadogan*) That is a minimum. That could mean that all the rest goes to biomedical, but it could mean that none goes to it. I am guessing that some will, but not all of it by any means.

(*Lord Sainsbury of Turville*) From a position, as it were, of UK PLC on this, the fact that the first £300 million of bioscience good projects are being taken care of by Wellcome must almost inevitably mean that a lot more will go to the physical sciences than would have gone if this project had not gone forward.

212. Would it be fair to conclude that life sciences will have done fairly well out of this settlement and physical and engineering will have done well? That is the kind that message that comes through to me.

(*Lord Sainsbury of Turville*) I think that is a fair summary.

213. One has gone forward two steps, the other one has gone forward one step?

(*Sir John Cadogan*) Of course, if I may say so, that is a first approximation view but what we have to realise, as indeed the Chief Executives of MRC and BBSRC were very, very keen to press when interviewed by the steering group for CSR, they made the point that the fundamental classical sciences and engineering really had to be reinforced and indeed much of the work that is going on now under the label of life sciences is actually carried out by physicists and computer people. In Hinxton Hall where we are doing genomes it is computer jocks, chemists, robotocists, biomanagement people, so this life science categorisation is almost old-fashioned. Really we are talking about a new age which is molecularity.

Dr Gibson

214. That is why I said the research councils need a good hard look at.

(*Sir John Cadogan*) There is another way of doing it and that is to say be aware there is molecularity across the piece.

(*Lord Sainsbury of Turville*) While you look at the total allocations it is true that MRC has a real terms increase of 6.79 over the period but BBSRC is 3.98 and that compares with EPSRC which is 3.47 so those are pretty close together.

Dr Jones: Our questions concern the Infrastructure Fund.

Dr Williams

215. In view of the anticipated success, we are all very glad that the £600 million has been put together and as members of the Committee of course we were delighted by those announcements, but in view of the success of this private/public formula are there other big fish out there that we can chase and pull in, £5

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[Dr Williams Cont]

million here, £10 million there? Especially on the physical sciences and engineering or electronics; do you foresee that there are other companies there that could be doing much more in terms of funding research in higher education?

(*Lord Sainsbury of Turville*) Obviously we are always looking for opportunities to do this. I think with big companies it is much more difficult to get chunks of money which are not allocated to very specific areas of interest to them. What makes Wellcome unique is that it is able to give a very large sum of money as a charity without having to have consideration of how that relates to its business and that does make a huge difference.

(*Sir John Cadogan*) Could I add, of course, as we pointed out in the CSR, which was quite an important argument in persuading the Treasury that we were not just pursuing hobbies, that we were doing things of real value to the nation, that there were large sums of money coming from science-based industry which we did not know anything about. The ROPA scheme showed there was something like £350 million that had gone in without any help from government. The joint research equipment initiative, which you recall is clearly 50 per cent government/50 per cent industry, has been vastly over-subscribed and industry is very happy to come in. We do not think we have run out of steam there by any means.

Mr Beard

216. Where in the various arrangements is the insurance that things are not slipping between the responsibilities of two research councils, for example bioinformatics, which could come under BBSRC or could come under physical sciences.

(*Lord Sainsbury of Turville*) If you look at the allocation we have specifically highlighted, indeed in instructions to the Council we have highlighted, areas where we think they should work together. This is one of the jobs for the Director-General to keep an eye on. This is really my point about not changing the boundaries because you will merely have a new set of boundaries and the important thing is those are managed properly and work takes place on them.

Dr Jones

217. Do you concur with Wellcome's point of view that, without their £300 million contribution, the Government would not have put so much money into the fund?

(*Lord Sainsbury of Turville*) I think it is very difficult to say, frankly. It certainly was clear from the evidence of Wellcome that getting matching funds from government was a very important part of their decision, that they felt, as I think a lot of charities do, that it is not their job to pick up problems which are left there by government and therefore having a response from the Government was a very important part of this and, indeed, that is why they have not done it before. So I think the question of partnership is very important. I would guess that the Government is likely to be influenced in the same way in terms of if you can leverage money from Wellcome by putting money in you might be influenced by that as well.

(*Sir John Cadogan*) I do not think we will ever know. We will never know whether we would have got more or less, but what I do know is that the CSR debates and interrogation and occasional shoot-outs at the OK Corral have been going on for very many months and the Chancellor did say well in advance of the allocations, I was delighted to hear his statement in the House, well in advance of decision time, there is no doubt about it, that the science base was crumbling and it could not continue and the Government was going to do something about it. We opened a bottle of champagne in the office because we thought that is it, if that is not a commitment for more money, what is? Subsequently we went into the hard-nosed arguments and there can be no doubt about it that Wellcome's intervention and contribution in this was crucially important, but we will never know whether we would have got it anyway.

218. I think my colleagues share my concern that if the Government had not put in at least £300 million that implies that they were a government prepared to preside over a further deterioration in our research infrastructure.

(*Sir John Cadogan*) It is not for me as a civil servant to make comments on government behaviour but we must not lose sight of the fact that the Chancellor did make a very, very strong statement which implied that there was going to be an increase before we got near a final shoot-out. I think the Government deserves a pat on the back for that.

219. I think this Committee had an impact.

(*Sir John Cadogan*) This Committee had an enormous impact, says he quickly!

220. The JIF is for the university infrastructure. Are there any concerns about other public sector organisations which may have difficulties in this area and do you have any proposals for ensuring that they have adequate investment?

(*Lord Sainsbury of Turville*) I think the main concerns have been very much that it is within the university structure that we have seen this decline and that is why the effort is being focused there. I would just take you back to the point in answer to the previous question. This is not only a generous commitment on the capital side but on the revenue side as well and I think that suggests this Government has a real commitment to this area.

221. Have you any concerns that the Joint Executive Committee is entirely male and also has no representatives from any ethnic minorities?

(*Lord Sainsbury of Turville*) This is always a major issue. We have been doing a lot of work within the research councils and I think you will see there that the numbers are moving not rapidly but they are certainly moving in the right direction in terms of the number of women on the councils.

222. We have got 20 members and they are all male.

(*Sir John Cadogan*) Wellcome have an equal proportion, they have half the membership, and it is for Wellcome to decide that and Wellcome of course will reflect the Wellcome governors because they are essentially the accounting officers. The research council side has to be the chief executives of the

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[Dr Jones Cont]

research councils because they are the accounting officers responsible to Parliament. The sad situation is that we do not have a female chief executive in a research council yet. This is almost an accident of history and, as we all know, it is very difficult to fill the pipeline and we are putting in a great deal of effort in order to fill that pipeline so that women of experience and achievement are coming through much more rapidly but they have not yet got through to be chief executives of research councils. Believe me, it is not through want of trying.

(*Lord Sainsbury of Turville*) Can I draw your attention on page 22 to the very substantial increase we made in the Dorothy Hodgkin Fellowships. That is directly related to a very important issue here which is making certain that women at that stage in their careers do continue with science and I think that is a real practical measure for dealing with that but obviously it takes a long time to get a result.

223. Hopefully they will feed through sooner rather than later. Just a quick one on the amount of the bids. The minimum bid is £700,000 which is quite a large amount. Are you concerned that moderate-sized bids that may fall in between that sum and applications for other funding might have a problem getting resourced?

(*Sir John Cadogan*) The £750,000 is a number which was agreed between us and Wellcome. The point is that we have got £600 million which is quite a lot and this was meant to make a difference. We were looking there for, shall we say, a large facility which could either be buildings and/or equipment. Frankly, we felt that existing mechanisms such as the JERI and such as the normal funding through Wellcome and such as the normal funding via research councils and the funding councils could in fact take care of that gap. We felt that £750,000 was a big enough target for people to shoot at without us being overwhelmed with applications because the one thing I know—because I was an academic for 27 years and it has now been reinforced—was that academics are very, very smart at putting applications in if there is any money about and so we felt that we had to constrain it in this way. So we are looking to the research councils to do this in between and the funding councils. In this case we also have as members of the JEC but not full voting members the chief executives of the funding councils. We are discussing with the funding councils how we can integrate the spend through JIF with the spend through funding councils, which of course will be lower.

224. Do you think this level of funding will encourage collaborative applications?

(*Sir John Cadogan*) If the guidelines that have gone out do not encourage collaborations I do not know what will.

225. If people collaborate there is one application rather than several.

(*Sir John Cadogan*) Absolutely. It will be collaborations within universities and between universities.

Dr Jones: Can we now move on to technical support.

Dr Gibson

226. You will know that the Royal Society has suddenly discovered that technicians have been disappearing in universities for some time. After many years they have come out with a report. The technicians and research assistants are on short-term contracts and that does not bring the best people necessarily into the jobs. It is a major issue. The biggest cheer I got at a nature biotechnology conference was when I said the Government was looking at this issue. It is a burning issue in the laboratories in this country and I think we really do have to address it if we are going to attract the best people into science at this level as against them going into the City to get big bucks.

(*Lord Sainsbury of Turville*) I think there are two issues here. One is what kind of staff are used by the universities, to what extent they do keep a cadre of technicians and develop that. I think in the end that has to be largely their decision and it will obviously differ from one area to the other as to which is appropriate. There are certainly some particular research units which have continued to keep very good people in those areas. I think the second issue is the whole question of people being employed on short-term contracts and that is something that certainly in the post-doctoral field we are now trying to discourage very strongly. As a result of Sir Gareth Roberts' work, the Vice Chancellor of Sheffield, we have put some money into trying to get career advice for those people against the background of the concordat that was agreed to try and stop this practice.

227. These are mainly women. The Climatic Research Unit at UEA has had several women on 25-year, one-year contracts and surely they have proven their worth and should have a job. They are doing high class research. It is usually women that are on these one-, two- or three-year contracts. It is a major issue out there in building morale around the research groups.

(*Lord Sainsbury of Turville*) I think we are totally at one with you. One can see why universities sometimes find this an attractive option and it has something to do with keeping flexible options. I quite agree, it is not the right way to do this. One post-doctoral may be alright, two three-year contracts may be alright, but to have this as a permanent way of life I think is unsatisfactory.

Dr Gibson: They cannot get mortgages.

Dr Jones

228. Will funding bodies take into account the practices of individual institutions in relation to appointing technical staff on short-term contracts?

(*Lord Sainsbury of Turville*) We have done that. In the Government's response to the Gareth Roberts' report we have said that we will keep this under review and we have asked the research councils also to keep this under review.

(*Sir John Cadogan*) You will recall that in the White Paper one of the many tasks which were laid at the door of the new DGRC was indeed to look at this and when we did look at it we did find that there was extraordinary variation. We had good practice

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[Dr Jones Cont]

and bad practice. It was difficult for the research councils to do very much on their own because they provided the money and the universities were the employers. We spent a lot of time working out the concordat which essentially said that the employers really must take responsibility for career guidance and all the sort of things you were worried about. In some universities they were not getting maternity leave, they were not getting sick leave and things like that. It took quite a lot of time to get everybody signed up to it, but everybody is signed up now and, as the Minister has said, we are requiring research councils to make it clear that this is a condition of appointment. We have 30,000 short-term research assistants operating in the system at the moment. However, if we were—and it is not for us to do it—to say overnight, “Well, we are not going to have them, they are all going to have a full-time job,” I am taking an extreme case now, there would be no more jobs for young people for the next 25 years. The numbers tell you that. So that is the dilemma, is it not? Not all of those 30,000 can have a full-time job because it kills it for all the young people coming in.

Dr Gibson

229. You may have to develop a five-year programme like Wellcome did.

(*Sir John Cadogan*) Many of the research councils and many of the charities do have the five-year or the ten-year term, but then it is a question of what you do at the end of ten years. We have got Inter-disciplinary Research Centres (IRCs) where there have been key technical people in there who have been there for eight or nine years and they want nothing more than to stay even if it is on a two year and three year basis. So it is a balance between being too paternalistic but on the other hand ensuring that institutions take this very seriously and all institutions are taking it seriously. Gareth Roberts has taken it forward. I think we are much better than we were three or four years ago, but it is not perfect by any means.

Mr Beard

230. Could you say how much the Government is going to contribute to the synchrotron in capital and revenue costs?

(*Lord Sainsbury of Turville*) In this allocation I think it is £35 million. Wellcome is providing £110 million. I think long term the current cost is £175 million. So there will be another tranche from government but not within this allocation period.

231. So the £35 million is the running costs?

(*Sir John Cadogan*) No, the £35 million is our contribution during this period of allocation so you have got probably another £30 million outside this period, but that will depend on the £175 being the right figure for costs. At Christmas we will start the joint work looking at the exact scoping of this project.

232. Will it be available to both bioscientists and other scientists?

(*Sir John Cadogan*) Yes, it is very much on the basis that this is a facility for both physical and biosciences.

233. Both academics and industrialists?

(*Sir John Cadogan*) I believe both. This is a national research facility and it is obviously extremely important to all sides of that and to the industrial base as well. The current synchrotron was the first in the world. A tremendous amount of expertise resides within our community for building these things and we have a gleam in the eye that we are going to try and set up a business with a company which I cannot mention who will build beam lines to go on other people's synchrotrons. The synchrotron at the moment has 3,500 users per annum and a significant proportion of these are from the physical sciences and engineering, from nano-technology to materials, to catalysts and have a huge component on the other side. Walker's Nobel Prize was achieved on the synchrotron. There are industrial users too who pay their way. It is possible that you might get industrial users paying for a beam line because the new synchrotron is a big Catherine wheel, as you know, with these little tangents coming off it and you might have as many as 60 or 70 lines on it and some lines will be for cracking big proteins, so high intensity needed, some will be for materials and some will be for industrial use. As Dr Dexter said, this is all being discussed at the moment. I would certainly like to reinforce what the Minister says. The synchrotron was among the highest priorities in our case to government for CSR. We said this is a cornerstone for United Kingdom science across the piece. If Wellcome had not come in I can assure you that there would have been strong recommendations coming forward to government that the Science Budget should pay for it all. It is that important.

234. Could I go back to the point Dr Jones made about the programme in other ministries, particularly the Ministry of Defence which is probably the largest of the programmes. Is it possible to review the way research is sponsored in the Ministry of Defence so it has more spin-off into other civil applications rather than being entirely available for very specific defence purposes?

(*Lord Sainsbury of Turville*) Of course DERA now has a very clear commercial part to it as well so it is now doing more contract work and I have no doubt that that will affect its decision on allocation of resources, but obviously the final money going into defence R&D is with the Ministry of Defence.

235. Is there not a case for the programmes across the board to be more closely supervised by the Office of Science and Technology to at least rule out duplication?

(*Lord Sainsbury of Turville*) I think we do try and make clear where the lines do come so there is no duplication, but I think the idea that we should have, as it were, one Ministry of Science which would control the whole budget would probably not be the way forward and I think there are very few cases even where there are Ministries of Science and Technology in other countries where they do control all the spending across government and the reason for that is very clear—that you want to have a very clear ownership by the departments who are, after all, in the end the users of this research and a very large part of it is in terms of making them the intelligent customers in terms of policy making. To the extent you take that away from them I think you weaken

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[Continued

[Mr Beard Cont]

that link and I do not think it would be the way forward. You have got to give them the final decision on their research. If you look again at America, there is no great Ministry of Science and Technology, there is a small unit in the Commerce Department and scientific advisers to the President, so it is very close to our system, and I think in terms of excellence of science, which is key to this, that is the way forward.

236. I was not advocating a wholly centralised arrangement but this is something that appears to be a rather Balkanised division of the programme between different ministries at the moment with few talking to one another and not a lot of relationship to what goes on in the Office of Science and Technology. Maybe that is unfair.

(*Lord Sainsbury of Turville*) I think the role of the Chief Scientific Adviser is very much to provide that co-ordination. He of course has a committee under him of the chief scientific officers in each of the ministries. There is certainly co-ordination taking place at that level.

Dr Williams

237. Could I come in on this point as well. I am very pleased at the change in the terms of reference for the Chief Scientific Adviser and the seat in the Cabinet Office, but do you see it as part of your role, too, to stand near the departments and see what is happening because there is a lot of overlap, surely, in the Department of Health with the MRC or in MAFF with the BBSRC, or the Ministry of Defence with the EPSRC. I am trying to add to your powers here! Is part of your defined powers to have that kind of roving commission or is it only the Chief Scientific Adviser who has that across the departments?

(*Lord Sainsbury of Turville*) He has the main responsibility in terms of looking at the whole science base across government. Where we have more co-ordination now taking place is in, for example, the Foresight Programme where we do have an inter-departmental ministerial group that looks at this and also because we have a system whereby there are people nominated within each department in terms of guidelines on scientific advice to different departments. So there is some co-ordination at that level as well but the main responsibility lies with the Chief Scientific Adviser and the committee that he runs of chief scientific officers.

238. Are you a member of those intra-ministerial groups?

(*Lord Sainsbury of Turville*) Yes.

239. Are you actually the Chairman of that?

(*Lord Sainsbury of Turville*) I am the Chairman of the Foresight Group.

Dr Jones

240. The question is do yourself and Sir Robert have clout to influence decisions? I was a bit concerned earlier that you did not know even at this stage what was going on with the budgets in other departments.

(*Lord Sainsbury of Turville*) Sir Robert May is very involved in those decisions. As I say, they have not yet been taken in departments but he has been talking to people about what they are likely to be and making an input into those decisions.

Dr Jones: The final question from Dr Kumar on the Challenge Fund.

Dr Kumar

241. What activities can be supported by the University Challenge Fund? Can it be used for example to provide management experience or will it be confined to science-related activities?

(*Lord Sainsbury of Turville*) It is very much related to the process of bringing products to the stage where they could be funded by venture capital. I do not think it would include management training of a general kind. It is very much more the whole process of taking a product and doing the work that will take it from a clever idea into a workable product which a venture capital company might fund through a spin-off company.

Dr Jones

242. We have run out of time. Thank you for your indulgence. Thank you for spending the time with us. May I, Minister, wish you well with the three challenges you have set yourself and echo the comments of the Chairman earlier and hope we can be of assistance.

(*Lord Sainsbury of Turville*) Can I say I feel I am very lucky both to be Science Minister and to come in at this time when, just before I came in, a large sum of money was given to science and I am absolutely delighted to work with you on making certain this money is well used to support the science base in this country. Thank you very much.

