SCIENCE AND TECHNOLOGY SELECT COMMITTEE
Science and Innovation Strategy
Oral and written evidence

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**Evidence Session**  
Heard in Public  
Questions 1 - 10

TUESDAY 10 MARCH 2015

Members present

Earl of Selborne (Chairman)  
Lord Dixon-Smith  
Lord Hennessy of Nympsfield  
Baroness Hilton of Eggardon  
Baroness Manningham-Buller  
Lord Patel  
Lord Peston  
Lord Rees of Ludlow  
Viscount Ridley  
Baroness Sharp of Guildford  
Lord Willis of Knaresborough

Examination of Witness

**Rt Hon Greg Clark MP**, Minister of State for Universities, Science and Cities, Department for Business, Innovation and Skills (BIS) and Cabinet Office

**Q1 The Chairman**: Welcome, Minister. I apologise for the layout of the room. I gather we are set up for a Committee of 27 and nothing will change the arrangements on our behalf. I can just see you, and if you can see me that is fine.

**Rt Hon Greg Clark MP**: I can indeed, and I can hear you, which is the most important thing.

**The Chairman**: Because we are being broadcast as usual, it would be helpful if, for the record, you could announce yourself and your affiliation. Then we will start with the questions.

**Rt Hon Greg Clark MP**: My name is Greg Clark, and I am the Minister for Universities, Science and Cities.

**The Chairman**: Would you like to make any opening statement before we go into questions.

**Rt Hon Greg Clark MP**: Actually, I would like to make an opening statement on behalf of my predecessor in the role, really to recognise and pay tribute to the work of this Committee
The Rt Hon Greg Clark MP, Minister for Universities, Science and Cities, Department for Business, Innovation and Skills (BIS) and Cabinet Office – Oral evidence (QQ 1-10)

during this Parliament. I dare say that this will be if not the final meeting then one of your last meetings, and I hardly need say that the representation on this Committee and the close interest it has taken in science policy has been immensely important, I know, to my predecessor and to me in the last year. Perhaps I can put that on the record, Lord Chairman.

The Chairman: Thank you very much. I will also start by saying that the Committee is certainly appreciative of the fact that, with the science and innovation strategy, you also published the response to the findings of the Government’s capital consultation. We recognise that that capital consultation was in many senses a response to our scientific infrastructure report, and I am sure we will discuss during the questions some of the issues that arise from the determination as to how one follows up that capital consultation exercise.

I will start with a more general question. It is the first time we have had a Minister in front of us who combines the particular portfolio that you do: cities as well as universities and science. Could you tell us the rationale for this role?

Rt Hon Greg Clark MP: It brings together a development which I think has been overdue, which is to recognise in science policy, and in universities policy for that matter, the importance of place. Our institutions and universities around the country do not operate in the abstract; they are located in particular places. For many of our cities, it is impossible to think of them these days without their university at the heart, so one of the five key themes in the science and innovation strategy is very much to recognise the contributions that universities and science make to place.

I have had the responsibility for cities for most of this Parliament, and the work that I have been doing on that has very often brought together investment in science and in universities. One of the first city deals that I negotiated was with Birmingham, and at the heart of that was the establishment of the Institute of Translational Medicine there, which was funded partly through the city deal. I was delighted to be asked to go and see its progress a few weeks ago. In fact, everywhere I go around the country the importance of research and universities to local economies is increasingly evident.

The Chairman: Thank you. We noted that one of the five key principles is indeed place, but is there an inherent tension between that and the requirement, which you have set out, of the six Haldane principles, the fourth of which is the one that we are the most familiar with: the choice of how and by whom research should be conducted? Should it be decided by experts? The Government also have a very sensible programme of trying to embed science in local growth and of demonstrating the importance of place. Is there a tension, therefore, between the two roles? Might research councils find themselves required to fund in places that they would not otherwise have chosen?

Rt Hon Greg Clark MP: No, and it is very important that we have a clear recognition of the different roles here. When it comes to research-council funding, the first principle of the science and innovation strategy is excellence, and peer review at arm’s-length from government is one of the foundations of that. I sense, though—and the Institute of Translational Medicine in Birmingham is a good example of this—that the science budget must be allocated very strictly according to Haldane. But that is not the only available source of government funding. Haldane, it seems to me, must not be a prison that keeps scientific research budgets unable to access what might be very substantial sums of money elsewhere
that must always be additional to the science budget—and there must always be a strong conversation as to what that should be. But where, for example, a local authority, a combination of local authorities, or the Government has an interest in regional economic development and has separate funds for that, that should be accessible to universities and research institutes on top of the science budget. I am sure we will come on to talk more about the science capital budget, but we are allocating nearly £6 billion over the next few years.

I have also brought with me to this portfolio a £12 billion capital budget over a comparable period for local growth. I have been determined to see, and have been delighted to see in the early negotiations, that scientific endeavour is getting a lot of that, so I see this as a source of buoyancy in science funding, but the science budget must continue to be allocated according to the demands of excellence through peer review, which is absolutely in line with Haldane.

**Lord Willis of Knaresborough:** I declare an interest as the chair of AMRC, a board member of NERC and the chair of the Yorkshire and Humber CLAHRC.

I would just like to take you up on the issue of excellence. You have said twice now that we should support excellence through the research councils, and I do not think anyone around this table would disagree with that. In fact, quite often it is the large facilities that create the critical mass to develop excellence. For instance, the decision to put the synchrotron at Diamond rather that at Daresbury in the north-west has made a cluster of scientists to move in that direction rather than around Manchester. With the growth of the regional agenda, which is becoming really significant in political as well as economic terms, is there any sense that this £6 billion budget will be covertly directed to areas where we need to build critical mass in the future around large facilities?

**Rt Hon Greg Clark MP:** Certainly building critical mass is very important, and excellence has to be the fundamental principle. We have a reputation to defend and advance that is directly attributable to the high standards that we have set, and sometimes that involves difficult decisions—I quite understand that. But we have identified place as an important theme in the strategy to invite everyone over the next few years to think about how this applies. That is true for the research councils and for institutions too in the sense, as I think you have implied, Lord Willis, that the clustering of adjacent institutions can create more than the sum of its parts. If it is to be through the research councils, it needs to be based on excellence. But there is another dimension of place that is not about regional economic development. In a world where boundaries between disciplines are dissolving and where cross-fertilisation and collaboration are advantageous to us in pursuing excellence, it is important for the research councils themselves to think about place in the sense of where things go, as I dare say it is for you in your roles.

**Lord Hennessy of Nympsfield:** Minister, is the Haldane principle not a bit like the British constitution: a thing of mystery and squishiness—a very useful squishiness, because it enables successive Governments and Ministers who have carried your portfolio to run a semi-command economy in many ways, with funds allocated for very necessary purposes, I am sure, alongside an intellectual free market? It therefore has paradox within it, and in each generation it takes a different shape. “Excellence” is the word that we have all collapsed back into. It is a kind of sleeping bag in which we can all keep warm because we all
agree about it. It is hugely consensual. Do you have a special insight, now that you have been doing this job for a while, into what the Haldane principle really means?

**Rt Hon Greg Clark MP:** I read with great interest the discussion that you had with Sir Mark Walport on this. He produced the original Haldane report and you had a very interesting conversation about that at some length. That is reflected in the science and innovation strategy, as you have seen. Lord Hennessy, you will know as a distinguished historian that the application of a principle evolves from time to time, and the language of Haldane all those years ago was written for a certain time: it is about the machinery of government, as you know, rather than about science specifically. It has come to have associated with it an understanding, a familiarity, in the context of science policy that has developed a kind of jurisprudence, if I can put it that way, that is not quite what the original Haldane report on the machinery of government was all about. Nevertheless, I think it embodies a pretty well understood principle that you should battle for a science budget and recognise the importance of that. Then, as Ministers of the Crown, you should set up arrangements whereby the scientific experts decide where that budget should be invested. That may not be codified in a single sentence, but I think there is an understanding, both in government and outside it, as to how that works in practice.

**Lord Hennessy of Nympsfield:** I should have declared my fellowship of the British Academy, which receives your money and specialises in squishiness of the human kind.

**Rt Hon Greg Clark MP:** I think probably everyone here has an interest in that.

**The Chairman:** And I, no doubt, should have declared an interest as a fellow of the Royal Society and chairman of the Foundation for Science and Technology. I congratulate Lord Willis on being the only one to remember to declare an interest.

**Lord Willis of Knaresborough:** You told us to.

**Q2 Baroness Sharp of Guildford:** Perhaps I had better declare an interest as a member of the council of the Foundation for science and technology.

I have three questions that I would like to put to you. The first is about timing. Why did you publish the science and innovation strategy in December, which is so close to the coming general election? I know that there is a degree of cross-party agreement on the development of science, but how confident are you that the incoming Administration will actually adhere to the strategy?

My second question is that you describe it as a 10-year strategy, yet the commitments are all five-year rather than 10-year commitments. In our report on the science infrastructure, we stressed the importance of making long-term decisions not even five or 10 years in advance but 15 and 20 years in advance. There is a need particularly for these large capital expenditures to be planned that far forward. How far do you feel that, as a five-year strategy in effect, it is worth publishing at this point?

My final question picks up the other major finding of our report, which was that there was, “substantial evidence of a damaging disconnect between capital investment and the funding for operational costs”. In its response to us, the science and innovation strategy now says, “We recognise that staffing, running and maintaining our scientific infrastructure requires
adequate resource funding”, but there is no mention of resource funding here. Can it really be a strategy without any commitment of resources?

_Rt Hon Greg Clark MP_: Those are good points, Lady Sharp. I am grateful. First, should we be publishing a 10-year strategy? I will come on to say why I think that is the appropriate length of time, which is reflected here. Scientific decisions and investment—and, more than that, the way you think about science—must go beyond the life of any particular Government. It is an important responsibility for people fortunate enough to have my position to try to build a long-term consensus. If science policy gets bogged down in party-political point-scoring between elections and edging for advantage, that is not how confidence in UK science should be built. So I think it is right not to be moved, as it were, by a prospective general election. One reason for publishing the strategy at the end of last year was that it came at the end of the previous 10-year strategy, which one of my distinguished predecessors, David Sainsbury, produced, which ran out in 2014. That embodied that same approach. I met Lord Sainsbury to discuss it. He gave evidence that I reflected on. We had some conversations about it. It continued the tradition that was set and sought to look ahead in a similar way.

In terms of the content and whether it should be five or 10 years, it is true that the capital consultation, which is part of it, is five years. That is a fairly long-term allocation of capital. In fact, I think it is the longest forward allocation of capital there has been, partly driven by the imperative that I have certainly promoted, and I think my predecessor did as well, to look to the long term. We have got halfway there. But the strategy is not all about the capital consultation, important though that is. It was also a serious attempt, very much influenced by the deliberations of this Committee, and I have read very closely the evidence that you took, to try to think forward over the long term about the challenges, some of them conceptual as well as organisational, that you need to think about and act on over the long term. We have set them out, in no way to dictate but to share. That reflects the consultation.

Excellence we have talked about. There is also place—the idea of clustering, in response to the point made by Lord Willis, which there is advantage in taking forward.

Then there is agility. It seems to me—and this came out of the consultation as well—that the idea that there will be opportunities in the next 10 years that we are not aware of today and that therefore deciding, whether by research councils or government, what you are going to spend your money on or not to allocate it all at once so you have the agility later on to respond to challenges, is very important.

Collaboration is another of the principles. Again—there are many distinguished scientists here—the opportunity and the imperative to make sure that your arrangements foster rather than impede collaboration is very important.

The final one is a sense of openness—both the possibility but also the imperative that science is more open in the future than in the past.

These are significant thoughts and we put a lot of thought into them. They are a distillation of challenges that I think all of us in the science world should reflect on to our mutual advantage, and I think they pass the test of being, as far as one can see ahead, themes that are likely to repay serious consideration and application over 10 years. So it does bring them together in that way.
Q3 Lord Patel: I declare my interests. I am associated with a university that receives research funding from a variety of sources, including the Government, and with the Royal Society of Edinburgh. My question concerns the funding allocation, particularly for capital expenditure and scientific infrastructure, which was announced in the science strategy: £5.9 billion, of which £2.9 billion is for scientific grand challenges and £3 billion is for so-called world-class labs. Can you explain the difference between the two categories, how and by whom these decisions were made, who advised, what criteria were used, and why, after announcing this, sometimes we hear ad hoc investment announcements on capital infrastructure before the capital consultation has ended?

Rt Hon Greg Clark MP: I will, and that gives me the chance to answer a part of Baroness Sharp’s question that I did not answer about revenue versus capital.

One of the very strong recommendations that came consistently from the consultation on the strategy and from the deliberations of this Committee was not just to announce new things, open new things and then not be concerned about how they are going to be maintained and continued in the future but to recognise that there is a requirement to continue to invest in the upkeep of scientific facilities. Part of that is about revenue—and the spending review, which is shortly to come, will set the revenue budget—but there is an element of capital maintenance as well. Those of you who have worked in labs know that things wear out and need to be replaced, and that is capital expenditure. We reflected on that in the strategy, and we were very clear—we referred to the phrase used by the Committee, the “batteries not included” problem—that batteries should be included, and we applied that in the capital consultation; I will come on to say something about that.

On Baroness Sharp’s point, this is an agreed government strategy for 10 years, which means that when the revenue allocations come to be made it is very clearly stated that the policy of the Government is to recognise the ongoing needs, not just the needs for new projects.

In the £5.9 billion total, we set aside a majority—£3 billion—for what we call “well-found labs”, which is essentially the ongoing investment in the upkeep of the infrastructure and programmes that are there, plus some of the international subscriptions that we want to maintain. That was a deliberate decision. There were debates within government over whether you should allocate all this capital for new things, but allocating £3 billion of the £5.9 billion for the well-found labs budget was a deliberate and very significant piece of policy, both for the capital allocation and a signal for the future revenue allocations that we should be making.

On the question of how it is to be allocated, it is part of the science budget, so it is in line with the Haldane approach that I was discussing with Lord Hennessy. It is the research councils that will have calls for this. We know already from talking to some of the chairs of the research councils that there is a pent-up demand, if I can put it that way, of investments that they are ready to make to keep infrastructure up to date.

Q4 Lord Rees of Ludlow: I declare an interest as a member of Cambridge University and of the Royal Society. I have two related questions. One is the general question of the advice that you get for the big decisions that cut across several research councils; and, secondly, the advice you get on the international dimension, because some of the items involve European collaboration. How do you decide how to prioritise those?
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Rt Hon Greg Clark MP: Science Ministers in this country are not short of very good and distinguished advice, not least from this Committee over the years. One of our big advantages is a network of scientific advisers across government and a Chief Scientific Adviser who not only brings their advice together but has an important role—and I dare say Sir Mark has played this not just with the Committee but with members of the Committee in their institutional connections—to bring together a reflection of the view of the scientific community. Of course, the research councils themselves do that; many of you serve on research councils. They are brought together, as you know, under Research Councils UK, where some of the themes that cross particular councils are developed and expressed. That is the advice that comes through. When it comes to the science capital consultation, for example, I was able to accept all the advice that was given to me through that process. I had no changes that I needed or felt inclined to make. As a Minister I was very satisfied with the advice that was given.

You will know that in this strategy Sir Paul Nurse has been asked to lead a review into how some of these reflections, including collaboration and funding interdisciplinary work, can best be achieved in the future. He will advise after the general election. The Government will then honour that. But it is very much working with the research councils to make sure that we have the best possible advice for that.

Lord Rees of Ludlow: We will come back to the Paul Nurse committee later, but there has been a perception that the amount of in-house scientific expertise within BIS has been in a secular decline over the past few years from the time when there was a full-time DGRC, et cetera, and of course there is very little such advice from within the Treasury. One does wonder how decisions are made that are at a higher level than that of individual research councils.

Rt Hon Greg Clark MP: That is not my experience, Lord Rees. Sir Mark Walport has been the Chief Scientific Adviser for the time that I have been in post. There is the Prime Minister’s Council for Science and Technology, which meets regularly and which I have met several times during my tenure. The recourse to the institutions, whether it is the learned societies or the universities, is very frequent. In fact, I seem to spend more time in the Royal Society’s various meeting rooms than I do in many Committee Rooms in this House, quite appropriately so. Within BIS, and the Treasury too, I can report that the place of science is very central, whether it is the Chancellor of the Exchequer or senior Treasury officials, or the Prime Minister who, when he meets his Council for Science and Technology, is very personally engaged in this. I have had experience of government for four and a half years, but I have been in politics longer than that and I cannot think of a time in which science has been more central to the thinking of the Government, I am happy to report.

Lord Rees of Ludlow: I am more concerned about the official level than the political level, but it is clear that we have a genuine supporter in the Chancellor.

The Chairman: Do you recognise that with the change of role of the Director-General of the Research Councils, with the retirement of Sir John O’Reilly, there is at least at perception—that may be an incorrect perception—that somehow the outward face of BIS to the science community has in some way changed, not necessarily for the better?

Rt Hon Greg Clark MP: I am not sure I do accept that. During my time in government, one of the things I have tried to avoid is seeing government through the silos of particular budgets
and departments. That seems rather limiting. I do not see this as a narrow BIS responsibility. In fact, one of the most significant advances during this Parliament is the full-blooded enthusiasm of the Treasury, and certainly No. 10, for the science agenda. It goes beyond BIS. It is embodied in the strategy. I was insistent from the moment I was appointed that this would not be just a BIS document. The experience that many people have had is that if something is a departmental document, it has a certain status but can be contested. If you have the whole Government signing up to this—it is a Treasury document signed by the Chancellor of the Exchequer as well as by the Business Secretary and me—this brings a whole-government commitment to it. While BIS is important in this—of course, Sir Mark Walport’s office is physically located in the business department and he is a very prominent person in the department—I think it goes beyond that. We ought not to think of science as being a little part, or even a big part, of BIS’s responsibilities. This has to be a whole-government view. We might come on to this. The science and innovation strategy has something to say about research budgets in other government departments as well, which I think is quite significant. Our purview should be broader than that.

**Viscount Ridley:** I am not trying to jump the queue, Chairman. I had a question for later but this a direct follow-up to Lord Rees’s question. I declare an interest as a fellow of the Academy of Medical Sciences. My question is about the role of government science advisers, chief science advisers particularly. Under the previous Government we saw one or two public spats over that role over the fact that on the one hand they must be allowed to make objective challenges based on the science but on the other hand if, despite their advice, the politicians want to go ahead with a policy, in a sense that is none of their business. It is not an easy balance to strike. In the latest guidance for chief scientific advisers, we noticed that the wording has changed from “independent challenge”, which is what the chief scientific advisers are supposed to do, to “semi-independent challenge”. Can you parse that phrase for us?

**Rt Hon Greg Clark MP:** I am afraid I cannot, Lord Ridley, but I will reflect on my experience of the network of scientific advisers. They meet as a college. In fact, they meet very regularly—most weeks—to discuss the issues of the day. In so doing, there is quite a lot of highly confidential information from across government that goes to them, which they see and can provide advice on. I am speculating, but that phrasing might refer to the fact that there is sometimes confidentiality that they are privy to. It is important that they should be able to see confidential documents and to provide advice in that way.

**Baroness Manningham-Buller:** Sorry to interrupt, Minister, but surely you are talking about two different things. You can be independent and still have access to confidential or even secret information. You do not have to lose your independence to be trusted with something confidential, or am I missing the point?

**Rt Hon Greg Clark MP:** I do not know. I am trying to think of an explanation for that particular phrasing. I cannot believe that any one of the individuals who is appointed to these posts would ever compromise their independence of judgment. It would go against their whole career and sense of themselves as scientists. I cannot imagine that any scientist would compromise that.

**Viscount Ridley:** I wonder if it might be possible to follow this up in writing afterwards.

**Rt Hon Greg Clark MP:** I would be delighted to.
Viscount Ridley: I agree with Baroness Manningham-Buller: making them insiders does not necessarily diminish their ability to be independent. While I can see that there are arguments that they should not flounce out on a matter of policy that they disagree with, and in that sense they are not fully independent, on the other hand we would like to see that their ability to speak up based on science is defended.

Rt Hon Greg Clark MP: I will inquire into that and write to the Committee.

Lord Rees of Ludlow: There is a bit of concern that Sir John O’Reilly, who was an outsider, has now been replaced by two insiders, and that is again part of the concern we have about the BIS advisory structure.

Q5 Baroness Manningham-Buller: Minister, this Committee is pleased, obviously, that the science budget is ring-fenced, but you will know that in real terms, with inflation, it is declining and we are pretty far below the EU average in what we spend on science. With the economy recovering to a degree, if you survive the election and are in the same job and are wishing to put the argument to the Treasury for increased expenditure, what would the parts of that argument be? Alternatively, if you are giving advice to your successor as Science Minister, what are the arguments that you see for increased spending to bring us up at least to the EU average?

Rt Hon Greg Clark MP: First of all, let me say a word about where we are on science spending. In the science capital consultation and the response for the capital budget, the £5.9 billion is rising with inflation throughout the whole of the next Parliament and just beyond it. It is very unusual not just to be making a ring-fenced commitment to the science budget but to be doing so rising with inflation, and that perhaps is something that is not often remarked upon. My training is in economics and there is a doctrine in economics called revealed preference, which the Committee will be familiar with, which suggests that the intentions and the behaviour of economic actors should be inferred from the decisions that they take. Actually, I think it reveals a recognition that science is an investment, and to commit a rising capital budget to science says that this is not a line item to be dealt with and managed off; this is a positive decision to recognise that it is a vital force in our economy. The best argument for a buoyant science budget, which I hope any Science Minister would make, is to advocate the case of it as an investment. It seems to me that there is scarcely a better investment available in the country.

If you think ahead to future years and you want to ask yourself, as a nation, how you are going to make your living in the future, there are two things that you would be well advised to do. One is to consider what your strengths are. The second is to consider whether those strengths are likely to be in greater or diminished demand in the future. When it comes to science, first of all, is that a strength of ours? My word, it is. Not only are we good at science, we are excellent at it. Is the demand for scientific discovery, whether in pure research or the application of it in industry and indeed education, going to increase or decrease? Absolutely, categorically, it is going to increase. As the world becomes more technologically advanced and as nations become wealthier, they will want to invest more in education. For us to build on the strengths and be in a context of growing demand is a formidable investment.

In the strategy we do not duck the analysis that you made. In the foreword that is signed by the Chancellor, the Business Secretary and me we make the point that you have made, that, “The UK has historically invested less in research and development than our competitor
nations. Addressing this crucial challenge requires both public and private sector commitment”. We recognise that commitment by increasing the capital budget in real terms, but we are very clear that to have that in the strategy—again, this goes to Baroness Sharp’s point—sets the course for the Government’s view of science for the years ahead.

Baroness Manningham-Buller: I apologise for not declaring my interests. The Committee does not have a very good record on that this morning. I am chair of the Council and the Court of Imperial College and governor and chair-elect of the Wellcome Trust.

Lord Peston: You are a member of the lower House, so you have constituents.

Rt Hon Greg Clark MP: I do.

Lord Peston: Perhaps I might put a devil’s advocate question that might be put to you by one of your constituents. If you look at the real science budget—say, from 2010 for 10 years, including the forecast element—the data we were given show it falling at rather below 1.2% per annum. Supposing your constituent comes to you and says, “I know that a lot of the science budget goes into a subject called quantum mechanics. I would be very interested to hear what you say to me as a taxpayer”, but, more to the point, if he put to you, “Is it unreasonable, particularly when there are times of economic difficulty, to ask our scientists to offset that real fall by improving their productivity by 1.2% per annum?”, how would you answer him?

Rt Hon Greg Clark MP: The first thing to say is that the revenue element has been ring-fenced, but it is, as you know, flat cash, and that reflects that aspect of it. But the forward commitment on capital is increasing, so I dare say that the combination of that produces that figure. It is important to put on record the achievement of having being able to protect in cash terms the resource budget—

Lord Peston: I am not denying that.

Rt Hon Greg Clark MP: Indeed, but since you raised the point, I think it is important to recognise that. That in itself demonstrates the commitment that has been made to science. I would and do make a very clear argument to my constituents that not only do science and a reputation for excellence in science create jobs and growth in the economy, they create excellent jobs and growth. These are not low-paid jobs that come and go. A substantial reputation for excellence creates careers that are well remunerated and have satisfying content. When they leave school and university, I would like the young people of my constituency to have a greater choice than in the past of stimulating careers ahead of them. This is a way to do that.

Lord Peston: I have just one other very brief question. You referred to the revealed preference theory, which is a subject I like very much.

Rt Hon Greg Clark MP: I think I probably learnt it from your textbooks, Lord Peston.

Lord Peston: All the empirical evidence shows that the trouble with the revealed preference theory is that it fails the transitivity test among ordinary people. They have a habit of preferring A to B, B to C and C to A. Have we ever done any tests of scientists to see if they are any more rational when it comes to decision-making?
**Rt Hon Greg Clark MP**: That is a very big question. Under the Haldane principle, I should refer to the research councils to consider whether that would be an inquiry worth funding. I would be interested in the results, as I am sure you would be, Lord Peston.

**Baroness Manningham-Buller**: To finish the point I was on, Minister, I wonder if you are trying to reverse the decline in the research being financed by departments, which is falling very rapidly and is of course outside the science budget. When departments are under financial pressure, it would appear that the research programmes financed by those departments suffer. That, of course, is of concern. Would you like to comment on that?

**Rt Hon Greg Clark MP**: Yes, I would. Again, we address it in the strategy. It has declined slightly over the years of this Parliament. We have figures for only three years. But in the strategy—again, I am very pleased that we were able to agree this across government—in paragraph 4.35 we say: “We will examine how to ensure that R&D spending by departments is properly prioritised against other capital investment spending, for example by considering controls that can be placed on this spending to ensure that valuable R&D is not unduly deprioritised in favour of short-term pressures. We will report on this by the next Spending Review”. That is a very significant statement and goes to the point that we discussed earlier about breaking out of this being a BIS budget. We are making, with the Treasury’s consent—in fact, co-authored with the Treasury—a statement about our intention in order to inform the spending review about how we can address that issue.

**Q6 Lord Willis of Knaresborough**: Minister, the effect of the decline in departmental budgets means that in the past two comprehensive spending reviews the Government have created a series of what they would call science priorities, which were basically passed on to the research councils. Once you take out the MRC’s above-inflation funding, the research councils were on flat cash at best, which means over the period from 2010 projected through to 2020 something like a 23% real-terms cut in their budgets. That is compounded by the fact that the Government’s ability to carry out their own departmental science is diminishing, which puts extra pressure on that element of the research councils’ budget that goes into investigative science—blue skies, the stuff that 10, 15 or 20 years down the line actually creates the big bucks as far as UK plc is concerned. Is that a concern to you, and how do we address it?

**Rt Hon Greg Clark MP**: In response to the last question, I would say that we recognise the importance of the science spend outside the BIS science budget. That is absolutely understood. My information is that the research spend in other departments has declined but by less than the cuts in those budgets across the departments as a whole, so it has been less severe. We say very clearly in the strategy that it is important to perceive research spend by other departments as research that we should take an interest in, and the language is pretty muscular in advance of a spending review in saying that this is within sight.

In answer to the earlier question, you would expect the Science Minister—and I certainly will discharge this—to make the strongest possible case for science in the spending review, and I will advance a case that is not based on special pleading but on the fact that it is an investment.

**Q7 Lord Rees of Ludlow**: I would like to go back to the Nurse review. As you know, it is less than a year since the last triennial review of research councils was published. As you are
probably aware, there has been a certain perplexity about the reason for this review. Is it just that the answer was unacceptable last time around? If we are going to have this review, does it mean that the next triennial review will be postponed—otherwise a continual process of review seems to be envisaged? Could you say a bit about what you hope to get out of the Nurse review that does not already come from the reviews that you have had?

**Rt Hon Greg Clark MP:** Indeed. It follows on from the triennial review. I read the triennial review very closely, as you might imagine, and I think it was an excellent piece of work. That review recommended some considerations for example of how interdisciplinary work can be best funded. That is completely in line with one of the themes of the strategy: how we can make sure that collaboration is best addressed. That gives a choice, in effect. If a triennial review has made some recommendations for further inquiry—and I have never known a research project that does not recommend further research; that is pretty standard, and quite appropriate in this case—and you are embarking on a new strategy for 10 years in which you have identified certain themes that resonate with some of the themes from the triennial review, my judgment was that it was best to get on with it and to conduct that review so that was there at the beginning of the period that we were looking ahead to rather than a few years down the road.

We therefore asked Sir Paul to conduct a review and to report in the summer, which has two characteristics: one is that it is beyond the general election and does not get bogged down in that; and, secondly, that it is sufficiently near term to be able to settle matters and to influence, and if necessary to tweak, our practices for the years ahead. But we are very clear that this is only building on the strong foundations of the research councils. There is no intention whatever to redo the triennial review. It is building on that and looking particularly at questions such as how interdisciplinary research can take place, very much with the research councils. They will be given evidence, and if you have not already received it I gather that Sir Paul has written to this Committee asking for your advice. It will, I know, be a very open process. He has a very distinguished group of people who are going to help to advise him on that. So it is very much entrenching excellence by anticipating some of the themes that we identified in the strategy.

**Lord Rees of Ludlow:** There is still a concern that it is a slightly vague agenda. Not very much will have happened between the previous report a year ago and now. Will the evidence he gets not be very similar to the evidence last year?

**Rt Hon Greg Clark MP:** I think it is better to conduct these reviews together. As I say, it follows directly from it and it is better to have this done at the beginning of this period. The questions that he is going to be looking at are at a more applied level than the triennial review, which asks, among other things, the existential question of whether we should have research councils and whether they have been any good. That is settled, not that I think there was any doubt about that in the first place, but Sir Paul’s invitation is very much how we can work with the research councils to build on their strong foundations by addressing some of the challenges that are identified in the strategy.

**Lord Hennessy of Nympsfield:** I do not want to sound too sceptical, but interdisciplinary research has been the catchword as long as I can remember—since I was an undergraduate, which is a long time ago now. Minister, I suspect you have some lurking anxieties about the research councils, that there is something that makes you think that they are not quite as they should be. As Lord Rees has explained very vividly, it seems a lot of effort just to look at
interdisciplinary matters and to sustain excellence. Again, these are motherhood and apple pie things—we are all in favour of that. What is really lurking inside your grey cells about the research councils?

Rt Hon Greg Clark MP: There is no anxiety about the research councils. You have to do these things seriously. I spend a lot of personal time, advised by others, thinking about the next 10 years, and it is clear of course that interdisciplinary work has always been conducted—I did some of it myself when I was a research student—but I think the opportunities and the requirements for cross-fertilisation are likely to increase rather than diminish. If you note and observe that, as you do, it is incumbent on you to ask whether our arrangements, successful as they have been, are optimised to benefit fully from the opportunities that this presents in the future. I do not have a preordained answer. I can tell you that the last person I would have appointed to conduct this review if I wanted to feed a preordained answer to it would be Sir Paul Nurse, who, as you know, is extremely independent-minded, rigorous and thorough. It is a genuine inquiry into how we can make sure that we are not just okay but positively the best in the world. Where we have succeeded academically and in research terms is by being at the top of the premier league, and I think that requires a degree of activism rather than being passive about it and saying that it is all fine. But it is without any anxiety; it is quite the reverse, it is a reflection of the confidence in our institutions, in the leadership of the research councils and in Sir Paul and the group of people he has put together. This is a big opportunity to make sure that we are rightly configured for the next 10 years.

Lord Rees of Ludlow: If one looks back at the figures, the proportion of the budget going to each research council has been pretty constant. Do you suspect that Sir Paul might propose some sort of overarching committee that might in a more critical way assess the balance between different areas of research?

Rt Hon Greg Clark MP: As I say, he has invited you—or will invite you—to give evidence to him, and you may want to interview him, but I would not want to anticipate his reflections on this. That is why I asked him to do it rather than it being for me to speculate and put out some proposals myself. I would like to be advised by Sir Paul and his panel.

Q8 Lord Peston: Minister, the strategy notes say that any “science and innovation strategy can only be as good as the people that it can attract, educate, train and retain”. Part of the mythology of our country, as I understand it, is that we think that we are very good at some things, such as cricket and football, at which we are hopeless, but what we are fantastically good at is science, natural science in particular, pure mathematics and so on. What the strategy says is entirely right in my judgment. I speak as someone who has now retired from academia, but my former colleagues tell me that in terms of running postgraduate work in particular, the present set-up is not very helpful. It is, for example, very hard to get money for PhD students. I do not want to go into the details, but what is your feeling about all that sort of thing: that we really must reinforce what we are incredibly good at particular?

Rt Hon Greg Clark MP: I strongly agree with you. Again, in producing the strategy, it is always open to you to have a set of bromides that you pull together from across Whitehall. We thought carefully about it. I mentioned the different themes. The other cut-across is that the strategy is organised around various areas of intervention or interest, the first of which is nurturing talent. I do agree with you when it comes to postgraduate study. As you will know
from your work and career, after the undergraduate level the opportunities for UK students to continue their studies at postgraduate level have been constrained by the lack of available funding. That is an injustice to talented people who may not have personal or family resources to allow them to study. If you accept my premise that this is an investment in the future of the country, it is a foolish thing not to equip yourself with some of the leaders out there. It is bad for universities, which do not have access to some of the most talented people who can contribute to their excellence in the future. This is very clearly recognised.

One of the things that I am most proud of having been able to do in the months in which I have had this is to announce, as part of the strategy, an intention to introduce a public loan scheme of £10,000 for taught postgraduate students. In thinking about this, sometimes people say, “Should it be applied just to certain subjects, perhaps science and technology?”, but my strong view was that this should apply to the breadth of disciplines in which we have a reputation for excellence. As a result, there will be the possibility for students without financial means to be funded to the tune of £10,000 for postgraduate study. That is a huge step in the right direction.

There are other things contained in the strategy for institutions, universities in particular, to think about academic careers. If you think, as I do, that postgraduate study can be very useful in careers outside universities, there need to be better paths for people to go into industry or commercial careers and not regard not staying at university as some sign of failure, as I think it too often has been. There is a lot in that, but I completely agree with the premise and direction of your question.

Lord Rees of Ludlow: Of course, the scientific community is very international and mobile. Therefore, it is crucial that we should be perceived to be a country where things are on the up compared with other nations in North America and the Far East. Are you confident that that is the case?

Rt Hon Greg Clark MP: Yes. Again, it is one of the themes of the strategy that science and research generally do not recognise borders. Everyone here who has been a practitioner in science will collaborate with institutions and individuals from across the world. We absolutely need to do that. To regard science as bounded by the boundaries of the country is to take yourself away from excellence and the top rank.

One of the features of this is recruiting overseas students. There have been some concerns in recent years as to whether there has been a problem there. Any administrative system will throw up unintended consequences that need to be addressed, but actually over the past few years the number of overseas students in UK universities has been increasing. The latest figures from UCAS—the university admissions service—show a further increase for entry in September and October this year. When I talk about science and research being assets, they are export assets. I would like us to see more overseas students. We are second in the world to the US at the moment. The US share has been declining. In the future I would like us to be the leading destination in the world for overseas students. It would be good for our institutions, for the students and for the reach that we have around the world.

Lord Rees of Ludlow: Would you agree that it is also important to have migration in, not out, for the most senior academics? That is a separate perception.
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**Rt Hon Greg Clark MP:** For the talented people this is an international market. We need to have people come to work in this country at this level, just as many people here have spent time in overseas institutions.

**The Chairman:** We are very nearly out of time. I am going to ask Baroness Sharp and then Baroness Manningham-Buller. I think that is all we will have time for.

**Q9 Baroness Sharp of Guildford:** You were talking about postgraduates. There is a very worrying issue there and I am delighted that you have made some inroads on it. If we are going to have a thriving science sector we also need first to get more young people at school studying science and technology. The estimate by the Royal Academy of Engineering is that we will need 50,000 new engineers over the next five years—where on earth are we going to get those from? We need to encourage young people to go into science and engineering. We also need to train technicians. One of the features here is getting universities themselves to take on young people as apprentices. Some of them have been better than others, but they have sometimes been reluctant to take on apprentices. As a department, are you encouraging them to do so?

**Rt Hon Greg Clark MP:** Very much so. I hope I am not breaching protocol by saying that at Cabinet this morning two young female apprentices gave a presentation. They were sufficiently inspiring that they got a round of applause for their presentation. They captured the excitement and possibility of, in this case, two girls who have studied at school, gone into apprenticeships and are learning technical skills. There is now the possibility to combine an apprenticeship with a degree. That is absolutely the right way to proceed.

Can I give a plug to something called the Big Bang Fair, which I think the Committee is familiar with? It takes place in Birmingham this weekend and I am looking forward to taking my daughter on Saturday. Again, it is very important to send the message that this is a tremendously exciting avenue of study and work, for girls as well as boys. I do not want to say that boys should not be enthusiastic as well; it is very important that we should do that.

One of the things that we know is that to be inspired at school at quite an early age can, as it were, light the spark for a future interest. One of the things we have done in the science and innovation strategy, which follows Lord Peston’s point about nurturing talent, is put aside £67 million to train 17,500 maths and physics teachers. One of the problems that we have had, as you know, is people teaching in school without qualifications. With the best will in the world, someone who is passionate about and expert in their subject is perhaps more likely to be able to transmit that to the next generation. If you think about the number of young people that 17,500 maths and physics teachers will influence, that is a big step in that direction. We have further to go and I completely agree with the direction that you have set us.

**Q10 Baroness Manningham-Buller:** Minister, this Committee will be delighted by your saying that science has no borders. If you look at the report that we did last year you will see that this is something that is of concern to us. I have just one question for you. It is not enough to say that there have been more students from overseas; there may have been, but how many more could there have been, particularly from the Indian subcontinent, had the message from HMG not been ambivalent about whether we want students here or not? That is the message that has been received, whether it is accurate or not. Can we have an assurance from you that if you are in the position you are in now after the election, you will
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do what you can to ensure that the message is that the UK is open for the best scientists in the world and the best students? We need them if British science is to thrive.

Rt Hon Greg Clark MP: Not only will I do that after the election, I will do it before the election, and I have been doing it.

Baroness Manningham-Buller: You have some other messages coming out from other bits of government that are a little bit counterproductive.

Rt Hon Greg Clark MP: It is very important that we get this message across. There has been a problem of perceptions, particularly in the Indian subcontinent—in India and Pakistan in particular. I went to India at the end of last year for precisely this purpose: to send a message. I took the opportunity to go on the Indian media to be very clear that overseas students, from India or other countries, will have the most cordial of welcomes here. Their study here is an asset for us, as well as for their countries and the very strong links that we have. It is important to correct any misconceptions. I have set up with the high commissioner here, Universities UK and the Home Office a group that meets to consider and go through any visa issues that are thrown up from time to time. I completely agree with your statement that we need to send a message out to the world that this is a place in which, if you come to study here, you have some of the most excellent institutions in the world. Overseas students will benefit from studying here, but we will benefit from their presence. That is a very strong message to send.

The Chairman: Minister, we have run out of time. On that note, we will have a debate very soon on this very subject. We will derive some comfort from your remarks. Quite frankly, we think that it is a matter for joined-up government. Clearly there are perceptions coming from government that do not always chime the same note.

Thank you for a very comprehensive review that we have been able to undertake with you of science policy, in particular the science and innovation strategy. You very kindly said that you would send a follow-up note on the independent advisers, following Lord Ridley's contribution. We would be most grateful for that. Of course, in the normal way a transcript will be sent to your office for minor corrections. Once more, on behalf of the Committee, thank you very much for being so generous with your time.

Rt Hon Greg Clark MP: Thank you very much indeed, your Lordships.
At my appearance before your committee on 10 March, I committed to write to you in response to a question by Viscount Ridley on Chief Scientific Advisers.

There has been no change to the level of independence expected from departmental Chief Scientific Advisers, and the wording described should not be in the guidance.

In order to prevent any further misunderstanding, I have directed officials in the Government Office for Science to correct the text in the relevant part of the guidance, so there is no room for ambiguity on this point.

19 March 2015