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Subject on
SCIENCE + TECHNOLOGY
Science Budget
Sept. 83.

10 DOWNING STREET

From the Private Secretary

4 May 1984

Dear Elizabeth,

SCIENCE BUDGET

The Prime Minister held a meeting yesterday to discuss the science budget and the way in which priorities within it were determined. Present were your Secretary of State, Mr. Brooke, Mr. Hancock, Dr. Nicholson, Sir David Phillips (Chairman of the Advisory Board for the Research Councils) and Professor John Kingman (Chairman of the Science and Engineering Research Council).

The Prime Minister invited Professor Kingman and Sir David Phillips to report on the opportunities for scientific research and the way in which the science budget was able to respond to them. She asked whether the system of interlocking committees was the best way of making the difficult choices necessary.

Professor Kingman said there was a spectrum of research - basic, strategic and applied. It was important for the UK to maintain an effort over the whole spectrum. The most difficult choices were in basic science where the final application could not be predicted. It could not have been known, for example, how far basic work in solid state physics would lead to productive applications in semiconductors and microelectronics. The UK was fortunate in having an active system of university research. This enabled the Government to conduct research in a cost-effective way by providing the additional costs which university centres needed.

On the way in which decisions were taken, he said many committees were necessary to cover all the fields which a research council like SERC was seeking to cover. Such committees were inevitably conservative but he nevertheless thought the system was the best available. The cost of administering the system of peer review was around 2-3%, a reasonable price to pay for good choices. Research projects submitted for support were graded into alpha and beta but at present support was given for only about 70% of the alpha

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projects. This meant that 30% of good projects, and good people, were being turned down and significant opportunities were thereby being refused.

The Prime Minister said it was unsatisfactory that Britain had made such advances in basic science but had failed to develop profitable applications. Japan had followed the opposite course, though it was noted that it was now moving towards more basic research. In discussion, it was argued that a greater link between industry and research centres, particularly the universities, was necessary. The development of teaching companies, now numbering 127, was most promising. The larger British companies should undertake more research though it was recognised that the pressures of inadequate profitability had forced them to take a short term view. It was to be hoped that, as profits recovered, this situation would improve.

Your Secretary of State said that those responsible for managing the science budget were to be congratulated on having taken a number of tough decisions. In some research councils there had been very significant redundancies, the cost of which had to be borne on their budgets, in contrast to departments, where such costs were borne centrally.

Your Secretary of State said the Secretary of State for Defence had offered to improve co-operation between the science budget and research in the defence field. It was essential to follow this up urgently. Sir David Phillips said the Ministry of Defence was about to produce a booklet guiding the universities on how they could bid for defence research work. A mechanism was needed for ensuring that duplication was eliminated and that priorities between the civil and military research programmes were co-ordinated. Within the science budget there were mechanisms for ensuring that institutions that had passed their peak were scaled down or closed. Was this equally true for defence and other departmental programmes? Your Secretary of State offered to minute the Prime Minister setting out what might be done in this area, with a draft of a letter which could be sent to the Secretary of State for Defence. The Prime Minister accepted his offer and pointed out that she was still waiting for a paper from the Ministry of Defence on the military applications of space technology. She would be happy to hold a meeting with Professor Norman, MOD's Scientific Adviser. Mr. Hancock agreed to remind Sir Clive Whitmore of this.

The Prime Minister said she doubted whether Departments were able to spend their research funds effectively. Dr. Nicholson said the Rothschild contractor/customer principle had many advantages but to work effectively, it called for

expertise on the part of the customer which was not always to be found. He pointed out that the amount of research being commissioned directly by Departments was declining.

The Prime Minister asked about the fields in which the most exciting scientific prospects were to be found. Professor Kingman suggested new materials and low dimensional structures whose electrical properties would create opportunities for microelectronics. Sir David Phillips suggested applications of molecular biology to neurology, which could open the way to understanding about the organisation of the brain; and nuclear magnetic resonance where it might soon be possible to develop scanners capable of displaying real time pictures. The Prime Minister looked forward to continuing this discussion at the Seminar on 8 July.

The Prime Minister was disturbed about inadequate public understanding of the problem of acid rain. Dr. Nicholson said the priority was better understanding of the scientific processes involved. This was difficult to achieve as the problem straddled a number of scientific disciplines. Work had not kept pace with growing public sensitivity on the issue. It was originally thought that the problem lay principally in sulphur emissions but there was now greater emphasis on nitrogen oxides or ozone. This put the spotlight less on coal burning and more on automobile emissions. The choice between lead burn engines and catalytic converters was an important one; the latter were capable of achieving better results but only if the converters were maintained. He offered to send the Prime Minister a note on acid rain, together with a draft PQ which could be used to put the UK's position on the record.

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I am copying this letter to those who attended the meeting.

Yours sincerely
Andrew Turnbull

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Miss Elizabeth Hodkinson,
Department of Education and Science.

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