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c Lord Zuckerman

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Lord Zuckerman has given some interesting statistics in his minute to you of 28 March. I was also in the United States before Easter as you know and the figure I was given for expenditure on this strategic defence initiative was \$28bn over five years. Since the total annual expenditure on R & D in the United States is about \$100bn this means that SDI will comprise about 5 per cent of total American R & D over the next five years if the President's plans go ahead. Since the number of scientists and engineers engaged in R & D in the United States is about 750,000, a 5 per cent call on these for SDI would imply about 37,500 people remarkably close to Lord Zuckerman's estimate of 40,000. Of course a key factor is whether the SDI are R & D spending is additional to current spending or replaces some of it. I have found it difficult to get a straight answer on this point even from Dr Keyworth, the President's Scientific Adviser, and I suspect that they have not really thought it through yet. Defence R & D spending is set to rise very rapidly in the United States and this is paralleled by a drop in civil R & D spending using public funds, thus if the skills are compatible the SDI programme could be staffed by scientists displaced from civil programmes. For comparison, the total number of scientists and engineers engaged in R & D in the United Kingdom is about 75,000 of whom about a quarter are engaged in defence R & D in both the public and private sectors. These figures certainly put the magnitude of the American effort in perspective and make clear that, any contribution which British R & D makes to the SDI programme, must be based on quality and specific expertise rather than quantity.

Finally, I do agree with Lord Zuckerman that there are a number of excellent British scientists and engineers who emigrated in the '50s and '60s and now occupy senior positions in the United States. However the position is not entirely black and a few of these are being tempted back to senior positions in the UK where, of course, their American experience is a substantial bonus. However there are signs of a fresh brain-drain in some areas particularly biotechnology and if the American SDI programme were ready to take place on top of their existing R & D activities, I am sure that there will be a substantial import of scientists from abroad and particularly from the United Kingdom.

RNSW

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