



Answer DES

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PRIME MINISTER

MAINTAINING THE STRENGTH OF THE SCIENCE BASE

I am responding to the questions posed in your Private Secretary's letter of 23rd May.

2. Of the annual in-house expenditure of some £200M at the Defence Research and Development Establishments, 5% (£10M) goes to basic or "seed-corn" research directed at defence applications; the remaining £190M is devoted to applied research. About the same amount again is spent on basic research with the Universities and Research Councils (£9M last year, rising to £11M over the next two years). To put this total of £20M in perspective, the DES spends a sum approaching £½ billion on research with the University Grants Committee and the Science and Engineering Research Council alone.

3. The main factors determining whether basic research is undertaken in-house or placed outside are whether the most appropriate centres of expertise in the fields concerned lie inside or outside Defence Establishments, and its defence application. The stronger the defence orientation, the more appropriate it is for innovative work to be done by defence scientists who, by direct experience and close day-to-day contact with the Service "customer", understand defence needs. The availability of infrastructure (required at Defence Establishments to support applied research and current procurement) and security constraints is also an important consideration.





4. The quality of research conducted within MOD Establishments is monitored at a number of independent levels: by senior management audit, by peer review by university scientists serving on the Defence Scientific Advisory Council (DSAC) and its Boards and Committees and, in the case of seed-corn research, by scrutiny by the MOD Basic Research Advisory Committee whose membership includes independent scientists from the DSAC. It has to stand up to exposure to university and industrial scientists working closely with the Establishments in specialised fields. Our scientists publish their work in the open literature with little security constraint in the more basic areas and their papers are always subject to refereeing by national and international experts. There is every indication from these sources that basic research undertaken by the Establishments attracts and deserves a high reputation.

5. You sought my views specifically on the implications of switching £20M from defence intramural research to the university and research council system. I would be against this for a number of reasons. First I am advised that, although we could, in principle, make increased use of external capabilities (assuming these were available and willing to be involved with defence) in computing science and software, electronics, material/composites, marine technology, acoustics and behavioural sciences, there would be advantages only if sufficient good people with good ideas were readily available at universities and other academic institutions. We are already drawing substantially on these capabilities in our existing university research programme and will be increasing our demands on them. Furthermore, an increase of £20M in our expenditure with the universities could not be funded in addition to our present level of intramural basic research, which would have to cease. This would be very damaging since a modest long-term innovative intramural programme is essential to the scientific health and motivation of our Research Establishments. The 5% level we set for basic research is well within the 10% allowance recommended in the 1971 Rothschild report "A Framework for Government Research and Development" (Cmnd 4814).





6. The consequence would be that all basic defence research would be decoupled from the environment of applied research. This would inevitably result in the loss of applications to weapons projects and of the benefits which flow from team efforts directed to particular defence objectives. The decoupling effect would be all the more marked if the transferred funds were added to the Science Vote rather than sub-contracted specifically by the MOD. The former course would be detrimental to defence applications of the research, including exploitation by the defence industries, for example, in the export market. In this connection I would not foresee any significant enhancement of spin-off from the transfer of funds from the Defence Establishments. Industry can already draw on some 100-150 patents each year arising from the work of these Establishments and they have an intrinsic need to stay close to that work. As you are aware we have been following through the themes which I set out in my address to your Lancaster House Seminar last year and we are about to announce new arrangements, engaging private venture capital, to enhance spin off of ideas and technology generated in the Establishments.

7. For these reasons I would not wish to see any change in the present balance between intra- and extramural basic defence research. We are already planning a modest increase over the next two years in our expenditure with the universities and research councils and I propose to keep the return we get from this programme under my personal review. But I would not wish to go further. In particular I would resist any suggestion that funds voted for Defence purposes should be used to substitute for the DES Budget.

Ministry of Defence  
25th June 1984