Science budget: allocations, 1986-87, planning figures, 1987-88-1989-90: advice to the Secretary of State for Education & Science from the Advisory Board for the Research Councils.

Contributors

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SCIENCE BUDGET:

ALLOCATIONS 1986-87
PLANNING FIGURES
1987-88-1989-90

Advice to the
SECRETARY OF STATE
FOR EDUCATION & SCIENCE
from the
ADVISORY BOARD FOR
THE RESEARCH COUNCILS

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THE ADVISORY BOARD FOR THE RESEARCH COUNCILS was established by the Secretary of State for Education and Science in 1972 with the following terms of reference:-

- a) To advise the Secretary of State on his responsibilities for civil science with particular reference to the Research Council system, its articulation with the universities and departments, the support of postgraduate students and the proper balance between international and national scientific activity;
- b) To advise the Secretary of State on the allocation of the Science Budget amongst the Research Councils and other bodies, taking into account funds paid to them by customer departments and the purposes to which such funds are devoted;
- c) To promote close liaison between Councils and the users of their research.

This report from the Advisory Board for the Research Councils contains the Board's advice as submitted to the Secretary of State for Education and Science for the allocation of the Science Budget over the period 1986-87 to 1989-90.

On 12 November this year the Government announced that an additional £15m would be made available to the Science Budget in 1986-87: compared with previous plans an additional £15m will also be made available in each of the two following years, 1987-88 and 1988-89.

The report contains the Board's advice on the distribution of the additional funds for the allocation of the Science Budget for 1986-87 and for planning purposes for the funded bodies concerned for the three following years, 1987-88, 1988-89 and 1989-90.

ABRC

December 1985

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ABRC

December 1985

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ABRC Membership

Professor Sir David Phillips, FRS (Chairman) - Professor of Molecular Biophysics University of Oxford - Director-General of ADAS Professor R L Bell Ministry of Agriculture, Fisheries and Food Dr W F Bodmer, FRS - Director of Research, Imperial Cancer Research Fund Professor R J Cole - Deputy Chief Scientist, Department of Health and Social Security Mr H Fish, CBE - Chairman, Natural Environment Research Council - Secretary, Medical Research Council Sir James Gowans, CBE, FRS Sir Douglas Hague, CBE - Chairman, Economic and Social Research Council Dr M W Holdgate, CB - Chief Scientist and Deputy Secretary, Department of the Environment and Chief Scientific Adviser, Department of Transport Dr A T James, CBE, FRS - Non-Executive Director, Wellcome Foundation Professor J L Jinks, FRS - Secretary, Agricultural and Food Research Council Sir James Lighthill, FRS - Provost, University College, London - Treasurer of the Royal Society, Sir John Mason, CB, FRS Pro-Chancellor of the University of Surrey

Professor P Mathias, CBE, FBA

Professor E W J Mitchell, CBE

Mr J R S Morris, CBE, F. Eng

Sir Robin Nicholson, F.Eng, FRS

Professor R O C Norman, FRS

Dr D Pooley

- Chichele Professor of Economic History, University of Oxford
- Chairman, Science and Engineering Research Council
- Chairman, Brown and Root (UK) Ltd
- Chief Scientific Adviser, Cabinet Office
- Chief Scientific Adviser, Ministry of Defence
- Chief Scientist, Department of Energy

Dr D H Roberts, CBE, F.Eng, FRS

Mr O Roith, F. Eng

Sir Peter Swinnerton-Dyer, FRS

Sir Alwyn Williams, FRS

Mr M F Wood, OBE

Mr R H Bird, CB

Mr D W Tanner

SECRETARY

Mrs H M Williams

- Director of Research, General Electric Company
- Chief Engineer and Scientist, Department of Trade and Industry
- Chairman, University Grants Committee
- Principal and Vice-Chancellor of the University of Glasgow
- Deputy Chairman, Oxford Instruments Group Ltd
- DES Assessor
- DES Assessor



Advisory Board for the Research Councils

Elizabeth House 39 York Road London SE1 7PH

Telegrams Aristides London SE1 Telex 23171

Telephone NEW TELEPHONE NUMBERS

Direct line 01-934 Switchboard 01-934 9000

Rt Hon Sir Keith Joseph, Bt, MP.

Your reference

anibility of that publication has helped to spread understanding

Date 29 November 1985

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1985 PUBLIC EXPENDITURE SETTLEMENT: DISTRIBUTION OF NEW MONEY FOR SCIENCE BUDGET

I attach the Board's advice on the distribution of the baseline addition of £15m to the Science Budget. The Board's advice is firm in relation to the forthcoming financial year, 1986-87, provisional in relation to the later years.

The Board has particularly asked me to convey their thanks for your efforts in securing this new money for the Science Budget. Although it is less than we recommended was needed, it will still make a valuable contribution to sustaining the science base.

Our recommended distribution of the £15m has been made against the following criteria:

- i) potential in the medium term for results of application to UK industry: scope for collaboration with industry in undertaking the research;
- ii) potential for halting the increasing loss of talent overseas documented in our recent brain drain report.

We have applied these criteria stringently in reviewing bodies' bids against the £15m. We expect bodies to be similarly selective in applying their allocations to the broad areas we have indicated as justifying additional support. All bodies will continue their efforts to increase their efficiency and effectiveness across the board.

Our recommended distribution of the new money is summarised in table 2 at pages 16 to 17 of the Board's advice: the allocations and planning figures implied by our recommendations are set out in table 3 (page 18). I should be glad to discuss the Board's recommendations with you if you would find that helpful. Bodies need early confirmation of their allocations for 1986-87 so that they can draw up their draft parliamentary estimates.

The final paragraphs of our advice (paragraphs 35 and on) outline our thinking about our business for 1986. Again I should be very glad to discuss this with you if you wish.

Since 1982 the Board's annual advice to you on the distribution of the Science Budget has been published. I believe that publication has helped to spread understanding in the broad scientific community of the issues which the Board and the Research Councils face; and that generally publication has helped to inform and stimulate public debate about science policy. I hope therefore that you will agree to publication of the present advice as soon as it can be arranged.

Yours micenf, Paid Hilly

DAVID PHILLIPS

SUBMISSION TO THE SECRETARY OF STATE FOR EDUCATION AND SCIENCE FROM THE ADVISORY BOARD FOR THE RESEARCH COUNCILS

1985 PUBLIC EXPENDITURE SETTLEMENT: SCIENCE BUDGET ALLOCATIONS

Introduction to the state of th

1. In a parliamentary answer on 12 November the Secretary of State for Education and Science announced that the Science Budget would be £614m in 1986-87, representing an increase in cash of £15m over previous published plans for that year. £15m additional cash provision compared with previous plans would be available in each following year. This submission presents the Board's advice to the Secretary of State on the distribution of these additional sums.

Overall implications of PES settlement for science

- 2. The additional money for the Science Budget is warmly appreciated by the Board. As table 1* shows, the new planning totals broadly maintain level funding for the Science Budget after allowing for average inflation. Together with the additional £3m per annum which the UGC are to receive to bring up to £10m the amount available 1986-87 to 1988-89 for its selective equipment grant, the new money should make a valuable contribution to raising morale in the scientific community.
- 3. The new money is however less than the Board recommended was needed in its advice to the Secretary of State in April this year "Science and Public Expenditure 1985". In that advice we recommended the following additions to the Science Budget:

		£m cash
1986-87	1987-88	1988-89
15	30	40

4. The basis for these bids was that the Research Councils' costs are increasing faster than average inflation. Allowing for average rates of inflation (as measured by the GDP deflator) the Science Budget appears to have more than maintained its value in recent years. However, our advice identified a number of areas in which Research Councils' costs had been increasing significantly faster than average inflation notably, superannuation, international subscriptions, restructuring and scientific equipment and materials. Allowing for these we estimated that the real purchasing power of the Science Budget had fallen by 5% since 1981-82 and that, on the basis of the Government's

then expenditure plans, it would fall by about as much again in the second half of the 1980s, making a total reduction over the decade of about 10%. The additional funds from this year's PES settlement raise the Science Budget baseline by some 2.5% from 1986-87: on our earlier arithmetic the reduction of purchasing power during the 1980s thus becomes 7% - 8% rather than 10%.

- 5. It was in recognition of the special costs facing the Research Councils that the House of Commons Education, Science and Arts Select Committee recommended in its report "The Future of the Science Budget" that "annual increases in the Science Budget should, for the time being, be at least 3% above the general movement of prices indicated by the GDP deflator" (para 72, Volume I). We are extending and refining our analysis of trends in these costs, but are confident in the meantime that our present estimates do not significantly overstate the reduction in purchasing power of the Science Budget. The decline in real value matters because a healthier science base is a vital investment in maintaining and enhancing the UK's economic competitiveness. Present constraints are preventing adequate investment in areas of science which are crucial to developing technologies for the industries of tomorrow, at a time when our major industrial competitors are increasing their investment in these areas. Present constraints are also reflected in increasing losses overseas, especially to the USA, of talented scientists both outstanding students embarking on their careers and senior people with established scientific reputations.
 - 6. As we have set out in earlier submissions the Research Councils are responding positively to the constraints on their budgets. They are continuing their efforts to increase efficiency and effectiveness and are clarifying and sharpening priorities through their corporate plans. Significantly redeployment of resources is taking place within Councils reflecting painful decisions about priorities. The Research Councils will continue on this path. However it is idle to suppose that through redeployment the Councils can at once offset the effects of inflation, respond adequately to important new scientific opportunities and maintain their existing core commitments.
 - 7. We must also express concern about the effect of the public expenditure settlement on the universities. Although the UGC is receiving some additional money in 1986-87 compared with previous plans, we understand that the UGC's total grant for 1986-87 will be about 1% less in real terms than in the current year. This reduction is bound to weaken further the general research base in the universities which requires an adequate level of academic staff time, a strong supporting staff both technical and secretarial, adequate library resources, scientific equipment and materials.

8. We shall therefore inevitably need to return next year to the overall level of funding for the science base both through the Science Budget and the UGC.

Additional £15m: recommended distribution

9. Our starting point was bodies' planning figures for the 3 year forward look period, as augmented by the allocations from the Board's 1986-87 flexibility margin which the Secretary of State approved in July. These figures are displayed at Annex A to this submission. We also had before us the various additional bids which bodies had put to us over the last year. The recommendations we make below are based on bodies' highest priority bids. Our assessment of the position of each body and of the strength of its additional bids was based on Independent members' scrutiny of forward look submissions and, where these were available, corporate plans.

The Board's criteria

- 10. Bids were assessed against the following criteria:
 - i) potential in the medium term for results of application to UK industry: scope
 for collaboration with industry in undertaking the research;
 - ii) potential for halting the increasing loss of talent overseas documented in our recent brain drain report.

Our recommended distribution of the £15m against these criteria in each of the 3 years of the Forward Look period and in 1989-90 - the last year of the next Forward Look period - is set out in table 2.* The basis of the recommended distribution is explained in detail in paragraphs 11 - 33 below, which discuss the broad areas to which we think bodies should apply the new money. Although we have not attempted to prescribe in detail how funds might be allocated as between these broad areas, we have asked the Research Councils:

- i) to allocate the new money <u>highly</u> selectively against the criteria set out immediately above;
- ii) to use the additional headroom created to develop collaborative programmes in areas at the boundary of their present responsibilities. We shall expect to see evidence of progress here next year when we come to consider bids against our 1987-88 flexibility margin; and

iii) to pay special attention to applications for research grant support from the outstanding young scientists holding appointments under the Royal Society's University Research Fellowship scheme (see para 32 below). The absence of a track record should not in these cases be a sufficient justification for withholding support.

9. Our starting point was bodies' planning figures for the 3 year forward loc SRA od.

11. We recommend that AFRC be allocated £2.5m of the new money in 1986-87, £2m to help the Council to increase its research grants to universities and to develop new initiatives in its institutes; £0.5m to help to provide new equipment for AFRC's institutes.

12. This recommendation reflects:

- our recognition of the severe pressures on AFRC associated with its Science Budget restructuring programme. Over the 2 years 1985-86 and 1986-87 the AFRC is spending £17m on this restructuring programme. The Council has had to find over half of this sum from within its own resources at a time when its underlying Science Budget allocation has fallen sharply (by 12% taking account of average inflation rates 1986-87 over 1983-84). Without additional help the Council would need from 1986-87 to curtail its provision of new research grants, to defer its planned expansion of food research and to make substantial reductions in equipment and other capital expenditure; and,
- our support for AFRC's strategy as set out in its first and second corporate plans. This strategy seeks to redeploy resources into new scientific areas which offer the prospect of major technological advance in the agricultural and food industries; to increase the funding of research into the utilisation (food research) as opposed to the production of agricultural products; to increase the support of research in the universities; to establish closer links between their institutes and universities; and to achieve greater effectiveness through better integration and greater concentration of research.
- 13. AFRC bid for further allocations of £4m in 1987-88 and £2m in 1988-89 £6m in all. We recommend provisionally that AFRC be allocated £4m over these 2 years as against their £6m bid. We shall review this provisional allocation in the light of any changes in AFRC's estimate of receipts from sales of assets in the years in question. By 1989-90 we hope that the Council will be over the hump of its main Science Budget restructuring programme: the provisional allocations for 1987-88 and 1988-89 will accordingly not be additions to baseline. AFRC will, of course, be free

to bid competitively, at the appropriate time, for allocations from the Board's 1989-90 flexibility margin.

Our recommendations in relation to the AFRC assume that the restructuring costs arising from the cuts from 1986-87 in MAFF commissioned research will be met from outside the Science Budget.

ESRC

- 14. We recommend that ESRC's planning figure for 1986-87 £23.5m be confirmed.
- 15. In our advice to the Secretary of State of 30 July on allocations from the flexibility margin we said that we would be seeking a presentation from the ESRC to give us a better feel for their work. Independent members had that presentation on 25 October. Their general reactions were:
- i) on the whole members were favourably impressed by the quality and relevance of the work described (which covered econometrics, information technology, health economics and demography); and were convinced of the continuing need for a research council to fund economic and social research;
- ii) because of time constraints, large areas of ESRC's work, notably in student support, were not covered in the presentation: the occasion had illustrated the need for the Board to find out more at first hand about the whole range of the Council's work. Specifically the Board would be thinking further about testing the quality of UK economic and social research against world standards. However, pending this further scrutiny, the Board had no basis for recommending any reduction in the Council's planning figures or for any further significant reductions in ESRC's percentage share of the Science Budget. By the same token it would not at this stage wish to recommend any addition to current planning figures;
 - iii) it had been noted that the representatives present from Government departments at the presentation had paid tribute to the value to their departments of the work funded by the Council. Members agreed that given the political sensitivity of much of the work within the field of ESRC it was right that the work supported by the Council should be largely at arms length from Government. On the other hand members felt that generally there was scope for closer collaboration between the Council and Government departments, including the Central Statistical Office, and for increased financial contributions by those departments to programmes

of interest to them; and

iv) so far as postgraduate support was concerned, the ESRC was vigorously tackling the problem of poor submission rates among its research students and members saw no case for pressing the Council further on this matter. However, more generally the Board would wish to consider further the overall scale of ESRC's support of postgraduate work (which accounted for one third of the Council's total budget) and the balance of its provision between taught courses and research training. We propose to do this in the context of a general review of postgraduate support through the Science Budget covering all Research Councils (see paragraph 35 below).

MRC

- 16. We recommend that MRC be allocated £2.5m of the new money in 1986-87, £2m for university research grants and for programmes in MRC units; £0.5m for new equipment in the Council's units. We envisage this allocation as an addition to baseline.
- 17. Our recommendation reflects our concern that real reductions in MRC's overall allocation from the Science Budget (4% 1986-87 over 1983-84 measured against average inflation see paragraph 4 above) are eroding the Council's capacity to maintain its support for high quality work in exciting areas where British researchers are internationally mobile (eg biochemistry, genetics, molecular biology). Our report on the brain drain showed that these were areas in which Britain is already suffering a serious net loss of talent: it is vitally important that we reverse this trend by providing more opportunities and better facilities. The Council has displayed its determination despite funding constraints to proceed with important new initiatives, notably in molecular medicine and molecular neurobiology. But the constraints mean that provision has had to be made at less than optimum levels and at the expense of other activities especially alpha quality university research grants and materials; and equipment budgets in MRC's units.
- 18. Following the emergence of the AIDS problem in the UK, MRC took steps to promote research on AIDS in mid 1983 and has already awarded some £430,000 in research grants. We understand that, after an approach from the DHSS, the MRC is setting up a national centre for coordination of epidemiological research on AIDS which is likely to cost £150,000 in 1985-86 and about £0.5m per annum thereafter. We are clear that the establishment of this centre is an urgently needed response to a public health emergency and that as such the DHSS should meet all the costs.

NERC

- 19. We recommend that NERC be allocated £1.9m of the additional £15m available in 1986-87 for university research grants and new equipment in the Council's establishments. We recommend that NERC be allocated £1.5m in each of 1987-88 and 1988-89 when savings from the Council's restructuring programme will begin to accrue.
- 20. Our recommendation reflects our recognition of the pressures on NERC associated with its plan to make substantial manpower reductions (600+ posts or 20% by 1988-89) so as to achieve a more effective level of per capita support in its own establishments and to release resources for building up the Council's support of research in the universities. Without additional help NERC would be obliged to make substantial reductions in its in-house capital expenditure. NERC's current level of provision for university research grants is the lowest of all Councils in absolute and proportional terms and its acceptance rate of alpha quality research grants 53% by number in 1984-85 is also at the bottom of the scale.
- 21. Our recommendation also reflects our concern to give some further help to NERC to meet the costs of membership of the international Ocean Drilling Programme (ODP) which should lead to increased understanding of the plate tectonic structure of the Earth, with implications inter alia for the energy and mineral industries. Some of the proposed drilling will take place in areas adjacent to the UK continental shelf. Participation in the programme will give the UK first hand experience of deep water drilling technology, so helping to maintain qualified manpower for our industry. So far British industry has pledged £0.25m to help to meet the full cost of the ODP subscription (\$2.5m per annum (£1.8m at current exchange rates)). Government departments have pledged £0.435m, with a further £0.075m conditional on industry's increasing its contribution. NERC has £0.4m in its Science Budget baseline for ODP. We would be prepared to see up to £0.25m of the additional allocation recommended for NERC used to help to make up the some £0.6m shortfall on the total cost of the ODP subscription in the expectation that industry, other Government departments and NERC (from its existing resources) will be able to increase their contributions to cover the balance.
- 22. By 1989-90 NERC should have achieved its proposed manpower reductions and will have net savings from the rundown of about £3m per annum. The additional allocations we have provisionally recommended for NERC in 1987-88 and 1988-89 will accordingly not be additions to baseline. NERC will, of course, be free to bid competitively, at the appropriate time, for allocations from the Board's 1989-90 flexibility margin.

- 23. We recommend that SERC be allocated £6m of the additional £15m in 1986-87 for research grants under the aegis of the Science Board and Engineering Board to support strategic research of industrial relevance. We envisage this allocation tapering to £5m in each of the subsequent years.
- 24. Our recommendation reflects the urgent priority we attach to building up our research effort in a number of exciting areas from which new technologies are expected to emerge. Development and exploitation of these technologies will be vital to our future economic competitiveness. Our advice to the Secretary of State earlier this year mentioned a number of these promising areas eg low dimensional structures, chemical sensors, opto-electronics, materials. Although SERC is making a determined effort to cut back on its commitments in a number of areas (eg southern hemisphere astronomy) so as to release resources to support core science in the universities this redeployment can only be achieved gradually. It also depends to some extent on factors outside the Council's control, for example the Government's response to the Kendrew recommendations on the future level of the UK's participation in high energy particle physics. Action to maintain the UK's competitiveness in many industrially relevant fields of science is urgent now before too many of our most talented scientists have joined the brain drain.
- 25. We recommend that SERC be allocated a further £2m in 1986-87 only, to be used, subject to further consideration by the Board, either to help to meet the costs of a short-term enhancement of super-computing facilities or to boost equipment grants to groups in higher education supported by SERC research grants.
- 26. Our recommendation here reflects the recommendations of a working party jointly set up by the Computer Board, the UGC and the ABRC to review provision for advanced research computing. The working party's report submitted this summer is still being considered by the ABRC. In brief the working party recommended the provision within 2 years of a third super computer (the two existing super computers are based at Manchester and London Universities) to meet the growing needs for super computing of the research community in the universities and research councils. In the short term the working party identified a need for immediate action to improve access to the existing super computers and recommended that the ABRC consider other action to relieve the immediate unsatisfied demand for super computer capacity, such as the purchase of bureau facilities in 1986-87. Subsequently the Computer Board has put forward the option of buying a second-hand super computer in 1986-87 as an alternative

to the purchase of bureau facilities.

27. The ABRC discussed these recommendations at its meeting on 30 October when it concluded that decisions on the short term recommendations could not sensibly be divorced from decisions on the longer term strategy proposed in the report. We intend to consider the proposed longer term strategy at our next meeting at the end of January 1986 in the light of considered assessments by the Research Councils of the relative priority which they would attach to improvement of super computing facilities for the research community. In the meantime we propose allocating £2m of the new money in 1986-87 to SERC against the possibility that we shall decide in January to contribute (with the Computer Board) towards the costs either of bureau facilities or of a second-hand super computer. Clearly our decision here will need to take account of the opportunity costs of spending £2m in this way: we shall want to apply the tests which we have applied in this submission to all other claims against the new money.

Flexibility Margin

be used to enhance the Board's flexibility margin. The object of the flexibility margin is to permit changes in the distribution of Science Budget funds between the various bodies so as to reflect developments in science and new priorities as perceived by the Board. The proposed enhancement of the margin in 1987-88 and 1988-89 will give the Board more scope to recommend adjustments which nearer the time it considers necessary. A particular reason for enhancing the margin is to provide some additional flexibility to help to accommodate the costs - £16m spread over 2 or perhaps 3 years - of acquiring a third super computer if the Board accepts this recommendation. If the Board's recommendations for enhancing the margin are accepted it would stand at £12.6m in 1987-88 and £12.7m in 1988-89 (respectively 2% of the new totals in each year). We propose that provisionally the flexibility margin be enhanced to £17.6m (2.5%) in 1989-90 by drawing to it the time-limited allocations made to the AFRC, NERC and BM(NH) (see paragraphs 13 and 22 above and 29 below) which will "fall in" in that year.

BM(NH)

29. We recommend confirmation of the BM(NH)'s existing planning figure for 1986-87: £11.8m plus £5.4m under its Property Services Agency (PSA) head. BM(NH)'s PSA provision includes £2m in 1986-87 for the Museum's long-term refurbishment programme which we hope will increase the Museum's attractiveness to potential commercial sponsors

of exhibitions. We recommend that the £2m be carried forward in the Museum's planning figures to 1988-89, tapering to £1m in 1989-90, to permit the Museum to complete its link with the Geological Museum and its schools reception and cafeteria facilities. At that stage the Museum will have had a total of £9.5m additional provision for the programme of refurbishments which it began in 1984-85 to provide adequate public facilities and exhibition space following the abandonment of the East Infill Project. Should the Museum wish for further help to continue its refurbishments, it will need to make bids in due course against the Board's flexibility margin.

- 30. Independent members visited the BM(NH) on 11 October. Their general reactions were:
 - i) that the research seen was of good quality and that the Museum's work was impressive;
 - ii) as the national centre for classical taxonomy research, the Museum had effective working relations with all the universities in this field. In newer research fields some closer integration with universities' activities was desirable, a need recognised by the Museum;
 - iii) the merger with the Geological Museum was proving to be of mutual benefit to both:
 - iv) the staff were enthusiastic and dedicated with plenty of ideas for the future development of the Museum;
 - v) the Museum needed to do more to convey to the outside world an adequate picture of the full range of its activities, particularly in research: the ABRC had perhaps not previously made sufficient efforts to understand the extent and character of the Museum's research functions; and,
 - vi) the Museum's endowments were extremely small: the ABRC should impress upon the Museum the need to adopt a more enterprising approach in seeking outside funding.

Royal Society

31. We recommend that the Royal Society be allocated £90,000 of the new money available in 1986-87 for travel grants. This would be a cash baseline addition. We

recommend further that the Royal Society be allocated an additional £150,000 in 1987-88, rising to £190,000 in 1988-89 and £240,000 in 1989-90 to meet the fully indexed recurrent costs of the 1985 and 1986 intakes (20 in each year) to the Society's University Research Fellowships Scheme.

32. Our recommendations reflect:

- travel grants: the recommended addition should enable the Society to increase its total provision for travel grants in 1986-87 by about 14%. The Society's provision for travel grants has fallen sharply in real terms in recent years under pressure of unavoidable cost increases elsewhere in the Society's programme. The case for international scientific contact however increases as the UK becomes more selective in its support of research. It is particularly important to ensure that young active research scientists are given opportunities to exchange ideas with scientists overseas as part of their continuing education and training;
- University Research Fellowships: the Royal Society has run a University Research Fellowships Scheme in the 3 years 1983-84 to 1985-86 providing a total of 70 untenured posts 5 year terms for very bright young scientists. In our advice earlier this year to the Secretary of State on allocations from the Board's 1986-87 flexibility margin, we recommended that the Society receive an additional £330,000 from the margin to help it meet the full year costs in 1986-87 of the intake of 20 fellows starting in September 1985 and to cover the costs in 1986-87 of a further intake of 20 in September 1986 making 90 fellowships in all to date under the scheme. We are now recommending that the Society receive additional allocations from the new money in 1987-88 and subsequent years to meet the rising full year recurrent costs of both the 1985 and 1986 intakes. We think it right that the Society should be fully reimbursed for the costs it incurs in running this valuable scheme.

Fellowship of Engineering

33. We recommend provisional additional allocations to the Fellowship of Engineering of £150,000 in 1987-88 rising to £250,000 in 1988-89. These additions which will bring the Fellowship's planning figures, after contributions to the Board's flexibility margin, up to £640,000 and £748,000 respectively in 1987-88 and 1988-89 will give the Fellowship the headroom it needs to build up its activities over a broad front: sponsorship of industrial and research fellowships in engineering, studies of the future education of engineers, support of overseas and exchange visits, travel grants, engineering investigations and studies etc.

Summary

34. The allocations for 1986-87 implied by our recommendations as set out above are set out in table 3* alongside the planning figures from 1987-88 implied by our provisional recommendations for the later years.

ABRC WORK PROGRAMME 1986

Postgraduate support

35. In paragraph 15 (iv) above we refer to our intention to review the provision made in the Science Budget for postgraduate education. That provision - £69m in 1984-85 - represents some 12.5% of the Science Budget. Expenditure on postgraduate education has been broadly constant as a proportion of the Science Budget since the mid 1970s. Within the total about £13m is spent annually on taught courses leading to MScs and about £37m on research training leading to doctorates. The balance - £19m - is spent on post-doctoral fellowships, other forms of award and research training support grants. We expect that initially our review will concentrate on taught courses.

Research Council boundaries

36. In the advice which we submitted to you this time last year we said that "there is scope for review of areas which cross the current boundaries of the different Research Councils. Such a review may reveal that there is scope for greater inter-council collaboration in particular areas of research; it might also suggest that there would be advantage in some redefinition of the existing Research Council boundaries." We have begun to discuss these issues with the Councils: we shall be pursuing them further in the New Year.

Health of the science base

37. Early in the New Year we should have the report of a study of the health of basic science in this country which the Royal Society has undertaken at our request. The study has focussed on two broad areas of basic research: solid state physics and chemistry and animal and plant genetics; and has attempted to assess the health of these two areas in absolute terms and by comparison with the performance of other nations. In the light of the study's findings we shall wish to consider further work in this area including further work on the development of quantitative measures of the health or output of research.

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Investment in civil science: international comparisons

38. We also expect to have early in 1986 the report of another major commissioned study which has compared the financial investment made in civil science in six countries - the UK, USA, Japan, West Germany, France and Holland. We shall consider the findings here in collaboration with ACARD.

Costs of research

39. As noted in paragraph 5 above, we shall be doing further work on trends in the costs for the Research Councils of supporting scientific research compared with average inflation. We hope the findings of this further work can be taken into account in next year's Public Expenditure Survey.

Uses of research

40. Our terms of reference require us to "promote close liaison between Councils and the users of their research". Over the years the Board has not given as much attention to this responsibility as to other aspects of its remit. We shall seek to remedy this in 1986 in collaboration with ACARD. We shall look in particular at the relationship between Research Councils and the Government departments which the post-Rothschild arrangements set up as proxy users; and at the relationships between Councils and the users themselves, notably users in the business sector. We shall have in mind the finding of the Mason report that strategic research, which should be integral to Government departments' commissions with Research Councils, is not being covered. We shall also be following up the Mathias report* which recommends inter alia that the Research Councils should seek to develop more programmes of strategic research in collaboration with industry.

Strategy for the Science Budget

41. We intend next year to draw up a strategy document for the Science Budget taking account of the corporate plans which individual funded bodies are preparing. The strategy document will also take account of the progress we have made in our

^{*} report of the ABRC Working Party on Private Sector Funding chaired by Professor P Mathias. The final touches are being put to the report: it will be submitted to the Secretary of State at the beginning of February 1986.

consideration of the general issues outlined above. In drawing up our strategy we shall additionally need to consider the implications of the UGC's moves to greater selectivity in research support for the dual support system as a whole.

Annual Review of R & D

42. Next year the Cabinet Office will be compiling the fourth in the series of annual reviews of Government funded R & D established by Cmnd 8591, the Government's response to the report "Science and Government" by the House of Lords Select Committee on Science and Technology. This review embraces all Government funded R & D: but civil science supported through the DES accounts for about one quarter of the total, or about one half of Government funded civil R & D. Moreover, the science base sustained by the dual support system provides the knowledge, ideas and trained people which underpin the more applied research activities of other Government departments and of the business sector. We therefore have a substantial interest in the overall picture which the annual reviews of R & D display. We intend to comment accordingly on next year's annual review as soon as it can be made available to us in draft by the Cabinet Office.

Changes in the Board's procedures

43. The Board has changed its traditional schedule in 1986. The changes involve combining in a single exercise, to take place in March, the Board's consideration of the overall financial position of the Science Budget and of the relative positions and claims of the individual funded bodies. Traditionally these two exercises have been mounted in sequence, with the latter (the "Forward Look" exercise) taking up much of our time during the spring and summer. The new combined exercise will be more economical of our time: we plan to do much of the work during a residential weekend in mid-March.

44. We shall also have the support of an enlarged Secretariat. With their support and given the rearrangement of our traditional business as described, we hope to be in a better position to develop the strategic advisory functions implied in our terms of reference.

29 November 1985

SCIENCE BUDGET: 1985 PES PLANNING TOTALS

				£m cash	
	1985-86	1986-87	1987-88	1988-89	
Cmnd 9428	584	599	613	629	
1985 PES additions	grants_	15	15	15	
New Totals	584	614	628	644	
				£m const	ant* prices
Cmnd 9428	532	522	517	514	
Index	100	98.1	97.2	96.6	
New Totals	532	535	529	527	
Index	100	100.6	99.4	99.1	

^{* 1983-84} prices; GDP deflator (see paragraph 4)

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SCIENCE BUDGE'R 1985 PES PLANNING TOTALS

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According position of the Science Budget and of the relative positions

1983-84 prices; GDP deflator (see paragraph 4).

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the state of the Same we plan to do much of the work during a residential

To start any time support of an enlarged Secretariat. With their support to the strategic actions business as described, we hope to the strategic actions processes in pilled in our terms

25 November 1988

1985 PES: RECOMMENDED ALLOCATION OF ADDITIONAL £15M FOR SCIENCE BUDGET

TABLE 2

				£m cash
	1986-87	1987-88	1988-89	1 1989-90
	21.0	1707-00	1700-07	1787-70
AFRC				Full years costs1.
University research grants	1986-87			fully indexed of
Institutes - new initiatives	2.5	2.0	2.0	20 URFs 0 1
Institutes - equipment	52.7			(1986 intake).05
	(2)	320	39)	
RC	4.5-0	6347	234	
MRC 0.1-				BM(NH)(PSA)
University research grants				1
Units - recurrent and	2.5	2.5	2.5	1 2.5
equipment (5.0	81.0			Fellowship of Lag
(889)	11.8	11.9	12.2	1
3.67 7,92,000 189				ABRC Flexibility
NERC	0.65			h.m.r
University research grants) 0.81	0.1.5	1.5	LO
Institutes - equipment	1.9	1.5	1.5	. 0
Ocean Drilling Programme	, ,			
CLEURIST 1289-6841	m m dx13	HEY MARGINS OF	idizalli lator y	India america de la
SERC				(2% in each year)
University research grants				1
(science and engineering)	6	5	5	1.5
(science and engineering)	628		-	1
Super-computing or additional				SOLI -
equipment grants for SERC	2 12	0	0	1 0
supported groups in			e bnm3)	
universities				1

	1986-87	1987-88	1988-89	1989-90
				1985 PES: RECD
Royal Society				1
Travel grants	0.09	0.09	0.09	0.09
Fully indexed costs				1
of 20 URFs (1985				1
intake)				1
3	-	0.15	0.19	0.24
Full year costs,				AFRC
fully indexed of				University resear
20 URFs)				Institutes - new
(1986 intake)				Institutes - equip
70				1
BM(NH)(PSA)	-	-	-	-1.0 DAM
			ch grants /	University resear
			and	Units - recurrent
Fellowship of Engineering		0.15	0.25	1 0.25
ABRC Flexibility Margin ⁺	-	3.61	3.47	7.92
				NERC I
TOTAL	14.99	15.0	15.0	1 15.0
0 6.1	1.5	6.1	ment	Institutes - equip
				Ocean Drilling P
+ Additions imply total flex	ibility margins	of £12.61m	in 1987-88, £1:	2.72m in 1988-89
(2% in each year) and £17.6m	n in 1989-90 (2	2.5%)		
				SERC
Science Budget Totals				University resear
				(science and eng
- New	614	628	644	1 660
				(assumed)
- Old	599	613	629	645
(Cmnd 9428)				(assumed)

1986-87 RECOMMENDED ALLOCATIONS

1987-88, 1988-89, 1989-90 RECOMMENDED PLANNING FIGURES

	1986-87	1987-88	1988-89	£m cash ⁽¹⁾ 1989-90 ⁽⁴⁾
AFRC	52.7	49.6	50.8	50.0
ESRC	23.6(2)	23.9(2)	24.5(2)	25.1(2)
MRC	128.3	130.8	134.0	137.3
NERC	70.3	70.8	72.5	72.8
SERC	315.5(2)	317.0(2)	324.9(2)	333.0(2)
BM(NH)	11.8	11.9	12.2	12.5
Royal Society	6.4	6.7	6.8	7.0
F.Eng	0.45	0.64	0.748	0.767
Science Policy Studies	0.1	0.1	0.1	0.1
Flexibility Margin	0	12.66(3)	12.77(3)	17.7(3)
Secretariat	0.1(2)	0.1(2)	0.1(2)	0.1(2)
Total	609.2	624	639.3	656.3
BM(NH) PSA	5.4	5.5	5.6	4.8
TOTAL	614.6	629.5	645.0	661.1
Notes overleaf				

NOTES TO TABLE 3

- (1) Figures are rounded to nearest £100,000. Figures may not always sum to totals because of rounding.
- (2) Figures reflect a number of small PES transfers, notably housing management studentships (£100k from DOE to ESRC); "Switch" funds (£702k to SERC) and ABRC Secretariat (£100k to DES Central Administration Vote).
- (3) Flexibility Margin figures for 1987-88 and on include £50,000 originally set aside for the expansion of the ABRC Secretariat.
- (4) 1989-90 figures <u>assume</u> that 2.5% is allowed for pay and prices inflation in rolling forward from 1988-89.

TABLE 1 Science Budget cash terms 1981-82 to 1988-89 (Cmnd 9428 figures)

TABLE 2 Science Budget real* terms 1981-82 to 1988-89 (Cmnd 9428 figures)

* Table 1 figures deflated to constant 1983-84 prices using the GDP deflator (see paragraph 4 of main text)

TABLE 3 ABRC Flexibility Margin 1986-87: Approved Allocations

Cmnd 9428 totals and planning figures SCIENCE BUDGET 1981/82 TO 1988/89 - CASH TERMS - £M

1988/89	116	24.5	131.5	130	319.3	12.2	6.25	0.35	9.25	1	0.15	0.1	623.1	5.6	139
1987/88	47.5	24.0 116	128.3	69.1 127	311.6	11.9	6.1	0.35	0.6	not .	0.15	0.1	608.1	5.4	613.5
1986/87	111	23.5	124.9 123	67.7	304.9	138	143	0.3	4.5	3.0	0.1	0.7	593.4	5.4	598.8
1985/86	45.4	22.9	122.3	66.1	298.0	11.4	140	0.25	eope (emp	9.9	0.1	0.1	579.1	4.8	583.9 130
1984/85	46.0 109	22.0	117.2	65.6	278.8	1.14	5.3	0.15	deT GÇ :	0.7	,	90.0	454.5 122	и.и 183	549.9
1983/84	46.0 109	22.4	113.7	62.5	254.5	9.4	5.0 5	Flexi	DR.	BA		0.05	513.5	2.8	516.3
1982/83	43.6 104	20.9	107.5	58.0 107	234.4	9.1	107	,	1	,		1	478.0 107	3.6	481.6 107
1981/82	100	20.7	101.7	54.3	216.8	8.5	100		,				448.3	2.4	100
	AFRC INDEX	ESRC INDEX	MRC INDEX	NERC INDEX	SERC INDEX	BM(NH) INDEX	R. Society INDEX	FOE	Flex Margin	Restructuring	ABRC Secretariat	Science Policy Studies	SUB TOTAL INDEX	BM(NH)PSA INDEX	TOTAL INDEX

SCIENCE BUDGET 1981/82 TO 1988/89 - REAL TERMS - £m Cmnd 9428 totals and planning figures

29 OCTOBER 1985

Due to rounding the sub total figures do not always equate to the sum of the individual figures.

			1987/88	118.690	117.542													
			1986/87	114.676	113.842													
			1985/86	109.738	109.464	d on 1.10.85.	0.000			1986/87	3.0	100	00.2 6.0	8	3.0	20.00		
			1984/85	104.512	104.750	ed were those issue				1985/86	4.8	1.25	0.5	8	6.55	S STO ISUS		
			1983/84	100.000	100.000	The GDP Deflator figures used to produce the data attached were those issued on 1.10.85.				1984/85	0.5	0.25	- 62.0	101	0.75	NO 575 9.80		
			1982/83	95.723	95.772	gures used to prod		100			AFRC	NERC	ESRC		TOTAL			
AND 2 (ANNEX A)			1981/82	89,436	89.800	e GDP Deflator fi					A 9000	2						
NOTES TO TABLES 1 AN	1. GDP DEFLATOR	DATE	ISSUED	1.10.85	20.11.84	4			2. RESTRUCTURING	CASH TERMS								

1988/89

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ABRC Flexibility Margin 1986-87

Additional allocations* recommended by ABRC from flexibility margin and approved by the Secretary of State for Education and Science

by the secretary of	The same	£m cash
AFRC	Cell signalling and recognition in animals and plants	0.5
MRC	Collaborative centre for research with industry and the universities	0.9
NERC	University support (especially postgraduate taught courses)	0.720
SERC	Research grants, primarily to help SERC meet its Alvey programme commitments	1.85
BM(NH)	Conservation of drawings, manuscripts and printed books of scientific and historical value	0.05
Royal Society	Full year costs of Sept 1985 intake of 20 university research fellowships; part year costs of Sept 86 (20) u-r-f-s	0.33
Fellowship of		
Engineering	General increase in scale and range of activities	0.15
TOTAL		4.5

^{*} Apporoved allocations for 1986-87 are being added to bodies' planning figures for that year (see Annex A, Table 1) and carried forward into the subsequent years' planning figures as simple cash additions to baseline. Contributions to the ABRC's flexibility margin will be reworked each year to take account of the latest adjustments to planning figures.

ABRC Flexibility Margin 1986-87

Additional allocations* recommended by ABRC from flexibility margin and approved by the Secretary of State for Education and Science

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DEPARTMENT OF EDUCATION AND SCIENCE

ELIZABETH HOUSE YORK ROAD LONDON SEI 7PH TELEPHONE 01-934 9000

FROM THE SECRETARY OF STATE

Professor Sir David Phillips Chairman Advisory Board for the Research Councils Room 5/74 Elizabeth House York Road London SE1 7PH

O December 1985

Dean Saine

1985 PUBLIC EXPENDITURE SETTLEMENT: DISTRIBUTION OF NEW MONEY FOR SCIENCE BUDGET

Thank you for your letter of 29 November covering the ABRC's advice on the distribution of the Science Budget.

- 2. I am happy to accept the Board's advice both on bodies' allocations for 1986-87 and on their planning figures thereafter up to 1989-90.
- 3. There is only one point on which I need comment here: this does not however affect the Board's recommended allocations and planning figures as set out in tables 2 and 3 of their advice. My comment arises on the Board's advice about responsibility for the costs of the national centre for coordination of epidemiological research on AIDS which the Medical Research Council (MRC) are setting up at the request of the DHSS. The Board suggest in paragraph 18 of their advice that the DHSS should meet all of the costs of the centre.
- 4. I appreciate that the Board's advice on this particular point reflects its concern about the pressures on the Science Budget generally and on the MRC in particular. You will therefore be glad to learn that the Secretary of State for Social Services has agreed to contribute up to £0.25m per annum towards the costs of the new centre from 1986-87. In addition, the Secretaries of State for Scotland and Wales have agreed to consider contributing so as to make the total Health Departments' contribution up to about £0.3m. I consider, however, that it is right that the Science Budget through the MRC should also play its part. The epidemiological studies which the MRC propose to undertake from the new centre will make a crucial contribution to helping the Health Departments understand the way in which the disease



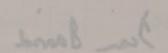
DEPARTMENT OF EDUCATION AND SCIENCE

HIZABETH HOUSE YORK ROAD LONDON SELTH TELEPHONE GIVEN 1000

ENOM THE SECRETARY OF STATE

Professor Sir David Phillip Chairman Advisory Board for the Research Councils Room 5/74 Elizabeth House York Road London SE1 7PH

Pecember 1985



1985 PUBLIC EXPENDITURE SETTLEMENT: DISTRIBUTION OF MEN MONEY FOR SCIENCE BUDGET

Thank you for your letter of 19 November covering the ABRC's advice on the distribution of the Science Budget.

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- 3. There is only one point on which I need comment here: this does not however affect the Board's recommended allocations and planning figures as set out in tables 2 and 3 of their advice. My comment arises on the Board's advice about responsibility for the costs of the national centre for coordination of epidemiological research on AIDS which the Medical Research Council (MRC) are setting up at the request of the DRSS. The Board suggest in paragraph 18 of their advice that the DRSS should meet all of the costs of the centre.
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is spreading in the UK. Accordingly I shall be asking the MRC to meet the balance of the costs of the new centre from their Science Budget allocation for 1986-87 and planning figures for the later years.

- 5. I was pleased to read about the Board's plans for its business next year and look forward to receiving reports of the various studies outlined in paragraph 35 to 42 of the Board's advice in due course.
- 6. Finally, I am content that the Board's advice should be published as soon as can be arranged.

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Emily.



