

House of Commons
Science and Technology
Committee

**GOVERNMENT FUNDING
OF THE SCIENTIFIC
LEARNED SOCIETIES**

Fifth Report of Session 2001–02

Volume I

HC 774-I

House of Commons
Science and Technology
Committee

**GOVERNMENT FUNDING
OF THE SCIENTIFIC
LEARNED SOCIETIES**

Fifth Report of Session 2001–02

*Volume I:
Report and proceedings of the Committee*

Ordered by The House of Commons to be printed 24 July 2002

HC 774-I
Published on 1 August 2002 by authority of the House of Commons
London : The Stationery Office Limited
£0.00

SCIENCE AND TECHNOLOGY COMMITTEE

The Science and Technology Committee is appointed by the House of Commons to examine the expenditure, administration and policy of the Office of Science and Technology and its associated public bodies.

Current Membership

Dr Ian Gibson MP (*Labour, Norwich North*) (Chairman)
Mr Parmjit Dhanda MP (*Labour, Gloucester*)
Mr Tom Harris MP (*Labour, Glasgow Cathcart*)
Mr David Heath MP (*Liberal Democrat, Somerton and Frome*)
Mr Mark Hoban MP (*Conservative, Fareham*)
Dr Brian Iddon MP (*Labour, Bolton South East*)
Mr Tony McWalter MP (*Labour, Hemel Hempstead*)
Dr Andrew Murrison MP (*Conservative, Westbury*)
Geraldine Smith MP (*Labour, Morecambe and Lunesdale*)
Bob Spink MP (*Conservative, Castle Point*)
Dr Desmond Turner MP (*Labour, Brighton Kemptown*)

Powers

The Committee is one of the departmental select committees, the powers of which are set out in House of Commons Standing Orders, principally in SO No.152. These are available on the Internet via www.parliament.uk.

Publications

The Reports and evidence of the Committee are published by The Stationery Office by Order of the House. All publications of the Committee (including press notices) are on the Internet at www.parliament.uk/commons/selcom/s&thome.htm. A list of Reports of the Committee in the present Parliament is on the inside front cover of this volume.

Contacts

All correspondence should be addressed to The Clerk of the Science and Technology Committee, Committee Office, 7 Millbank, London SW1P 3JA. The telephone number for general inquiries is: 020-7219-2794; the Committee's e-mail address is: scitechcom@parliament.uk.

Footnotes

In the footnotes of this Report, references to oral evidence are indicated by 'Q' followed by the question number. References to written evidence are indicated by the page number as in 'Ev 12'. The evidence is published in a separate volume (HC774-II)

TABLE OF CONTENTS

	<i>Page</i>
REPORT	
SUMMARY	5
INTRODUCTION	7
Our inquiry	7
Definitions	8
THE ROYAL SOCIETY	9
History	9
Work	9
Funding	10
Leverage	11
Research grants and awards	11
Funding	11
Features	12
Additional funding	13
Education and schools work	13
International representation	13
THE ROYAL ACADEMY OF ENGINEERING	15
History	15
Work	15
Funding	15
Grants and awards	17
Funding	17
Features	18
Future funding	18
Other awards	19
LEARNED SOCIETIES	20
Work	20
Membership	20
Academies	21
Views on government funding and independence	22
Equity of funding	22
ACADEMIC AWARDS AND PROGRAMMES	24
Comparison with Research Council awards	24
Selection process	25
Fellowships for women	26
Representation	26
Cost efficiency	27
Learned societies	27
PUBLIC COMMUNICATION OF SCIENCE	29
Office of Science and Technology	29
The Research Councils	29
The Royal Society	29
The Royal Academy of Engineering	29
The British Association for the Advancement of Science	30
The Royal Institution of Great Britain	30
Learned societies	30
Copus	31

History	31
Status and finance	31
Problems	32
Funding	33
Evaluation	34
SCIENTIFIC ADVICE TO GOVERNMENT	35
The Royal Society	35
The Royal Academy of Engineering	35
Learned societies	35
Learned societies and Government	35
Learned societies and the Royal Society	36
ACCOMMODATION	38
The Royal Society	38
The Royal Academy of Engineering and other academies	38
Burlington House	39
The British Association for the Advancement of Science	40
THE FELLOWSHIP OF THE ROYAL SOCIETY AND ROYAL ACADEMY OF ENGINEERING	41
Application process	41
The Royal Society	41
The Royal Academy of Engineering	42
Gender	42
The Royal Society	42
The Royal Academy of Engineering	43
Ethnicity	43
Institutional bias	44
Disciplines	44
The Royal Society	44
The Royal Academy of Engineering	45
CONCLUSION	47
LIST OF RECOMMENDATIONS AND CONCLUSIONS	48
ANNEX 1: VISITS MADE IN THE COURSE OF THE INQUIRY	54
ANNEX 2: SCIENTIFIC LEARNED SOCIETIES	56
LIST OF ABBREVIATIONS USED IN THE REPORT AND EVIDENCE	61
EXTRACTS FROM MINUTES OF PROCEEDINGS RELATING TO DECLARATIONS OF INTEREST	63
PROCEEDINGS OF THE COMMITTEE RELATING TO THE REPORT	64
LIST OF WITNESSES	65
LIST OF APPENDICES TO THE MINUTES OF EVIDENCE	66
LIST OF UNPRINTED EVIDENCE	67

SUMMARY

This Report examines whether the substantial government funding given to the Royal Society and the Royal Academy of Engineering represents good value for money and whether the support from Government to the other learned societies is appropriate. Our conclusions are broadly positive, but we believe that the present funding is haphazard rather than the product of strategic thinking on the part of the Office of Science and Technology. We recommend that the Government establish a fund to which learned societies could bid for core funding.

The majority of the £28.75 million funding for the Royal Society and the £4.77 million given to the Royal Academy of Engineering in 2001-02 was passed on to the scientific community in the form of research fellowships and awards. These schemes are highly regarded by the scientific community and fund very valuable work. We recommend that these schemes continue, though we lack the information to judge their relative cost-effectiveness to similar schemes administered by the Research Councils.

The Royal Society has its rental costs met by Government. We believe that it is right that the UK's "academy of sciences" should be housed in central London at government expense, though its facilities might reasonably be made available to other societies on a cost-only basis. Under a historical agreement, subject to legal dispute, several learned societies are housed in Burlington House free of charge. Putting an end to the arrangement would undoubtedly impact on the work they do.

We examine the role of the learned societies in providing scientific advice to Government. The learned societies have considerable expertise, which is at present under-used: we recommend that Government make greater use of a wider range of bodies, and that societies receive adequate financial compensation for their efforts.

Public communication of science activities are funded by Government through a variety of channels, and in a piecemeal manner. We examine the role of Copus and recommend that it be reformed as an umbrella body for science communication efforts, independent of the Royal Society.

The Royal Society and the Royal Academy of Engineering have been criticised for being unrepresentative in their membership. The number of women among their Fellows is disappointing, but broadly consistent with the highest levels of science and engineering; there are more grounds for concern about possible bias against newer academic disciplines. The absence of ethnic monitoring either of their Fellows or of senior scientists and engineers makes it impossible to judge whether they are representative. While these are independent bodies, we believe that bodies in receipt of public funding should meet the standards expected of the public service in terms of inclusiveness and transparency.

FIFTH REPORT

The Science and Technology Committee has agreed to the following Report:

GOVERNMENT FUNDING OF THE SCIENTIFIC LEARNED SOCIETIES

INTRODUCTION

Our inquiry

1. We are charged by the House of Commons with examining the expenditure of the Office of Science and Technology (OST). In both the Department of Trade and Industry's Estimates and the OST's Science Budget, expenditure on the Royal Society and the Royal Academy of Engineering is listed alongside that for the Research Councils, Joint Infrastructure Fund and other government science initiatives.¹ We have launched an ongoing programme of scrutiny of the Research Councils which take the great majority of OST's funding, but we were also curious about the purpose of the £30 million given to the Royal Society and Royal Academy of Engineering in 2001-02. On 19 December 2001, when the Secretary of State for Trade and Industry and the Minister for Science came before us we asked them about the rationale of funding the Royal Society and Royal Academy of Engineering through the Science Budget.² We subsequently received a detailed breakdown of the OST allocations to both institutions.³ We decided to conduct an inquiry to find out whether this considerable investment represents good value for money.

2. There are many other scientific learned societies in the UK, ranging from the largest, which represent broad areas of science, engineering and technology, such as the Institute of Physics and the Royal Society of Chemistry, to small groups with a very specialist interest. We were aware that some of them also received government funding directly, in the form of project grants, and indirectly, from occupying subsidised accommodation for example. We decided to include these societies in our inquiry, looking at the level of support they received from Government, through direct funding, benefits in kind and from one-off grants for particular projects. On 7 February 2002 we announced an inquiry into government funding of the scientific learned societies. Our terms of reference included an examination of the role of the learned societies in providing scientific advice to Government and in communicating science to the public, and how these activities were co-ordinated.

3. In the course of this inquiry, we received over 60 memoranda from learned societies, professional institutions and individuals. We held informal visits to both the Royal Society and the Royal Academy of Engineering, during which we were briefed about their work. We also held an informal meeting with Sir William Stewart, President, and Fellows of the Royal Society of Edinburgh in Edinburgh. Details of the visits are contained in Annex 1. We held three formal oral evidence sessions. On 8 May 2002, we heard oral evidence from Lord May of Oxford, President of the Royal Society, Professor Dame Julia Higgins, Vice President and Foreign Secretary and Mr Stephen Cox, Executive Secretary, the Royal Society; and from Sir Alec Broers, President, Professor Ann Dowling, Vice President and Mr Jon Burch, Executive Secretary, the Royal Academy of Engineering. On 12 June 2002

¹ *The Government's Expenditure Plans 2001-02 to 2003-04 and Main Estimates 2001-02*, Cm 5112, March 2001; *Science Budget 2001-02 – 2003-04*, November 2000

² Science and Technology Committee, Minutes of Evidence, 19 December 2001, HC 459-i, Ev 19

³ *Ibid*, Ev 22-28

the Committee examined representatives from the British Computer Society; the Royal Geographical Society; the Royal Society of Chemistry; the British Association for the Advancement of Science and Dame Bridget Ogilvie, Chair and Professor Ian Halliday, council member, Copus. On 19 June 2002 Professor John Enderby, Vice President and Physical Secretary and Mr Stephen Cox, Executive Secretary from the Royal Society appeared before the Committee. We are very grateful to all those who provided evidence to us, and in particular wish to thank our specialist adviser, Professor Michael Elves, formerly Director of the Office of Scientific and Educational Affairs, Glaxo Wellcome plc.⁴

Definitions

4. The Foundation for Science and Technology compiles a very useful Register of nearly 400 Learned and Professional Societies.⁵ There is no clear definition of a ‘learned society’. They are a heterogeneous body of organisations, ranging from small, local societies, and those with highly specialised fields of interest, to those with both large memberships and broader interests within particular major scientific or engineering disciplines. They look to develop their particular area of interest, promoting discussion and dissemination of new information amongst their membership. They also use meetings and publications to improve public understanding of their fields and to encourage further research and scholarship. In addition, some learned societies, particularly those operating under a Royal Charter, have the role of maintaining standards within the particular profession they represent and awarding individuals “chartered status” within it. They ensure that members have received appropriate levels of training, and hold appropriate qualifications prior to admission and, increasingly, will lay down and monitor schemes for continuing professional development. The majority of Learned Societies will be made up of professionals working in or around the field in research or education (including in schools), but some will admit enthusiastic or interested amateurs to some grades of membership. Senior members of the societies may be elected or appointed as Fellows. Membership is almost always through election. In most cases their income comes from subscriptions, publications, conferences and private sponsorship. It is hard to distinguish between learned bodies and professional societies: many are both. It is also hard to define what is a “scientific” learned society.

5. We have attempted a list (which is printed as Annex 2) in the full expectation that some will be annoyed by their omission and others will disagree with their inclusion. We have included medical, engineering and technology, as well as strictly scientific, bodies, and also those involved in social sciences and archaeology. We have not included those bodies whose primary purpose is to promote science to the public: the British Association for the Advancement of Science and the Royal Institution of Great Britain, for example. Whatever its inaccuracies the list of 245 bodies may at least serve to show the rich variety of scientific learned societies in operation, as well as the local level of some activity.

6. When we refer to “the learned societies” in this Report, we are usually not including the Royal Society and the Royal Academy of Engineering although they do of course come under this description. We have used an upper case Fellowship throughout this Report to denote the body of Fellows of the organisations, and a lower case fellow to describe a research fellow.

⁴ Professor Elves is Treasurer of the Institute of Biology

⁵ The most recent was published in 1999 – a new version is in preparation

THE ROYAL SOCIETY

History

7. The Royal Society was founded by a group of scientists on 28 November 1660 following a lecture by Christopher Wren, the Gresham Professor of Astronomy, in London. The intention of these founders was to create “a College for the Promoting of Physico-Mathematicall Experimentall Learning”.⁶ At first the Society merely met weekly for lectures. In 1663 it was granted its first Royal Charter as “the Royal Society of London for the Improvement of Natural Knowledge”, still its official title. It has been in existence ever since, which makes it the oldest scientific society in continuous existence in the world. Since the 1660s it has published scientific books and articles; its journal “Philosophical Transactions” has been produced since 1665. It has at present around 1,300 Fellows, electing a maximum of 42 a year: accession to the Fellowship is through nomination and election. In 1847, the Society decided to restrict election to those who worked in academic scientific research, rather than interested amateurs. In 1850, the Society received its first government grant.

Work

8. The work of the Society has expanded over the years and it now has a permanent staff of over 120. The objectives of the Royal Society are to:

- recognise excellence in science
- support leading-edge scientific research and its applications
- stimulate international interaction
- further the role of science, engineering and technology in society
- promote education in the sciences and actively engage the public in scientific issues
- provide independent authoritative advice on matters relating to science, engineering and technology
- encourage research into the history of science.⁷

The Royal Society spends the majority of its funds (two thirds of its parliamentary grant-in-aid) on its research awards, from University Research Fellowships – given to researchers early in their careers – to professorships. It also funds International Fellowships, aimed at attracting academics from abroad and allowing UK academics to travel. The Royal Society seeks to influence the teaching of science in schools and is involved in the public communication of science, through its educational programme, advisory work, the Science in Society programme and its support for Copus. Its third main area of work is in providing independent scientific advice to Government. One of the most recent examples of this its inquiry into infectious diseases in livestock.⁸ The Royal Society also functions as a forum for the discussion of science; it holds regular meetings, publishes five journals and maintains an extensive library which is open to the public. Finally, there are 24 prizes awarded by the Royal Society, entirely funded by endowments, in recognition of scientific excellence.

⁶ <http://www.royalsoc.ac.uk/royalsoc/index.html>

⁷ See volume II, appendix 37

⁸ *Ibid.*

Funding

9. Royal Society grant-in-aid – the government funding agreed by Parliament – is set out in the Science Budget from 2001-02 to 2003-04. These allocations were drawn up in 2000, after the last Comprehensive Spending Review. Expenditure for 2003-04 may change following the new Comprehensive Spending Review, announced on 15 July 2002. The new Science Budget allocations for 2003-04 to 2005-06 have not yet been published. OST specifies the main areas on which grant-in-aid is to be spent, but does not prescribe how it should be divided up between individual programmes.

Table 1: Royal Society funding as set out in the Science Budget 2001-02 to 2003-04

£ million	2001-02	2002-03	2003-04
Total	25,945	28,745	29,245

Source: *The Science Budget 2001-02 – 2003-04*

Table 2: The Royal Society: government-funded budget 2001-02

Programme	Grant-in-aid £000
Research Professors	781
University Research Fellowships	9,939
Dorothy Hodgkin Research Fellowships	825
Industry Fellowships	200
Research Grants	5,872
Merit Awards	200
International Fellowships and projects – developed world	2,012
International Fellowships and projects – developing world	1,325
International Conferences and grants	1,030
Relationships with international bodies	699
Science Communication and Education	888
Scientific Advice	100
Rent	306
Administration	1,538
External redecoration	230
Total	25,945

Source: OST: HC 459-i, Ev 25-26

Leverage

10. Parliamentary grant-in-aid, accounts for two thirds of the Royal Society's income. The Royal Society estimated that its total expenditure in 2001-02 would be £36.184 million of which £10.2 million was private funding.⁹ The Royal Society could make more effort to attract private funding from appropriate sources. **We urge the Royal Society to investigate more streams of funding, using its prestige and grant-in-aid as leverage.**

Research grants and awards

Funding

11. The Royal Society runs ten research fellowship and direct support schemes in the UK. The seven supported at least in part by grant-in-aid are set out in Table 3 below. The three funded entirely with private money are set out in Table 4.

Table 3: Grants and schemes supported by the Royal Society's grant-in-aid 2001-02

Award	Grant-in-aid funding £000	No.	Private funding £000	No.
University Research Fellowships (URF)	9,939	310	423	12
Dorothy Hodgkin Fellowships	825	40	660	22
Industry Fellowships	200	21	326	17
Wolfson Foundation/OST Merit Awards	200	35	1,800	18
Research Professorships	781	12	250	5
Conference Grants	850	1,250	–	–
Research Grants	1,850	350	108	27

Source: *The Royal Society*¹⁰

⁹ See volume II, appendix 37

¹⁰ *Ibid.*

Table 4: Grants and schemes supported by the Royal Society’s private funding 2001-02

Award	Funding £000	Features
Wolfson Refurbishment Grants	2,475	Funding for universities to refurbish research laboratories
Brian Mercer Innovation Awards	400	Seed corn funding to aid the commercialisation of scientific discoveries
Leverhulme Trust Senior Research Fellowships	213	Funding to aid established academics to concentrate on full-time research for a period of time

Source: *The Royal Society*¹¹

Features

12. The different award schemes have different features:

- University Research Fellowships – funding for “blue skies” research, salary and research expenses covered. URFs benefit from workshops, career advice, bursaries and media and communication training. The awards are made for five years in the first instance, and can be extended up to ten.
- Dorothy Hodgkin Fellowships – salary and research expenses for up to four years. Flexible funding for career breaks. Part-time working. Childcare costs. Dorothy Hodgkin Fellows receive mentoring for research and career advice, media and communication training. They are marketed predominantly towards women; around 90% of awardees are female, compared to 20-24% of URFs.
- Industry Fellowships – salary and collaborative costs to allow interchange between academic and industrial scientists for up to two years.
- Wolfson Foundation/OST Merit Awards – help universities attract the most able scientists. Provides additional salary and research expenses for up to five years.
- Research Professors – offers enhanced salaries and research expenses for 10-15 years.
- Conference grants – individual awards of up to £1,500 for scientists to attend conferences, including a contribution towards childcare costs.
- Research grants – seedcorn funding of up to £10,000 for blue skies research. Used particularly for high-risk innovative projects.

¹¹ See volume II, appendix 37

Additional funding

13. The Royal Society was hoping to obtain additional funding of £5,975,000 in the 2003-06 Comprehensive Spending Review in order to broaden some its work and introduce new schemes. It hopes to step up funding for URFs, research grants and Dorothy Hodgkin Fellowships, as the number of applicants for these programmes is constantly increasing. (Under 25% of applicants are at present successful.) It would like to launch a “relocation award” to aid career mobility for women, whose research can often take second place to their partner’s career. The scheme will cover research expenses and salary for up to two years at a new research institution. It would also like to step up its industry fellowship scheme. A new international fellowship programme with the US is about to begin and the Royal Society would like to run similar schemes in other countries with strong science. It would like to extend its regional programmes and increase the amount of science policy work it does in Europe.¹² It is as yet unclear whether the allocation for science in the Spending Review will mean the increase of funding for which the Royal Society had hoped.

Education and schools work

14. The partnerships grant scheme awards money to schools to enable them to work with scientists and engineers. The Acclaim Project at Sheffield Hallam University aims to raise young people’s awareness of cutting edge scientific research. Work on the Acclaim Project is targeted at schools, including a television series “Living Science”. A website aimed at 16 to 19 year-olds was launched in 2001.¹³ We discuss the Royal Society’s public communication work in paragraph 49.

International representation

15. Science is an international activity. The Royal Society has played a significant role in representing UK science for over a century. The International Council for Science (ICSU) was founded in 1900 by the Royal Society, the French Académie des Sciences and the US National Academy of Sciences. In 1920, the subscription to the ICSU was incorporated into the Royal Society’s grant-in-aid, along with subscriptions to other international bodies. The ICSU is an organisation set up to further international co-operation and to promote international science and has been appointed the scientific organising partner of the World Summit on Sustainable Development in Johannesburg in September 2002 by the United Nations. There are also a number of International Scientific Unions representing different scientific disciplines which are affiliated to the ICSU. Until recently the Royal Society has been responsible for representing the UK, including payment of the annual subscriptions from its grant-in-aid. The Royal Society told us “over the last four years, we have been reviewing our membership of the 38 affiliated scientific unions, as a result, have withdrawn from two and have passed on responsibility for membership of 17 other discipline-based unions to the relevant UK learned societies, although we continue to pay 49% of the subscriptions”.¹⁴

16. The Royal Society will receive £280,000 in 2002-03 for 36 international subscriptions. The Institute of Biology mentions this funding: “We spend nearly £20,000 per annum on [international representation] but note that the Royal Society received direct government funding to enable to it undertake such representation on behalf of the nation”.¹⁵

¹² See volume II, appendix 37

¹³ [Http://www.scl.ac.uk](http://www.scl.ac.uk)

¹⁴ See volume II, appendix 37

¹⁵ *Ibid.*

The learned societies who have taken over responsibility for representing the UK pay their share of the subscription, which by 2004 will amount to 51%, from their own funds, with the Royal Society continuing to pay the balance. The Royal Society tells us that the “small savings [it has made] have been used to support other international activities.”¹⁶ **We consider that those learned societies who have accepted responsibility for the membership of these international discipline-based unions should have their proportion of the UK subscription met from OST funds, just as the Royal Society’s share is paid from its grant-in-aid.**

¹⁶ See volume II, appendix 40

THE ROYAL ACADEMY OF ENGINEERING

History

17. In 1965 the Council for Engineering Institutions was set up by a group of major engineering institutions to promote the interests of the profession. The lack of an elite body in this area was felt to be a problem but progress was slow. On 11 June 1976 the Fellowship of Engineering was finally founded. The founding Fellows had either been nominated by the chartered engineering institutions or were drawn from engineer Fellows of the Royal Society. Fellows thereafter were elected and a ceiling of 1,000 imposed, with a maximum of 60 to be elected each year. This ceiling was revised to 1,500 in 1994. The Fellowship of Engineering carried out its first activities in 1977 and issued its first publication in 1978. By 1980 it had raised £1 million through fundraising. It acquired a Royal Charter in 1983 and received its first parliamentary grant-in-aid in 1984. In 1992 the Fellowship became the Royal Academy of Engineering.

Work

18. The Royal Academy of Engineering carries out work similar to that of the Royal Society. It gives independent advice to Government, feeding into consultations whilst also producing its own reports. It has an educational programme for schools and universities. Its engineering research fellowships are the major part of its work, with awards ranging from Personal Research Chairs to postdoctoral awards. There are strong links with industry and an industrial secondment scheme. The Royal Academy of Engineering organises public lectures, industry conferences and has a quarterly journal.

Funding

Table 5: Royal Academy of Engineering funding as set out in the Science Budget 2001-02 to 2003-04

£ million	2001-02	2002-03	2003-04
Total	4,270	4,770	5,270

Source: Science Budget 2001-02 – 2003-04

19. Table 5 shows the allocation of government funding to the Royal Academy of Engineering under the 2000 Spending Review.¹⁷ Again expenditure for 2003-04 may be revised in the light of the 2002 Spending Review. The grant-in-aid forms one quarter of the Royal Academy of Engineering's direct income. It expected to have a total income of around £16 million in 2001-02. Although grant-in-aid forms only 26.7% of direct income, it acts as powerful leverage. The Royal Academy of Engineering estimates that grant-in-aid funded programmes attract private sector funding of over £6.5 million. It divides its income into two parts: direct income from the grant-in-aid and other sources, and third party income (in support of programme funding).

¹⁷ *Science Budget 2001-02 – 2003-04*

Table 6: The Royal Academy of Engineering's direct income 2001-02

Source	Funding £000	Percentage of income
Grant-in-aid	4, 270	26.7
Gatsby Charitable Foundation	1304	8.1
Income from investments	429	2.7
Events and facilities hire	244	1.5
Donations and direct sponsorship	218	1.4
Subscriptions	150	0.9
Other	265	2.3
Total	6,980	43.6

Source: *The Royal Academy of Engineering*¹⁸

Table 7: The Royal Academy of Engineering's third party income in support of programmes 2001-02

Purpose	Funding £000	Percentage of income
Grant-in-aid funded programmes	6,540	40.9
Gatsby funded programmes	2,276	14.2
Other programmes	208	1.3
Total	9,024	56.4

Source: *The Royal Academy of Engineering*¹⁹

¹⁸ See volume II, appendix 31

¹⁹ *Ibid.*

The OST told us how the Royal Academy of Engineering's grant-in-aid for 2001-02 was allocated.

Table 8: Allocations in the Royal Academy of Engineering's grant-in-aid, 2001-02

Programme	Allocation £000
Personal Research Chairs and Senior Research Fellowships	574
Postdoctoral Research Fellowships	337
Engineering Professional Development Awards	237
International Travel Awards	389
Visiting Professorships in Design and Sustainable Development	441
Industrial Secondments	290
Engineering Foresight Awards	387
Engineering investigations	416
Education studies and support	374
Public communication and overseas representation	828
Total	4,270

Source: OST²⁰

20. We commend the Royal Academy of Engineering for its use of its parliamentary grant-in-aid to lever private income. It estimates it receives £2 of private money for every £1 of public funding. We note that it attracts a higher proportion of public funding than the Royal Society, although we realise that engineering is a far more commercial area than academic science.

Grants and awards

Funding

21. The Royal Academy of Engineering makes awards on a smaller scale than the Royal Society, as is commensurate with its income.

²⁰ HC 459-i, Ev 27-28

Table 9: Grants and schemes supported by the Royal Academy of Engineering's grant-in-aid 2001-02

Award	Funding £000	No.
Personal Research Chairs	574	7
Senior Research Fellowships		3
Post-doctoral fellowships	337	5
Industrial secondment	287	25 by 2004
Engineering Foresight Awards	387	13

Source: *The Royal Academy of Engineering* ²¹

Features

22. The awards have a variety of features although all benefit from mentoring by Fellows of the Royal Academy of Engineering –

- Personal Research Chairs and Senior Research Fellowships – with funding from a sponsor company, a higher education institution and the Royal Academy of Engineering, researchers carry out research of interest to the company.
- Post-doctoral fellowships – five years of full funding.
- Industrial secondment – allows engineering lecturers to take a secondment in industry for three to six months. Pays the cost of a replacement lecturer.
- Engineering Foresight Awards – enables academic and industrial researchers to spend between three and 12 months overseas on secondment.

Future funding

23. In 2001, seven Personal Research Chairs were appointed, with funding for five years. Three new Senior Research Fellowships were awarded, one with five years of funding and the others with two. By 2003-04 the total number of these awards should be 33. By 2003-04, the Royal Academy of Engineering hopes that there will be 25 Industrial Secondments a year. It would like to increase its grant-in-aid to fund a variety of new programmes, such as the “Facing Out” initiative which would aim to increase its profile in the community, to extend the work it does in public communication of science, international research exchanges for senior academics and Royal Academy of Engineering Research Chairs. Again, it is still uncertain whether the Royal Academy of Engineering will benefit from the 2002 Spending Review.

²¹ See volume II, appendix 31

Other awards

24. The Royal Academy of Engineering provides a wide range of awards, programmes and prizes aimed at school and university students. Schemes in secondary schools include the Engineering Education Scheme, for sixth-formers to get involved in real projects with local companies, the Year in Industry, for high quality students to gain work placements, and the Smallpiece Engineering schemes for year 9 and 10 pupils. University undergraduates benefit from the Engineering Leadership Awards, which offer training, personal development and high quality work placements. Various grants are aimed at post-graduate students including travel grants.

LEARNED SOCIETIES

Work

25. We received memoranda from a large number of learned societies explaining their role and work and many of these submissions, giving full details of the societies' activities, are printed with this Report.²² By way of giving example –

- The Royal Astronomical Society is open to interested amateurs and has 150 young scientist members. It has three publications, two of which are academic journals. It has a library, organises meetings, and holds events and competition in schools.²³
- The Institute of Biology provides scientific advice, briefing for both academics and lay readers, holds branch meetings open to the public and works with biology teachers, through the Journal of Biological Education.²⁴
- The Institute of Physics has a Schools Lecturer who delivers talks to more than 10,000 children a year. There is an Annual Congress each year open to the public. They also provide a list of physicists prepared to lecture to children and adults.²⁵
- The Geological Society of London has a Fellowship of 9,000 academics and amateurs. It accommodates the Geologists' Association, an entirely amateur organisation. It provides the staff for the all-party group on the earth sciences.²⁶
- The British Psychological Society responds to a wide variety of government consultations and works closely with the Parliamentary Office of Science and Technology on individual projects.²⁷
- The London Mathematical Society promotes mathematics at university level, although it also provides Popular Lectures for the public.²⁸

We frequently receive memoranda from learned societies in the course of our inquiries and are grateful for the expertise and advice they provide.

Membership

26. The membership numbers of those societies who informed us of them, along with the Fellows of the Royal Society and Royal Academy of Engineering, are shown below.

²² See volume II

²³ See volume II, appendix 33

²⁴ See volume II, appendix 18

²⁵ See volume II, appendix 20

²⁶ See volume II, appendix 15

²⁷ See volume II, appendix 9

²⁸ See volume II, appendix 25

Table 10: Membership and funding of learned societies:

Society	Membership (April 2002)	Core government funding support (if any) for 2001-02
Academy of Medical Sciences	714	Accommodation in 10 Carlton House Terrace (till early 2003)
British Computer Society	38,000	0
British Pharmacological Society	2,650	0
British Psychological Society	34,000	0
Geological Society of London	9,000	Subsidised accommodation in Burlington House
Institute of Biology	15,000	0
Institute of Physics	37,000	0
Royal Academy of Engineering	1, 270	£4.27 million
Royal Society	1,203	£25.9 million, including accommodation in 6–9 Carlton House Terrace
Royal Society of Chemistry	46,000	Subsidised accommodation in Burlington House
Royal Society of Medicine	18,000	0

Academies

27. Six of the learned societies who have given us evidence are overarching institutions, or “academies”. As we have seen the Royal Society and the Royal Academy of Engineering receive grant-in-aid from the OST. The British Academy, which funds the social sciences, receives parliamentary grant-in-aid from the Department for Education and Skills for its activities. The Academy of Medical Sciences, the newest body, founded in 1998, does not receive grant-in-aid but is seeking government funding of £1 million a year. It already has grant award programmes and hopes to expand its activities with further funding.²⁹ The Royal Irish Academy operates in both Northern Ireland and the Republic of Ireland. It receives €2.7 million per annum from the Higher Education Authority in the Republic of Ireland but receives no UK government funding.³⁰ The Royal Society of Edinburgh is the Scottish academy. It receives grant-in-aid of £278,000 from the Scottish

²⁹ See volume II, appendix 1

³⁰ See volume II, appendix 36

Executive Enterprise and Lifelong Learning Department.³¹ Both the Royal Irish Academy and the Royal Society of Edinburgh cover all academic disciplines.

Views on government funding and independence

28. Two themes were recurrent in the evidence we received from learned societies. **The majority of learned societies were happy to remain largely privately funded, fearing that government funding might interfere with their independence.** The Institute of Physics, for example, told us –

“The Institute receives no government funding for its core activities and does not wish to. Learned societies value their independence. It is without fear or favour that societies like the Institute of Physics can either commend or criticise Government”.³²

The Institution of Chemical Engineers described its attitude to government funding as “wishing to stand on its own two feet”.³³ The Royal Society and Royal Academy of Engineering did not consider their independence compromised by their government funding. Lord May, President of the Royal Society, told us –

“I do not see that as a worry at all. It is not compromising our independence. We are taking it to do a particular job that is audited. Recently we have given an independent report with our own money. We did one on depleted uranium which was quite critical of aspects of the Government. Also we offer responses to government consultations which are often quite critical”.³⁴

The argument that government funds compromise independence seems to us to be flawed. As is seen in paragraph 77, a few of those societies who reject the idea of government funding are in fact occupying crown property for which they pay no rent. Nor do we see any evidence of pro-Government bias in the Royal Society or the Royal Academy of Engineering. **We do not think that receipt of government funds compromises the independence of those societies which benefit from it.**

Equity of funding

29. The second argument raised throughout the submissions was for a fairer distribution of existing funds. The disparity of funding between the Royal Society and the Royal Academy of Engineering was one area of concern. The British Computer Society said “We believe that the Royal Academy of Engineering gives very good value for money, supporting a comparable level of activity to the Royal Society. Thus, the disparity in funding between the two bodies does not seem justifiable”. It wanted to see the level of funding for the Royal Academy of Engineering raised substantially.³⁵ When we asked Sir Alec Broers, President of the Royal Academy of Engineering, why he thought the Academy received less money than the Royal Society, he replied “we are relatively young, we are quite ambitious”.³⁶ **The relative age of institutions does not seem a sensible basis for determining their funding. Funding should reflect the work they do.**

³¹ See volume II, appendix 42

³² See volume II, appendix 20

³³ See volume II, appendix 21

³⁴ Q 15

³⁵ See volume II, appendix 5

³⁶ Q 78

30. A few societies expressed a desire to see government funding distributed more widely, rather than going only to the Royal Society and the Royal Academy of Engineering. The Institute of Food Science and Technology thought that –

“the funding currently directed to the Royal Society could be more widely dispersed to other learned and professional and scientific societies in order to ensure a wider spread of advice to government and public”.³⁷

The Chartered Institution of Water and Environmental Management said –

“Many of the bodies that do not receive government funding could easily make a case for doing so. The fact that there is no obvious mechanism for accessing available funds is unfair. It discriminates against those learned societies with an excellent track record of achievement in favour of an elite few who are effectively ‘subsidised’ by the taxpayer and who do not necessarily represent the views or activities of other bodies”.³⁸

The Royal Geographical Society told us that “it would greatly welcome a more equitable distribution of government funds to learned societies”.³⁹

31. It is unrealistic to expect the Government to fund all the hundreds of scientific learned societies, and some would not want it. There would need to be some mechanism through which the societies could bid for government funds for core funding as well as project grants. There is no practical way that the Government itself could determine which bodies to fund. Societies would need to be pro-active, and provide clear financial plans for their use of government funding. Dr Rita Gardner, Chief Executive of the Royal Geographical Society, told us –

“all of the learned societies and bodies act to a strategic plan, act to implementation objectives on an annual basis and those would need to be monitored against delivery”.⁴⁰

Government should provide a central fund to which learned societies could bid, but they would need to be prepared to submit financial plans and be aware that such funding would require demonstrable outcomes and accountability.

32. The present funding of scientific learned societies appears to be haphazard rather than the product of strategic thinking on the part of the OST. The Government must consider how funding could be distributed more effectively and rationally.

³⁷ See volume II, appendix 19

³⁸ See volume II, appendix 10

³⁹ See volume II, appendix 34

⁴⁰ Q 174

ACADEMIC AWARDS AND PROGRAMMES

33. The various awards run by the Royal Society and the Royal Academy of Engineering account for most of their grant-in-aid. When we asked Lord Sainsbury, the Science Minister, in December 2001 why the Government funded these societies, he mentioned the award schemes and told us “I think that [they are] rather good scheme[s]. It is a good way of making certain that the very bright young scientists selected by the Royal Society do get a boost and I think that works as a whole very well.”⁴¹ There is no doubt that the fellowships and awards given by the Royal Society and the Royal Academy of Engineering are valuable, but the question is whether the money could be distributed more effectively, through the Research Councils. We have sought to establish whether the awards deliver good value for money.

Comparison with Research Council awards

34. The Research Councils, which are responsible for the project funding of most academic science in the UK have extensive grant schemes. They also pay PhD stipends and have research fellowships. Research Council fellowships differ from the fellowships of the Royal Society and the Royal Academy of Engineering in several ways. Lord May described what he saw as the main differences between the Research Council fellowships and the Royal Society’s URFs. He thought that the Royal Society URFs were –

“precise, long-term, up to ten years’ renewable and freedom to do what you like where you like, based more on a proposal for a broad programme than a detailed specific thing, sometimes even in response to some directed programme of research, and not confined by particular disciplinary boundaries so that we can easily support somebody who falls between two boundaries”.⁴²

Professor Dame Julia Higgins, Vice President of the Royal Society, also mentioned the support given to award holders by the Society –

“They form a cohort and are invited to the Royal Society, they are involved in the activities of the Royal Society, there is a support mechanism for them. To my knowledge none of the Research Councils is either in a position to, nor does it, support these people in terms of developing their careers”.⁴³

35. Sir Alec Broers, President of the Royal Academy of Engineering, said “having a Fellow as a mentor all the time to get to know is seen as very, very important by the holders of our various chairs and fellowships”.⁴⁴ The long-term nature of the URFs was praised elsewhere as was the non-project nature of their funding. Professor Hall of the British Computer Society told us “The Royal Society fellowships are quite long term. They are actually seeking to take somebody young and let them develop their career without any impediment to worrying about tenure or administration or teaching”.⁴⁵ In contrast, the Research Council fellowships usually last no more than five years and are project-based. Professor Ann Dowling, Vice President of the Royal Academy of Engineering, felt that their research fellowships were very popular in contrast with the Engineering and Physical

⁴¹ HC 459-i, Ev 19

⁴² Q 33

⁴³ Q 34

⁴⁴ Q 89

⁴⁵ Q 144

Sciences Research Council (EPSRC) schemes because –

“when you have the engineers in direct comparison with pure scientists, the pure scientists’ references are always outstanding. Everyone is going to be a Nobel Prize winner in two years’ time. The Academy does attract applications because engineers believe that they will be judged by other engineers and get a fair hearing and EPSRC struggle with this and are working with the Academy because of that”.⁴⁶

36. We suggest that the Research Councils should consider introducing into their research fellowships those features of the Royal Society and the Royal Academy of Engineering’s awards which are seen as praiseworthy, such as extending their fellowships beyond five years on a regular basis and being willing to fund more ‘blue skies’ thinking. It would also be of benefit if they were to develop a mentoring scheme to support research fellows.

Selection process

37. Both the Royal Society and the Royal Academy of Engineering carry out in-house peer review in the process of making their awards. Jon Burch, Executive Secretary of the Royal Academy of Engineering, described the process for all their awards:

“Each begins with a proposal being received by the Academy. Our reaction is led by a Fellow designated ‘Lead Assessor’ who looks at the candidate, the university and the company where applicable. The Lead Assessor convenes and seeks peer reviews from another three Fellows totally independent of the company, the applicant and the university so they do not have an axe to grind there. Formal interviews then follow to ensure that would-be post-holders are deemed appointable by all the sponsoring bodies”.⁴⁷

The Royal Society tells us –

“the primary criterion for selection is scientific excellence although for some fellowships, such as the Dorothy Hodgkin scheme, a secondary criterion is the degree to which the person will benefit from the scheme. This accounts for the higher success rate of women applying for this scheme”.⁴⁸

38. Selection panels in both the Royal Academy of Engineering and the Royal Society consist entirely of Fellows of each body. The scientific academic world is relatively small and many of those who sit on Research Council peer review panels may also be Fellows of either or both of the Royal Society and Royal Academy of Engineering. The Research Councils are able to draw on whomever they wish and are not dependent on a particular group of scientists. The possible lack of a wide range of expertise in the Royal Society and Royal Academy of Engineering, who are limited to their Fellowships, is a matter for concern, especially in newer sciences where representation amongst Fellows may not be adequate. Effective assessment of cross-disciplinary proposals requires a broad range of expertise. **We call upon the Royal Society and the Royal Academy of Engineering to consult academics other than their own Fellows during the peer review process, where there is not sufficient expertise within their own bodies.**

⁴⁶ Q 89

⁴⁷ Q 88

⁴⁸ See volume II, appendix 37

Fellowships for women

39. The Dorothy Hodgkin Fellowships have been a significant success for the Royal Society in encouraging women to apply for awards and in raising the profile of women in science. The Dorothy Hodgkin Fellowships are not however the only ones to offer features which make them attractive to women. The Royal Society's URFs also offer a mentor, training and the possibility of career breaks. The Research Councils who provided information to us about their research awards demonstrated that their awards were similar. The EPSRC told us "Research Fellows have the option to put their Fellowship into abeyance for up to two years within the five year Fellowship".⁴⁹ The Medical Research Council (MRC) stated "awards can be held in abeyance for up to one year, normally to allow the fellow to undertake a concentrated period of clinical training; extended periods of maternity leave are also supported".⁵⁰ The Biotechnology and Biological Sciences Research Council (BBSRC) described some the features of their fellowships: "Special arrangement apply if a BBSRC fellow wishes to continue the award during pregnancy. In addition fellows may take up to four weeks paid paternity leave. Other considerations include: the cost of caring, removal expenses, holidays, sick leave and medical expenses for overseas travel".⁵¹ BBSRC also runs a Daphne Jackson Memorial Fellowship to those returning to academia after a career break. **We urge the Royal Society, the Royal Academy of Engineering and the Research Councils to ensure that all their research fellowships and other awards contain 'family friendly' features.**

40. It appears that much of the success of the Dorothy Hodgkin awards is due to good marketing. Professor Higgins, Vice President of the Royal Society, told us "it is marketing. It is a quite extraordinary piece of marketing and it has been brilliantly successful".⁵² The Royal Society also tells us that it varies its assessment process for the Dorothy Hodgkin Fellowships, which accounts in part for the higher success rate for women. **We recommend that all awarding bodies make an effort to publicise those aspects of their awards which may appeal to female researchers, in an attempt to increase the numbers of female applicants for all research awards. They should undertake a reassessment of selection procedures, in order to identify possible obstacles to the success of female applicants.**

Representation

41. The geographical distribution of University Research Fellowships, perhaps the "next generation" of Royal Society Fellows, closely follows that of the Fellowships. 48% of URFs are based in the Universities of Cambridge, Oxford and London, known as the "Golden Triangle".⁵³ The recent Research Assessment Exercise results indicate that there are significant numbers of scientists and engineers in 5 and 5* rated departments in universities outside the Golden Triangle which are presently poorly represented amongst the URFs (and the Fellowship). **We urge the Royal Society to encourage applications for its University Research Fellowships from all institutions.**

⁴⁹ See volume II, appendix 12

⁵⁰ See volume II, appendix 26

⁵¹ See volume II, appendix 4

⁵² Q 62

42. The Royal Society has a disproportionate number of research fellows whose research area is astronomy, perhaps representing scientific preoccupations at the time of its founding. After biological science, chemistry and physics, astronomy has more research fellows than any other subject; 8.3% are astronomers. Information technology is the research area of only 0.33% of research fellows and mathematics only 2.3%.⁵⁴ **The Royal Society must ensure that its research awards represent the whole scientific community, without undue weight in any one area.**

Cost efficiency

43. We have tried to establish the relative cost efficiency of the Royal Society, the Royal Academy of Engineering and Research Council fellowships. The Particle Physics and Astronomy Research Council (PPARC) did not respond to our inquiry, and BBSRC said that this could only be determined at disproportionate cost⁵⁵ but others were able to tell us the administration cost per fellowship. The Royal Society estimated that it spent 3.21% (around £90,000) of its grant-in-aid on administering its fellowships.⁵⁶ The Natural Environment Research Council (NERC) calculated its administration costs to be around 4.1%.⁵⁷ EPSRC estimated the unit cost of its awards to be £434 before the award was made. The MRC thought the average cost of its applications was £220, and the Economic and Social Research Council (ESRC) around £100.⁵⁸ We are, however, not convinced that the cost efficiency of any of the schemes is being properly assessed, either by the learned societies involved or the Research Councils. **We would like to see more effort made by those awarding publicly-funded grants and awards to isolate administration costs in order to identify the cost efficiency of their schemes.**

44. While uncertainties about cost efficiency must remain, we are persuaded that the schemes managed by the Royal Society and the Royal Academy of Engineering have a significantly different approach to the support of young researchers to that of Research Councils; research fellowships are longer-term, something that Research Councils themselves are moving towards, and less project-based. Maintaining a variety of fellowship programmes is valuable to the academic community. Those schemes run by the Royal Academy of Engineering are, in part because of the more specialised nature of the Academy, of great value to the engineering community. **In our view, the government funding of grant and award programmes managed by the Royal Society and the Royal Academy of Engineering should be maintained.**

Learned societies

45. Some of the other learned societies run from their own funds limited grant programmes which award small sums to individuals. We posed the possibility of learned societies receiving government funding in order to run their own small scale research fellowships. Dr Rita Gardner, Chief Executive of the Royal Geographical Society, told us “we run a grants programme which administers to the order of between £100,000 and £150,000 a year so we have the infrastructure to manage grants and associated peer reviewing process”.⁵⁹ The Royal Society of Chemistry, one of the largest scientific learned

⁵⁴ [Http://www.royalsoc.ac.uk](http://www.royalsoc.ac.uk)

⁵⁵ See volume II, appendix 4

⁵⁶ See volume II, appendix 39

⁵⁷ See volume II, appendix 27

⁵⁸ See volume II, appendices 26, 14

⁵⁹ Q 189

societies, was negative. Dr David Giachardi, Chief Executive of the Royal Society of Chemistry, stated “we are not geared up to do that. We just do not have the mechanisms in place to do that”.⁶⁰ He thought that chemistry fellowships were better funded by the Research Councils.⁶¹ Professor Hall, of the British Computer Society, was of the same mind, saying “I would not like to see the BCS have to set up the administration to run the fellowships. I think the EPSRC [and the Royal Society have] that well sorted”.⁶² She pointed out that “Most of us academics who are members of the BCS at professor level are on the EPSRC peer college and we do peer reviewing and therefore are much involved in the EPSRC fellowship awarding”.⁶³

46. Although we are aware of the grant programmes already run by some learned societies from their own resources, we do not think that government funding of these societies to run their own research fellowships would be appropriate. The extensive mechanisms needed to operate these programmes would be hard for many to put in place, and the administration costs incurred in awarding just a small number of fellowships would render the exercise relatively very expensive. There would be nothing to be gained from diverting funds from other sources for these fellowships; and there would be much work to be done to publicise the new awards whereas those already in existence are well known. There would also be a loss of flexibility as grants would be confined to the discipline of the awarding society. Someone, presumably the OST, would have to prejudge how demand and merit would be distributed across the sciences. We note that many of those involved in the wider body of learned societies are involved in the peer review process of current research fellowship schemes and that the learned societies therefore have input in that way. **Most scientific learned societies do not have the administration capability or review processes in place to operate their own research awards. The effort required would divert them from their primary purpose, to serve their scientific communities through support for the discipline and the dissemination of knowledge.**

⁶⁰ Q 203

⁶¹ Q 204

⁶² Q 146

⁶³ Q 146

PUBLIC COMMUNICATION OF SCIENCE

47. We set out to look at the use of public money in public communication of science work. Science communication aims to bring scientific issues to the attention of the wider community and promote a more scientifically literate society. The Government distributes money for public communication of science through the OST and Research Councils and gives grant-in-aid allocation to both the Royal Society and the Royal Academy of Engineering.

Office of Science and Technology

48. The Public Understanding of Science, Engineering and Technology (PUSET) Unit at OST was formed in 1994 following the 1993 White Paper *Realising Our Potential* which spelt out a need to raise public awareness of the contribution of science, technology and engineering. The PUSET Unit has a staff of two and an annual programme budget of £1.25 million, which is spent entirely on grants to organisations and initiatives.⁶⁴

The Research Councils

49. The Research Councils also receive funds for public communication of science activities. Professor Ian Halliday of PPARC told us that his Research Council received “about £800,000 a year from OST, about to go up to a million.”⁶⁵ The Research Councils alone, for whom science communication is a very limited part of their work, receive millions of pounds each year. Professor Halliday told us “the number quoted is usually five to eight million across the Research Councils and OST”.⁶⁶

The Royal Society

50. A small proportion of the Royal Society’s grant-in-aid is allocated to science communication work. In 2001-02, this was £810,000. Most of this is distributed in grants to other bodies; only £180,000 was spent by the Royal Society itself.⁶⁷ Efforts are focussed on four programmes: the Summer Science Exhibition, which cost £50,000 in 2001-02; public lectures; media relations and operations through the press office; and the Science in Society programme, which is funded from private sources with £1 million over five years.

The Royal Academy of Engineering

51. The Royal Academy of Engineering holds a series of public lectures, conferences and briefings for press, engineers and the public. It also has education programmes which run in schools and universities. These are aimed at pupils from the age of 13 up to post-doctoral students.⁶⁸ “Facing Out” is a new initiative to make the organisation more outward-facing and raise its public profile. The Royal Academy of Engineering has

⁶⁴ See volume II, appendix 30

⁶⁵ Q 241

⁶⁶ Q 243

⁶⁷ See volume II, appendix 38

⁶⁸ See volume II, appendix 31

established a database of Fellows willing to talk to the media on engineering issues; this is available on the website.⁶⁹

The British Association for the Advancement of Science

52. The British Association for the Advancement of Science (the BA) is not a learned society. The BA was formed in 1831 “to advance science” and now focuses entirely on the public communication of science.⁷⁰ It has a small but broad membership drawn mainly from the scientific community but also including interested lay people. The BA co-ordinates National Science Week, the highest profile event in the UK, and is involved in the organisation of many other large projects, such as the BA’s Festival of Science and AlphaGalileo, a Europe-wide internet access service for journalists. The BA’s Young Scientists (BAYS) scheme is well-known in many schools. The First Investigators, Young Investigators and CREST schemes are aimed at pupils from five to 18. 3,000 groups take part in the first two of these; in 2001, 26,000 CREST awards were given to pupils aged 12 to 18. The British Association received £634,000 from OST’s PUSSET unit and £254,000 from the Royal Society’s grant-in-aid in 2001-02. There is other funding made for specific projects, such as £176,000 from the National Endowment for Science, Technology and the Arts for Science Year, in which it is a partner.⁷¹ **We are not clear why some of the British Association’s government funding is routed through the Royal Society. We recommend that, in the interests of clarity, the OST should give funding directly to the British Association.**

The Royal Institution of Great Britain

53. The Royal Institution of Great Britain has been in existence for over 200 years. It was founded “to diffuse science for the common purposes of life”. In the last three years the Royal Institution has increased the number of events, widened its membership and improved its media relations in order to counter its previous image of an elite organisation. It does not receive any government funding. It does receive £94,000 from the Royal Society for its Events for Schools programme, which comes from the Royal Society’s public communication budget.⁷²

Learned societies

54. Many learned societies see public communication of science as the most important part of their work. Many of the submissions we receive give details of education and media programmes –

- The Royal Astronomical Society has two press officers, runs a series of competitions for school and university students and has a ‘young scientists’ programme.⁷³
- The Royal Society of Chemistry spends £1 million per year supporting the teaching of chemistry in schools, runs a biennial Chemistry Week and runs a national Chemistry Landmarks programme, celebrating historical chemical events.⁷⁴

⁶⁹ <http://www.raeng.org.uk>

⁷⁰ See volume II, appendix 2

⁷¹ *Ibid.*

⁷² See volume II, appendix 35

⁷³ See volume II, appendix 33

⁷⁴ See volume II, appendix 41

- The Institution of Electrical Engineers (IEE) tours annually with its Faraday Lecture, a multi-media presentation aimed at 14-16 year olds. It also holds a Christmas Lecture each year, and runs several competitions such as the PAWS (Public Awareness of Science) Drama Awards and the Today's Engineers Painting Competition for primary school pupils.⁷⁵

Most of the work done by learned societies is funded out of their own budgets, with occasional one-off project grants from the Research Councils. This work often goes unrecognised by Government and the wider scientific community. **Those learned societies which carry out public communication work are to be commended for what they undertake with such limited funding.**

Copus

History

55. In 1985 a Royal Society report, *Public Understanding of Science*, recommended that greater efforts be made by the scientific community to increase scientific understanding in the community and stated "it is clearly a part of each scientist's professional responsibility to promote the public understanding of science".⁷⁶ A joint committee of the Royal Society, BA and Royal Institution was formed, in response to the recommendations of that Report. It was then called the Committee on the Public Understanding of Science, abbreviated to COPUS. It did not at first have permanent staff but drew on the resources of the three founding organisations. It was run by a Council which met three times a year. COPUS' activities originally consisted of sharing best practice and research on public communication, and networking and consulting with interested parties.

56. In 1998, Dame Bridget Ogilvie became Chair of COPUS and Lord Sainsbury, Minister for Science, invited the COPUS Council to review its role. He thought that it would be more valuable as a strategic organisation for science communication, co-ordinating the ever increasing activities carried out by other bodies. The House of Lords Science and Technology Committee *Science and Society* Report endorsed this approach and approved Dame Bridget's plans (as reported to it) for creating this "umbrella" organisation. The Lords Committee recommended that "the OST should give favourable consideration to any reasonable bid from COPUS for direct support".⁷⁷

Status and finance

57. Consultation was carried out among interested bodies and an independent review was carried out. Its findings are known as the Jamieson Report. A new Council was formed in 2001 and the name of the body was changed to Copus; no longer an acronym, reflecting the move away from the slightly patronising concept of 'public understanding'. It acquired two permanent staff. Copus remains a committee of the Royal Society. The Executive Secretary of the Royal Society remains its accounting officer. Its funding comes through the Royal Society in two streams: a hypothecated sum from OST for Copus grants and a sum from the public communication allocation in the Royal Society's grant-in-aid. The hypothecated funds amount to £272,960 and the Royal Society's general grant-in-aid for 2001-02 includes £210,000 towards the Copus Grants Programme and Copus activities. Copus grants, the majority of the expenditure, are administered by the Royal Society's

⁷⁵ See volume II, appendix 22

⁷⁶ *Science and Society*, Third Report of the House of Lords Science and Technology Committee, Session 1999-2000, HL 38, para 1.17

⁷⁷ *Ibid.*

Copus Grants Committee which is paradoxically not controlled by Copus Council. Mr Stephen Cox, Executive Secretary of the Royal Society, described Copus Council's role as "to oversee the work of Copus and to prepare, produce and provide a new direction".⁷⁸ Copus is housed rent-free in the Royal Society's accommodation in Carlton House Terrace.

Problems

58. In April 2002 Dame Bridget Ogilvie announced her resignation as Chair of Copus with effect from the end of June. Her resignation letter was widely circulated; in it, she stated –

"Although the brand name Copus is formally "owned" by the Royal Society, the Royal Institution and the British Association, in practice it is totally controlled by the Royal Society. I as Chairman and the staff cannot make anything happen in Copus without the agreement and involvement of Royal Society staff/honorary officers. I have done everything I can to move things on and find a new niche for Copus as the national strategic focus for science communication activities. I still believe an organisation of this type would be valuable, but it is clear that it will not happen as a new role for Copus as currently controlled by the Royal Society".⁷⁹

In evidence she told us "I think that if you have an umbrella body then it has to be a gathering of equals and has to be seen as independent of any one body".⁸⁰ We were surprised to hear the apparent lack of autonomy given to Dame Bridget as Chair of Copus. She told us that in regard to the budget, the Royal Society had "complete control. I have never seen a real budget".⁸¹

59. In contrast to this statement, Mr Stephen Cox, Executive Secretary of the Royal Society, told us afterwards that "in the business plan that was present at the Copus Council in May [2002], very clear financial details were provided then".⁸² The minutes of that Copus Council meeting include Dame Bridget's resignation, stating her view that "the delay by the Royal Society in implementing the revised remit of Copus, including the arrival of the draft business plan only one week before this meeting, left her with little option but to step down as Chairman from the end of June".⁸³ When asked about the availability of financial papers to Dame Bridget, Mr Cox said "routinely she was able to see anything she wished. She rarely asked, I have to say".⁸⁴ In writing, after this session, Dame Bridget told us "the only documents I have seen are a scratch paper tabled at the Council meeting last May, and the draft budget for the so-called business plan produced by the Royal Society just before the Council meeting in May 2002".⁸⁵ Clearly there are two different interpretations of the same events.

60. The issue of Copus' independence from the Royal Society was discussed in oral evidence. Professor Ian Halliday, a member of Copus Council, told us "the Minister [Lord Sainsbury] has made, I believe, a very strong statement that he would like this independent strategic view from Copus".⁸⁶ The OST told us "we believe that Copus needs independence, a constitution and clear decision-making mechanisms".⁸⁷ We asked about

⁷⁸ Q 275

⁷⁹ Unprinted

⁸⁰ Q 221

⁸¹ Q 227

⁸² Q 284

⁸³ Minutes of Copus Council, Friday 17 May 2002: unprinted

⁸⁴ Q 297

⁸⁵ See volume II, appendix 28

⁸⁶ Q 236

⁸⁷ See volume II, appendix 29

the possibility of Copus receiving its funding directly from OST. Dame Bridget said “I had many discussions with OST because it shared my frustration but they kept saying they had to have the accounting officer applying for the money”.⁸⁸ The Jamieson Report recommended that Copus be rehoused and Copus Council minutes from January 2002 state “Copus Chairman agreed to explore the feasibility of Copus moving to South Kensington as part of the Dana Centre redevelopment”, but there did not appear to be any current plans for relocation.⁸⁹

61. There is clearly a great deal of confusion and ill will regarding the recent developments within Copus. We sympathise with Dame Bridget’s frustration at the lack of progress made in carrying out reforms which she understood to have been agreed. If Copus’ business plan was indeed produced only a week before the Council met to discuss it, then this demonstrates either a lack of co-operation on the part of the Royal Society or disorganisation. Copus has been active for over 15 years and its reform appeared to help it on to a new stage. We are disappointed that this has not happened as it should. We are also disturbed at the impression given that the Royal Society has not helped Copus towards independence, although we accept that the review was perhaps too ambitious to accomplish within two years. We suspect this is the result of institutional inertia rather than malevolence, though the Royal Society may not be willing to relinquish control to the necessary degree. The OST has told us of its impatience with the situation.⁹⁰ If that is the case we cannot see why it has not pressed more heavily on the Royal Society to carry out reforms.

62. **The Copus episode is revealing of a gulf in perception.** The Royal Society saw it as an unwarranted and unjustified attack on them, whereas outsiders saw it as a symptom of a slow-moving and somewhat old-fashioned attitude to institutional working. The Royal Institution, another of the founding bodies, told us “more extensive communication could maximise benefits not just to the science communication organisations themselves, but to the nation at large. Since it is already in place, Copus could take up this challenge but alternative ideas should also be explored”.⁹¹ **A strategic body is badly needed in the field of public communication of science. Copus, if reformed as has been suggested by Lord Sainsbury, the Jamieson Report and the House of Lords Science and Technology Committee, would serve this purpose admirably. We call on the OST to make every effort to ensure that this happens. We believe that Copus should be made entirely independent of the Royal Society, the Royal Institution and the British Association, receive its funding directly from OST and that it should find new premises as soon as possible.**

Funding

63. Government grants are given out to so many organisations, it is hard to tell exactly what is spent where. We have considered whether there are too many organisations or excessive duplication, or whether centralising the funds would stifle smaller projects on a local level. Learned societies do good work but there is a marked lack of co-ordination and real investment in these projects. There is a limit to what each small group can achieve. Dr Briggs of the BA told us “variety is a good thing. You can get too many small initiatives but a range of ways of tackling this problem is not to be spurned”.⁹² **We believe that the system of grants to learned societies for their public understanding work should be formalised, in order both to monitor better the total spending on public**

⁸⁸ Q 240

⁸⁹ Copus Council minutes 17 January 2002: unprinted

⁹⁰ See volume II, appendix 29

⁹¹ See volume II, appendix 35

⁹² Q 261

communication projects and to ensure that each society has an opportunity to benefit from these funds. We recommend that OST create a central fund for public understanding work administered by a single organisation, to which learned societies could bid for funding for specific projects.

Evaluation

64. Little effort has been devoted to evaluating the effects of the public understanding work carried out across the UK. While this is clearly a difficult task, since concrete and measurable outcomes are often lacking, the millions of pounds of public money spent on these activities justify scrutiny. This is particularly true of the large grants given to the Royal Society, the British Association for the Advancement of Science and the Research Councils. **We recommend that OST, or a body set up to co-ordinate public communication work, assess the work carried out by those to whom the Government gives funding, to identify the success stories and the outright failures, and to apply the lessons learned to future activities.**

SCIENTIFIC ADVICE TO GOVERNMENT

The Royal Society

65. The Royal Society has provided scientific advice to Government for centuries. The Society told us “in 1772, during the height of the American War of Independence, the Government asked the Society for advice about the best form of lightning conductors to protect buildings and the stores of gunpowder magazines”.⁹³ The Royal Society provides advice both in response to consultation and proactively; inquiries on major topics such as infectious diseases in livestock have been carried out recently. Inquiries can be lengthy; a report on genetically modified plants took four years to complete, taking oral and written evidence. In the past year, the Royal Society has published ten major policy statements and reports.⁹⁴ Scientific advice should account for £100,000 of the Royal Society’s grant-in-aid in 2002-03.⁹⁵ This is expected to rise to £150,000 in 2003-04, depending on the outcome of the 2002 Comprehensive Spending Review. There are 12 full-time staff in the science advice section. The Royal Society has worked on occasions with other “Academies” – the Royal Academy of Engineering, the British Academy, the Royal Society of Edinburgh and the Academy of Medical Sciences – but told us “the Society tends to tackle policy issues that span more than one field of science, engineering and technology and thus lie beyond the expertise of any individual learned society or professional association”.⁹⁶

The Royal Academy of Engineering

66. The Royal Academy of Engineering publishes reports and responds to consultations through its secretariat. It has recently published reports on the Millennium Bridge, automatic train protection, R&D for industry, tissue engineering, nuclear energy and IT systems as a target for crime, terrorism and warfare.⁹⁷

Learned societies

Learned societies and Government

67. Our predecessor Committee examined the Government’s scientific advisory system in a series of case study Reports in the last Parliament. The Committee’s end stage Report, *The Scientific Advisory System*, which summed up issues that had run throughout the case studies, said “In our view, the Learned Bodies are an invaluable source of authoritative scientific advice, and it is surprising that Government Departments appear not to consult them as a matter of routine”.⁹⁸ The Institute of Food Science and Technology told us “because of the range of expertise and experience encompassed by Institutes such as IFST they [the Institutes] are in a very strong position to assemble expert panels in order to give objective specialist advice to the Government”.⁹⁹

⁹³ See volume II, appendix 37

⁹⁴ *Ibid.*

⁹⁵ *Ibid.*

⁹⁶ *Ibid.*

⁹⁷ [Http://www.raeng.org.uk](http://www.raeng.org.uk)

⁹⁸ Fourth Report from the Science and Technology Committee, 2000-01, *The Scientific Advisory System* (HC 257), para

37

⁹⁹ See volume II, appendix 19

68. Learned societies are active in the provision of responses to government consultation but admitted to us that they tended to be reactive rather than proactive in their provision of information. We asked Professor McDermid of the British Computer Society if he thought that the Government would have benefited from that Society's expertise on major computing projects. He replied "yes, absolutely".¹⁰⁰ The Institute of Physics told us "the Government and its agencies have, in the past, not made as much use of the experience and expertise which lies within learned societies, as they could or should".¹⁰¹ The UK Life Sciences Committee said "In submissions to the OST on obtaining and using scientific advice across government departments, UKLSC has repeatedly said that it would be very happy to act as a source of advice and information. But it has not been approached."¹⁰² Many others expressed similar views. The Royal Society of Chemistry submitted evidence to the Scientific Advisory System inquiry which suggested that the Government thought of learned societies as interested only in academic and not industrial issues.¹⁰³ Departments commission reports from commercial consultants where expertise might be available in the learned societies. **Government departments make regrettably little use of the expertise of the learned societies, despite repeated offers of assistance from those organisations. We recommend that the Government consider using learned societies instead of commercial consultancies if they could carry out research in the same areas.**

69. The Institute of Biology stated "We would wish to produce proactive briefing papers. We suggest that government departments and agencies invite organisations such as IoB to tender for such activities".¹⁰⁴ We note this suggestion with interest. We are wary of recommending a tendering process which could lead to smaller, poorer societies missing out because their bids are not as glossy or they are unable to offer advice as cheaply as larger societies. However, we agree that societies themselves should judge when they feel they could add expertise to government policy. We also think it right that those societies who are able to provide scientific advice and are interested in doing so should receive appropriate financial reward for their efforts. In its Report on the Scientific Advisory System, our predecessor Committee suggested that the Government might commission reports from the learned societies where appropriate.¹⁰⁵ In its Response, the Government agreed that there was scope for working more closely with the learned societies and, undertook to explore with them whether they would welcome commissions along the lines the Committee suggested.¹⁰⁶ **We repeat the recommendation made in our predecessor Committee's Report on the Scientific Advisory System that Government look more towards the learned societies when soliciting expert scientific advice. We think it right that all learned societies have equal opportunity to provide that advice and that there be financial compensation for those who produce substantial and extensive pieces of advice. Learned societies should be able to bid for funding to provide scientific advice work they feel competent to do.**

Learned societies and the Royal Society

70. Some of the learned societies felt that they should be consulted by the Royal Society when there was an inquiry into aspects of policy in their areas. The Royal Society admitted in its submission that it did not consult other learned societies.¹⁰⁷ It does, however, include

¹⁰⁰ Q 161

¹⁰¹ See volume II, appendix 20

¹⁰² See volume II, appendix 46

¹⁰³ HC 257, para 36

¹⁰⁴ See volume II, appendix 18

¹⁰⁵ HC 257, para 40.

¹⁰⁶ First Special Report from the Science and Technology Committee, 2001-02, *The Government's Response to the Science and Technology Committee's Fourth Report, Session 2000-01, The Scientific Advisory System*, HC 360, paragraph 35.

¹⁰⁷ See volume II, appendix 37

non-Fellows on its working groups; that on the health effects of non-depleted uranium had a working group of 11, of whom only two were Fellows.¹⁰⁸ Criticism came from the societies who felt that their subjects were under-represented in the Royal Society. The British Computer Society felt that “the Royal Society and the Royal Academy of Engineering are not in a position to offer adequately informed advice to the Government in key areas”.¹⁰⁹ Some government agencies do realise this issue. The Environment Agency said “it should be recognised that the science elite represented in the Royal Society are not always as well integrated as they might be into the industrial cutting edge at which science is being applied in practice”.¹¹⁰ The issue of under-representation of certain sciences in the Fellowship of the Royal Society is further addressed in paragraph 93 below. **We believe that the Royal Society’s confidence in its all-round expertise may be misplaced. We urge the Royal Society to consider carefully when producing policy and advice whether it really has adequate in-house expertise in all fields of scientific knowledge, and to consult other learned societies as a matter of course.**

¹⁰⁸ See volume II, appendix 37

¹⁰⁹ See volume II, appendix 5

¹¹⁰ See volume II, appendix 13

ACCOMMODATION

The Royal Society

71. Two of the UK's academies which are concerned with science, the Royal Society and the British Academy, benefit from accommodation paid for by the Government and the others, the Royal Academy of Engineering and the recently formed Academy of Medical Sciences, do not. The Royal Society was first given rent-free accommodation in 1780 by George III. This was in Somerset House, which also accommodated several other societies. Over the next 80 years, the Royal Society expanded and eventually requested larger premises. After a lengthy search, the Royal Society moved in 1857, again with others, into Burlington House on Piccadilly. The Royal Society grew larger still, especially its library, and other societies moved into Burlington House which led to overcrowding. In 1967 the Royal Society moved to 6-9 Carlton House Terrace where it remains. A 99-year lease was signed on the property by the then Department of Transport and an assurance made that the rent would be covered by the Government for the length of the lease. Carlton House Terrace is Crown Estate property. Today the rent is paid by the Royal Society out of grant-in-aid provided for that purpose. In 2001-02, the rent was £306,000. The Royal Society received £230,000 for external decoration in its grant-in-aid in 2001-02. It has also recently finished an extensive redevelopment of its lobby which was funded entirely from private sources.

72. Mr Cox of the Royal Society told us "Carlton House Terrace is not just for the Royal Society. 1,800 meetings a year are held at the Royal Society. We are a facility for the whole of the scientific community".¹¹¹ He also said "The Royal Society is the UK Academy of Sciences, it represents the UK not only in an intellectual way but in a physical sense as well. It is right, proper and appropriate that the Royal Society should have premises so that it can undertake this representational role".¹¹² The Society charges for the use of its rooms; there are commercial and charitable rates. Charitable charges, which would apply to most if not all of the learned societies who use it, start at £85 for half a day in a committee room and rise to £805 for the hire of the Wellcome Trust Lecture Hall for a day, compared to the commercial rate of £1,425.¹¹³ **We acknowledge that the Royal Society's premises in Carlton House Terrace provide facilities for other learned societies. Given that these societies may not have prestigious offices of their own or large budgets, we hope that the Royal Society will provide these facilities at cost price to learned societies.**

73. The Royal Society occupies a prime piece of real estate in an expensive part of London. We accept that it is of value to the scientific community to have a focal point in the capital and that the facilities offered by the Royal Society are of a high standard and used by many. **As the UK's 'academy of sciences', the Royal Society should have a prestigious site in the centre of London and we believe that government funding is appropriate.**

The Royal Academy of Engineering and other academies

74. The Royal Academy of Engineering has occupied its current premises in 29 Great Peter Street, in Westminster, since 1994. It pays the rent from its private income, and does not receive any subsidy for doing so. The British Academy receives grant-in-aid from the Department for Education and Skills to the value of £265,000 for the rent of 10 Carlton

¹¹¹ Q 27

¹¹² Q 32

¹¹³ [Http://www.royalsoc.ac.uk](http://www.royalsoc.ac.uk)

House Terrace. A further £90,000 is met by the other occupants of the building, and £100,000 is raised from charges to external bodies for use of facilities.¹¹⁴ The Wellcome Trust made a grant of £1.8 million to the British Academy and the Royal Society for refurbishment of their premises, £1 million of which went to the British Academy with the proviso that the Academy of Medical Sciences be given rent-free accommodation for five years at 10 Carlton House Terrace. This agreement ends in 2003 and the Academy of Medical Sciences will then pay rent to the British Academy.¹¹⁵

Burlington House

75. The Royal Society of Chemistry, the Geological Society, the Linnean Society, the Royal Astronomical Society and the Society of Antiquaries all occupy accommodation in Burlington House. They benefit from an agreement made with the Government, when they moved from Somerset House in the nineteenth century, that they would be housed rent-free. The then Department for Transport, Local Government and the Regions (DTLR) valued these premises for us in 2002.

Table 10: Estimated rental values of premises in Burlington House

Learned Society	Estimated Rental Value £ 000
Royal Society of Chemistry	441
Geological Society	315
Linnean Society	164
Royal Astronomical Society (including the British Astronomical Association)	176
Society of Antiquaries	221
Total	1,317

The Burlington House societies pay no rent but bear the running and refurbishment costs of their accommodation. The Royal Society of Chemistry estimate that they have spent £600,000 in the last three years on Burlington House on the fabric of the building over and above running costs.¹¹⁶ In oral evidence, Dr Giachardi told us “I cannot answer the questions [as to] what the rental value would be but we have spent a lot of our own money restoring the fabric ... to the exacting standards of English Heritage”.¹¹⁷

76. The Burlington House agreement is subject to a legal dispute between the societies and the Government. The Crown owns the freehold of Burlington House and until May 2002 DTLR was responsible as the holding Department. This responsibility has now passed to the Office of the Deputy Prime Minister. DTLR’s memorandum states that legal advice obtained by the learned societies suggests that they might have a freehold interest in Burlington House and/or be able to stay in the property on a rent free basis. The Department does not accept this, based on its own legal advice.¹¹⁸ It is preparing its draft legal case for submission to the learned societies.

¹¹⁴ See volume II, appendix 3

¹¹⁵ *Ibid.*

¹¹⁶ See volume II, appendix 41

¹¹⁷ Q 199

¹¹⁸ See volume II, appendix 45

77. We were interested to note that several of the Burlington House societies told us that they were opposed to the idea of government funding on the grounds of preserving their independence. The Royal Society of Chemistry wrote in its memorandum –

“many bodies, including the RSC, act in an advisory capacity to government and view this as a core activity. It is essential that this advice is independent and seen to be so. Hence it is necessary that the bodies themselves, and any co-ordinating associations that act on their behalf should be financially independent of government”.¹¹⁹

We asked the RSC about this in oral evidence and Dr David Giachardi, Chief Executive, told us that they worried that their advice would be considered less reliable by the media if they were to receive government funds.¹²⁰ He thought however that the “indirect” funding they received “has been around for so long that I do not think it does [compromise the RSC’s independence]”.¹²¹ **We would like to see all Burlington House societies acknowledge that subsidised accommodation constitutes a form of government funding.**

78. We do not intend to comment on the Burlington House agreement, since it is subject to legal dispute. The Burlington House societies benefit from a historical agreement and it is by chance that this is with the Government and not some private organisation. Certainly withdrawing the arrangement would impact on the good work that the Burlington House societies are able to do. This would be a net loss for science.

The British Association for the Advancement of Science

79. The BA was also based in Burlington House until 1958 and moved out to obtain more space. It also benefited from the “Burlington House agreement” and was offered alternative rent-free accommodation. Since 1972 it has occupied space in 23 Savile Row which is owned by English Heritage. However the BA is now set to move to the new Wellcome Wolfson Building at the Science Museum. Dr Roland Jackson, incoming Chief Executive of the BA, told us “the BA is effectively moving out of government funded rent-free accommodation into accommodation that is funded by a separate body”.¹²² A condition of the Wellcome Trust grant towards the cost of the Science Museum building was that the BA should have one floor of the new wing at a peppercorn rent for forty years.

¹¹⁹ See volume II, appendix 41

¹²⁰ Q 202

¹²¹ Q 201

¹²² Q 253

THE FELLOWSHIP OF THE ROYAL SOCIETY AND ROYAL ACADEMY OF ENGINEERING

80. The purpose of this inquiry has been to examine the funding received from the Government by the scientific learned bodies. These societies are not government bodies and it is not for us to say how they should regulate their own affairs but it is reasonable to expect bodies in receipt of large amounts of public money to submit to public scrutiny. We would not want to see public funding going to bodies who do not demonstrate high levels of fairness and transparency. Given the accusations of elitism, exclusivity and discrimination on the basis of gender levelled against them, it seemed right to include in our inquiry some consideration of the Fellowships of the Royal Society and Royal Academy of Engineering. The membership of the Fellowship and its distribution in universities is likely to have some influence on the outcomes of the funding schemes that the bodies operate with public money.

81. Both bodies have been open and helpful in providing us with details of their Fellowships and election procedures. In evidence to us, Lord May, President of the Royal Society, said “you are constituted to ask us questions about the money, you are not constituted to ask us questions about how we elect people but I welcome that too because it is good to talk about it”.¹²³ It is presumptuous of Lord May to seek to interpret our terms of reference for us, but we are pleased that the Royal Society is coming to appreciate the benefit of openness. We note that in 1830, Charles Babbage wrote of the Royal Society that it “has been managed by a coterie... [whose members have] opposed all improvements in the Society, all change in the mode of management; and have maintained that all those who wished for alteration were facetious”.¹²⁴ We are delighted to see that things are beginning to change.

Application process

The Royal Society

82. The Royal Society had 1,203 Fellows in April 2002.¹²⁵ Since then it has announced new Fellows for 2002. The Royal Society elects a maximum of 42 Fellows each year, who can be British, Irish or Commonwealth nationals, or residing in those countries. There are also Foreign Members, of whom up to six are elected each year. Staff cannot be Fellows. Election to the Fellowship is for life and there is an annual fee. Each nomination must be supported by two existing Fellows. These nominations then go before one of ten subject committees. Each candidate is considered on the basis of their CV, research record and a selection of papers. Independent references are sought for those who are short-listed. The Royal Society Council, elected by the Fellows, then consider the short-list and make the final decision. Candidates can remain on the nomination list for seven years. 60% of current Fellows are over 65 years old.

83. The Royal Society is conscious of criticism of its election procedures and has modified them in recent years to try and mitigate some of these concerns. The number of Fellows required to support a nomination was reduced from six to two, as it was felt this would help those who were less likely to know a number of Fellows to support their nomination, such as those in minority subjects or from institutions with few Fellows. Lord May, the President, has contacted Vice-Chancellors and the Research Councils asking them to provide names for which the Society will then find a nominator and seconder. The Royal

¹²³ Q 11

¹²⁴ *Reflections on the Decline of Sciences in England and on some of its Causes*, Charles Babbage, 1830, p 141

¹²⁵ See volume II, appendix 37

Society is also keen to broaden election criteria to include those who have contributed to science in areas other than academia.

The Royal Academy of Engineering

84. Candidates for Fellowships at the Royal Academy of Engineering are proposed by existing Fellows. All applications go before a Membership Committee and are voted on at the Annual General Meeting. All Fellows can vote. There is a restriction of 60 Fellows a year, and only British citizens are eligible. There were 1,270 Fellows in April 2002; 49 new Fellows have since been elected. Unlike in the Royal Society, Fellows are often elected because of their contributions to engineering, rather than their academic achievement, and thus it has a wider representation from outside academia. The Royal Academy of Engineering has more Fellows than the Royal Society, despite its relative youth. Sir Alec Broers, President of the Royal Academy of Engineering, told us “we cover everything from biotechnology to pure computer software to civil engineering; there is an incredible range. We have this very broad spectrum and to have representation from all of those areas we have found this is the fellowship number we need”.¹²⁶ In April 2002, only 34 Fellows were under 50, roughly 3.7%. In July 2002 the Royal Academy of Engineering elected its two youngest ever fellows, aged 36 and 37. Both are women.

85. The Royal Academy of Engineering has also made moves to improve its nomination methods, establishing a group within the Fellowship to identify areas in which it was under-represented and to proactively encourage nominations. Mr Jon Burch, Executive Secretary of the Academy, told us “it is interesting to note that eight of the 49 fellows up for nomination at the Annual General Meeting this year came from that group”.¹²⁷ The Academy is also in discussion with the Electoral Reform Society about its method for electing its Council. Professor Broers said “both my predecessor and myself were very keen to make our elections to Council, etc, more transparent”.¹²⁸ It did not extend this scrutiny to the election of Fellows.

86. We are pleased to see that both bodies are thinking about improvements to their selection processes to ensure a representative Fellowship and clear lines of applications. **The Royal Society and Royal Academy of Engineering should ensure that their selection procedures are fair and transparent, so as to ensure good representation in their Fellowships and confidence that they are not an “old boys’ network”.**

Gender

The Royal Society

87. In April 2002, 44 Fellows of the Royal Society were women, which is 3.7% of the Fellowship. Given the age range of the Fellowship, this overall figure does not fairly represent the pattern of election in recent years. Of those Fellows under 60, 4.5% are women. Of the candidates for nomination in 2001-02, 11.5% were female. The Royal Society’s Fellowship should, if it is to be representative of the scientific community, have a female Fellowship which mirrors the number of women at the highest levels of academia. The Higher Education Statistics Agency estimated in 2000 that 8.9% of full-time and part-time professors in science subjects in UK universities were women. The Royal Society pointed out that if nursing and paramedical studies, which have more than 50% female professors, are excluded, the proportion falls to 7.6%. It does not seem evident to us that

¹²⁶ Q 93
¹²⁷ Q 94
¹²⁸ Q 95

these disciplines should be excluded. Since 1999, 7.9% of the Fellows elected have been female.¹²⁹

The Royal Academy of Engineering

88. The number of female Fellows in the Royal Academy of Engineering is even lower. Only 15 of the 1,270 Fellows are women, just over 1%.¹³⁰ There are very few women at a high level in engineering. Of the 34 Fellows under 50, 20% are women. The Royal Academy of Engineering tell us that only 14% of current engineering undergraduates are female.¹³¹ The Royal Academy of Engineering has several programmes aimed at encouraging people into engineering which have relatively high female participation, and in the latest round of post-doctoral research fellowship applications, 20% of applicants and 2 of the 5 successful awardees were women.¹³²

89. We do not expect either society to appoint women to their Fellowship if they are not there to be appointed nor that they should move to any sort of quota. We recognise that both bodies are aware of the lack of women in their fields and making efforts to encourage women and remove barriers to their success in science. We note that Lord May told us “once women get into the candidate pool they do slightly better than men”.¹³³ Though the low level of female Fellows is disappointing, we have found no evidence of discrimination. **We do not think that the present low level of female Fellows in the Royal Society and Royal Academy of Engineering represents any discrimination against women. We urge both bodies to extend their efforts to encourage women to continue with scientific research and engineering careers.**

Ethnicity

90. The Royal Society and the Royal Academy of Engineering do not carry out any ethnic monitoring for their Fellowships. This is not the case for paid positions or awards; applications forms include clear sections on ethnicity and other equal opportunities considerations. When we asked Lord May about the lack of ethnic monitoring for Royal Society Fellows, he replied “I could tell you the statistics and particular people. It is not that we are doing it through any sense of obligation, as it were, these people are ace people, they just happen to be Malaysian, Indian and other such things”.¹³⁴ Professor Higgins added “We do, of course, know how many Indian Fellows we have because they are part of the Commonwealth. We actually do rather well on numbers of Indians”.¹³⁵ **We are concerned at the Royal Society’s apparent confusion between ethnicity and nationality. It would appear to demonstrate a lack of awareness of the need to ensure that scientists from ethnic minorities are not excluded from organisations such as the Royal Society, and suggests a head in the sand attitude to the current political climate. We are not in a position to comment on the number of Fellows from ethnic minorities, as there are no figures available. We understand from the Commission for Racial Equality that it is against good practice not to carry out ethnic monitoring at all levels, and as the Royal Society and Royal Academy of Engineering are in receipt of public funds, they are laying themselves open to criticism if they continue not to monitor the ethnicity of their Fellows.**

¹²⁹ See volume II, appendix 37

¹³⁰ Numbers in April 2002

¹³¹ See volume II, appendix 31

¹³² *Ibid.*

¹³³ Q 60

¹³⁴ Q 68

¹³⁵ Q 66

91. The Higher Education Statistics Agency has estimated that only around 3% of professors in science subjects classify themselves as having ethnicity other than white.¹³⁶ Neither the Royal Society nor the Royal Academy of Engineering have programmes designed specifically to increase the number of ethnic minority participants in science. We note that the Royal Society is considering introducing a focus on scientists from the ethnic minorities as role models into its Acclaim project at Sheffield Hallam University. Such a development would be welcome. **The Royal Society and the Royal Academy of Engineering should think strategically about programmes to increase ethnic minority participation in science.**

Institutional bias

92. The Universities of Oxford, Cambridge and London form what is known in academic circles as the “Golden Triangle”. 46.3% of UK-based Fellows of the Royal Society work in the Golden Triangle. The Royal Society told us “the Society believes that the distribution of Fellows reflects concentrations of world class researchers at the Universities of Oxford, Cambridge and the colleges of London. For instance, of 17 Nobel Laureates in Chemistry, Physics and Physiology or Medicine in the UK, seven (41.2%) were or are based at these three institutions”.¹³⁷ We recognise that these universities attract high quality researchers. We are not in a position to examine the validity of the election of Fellows of these universities or to assess the quality of researchers in other institutions. Efforts to improve the distribution of the Fellowship will be wasted if it is perceived to discriminate in favour of Cambridge, Oxford and London at URF level, or if those awards also become thought of as riding on “who you know”. **We commend the Royal Society’s effort to encourage Fellowship nominations from under-represented institutions but urge it to guard against unquestioning complacency that the “Golden Triangle” really holds all the best academics in the UK.**

Disciplines

The Royal Society

93. We heard criticisms from some learned societies that the Royal Society did not represent the entire scientific community adequately. This was felt to be an impediment to the provision of high quality scientific advice, as mentioned in paragraph 70. The British Computer Society told us “we are very concerned about the poor representation of modern areas of science”.¹³⁸ They estimated the number of Fellows with computing as their primary discipline as 20, and mentioned that there was no computing ‘panel’ in the Royal Society. They concluded “we are concerned that there is not enough ‘critical mass’ to rectify the under-representation of computing by natural evolution in a fast changing world”.¹³⁹ The Institute of Food Science and Technology said “the Society is not representative of British science and technology as a whole as it fails to represent the very broad spectrum of science and technology within the UK”.¹⁴⁰ Professor Charles M Goldie, Dean of Mathematical Sciences at the University of Sussex, wrote –

“The Royal Society, which has long had few Fellows from the mathematical sciences, has in recent years drifted into almost total neglect of the area within that I know and belong to: statistics and probability. That is, the self-replicating nature of the

¹³⁶ See volume II, appendix 37

¹³⁷ *Ibid.*

¹³⁸ See volume II, appendix 5

¹³⁹ *Ibid.*

¹⁴⁰ See volume II, appendix 19

Fellowship has been allowed to drift into a state where the natural tendency of Fellows to favour their own fields has led to a serious distortion and imbalance”.¹⁴¹

He estimated that there had been only two UK-based Fellows elected in the field of statistics since 1990.

94. We asked the Royal Society about the British Computer Society’s comments. Lord May said that he was worried whether the Royal Society was adequately representing newly emerging disciplines or people in newly emerging disciplines who were in places that were not centres of science more generally.¹⁴² He told us that candidates who came before a sectional committee on which no one felt expert enough to evaluate them were automatically short-listed and that each year nominations were reviewed to try and assess where candidates might be being overlooked. He told us “one of the sectional committees, interestingly, is essentially an IT, computing panel”.¹⁴³ He later defined this as “pure and applied mathematics and computer science, but it also embraces statistics. Other aspects of IT would be picked up in engineering”.¹⁴⁴ The Royal Society later estimated that they had 50 Fellows in computer science.¹⁴⁵

95. Professor McDermid of the British Computer Society said “our concern is that there is a broad spectrum of activities within computing which is not perhaps well matched to these two particular committees. Our feeling is it does not cover the whole spectrum very evenly or very adequately”.¹⁴⁶ He felt that perhaps the Royal Society was including people who apply computing in their research.¹⁴⁷ In further written information the British Computer Society said “even getting up to 20 has required us to be rather generous in the definition of the scope of computing”.¹⁴⁸ It also said –

“we note that the Royal Society of Edinburgh realised some years ago that it had poor representation in a number of disciplines, including computing, and found it necessary to introduce a new committee in its own right. While it not for us to say how the Royal Society should manage its internal affairs, it is hard to see how the situation will improve whilst it assesses computing from the standpoint of traditional engineering or mathematics”.¹⁴⁹

We agree with this statement. We also worry that the scientific expertise of the Royal Society is compromised if new disciplines are not monitored and encouraged. **We are glad to note that the Royal Society is making positive efforts to improve representation across its Fellowship. We believe however that more could be done in areas which have specific cause for concern. It would be a welcome signal of change if the Royal Society were to establish a committee specifically for computing science.**

The Royal Academy of Engineering

96. The British Computer Society levelled similar criticisms at the Royal Academy of Engineering. It estimated that 29 Fellows of the Royal Academy of Engineering were also Members of the BCS.¹⁵⁰ Other Fellows were also involved in computing. The Royal

¹⁴¹ See volume II, appendix 16

¹⁴² Q 2

¹⁴³ Q 5

¹⁴⁴ Q 8

¹⁴⁵ See volume II, appendix 39

¹⁴⁶ Q 135

¹⁴⁷ Q 136

¹⁴⁸ See volume II, appendix 6

¹⁴⁹ *Ibid.*

¹⁵⁰ See volume II, appendix 5

Academy's efforts to address the issue by soliciting nominations from the BCS were held to be a positive step, but the BCS had reservations about the ability of the Royal Academy to provide effective scientific advice given this under-representation. **The Royal Academy of Engineering should represent engineers in all areas. Definitions of what constitutes engineering are changing and this should be taken into account when electing Fellows. We commend the Royal Academy of Engineering for making efforts to increase the number of Fellows in under-represented areas, and urge it to ensure that it achieves representative levels of new disciplines in its Fellowship.**

CONCLUSION

97. The Royal Society and the Royal Academy of Engineering both achieve a great deal with the funding they receive from OST and other sources. Their awards and fellowships provide valuable alternatives to those provided by the Research Councils. However, it would benefit both organisations to make their processes more transparent and to make greater efforts to become more inclusive. Academies of excellence are useful, provided that they really represent the best in their fields and not those with the best connections. It is imperative that the Royal Society and the Royal Academy of Engineering be able to remain above accusations of insularity and elitism if they are to maintain their dignity and good name in the scientific community. Neither society should forget that it is a recipient of government funding and that scrutiny is therefore justified.

98. We have considered the work done by other learned societies across the UK and found them impressive. They are able to sustain a high level of activity on often limited funding, little of which can be attributed to Government, and we praise their efforts. We have concentrated in this Report on those who receive government funding. Under the present system, some societies receive a great deal of money and others none, or almost none. Although we recognise that some societies reject the idea of government funding, seeing it as a threat to their independence, we also know that others would welcome grants towards their activities. The Royal Society and the Royal Academy of Engineering have not found their independence compromised by receipt of government funding. We know many societies already benefit from one-off payments for specific projects. **While it would be unrealistic to suggest that the Government fund the work of all scientific learned societies, we have suggested that a mechanism be established through which learned societies could have access to centralised government funding. We recommend that OST evaluate the work done by these societies with a view to identifying and funding some core activities.**

99. Considerable expertise rests in the scientific learned societies and we do not think that Government makes sufficient use of their knowledge. In this Report we recommend that the Government make more effort to commission research from scientific learned societies and to meet the costs of research from those societies from whom they commission substantial pieces of work. **Raising the profile of the scientific learned societies can only be a positive thing for the enthusiasm for, and knowledge of, science in the general public. Government should make every effort to assist.**

100. Although we have found some areas for concern, we are impressed by much of what has been achieved, not only by the Royal Society and the Royal Academy of Engineering but by the UK's learned societies as a whole. Some efforts are still too piecemeal, particularly in the public communication of science, and would benefit from a strategic approach. **We recommend that OST give thought to what it would like the learned societies it funds to achieve and how best to ensure this. Not enough attention has been paid to the publicly-funded activities of these bodies. OST should ensure that they are held properly accountable. Learned societies receive funds not just from the OST but also from other Departments. The Government needs to think strategically about the money it is giving out to learned societies through its various funding streams in the form of one-off grants and whether this money could be used more efficiently.**

LIST OF RECOMMENDATIONS AND CONCLUSIONS

Private funding

1. We urge the Royal Society to investigate more streams of funding, using its prestige and grant-in-aid as leverage (paragraph 10).

International representation

2. We consider that those learned societies who have accepted responsibility for the membership of these international discipline-based unions should have their proportion of the UK subscription met from OST funds, just as the Royal Society's share is paid from its grant-in-aid (paragraph 16).

Independence

3. The majority of learned societies were happy to remain largely privately funded, fearing that government funding might interfere with their independence (paragraph 28).
4. We do not think that receipt of government funds compromises the independence of those societies which benefit from it (paragraph 28).

Equity of funding

5. The relative age of institutions does not seem a sensible basis for determining their funding. Funding should reflect the work they do (paragraph 29).
6. Government should provide a central fund to which learned societies could bid, but they would need to be prepared to submit financial plans and be aware that such funding would require demonstrable outcomes and accountability (paragraph 31).
7. The present funding of scientific learned societies appears to be haphazard rather than the product of strategic thinking on the part of the OST. The Government must consider how funding could be distributed more effectively and rationally (paragraph 32).

Research fellowships and awards: features

8. We suggest that the Research Councils should consider introducing into their research fellowships those features of the Royal Society and the Royal Academy of Engineering's awards which are seen as praiseworthy, such as extending their fellowships beyond five years on a regular basis and being willing to fund more 'blue skies' thinking. It would also be of benefit if they were to develop a mentoring scheme to support research fellows (paragraph 36).
9. We call upon the Royal Society and the Royal Academy of Engineering to consult academics other than their own Fellows during the peer review process, where there is not sufficient expertise within their own bodies (paragraph 38).

- 10. We urge the Royal Society, the Royal Academy of Engineering and the Research Councils to ensure that all their research fellowships and other awards contain ‘family friendly’ features (paragraph 39).**

Research fellowships and awards: representation

- 11. We recommend that all awarding bodies make an effort to publicise those aspects of their awards which may appeal to female researchers, in an attempt to increase the numbers of female applicants for all research awards. They should undertake a reassessment of selection procedures, in order to identify possible obstacles to the success of female applicants (paragraph 40).**
- 12. We urge the Royal Society to encourage applications for its University Research Fellowships from all institutions (paragraph 41).**
- 13. The Royal Society must ensure that its research awards represent the whole scientific community, without undue weight in any one area (paragraph 42).**

Research fellowships and awards: funding

- 14. We would like to see more effort made by those awarding publicly-funded grants and awards to isolate administration costs in order to identify the cost efficiency of their schemes (paragraph 43).**
- 15. In our view, the government funding of grant and award programmes managed by the Royal Society and the Royal Academy of Engineering should be maintained (paragraph 44).**

Learned societies and research awards

- 16. Most scientific learned societies do not have the administration capability or review processes in place to operate their own research awards. The effort required would divert them from their primary purpose, to serve their scientific communities through support for the discipline and the dissemination of knowledge (paragraph 46).**

British Association

- 17. We are not clear why some of the British Association’s government funding is routed through the Royal Society. We recommend that, in the interests of clarity, the OST should give funding directly to the British Association (paragraph 52).**

Public communication work: learned societies

- 18. Those learned societies which carry out public communication work are to be commended for what they undertake with such limited funding (paragraph 54).**

Copus

19. **The Copus episode is revealing of a gulf in perception [between the Royal Society and outsiders] (paragraph 62).**
20. **A strategic body is badly needed in the field of public communication of science. Copus, if reformed as has been suggested by Lord Sainsbury, the Jamieson Report and the House of Lords Science and Technology Committee, would serve this purpose admirably. We call on the OST to make every effort to ensure that this happens (paragraph 62).**
21. **We believe that Copus should be made entirely independent of the Royal Society, the Royal Institution and the British Association, receive its funding directly from OST and that it should find new premises as soon as possible (paragraph 62).**

Public communication work: funding and strategy

22. **We believe that the system of grants to learned societies for their public understanding work should be formalised, in order both to monitor better the total spending on public communication projects and to ensure that each society has an opportunity to benefit from these funds. We recommend that OST create a central fund for public understanding work administered by a single organisation, to which learned societies could bid for funding for specific projects (paragraph 63).**
23. **We recommend that OST, or a body set up to co-ordinate public communication work, assess the work carried out by those to whom the Government gives funding, to identify the success stories and the outright failures, and to apply the lessons learned to future activities (paragraph 64).**

Scientific advice to Government: learned societies

24. **Government departments make regrettably little use of the expertise of the learned societies, despite repeated offers of assistance from those organisations. We recommend that the Government consider using learned societies instead of commercial consultancies if they could carry out research in the same areas (paragraph 68).**
25. **We repeat the recommendation made in our predecessor Committee's Report on the Scientific Advisory System that Government look more towards the learned societies when soliciting expert scientific advice. We think it right that all learned societies have equal opportunity to provide that advice and that there be financial compensation for those who produce substantial and extensive pieces of advice. Learned societies should be able to bid for funding to provide scientific advice work they feel competent to do (paragraph 69).**

Scientific advice to Government: the Royal Society

- 26. We believe that the Royal Society’s confidence in its all-round expertise may be misplaced. We urge the Royal Society to consider carefully when producing policy and advice whether it really has adequate in-house expertise in all fields of scientific knowledge, and to consult other learned societies as a matter of course (paragraph 70).**

Accommodation: the Royal Society

- 27. We acknowledge that the Royal Society’s premises in Carlton House Terrace provide facilities for other learned societies. Given that these societies may not have prestigious offices of their own or large budgets, we hope that the Royal Society will provide these facilities at cost price to learned societies (paragraph 72).**
- 28. As the UK’s ‘academy of sciences’, the Royal Society should have a prestigious site in the centre of London and we believe that government funding is appropriate (paragraph 73).**

Accommodation: Burlington House

- 29. We would like to see all Burlington House societies acknowledge that subsidised accommodation constitutes a form of government funding (paragraph 77).**
- 30. We do not intend to comment on the Burlington House agreement, since it is subject to legal dispute. The Burlington House societies benefit from a historical agreement and it is by chance that this is with the Government and not some private organisation. Certainly withdrawing the arrangement would impact on the good work that the Burlington House societies are able to do. This would be a net loss for science (paragraph 78).**

Selection of Fellows

- 31. The Royal Society and Royal Academy of Engineering should ensure that their selection procedures are fair and transparent, so as to ensure good representation in their Fellowships and confidence that they are not an ‘old boys’ network’ (paragraph 86).**

The Fellowship: gender

- 32. We do not think that the present low level of female Fellows in the Royal Society and Royal Academy of Engineering represents any discrimination against women. We urge both bodies to extend their efforts to encourage women to continue with scientific research and engineering careers (paragraph 89).**

The Fellowship: ethnicity

- 33. We are concerned at the Royal Society's apparent confusion between ethnicity and nationality. It would appear to demonstrate a lack of awareness of the need to ensure that scientists from ethnic minorities are not excluded from organisations such as the Royal Society, and suggests a head in the sand attitude to the current political climate (paragraph 90).**
- 34. We understand from the Commission for Racial Equality that it is against good practice not to carry out ethnic monitoring at all levels, and as the Royal Society and Royal Academy of Engineering are in receipt of public funds, they are laying themselves open to criticism if they continue not to monitor the ethnicity of their Fellows (paragraph 90).**
- 35. The Royal Society and the Royal Academy of Engineering should think strategically about programmes to increase ethnic minority participation in science (paragraph 91).**

The Fellowship: institutions

- 36. We commend the Royal Society's effort to encourage Fellowship nominations from under-represented institutions but urge it to guard against unquestioning complacency that the "Golden Triangle" really holds all the best academics in the UK (paragraph 92).**

The Fellowship: disciplines

- 37. We are glad to note that the Royal Society is making positive efforts to improve representation across its Fellowship. We believe however that more could be done in areas which have specific cause for concern. It would be a welcome signal of change if the Royal Society were to establish a committee specifically for computing science (paragraph 95).**
- 38. The Royal Academy of Engineering should represent engineers in all areas. Definitions of what constitutes engineering are changing and this should be taken into account when electing Fellows (paragraph 96).**
- 39. We commend the Royal Academy of Engineering for making efforts to increase the number of Fellows in under-represented areas, and urge it to ensure that it achieves representative levels of new disciplines in its Fellowship (paragraph 96).**

Funding for the learned societies

- 40. While it would be unrealistic to suggest that the Government fund the work of all scientific learned societies, we have suggested that a mechanism be established through which learned societies could have access to centralised government funding. We recommend that OST evaluate the work done by these societies with a view to identifying and funding some core activities (paragraph 98).**
- 41. Raising the profile of the scientific learned societies can only be a positive thing for the enthusiasm for, and knowledge of, science in the general public. Government should make every effort to assist (paragraph 99).**

42. **We recommend that OST give thought to what it would like the learned societies it funds to achieve and how best to ensure this. Not enough attention has been paid to the publicly-funded activities of these bodies. OST should ensure that they are held properly accountable. Learned societies receive funds not just from the OST but also from other Departments. The Government needs to think strategically about the money it is giving out to learned societies through its various funding streams in the form of one-off grants and whether this money could be used more efficiently (paragraph 100).**

ANNEX 1: VISITS MADE IN THE COURSE OF THE INQUIRY

Tuesday 5 February 2002

Visit to the Royal Society

Meeting with:	Lord May of Oxford Dame Julia Higgins Sir Eric Ash Professor John Enderby Stephen Cox Dr David Boak Dr Peter Collins Ian Cooper Dr Helen Pask Dr Ling Thompson Dr Yolanda de Miguel Dr John Morrow	President Foreign Secretary Treasurer Vice President and Physical Secretary Executive Secretary Director Communications Director Science Policy Director Administration and Finance Head of Special Projects Head of International Affairs Royal Society Dorothy Hodgkin Fellow Royal Society Industry Fellow
Briefings by:	Stephen Cox Dame Julia Higgins Dr Ling Thompson Dr Yolanda de Miguel Dr John Morrow	The work of the Royal Society Women in science and the Royal Society International activities Dorothy Hodgkin Fellowships Industry Fellowships

Discussion and lunch

Thursday 6 March 2002

Visit to the Royal Academy of Engineering

Meeting with:	Sir Alec Broers	President
Fellows:	Mr David Bayliss Sir David Davies Professor Ann Dowling Mr Peter Ewins Professor Hugh Griffiths Professor Wendy Hall Dr Jeffrey Herbert Professor Andy Hopper Dr Julia King Sir Duncan Michael Dr Scott Steedman Professor Lionel Tarassenko Professor Roger Whatmore	Halcrow Fox Railway Safety Cambridge University Met Office UCL Southampton Concentric AT&T/Cambridge Rolls-Royce Arup Group Whitby Bird and Partners Oxford University Cranfield University

Award holders:	Professor Mike Sharples Dr Paola Lettieri Dr Ambrose Taylor Professor Ken Hunt Paul Dolan	Birmingham/Kodak UCL Imperial College Glasgow University Sainsbury Management Fellowship
Staff:	Jon Burch Keith Davies Bob Ditchfield Ashley Thomas Brian Doble Jane Sutton	Executive Secretary Director, Engineering Affairs Director, Education Affairs Director, Finance and Corporate Services Manager, Engineering Policy Manager, Public Relations
Briefings by:	Sir Alec Broers Jon Burch Professor Mike Sharples Dr Paola Lettieri Professor Ken Hunt	President Chief Executive Kodak/Royal Academy of Engineering Research Professor Royal Academy of Engineering Post-Doctoral Research Fellow Industrial Secondee

Discussion and lunch

Monday 22 April 2002

Visit to the Royal Society of Edinburgh

Meeting with:	Sir William Stewart FRS FRSE	President of the Royal Society of Edinburgh
	Professor A C Walker FRSE	Vice President
	Professor Wilson Sibbett FRS FRSE	Chairman of the Scottish Science Advisory Committee
	Professor John Coggins FRSE	
	Dr William Duncan	Executive Secretary
	Dr Lesley Glasser	Young People's Programme Convenor
	Dr Marc Rands	Research Officer
	Dr Harinee Selvadurai	Education Officer

ANNEX 2: SCIENTIFIC LEARNED SOCIETIES

1. Academy of Medical Sciences
2. Anatomical Society of Great Britain and Ireland
3. Association for Radiation Research
4. Association for the Study of Animal Behaviour
5. Association of Applied Biologists
6. Association of Clinical Biochemists
7. Association of Clinical Cytogeneticists
8. Association of Clinical Embryologists
9. Association of Clinical Microbiologists
10. Biochemical Society
11. Botanical Society of the British Isles
12. British Academy
13. British Arachnological Society
14. British Association for Cancer Research
15. British Association for Lung Research
16. British Association for Psychopharmacology
17. British Association of Tissue Banking
18. British Astronomical Association
19. British Biophysical Society
20. British Cartographic Society
21. British Computer Society
22. British Ecological Society
23. British Electrophoresis Society
24. British Grassland Society
25. British Herpetological Society
26. British Horological Society
27. British Institute of Facilities Management
28. British Institute of Non-Destructive Testing
29. British Institute of Radiology
30. British Interplanetary Society
31. British Lichen Society
32. British Medical Ultrasound Society
33. British Microcirculation Society
34. British Mycological Society
35. British Neuropsychiatry Association
36. British Ornithologists' Union
37. British Orthodontic Society
38. British Pharmacological Society
39. British Phycological Society
40. British Psycho-Analytical Society
41. British Psychological Society
42. British Society for Allergy and Clinical Immunology
43. British Society for Antimicrobial Chemotherapy
44. British Society for Cell Biology
45. British Society for Haematology
46. British Society for Histocompatibility and Immunogenetics
47. British Society for Immunology
48. British Society for Medical Mycology
49. British Society for Parasitology
50. British Society for Plant Pathology
51. British Society for Research on Ageing
52. British Society for Rheumatology

53. British Society for Strain Measurement
54. British Society of Animal Science
55. British Society of Audiology
56. British Society of Gastroenterology
57. British Society of Rheology
58. British Society of Soil Science
59. British Sociological Association
60. British Toxicology Society
61. British Transplantation Society
62. British Web Design and Marketing Association
63. Cambridge Philosophical Society
64. Challenger Society for Marine Science
65. Chartered Institute of Building
66. Chartered Institution of Building Services Engineers
67. Chartered Institution of Water and Environmental Management
68. Chartered Society of Designers
69. Chartered Society of Physiotherapy
70. College of Occupational Therapists
71. College of Radiographers
72. Council for British Archaeology
73. Croydon Natural History and Scientific Society Ltd
74. Engineering Council
75. Ergonomics Society
76. Experimental Psychology Society
77. Fauna and Flora International
78. Fisheries Society of the British Isles
79. Freshwater Biological Association
80. Galton Institute
81. Genetical Society
82. Geographical Society
83. Geological Society of London
84. Geologists' Association
85. Hydrographic Society
86. Information Systems Audit and Control Association
87. Institute for the Management of Information Systems
88. Institute of Acoustics
89. Institute of Automotive Engineer Assessors
90. Institute of Biology
91. Institute of Biomedical Science
92. Institute of Brewing
93. Institute of Building Control
94. Institute of Diagnostic Engineers
95. Institute of Ecology and Environmental Management
96. Institute of Ecotechnics
97. Institute of Electrical and Electronics Engineers Inc
98. Institute of Energy
99. Institute of Fisheries Management
100. Institute of Food Science and Technology
101. Institute of Health Education
102. Institute of Healthcare Engineering and Estate Management
103. Institute of Highway Incorporated Engineers
104. Institute of Horticulture
105. Institute of Information Scientists
106. Institute of Logistics and Transport
107. Institute of Maintenance and Building Management
108. Institute of Management Services

109. Institute of Marine Engineers
110. Institute of Materials
111. Institute of Mathematics and its Applications
112. Institute of Measurement and Control
113. Institute of Metal Finishing
114. Institute of Operations Management
115. Institute of Packaging
116. Institute of Paper Conservation
117. Institute of Petroleum
118. Institute of Physics
119. Institute of Physics and Engineering in Medicine
120. Institute of Plumbing
121. Institute of Printing
122. Institute of Psycho-Analysis
123. Institute of Quality Assurance
124. Institute of Quarrying
125. Institute of Refrigeration
126. Institute of Risk Management
127. Institute of Road Transport Engineers
128. Institute of Safety in Technology and Research
129. Institute of Science Technology
130. Institute of Sheet Metal Engineering
131. Institute of Trichologists
132. Institute of Wastes Management
133. Institution of Agricultural Engineers
134. Institution of British Telecommunications Engineers
135. Institution of Chemical Engineers
136. Institution of Civil Engineers
137. Institution of Electrical Engineers
138. Institution of Engineering Designers
139. Institution of Environmental Sciences
140. Institution of Fire Engineers
141. Institution of Gas Engineers
142. Institution of Incorporated Engineers
143. Institution of Lighting Engineers
144. Institution of Mechanical Engineers
145. Institution of Mining and Metallurgy
146. Institution of Nuclear Engineers
147. Institution of Plant Engineers
148. Institution of Structural Engineers
149. Landscape Institute
150. Linnean Society of London
151. London Mathematical Society
152. Malacological Society of London
153. Mammal Society
154. Manchester Geographical Society
155. Manchester Literary and Philosophical Society
156. Manchester Statistical Society
157. Marine Biological Association of the United Kingdom
158. Medical Society of London
159. Mineralogical Society
160. Nautical Archaeological Society
161. Nautical Institute
162. Nutrition Society
163. Oil and Colour Chemists' Association
164. Operational Research Society

165. Palaeontographical Society
166. Palaeontological Association
167. Photogrammetric Society
168. Physiological Society
169. Pipelines Industries Guild
170. Primate Society of Great Britain
171. Quekett Microscopical Club
172. Regional Studies Association
173. Remote Sensing Society
174. Research and Development Society
175. Royal Academy of Engineering
176. Royal Aeronautical Society
177. Royal Agricultural Society of England
178. Royal Anthropological Institute
179. Royal Archaeological Institute
180. Royal Astronomical Society
181. Royal College of General Practitioners
182. Royal College of Midwives
183. Royal College of Nursing of the United Kingdom
184. Royal College of Obstetricians and Gynaecologists
185. Royal College of Ophthalmologists
186. Royal College of Pathologists
187. Royal College of Physicians of Edinburgh
188. Royal College of Physicians of London
189. Royal College of Psychiatrists
190. Royal College of Speech Therapists and Language Therapists
191. Royal College of Surgeons of England
192. Royal College of Veterinary Surgeons
193. Royal Economic Society
194. Royal Entomological Society of London
195. Royal Forestry Society of England, Wales and Northern Ireland
196. Royal Geographical Society (with the Institute of British Geographers)
197. Royal Horticultural Society
198. Royal Institute of Navigation
199. Royal Institute of Philosophy
200. Royal Institute of Public Health and Hygiene
201. Royal Irish Academy
202. Royal Meteorological Society
203. Royal Microscopical Society
204. Royal Pharmaceutical Society of Great Britain
205. Royal Photographic Society
206. Royal Society
207. Royal Society for the Encouragement of Arts, Manufactures and Commerce
208. Royal Society for the Promotion of Health
209. Royal Society of Chemistry
210. Royal Society of Edinburgh
211. Royal Society of Medicine
212. Royal Statistical Society
213. Royal Town Planning Institute
214. Royal Welsh Agricultural Society Ltd
215. Royal Zoological Society of Scotland
216. Scottish Association for Marine Science
217. Scottish Association for Marine Science
218. Social Policy Association
219. Society for Anaerobic Microbiology
220. Society for Applied Microbiology

221. Society for Endocrinology
222. Society for Experimental Biology
223. Society for General Microbiology
224. Society for Low Temperature Biology
225. Society for Medicines Research
226. Society for the Study of Fertility
227. Society for the Study of Human Biology
228. Society for the Study of Inborn Errors of Metabolism
229. Society for Underwater Technology
230. Society of Chiropodists and Podiatrists
231. Society of Dyers and Colourists
232. Society of Engineers
233. Society of Environmental Engineers
234. Society of Food Hygiene Technology
235. Society of Pharmaceutical Medicine
236. Society of Professional Engineers
237. Solar Energy Society
238. South London Botanical Institute
239. Strategic Planning Society
240. Systematics Association
241. Textile Institute
242. UK Academy for Information Systems
243. UK Life Sciences Committee
244. Webb Society
245. Zoological Society of London

LIST OF ABBREVIATIONS USED IN THE REPORT AND EVIDENCE

ACM	(US) Association for Computer Machinery
BA	British Association for the Advancement of Science
BAYS	British Association Youth Section
BBSRC	Biotechnology and Biological Sciences Research Council
BCS	British Computer Society
BP	British Petroleum plc
BSE	Bovine Spongiform Encephalopathy
COPUS	(originally) Committee on the Public Understanding of Science
CPD	Continuing Professional Development
CV	Curriculum Vitae
CVCP	Committee of Vice-Chancellors and Principals (now Universities UK)
CRC	Cancer Research Campaign
CREST	Creativity in Engineering, Science and Technology
DCMS	Department for Culture, Media and Sport
DETR	(former) Department of the Environment, Transport and the Regions
DfES	Department for Education and Skills
DHF	Dorothy Hodgkin research Fellow
DTI	Department of Trade and Industry
DTLR	(former) Department for Transport, Local Government and the Regions
ECDL	European Computer Driving Licence
EPSRC	Engineering and Physical Sciences Research Council
ESRC	Economic and Social Research Council
ETB	Engineering and Technology Board
FREng	Fellow of the Royal Academy of Engineering
FRS	Fellow of the Royal Society
GM	Genetically Modified (organisms)
HEFCE	Higher Education Funding Council for England
ICA	Institute of Contemporary Arts
ICRF	Imperial Cancer Research Fund
ICSU	International Council for Science
IEE	Institution of Electrical Engineers
IOB	Institute of Biology
MMR	Measles, Mumps and Rubella (vaccine)
MORI	Market and Opinion Research International
MRC	Medical Research Council
NAS	(US) National Academy of Sciences
NGO	Non-Governmental Organisation
NERC	Natural Environment Research Council
NESTA	National Endowment for Science, Technology and the Arts
OST	Office of Science and Technology
PAWS	Public Awareness of Science
PGA	Parliamentary Grant-in-Aid
PPARC	Particle Physics and Astronomy Research Council
PUSET	Public Understanding of Science, Engineering and Technology
QAA	Quality Assurance Agency for Higher Education
QCA	Qualifications and Curriculum Authority
RAE	Research Assessment Exercise
RAEng	Royal Academy of Engineering
RS	Royal Society

RSC
RI
SEEDA
SME
UKLSC
URF

Royal Society of Chemistry
Royal Institution of Great Britain
South East England Development Agency
Small and Medium-sized Enterprise
United Kingdom Life Sciences Committee
University Research Fellow

**EXTRACTS FROM MINUTES OF PROCEEDINGS RELATING TO
DECLARATIONS OF INTEREST**

WEDNESDAY 12 JUNE 2002

Dr Brian Iddon declared a non-pecuniary interest in relation to the inquiry into government funding of the scientific learned societies as parliamentary liaison officer to the Royal Society of Chemistry.

PROCEEDINGS OF THE COMMITTEE RELATING TO THE REPORT

WEDNESDAY 24 JULY 2002

Members present:

Dr Ian Gibson, in the Chair

Mr Parmjit Dhanda
Mr Tom Harris
Mr David Heath
Dr Brian Iddon

Mr Tony McWalter
Dr Andrew Murrison
Geraldine Smith
Dr Desmond Turner

The Committee deliberated.

Draft Report (Government funding of the scientific learned societies), proposed by the Chairman, brought up and read.

Ordered, That the draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 100 read and agreed to.

Ordered, That the summary be an annex to the Report.—(*The Chairman.*)

Ordered, That the note on visits made in the course of the inquiry be an annex to the Report.—(*The Chairman*)

Ordered, That the list of scientific learned societies be an annex to the Report.—(*The Chairman*)

Resolved, That the Report be the Fifth Report of the Committee to the House.

Ordered, That the Chairman do make the Report to the House.

Ordered, That the provisions of Standing Order No. 134 (Select committees (reports)) be applied to the Report.

Several papers were ordered to be appended to the Minutes of Evidence.

Ordered, That the Appendices to the Minutes of Evidence taken before the Committee be reported to the House.—(*The Chairman.*)

Several papers were ordered to be reported to the House.

[Adjourned to a day and time to be fixed by the Chairman.]

LIST OF WITNESSES

Wednesday 8 May 2002

THE ROYAL SOCIETY

Lord May of Oxford, President, Professor Julia Higgins DBE, Vice President and Foreign Secretary, and Mr Stephen Cox, Executive Secretary Ev 1

THE ROYAL ACADEMY OF ENGINEERING

Sir Alec Broers, President, Professor Ann Dowling, Vice President, and Mr Jon Burch, Executive Secretary Ev 12

Wednesday 12 June 2002

THE BRITISH COMPUTER SOCIETY

Mr David Clarke, Chief Executive, Professor John McDermid, Vice President, and Professor Wendy Hall, Vice President Ev 19

THE ROYAL GEOGRAPHICAL SOCIETY

Dr Rita Gardner, Chief Executive, and Mr Elliot Robertson, Policy Officer Ev 24

THE ROYAL SOCIETY OF CHEMISTRY

Dr David Giachardi, Chief Executive and General Secretary, Dr Barry Price, Honorary Treasurer, Mrs Libby Steele, Manager, Professional Education and Development, and Dr Stephen Benn, Parliamentary Affairs Officer Ev 28

THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Dr Peter Briggs, Chief Executive, and Dr Roland Jackson, incoming Chief Executive Ev 31

COPUS

Dame Bridget Ogilvie, Chair, and Professor Ian Halliday, Council member Ev 31

Wednesday 19 June 2002

THE ROYAL SOCIETY

Professor John Enderby, Vice President, and Mr Stephen Cox, Executive Secretary Ev 39

LIST OF APPENDICES TO THE MINUTES OF EVIDENCE

1. Academy of Medical Sciences
2. BA (British Association for the Advancement of Science)
3. British Academy
4. Biotechnology and Biological Sciences Research Council
5. British Computer Society
6. British Computer Society (supplementary memorandum)
7. British Ecological Society
8. British Pharmacological Society
9. British Psychological Society
10. Chartered Institution of Water and Environmental Management
11. Engineering and Physical Sciences Research Council
12. Engineering and Physical Sciences Research Council (supplementary memorandum)
13. Environment Agency
14. Economic and Social Research Council
15. Geological Society of London
16. Professor Charles M Goldie
17. Institute of Association Management
18. Institute of Biology
19. Institute of Food Science and Technology
20. Institute of Physics
21. Institution of Chemical Engineers
22. Institute of Electrical Engineers
23. Institute of Mechanical Engineers
24. Linnean Society of London
25. London Mathematical Society
26. Medical Research Council
27. Natural Environment Research Council
28. Dame Bridget Ogilvie
29. Office of Science and Technology
30. Office of Science and Technology
31. Royal Academy of Engineering
32. Royal Academy of Engineering (supplementary memorandum)
33. Royal Astronomical Society
34. Royal Geographical Society
35. Royal Institution of Great Britain
36. Royal Irish Academy
37. Royal Society
38. Royal Society (supplementary memorandum)
39. Royal Society (supplementary memorandum)
40. Royal Society (supplementary memorandum)
41. Royal Society of Chemistry
42. Royal Society of Edinburgh
43. Science Council
44. Society for General Microbiology
45. Department for Transport, Local Government and the Regions
46. UK Life Sciences Committee
47. Wellcome Trust

LIST OF UNPRINTED EVIDENCE

Additional written evidence has been received from the following and has been reported to the House, but to save printing costs it has not been printed and copies have been placed in the House of Commons Library where it may be inspected by Members. Other copies are in the Record Office, House of Lords, and are available to the public for inspection. Requests for inspection should be addressed to the Parliamentary Archives, Record Office, House of Lords, London, SW1P 0PW (Tel 020 7219 3074). Hours of inspection are from 9.30am-5.30pm on Mondays to Fridays.

Professor Jonathan F Ashmore FRS, University College London (SLS 50)
Professor Peter R Bell, University of London (SLS 3)
Biotechnology and Biological Sciences Research Council (SLS 47)
Professor John F Coplin (SLS 45)
Economic and Social Research Council (SLS 44)
Engineering Council (SLS 6)
Mr Geoffrey Fryer (SLS 5)
Professor M A Ferguson-Smith FRS, Cambridge University (SLS 7)
Professor G P Hammond, University of Bath (SLS 18)
Medical Research Council (SLS 8)
Professor Miles Padgett FRSE, University of Glasgow (SLS 41)
Regional Science Association International: British and Irish Section (SLS 33)
Regional Studies Association (SLS 39)
Royal Marsden Hospital (SLS 4)
Royal Society of Medicine (SLS 25)
Royal Pharmaceutical Society (SLS 40)
Professor Adrian Smith FRS, Queen Mary University of London (SLS 49)