PRIME MINISTER

SEMINAR: 'SCIENCE, TECHNOLOGY AND INDUSTRY'

The media will be well represented at Monday's seminar.

BBC and ITN camera crews will be present all day to cover for both news and feature programmes.

The leading specialist correspondents attending all day, including lunch, are listed at Annex A.

Several Lobby, technical and foreign correspondents will be present for your opening address, and can subsequently listen to a live audio relay of the proceedings in a nearby room.

About six still photographers will be present for your opening speech. During the day a COI photographer will take shots of the other main speakers.

We will give copies of your speech to the Lobby and to all the speakers, guests and press at the seminar.

On arrival at Lancaster House, Dr. Nicholson will meet you at the front entrance and conduct you up the main staircase and along to the Long Gallery on the first floor. A room has been set aside for your personal use.

At the entrance to the Gallery you turn left and take up your seat at the top table, with Mr Heseltine on your right and Dr. Nicholson on your left.

You may recall that the Gallery is decorated in cream and gilt. The large mirror above the ornate fireplace behind you will be covered with white net.

You will have a table top lectern and microphone. Six roving microphones will pick up the questions from the floor. The recording of the full proceedings will be transcribed later.

Three of the afternoon speakers will use two large projection screens, set at a height of 7 feet on either side of the top table.

Radio 4 'Today' would like to interview you, for their Monday morning programme, asking you what you hope the seminar will achieve. Bernard advises that you should not anticipate your opening speech which should stand alone as your exposition of the purpose of the exercise.

Sheenagh Wallace

SHEENAGH WALLACE
9 September 1983

PRIME MINISTER'S SEMINAR ON SCIENCE, TECHNOLOGY AND INDUSTRY
LANCASTER HOUSE - 12 SEPTEMBER 1983

SPECIALIST CORRESPONDENTS ATTENDING ALL-DAY SEMINAR

Peter Large, The Guardian
David Fishlock, Financial Times
Richard Brooks, Sunday Times
Robin McKie, Observer
John Delin, Sunday Telegraph
James Wilkinson, BBC Television
Lawrence McGinty, ITN/C4
Geoffrey Wareham, BBC Radio
Ros Herman, New Scientist
Tim Beardsley, Nature
David Thomas, New Society
Richard Woodman, Press Association
Antonia Higgs, IRN
Alan Massam, The Standard
Clive Cookson, The Times
Paul Flather, Times Higher Education Supplement
Ian Carson, The Economist
Michael Schwarz, Freelance Dutch correspondent
Michael Beckett, Daily Telegraph
Mike Harrison, The Engineer

W.0577 9 September 1983

PRIME MINISTER

SEMINAR ON SCIENCE, TECHNOLOGY AND INDUSTRY

The origin of this seminar was the biassed and doom-laden BBC Horizon programme broadcast earlier this year. Of course this is not known to delegates although probably some have guessed.

Creation of Wealth

2. Following the election, the seminar was deliberately aimed at the creation of wealth from science and technology in order to "create an economy which provides stable prices, lasting prosperity and employment for our people". This information was sent out with all invitations.

3. The response to requests to speak has been 100 per cent and the response to invitations about 90 per cent with most of those refusing having unavoidable commitments abroad. There have been many requests for invitations and, on advice from Departments, these have been met up to the limit of the accommodation in Lancaster House.

4. There has been real enthusiasm for the subject of the seminar from industry and from the city although some delegates have ideas which are different from those of the Government as to how to achieve the common aim. These differences of opinion will come out in the formal papers and, probably to a greater extent, from the floor in the discussion periods.

5. Many of the academics will arrive at the seminar in a less enthusiastic frame of mind as a result of the UGC cuts and the financial problems of some of the Research Councils. There is unlikely to be much sympathy with their perceived problems from industry or the city and a lively discussion could ensue.

6. There has been some comment on the difficulty of having a serious discussion on wealth creation from science and technology in the presence of the press and TV. Inevitably there will be different approaches to the need to balance serious discussion with PR but I doubt that any major problems will arise.

7. The attendance comprises roughly 100 industry, 40 city, 60 academics and 50 government and civil service. There is a good spread of age, experience and background and plenty of people with something to say in discussion.

8. In the handling notes, I have given you some names of people who have been warned you may call on them in discussion. On the whole, though, my advice would be to have an unscripted discussion and if one of the sectors, eg the academics criticise another eg industry, to call on the attacked sector to reply.

9. Attached are:

Programme of the Seminar	(Flat A)
Top Table Seating Plans	(Flag B)
Handling notes	(Flag C)
List of Participants	(Flag D)
Summary of relevant reports	(Flag E)

RBN

ROBIN B NICHOLSON
Chief Scientific Adviser

cc: Mr Flesher
PS/Mr Parkinson
PS/Sir Keith Joseph
PS/Mr Heseltine
PS/Mr Baker
Sir Robert Armstrong

Flags B & C only

Cabinet Office
9 September 1983

A

Share Option.

Perception of Market Need

SEMINAR ON "SCIENCE, TECHNOLOGY AND INDUSTRY"

Monday, 12 September 1983: Lancaster House

Chairman: THE PRIME MINISTER

09.15 - 10.00 Registration and Coffee

10.00 Introduction: The Prime Minister

SESSION I: INNOVATION THROUGH RESEARCH AND DEVELOPMENT

10.20 INNOVATION IN LARGE COMPANIES

Lord Weinstock, Managing Director, General Electric Company plc
Mr J H Harvey-Jones, Chairman, Imperial Chemical Industries plc

10.50 PROCUREMENT AND INNOVATION

The Rt Hon Michael Heseltine MP, Secretary of State for Defence

11.05 Discussion

11.30 THE ROLE OF THE UNIVERSITY IN INDUSTRIAL INNOVATION

Sir Rex Richards, Warden, Merton College, Oxford

11.45 INNOVATION IN SMALL COMPANIES

Sir Clive Sinclair, Chairman, Sinclair Research Ltd.
Mr D K Duckworth, Chairman and Chief Engineer, Cosworth Engineering Ltd.

12.15 Discussion

12.40 SUMMARY

Sir Henry Chilver, Chairman, Advisory Council for Applied Research and Development

12.50 Lunch

SESSION II: STIMULATION AND FINANCING OF INNOVATION

14.00 STIMULATION OF INNOVATION BY GOVERNMENT

Mr Kenneth Baker MP, Minister of State for Industry and Information Technology

14.15 TECHNOLOGY TRANSFER

Mr D Downs, Chairman and Managing Director, Ricardo Consulting Engineers plc

14.30 FINANCING OF INNOVATION

Lord Caldecote, Chairman, Investors in Industry plc
Mr D J S Cooksey, Managing Director, Advent Ltd.

15.00 Discussion

15.25 Tea

SESSION III: MAINTAINING THE STRENGTH OF THE SCIENCE BASE

15.40 THE ROLE OF GOVERNMENT

The Rt Hon Sir Keith Joseph MP, Secretary of State for Education and Science

15.55 THE ROLE OF INDUSTRY

Sir Geoffrey Allen, Technical Director, Unilever plc

16.10 THE ROLE OF THE RESEARCH COUNCIL

Prof J F C Kingman, Chairman, Science and Engineering Research Council

16.25 Discussion

16.50 SUMMARY

The Rt Hon Cecil Parkinson MP, Secretary of State for Trade and Industry

17.00 CONCLUDING REMARKS: The Prime Minister

TOP TABLE SEATING PLAN

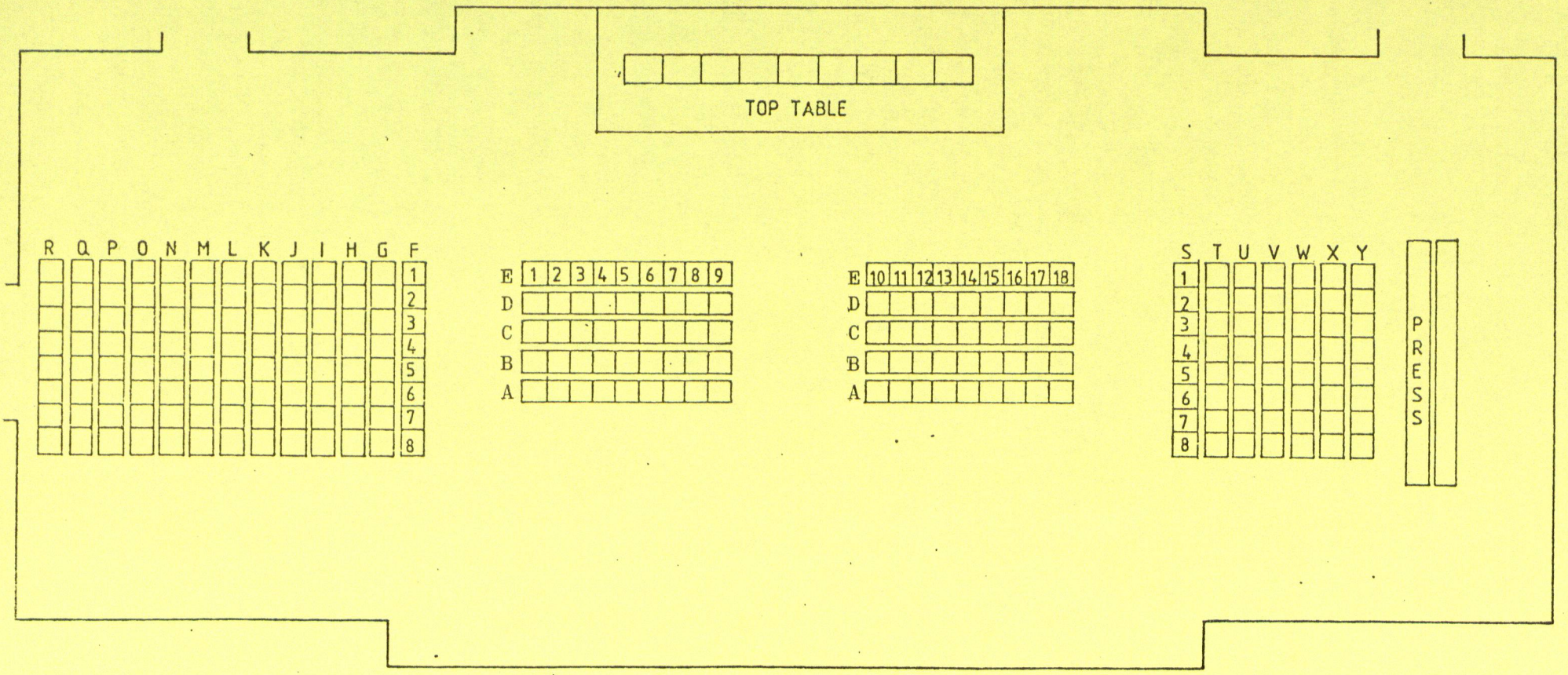
SESSION I 10 a.m.	—	Mr HARVEY JONES	LORD WEINSTOCK	Rt. Hon MICHAEL HESELTINE	PRIME MINISTER	Dr NICHOLSON	Sir HENRY CHILVER	—	—
SESSION I 11.30 a.m.	—	Mr DUCK-WORTH	Sir CLIVE SINCLAIR	Rt Hon. MICHAEL HESELTINE	PRIME MINISTER	Dr NICHOLSON	Sir HENRY CHILVER	Sir REX RICHARDS	—
SESSION II 14.00 hrs.	—	LORD CALDECOTE	Mr KENNETH BAKER	Rt Hon CECIL PARKINSON	PRIME MINISTER	Dr NICHOLSON	Mr DEWAR	Mr COOKSEY	—
SESSION III 15.40 hrs.	—	Prof. KINGMAN	Sir KEITH JOSEPH	Rt Hon CECIL PARKINSON	PRIME MINISTER	Dr NICHOLSON	Sir GEOFFREY ALLEN	—	—

DELEGATES' SEATS

DELEGATES' SEATS

B

LONG GALLERY LANCASTER HOUSE



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HANDLING NOTES

9.55 Arrive at Lancaster House, met by Dr Nicholson. Delegates will be taking their seats and may all be seated by the time you enter the Hall.

10.00 You deliver your speech.

10.20 At the end of your speech there will need to be a short pause while the standing press and photographers (about 40) leave the room. You should then call:

Innovation through Research & Development

Lord Weinstock, General Electric Company

10.35 Thank Lord Weinstock* and call:

Mr Harvey-Jones, ICI

10.50 Thank Mr Harvey-Jones and call:

Mr Heseltine, Secretary of State for Defence.

11.05 Thank Mr Heseltine.

There is now 25 minutes for discussion. Remind everyone to give name and organisation when called in discussion and to speak into the portable radio microphones which will be passed to their seat.

Likely topics are:

1. Other views on innovation in large companies.
   Possible contributors Mr Durham, Unilever ✓
   Sir Austin Bide, Glaxo ✓

2. Civil "spin-off" from defence R & D.
   Possible contributors Sir Ernest Harrison, Racal
   Sir Kenneth Corfield, STC

3. The innovation responsibilities of large purchasers.
   Possible contributors Sir George Jefferson, BT
   Sir Walter Marshall, CEGB

*I will have control of a light switch which will show a yellow light when speakers have 3 minutes left and a red light when they should finish. It is essential that they keep to time or we shall lose the discussion periods.

11.30(or earlier) If the discussion drifts towards small companies and/or the role of universities, you should start the second trio of speeches earlier.

Call Sir Rex Richards, Oxford University.

11.45 Thank Sir Rex Richards and call:
Sir Clive Sinclair, Sinclair Research

12.00 Thank Sir Clive Sinclair and call:
Mr D K Duckworth, Cosworth Engineering

12.15 Thank Mr Duckworth.
There is now 25 minutes for discussion.
Likely topics are:

1. The handling of innovation by industry:
   Possible contributors Sir Terence Beckett, CBI
   Prof. J M Thomas, Cambridge University.

Professor Crawford (Aston)

2. University/Industry links:
   Possible contributors Sir Alan Muir Wood, ACARD
   - Prof. Ashworth, Salford
   - Prof. Crawford, Aston
   Dr Johnstone, Heriot-Watt.

3. Small companies versus large companies for innovation:
   Possible contributor Mr P Michael, UEI.

12.40 Close discussion and ask Sir Henry Chilver to sum up the morning session.

12.50 Close session for lunch, reminding the participants that the seminar re-starts at 2.00. Lunch is downstairs in a marquee in the garden. Seated at your table are:
Prof. Ashworth (Salford), Sir Henry Chilver (Cranfield, Chairman ACARD), (Prof. Arnold Weinstock Kingman (Chairman SERC)) Sir Alec Merrison (Bristol, ex-Chairman ABRC), Lord Rothschild, Sir Clive Sinclair (Sinclair Research), and Dr Vane (Wellcome, Nobel Laureate).
All lunch courses will be served to your table. There is a buffet arrangement for the main course and sweet at other tables.

1.55 Leave lunch and return to Long Gallery.

2.00 Open session on Stimulation and Financing of Innovation by calling on:

Mr Kenneth Baker, Minister of State, Department of Trade and Industry.
(Mr Baker will be the first speaker to use slides which will be operated by remote control).

2.15 Thank Mr Baker and call on:

Mr Downs, Ricardo Consulting Engineers.

2.30 Thank Mr Downs and call on:

Lord Caldecote, Investors in Industry.

2.45 Thank Lord Caldecote and call on:

Mr Cooksey, Advent Ltd.

3.00 Thank Mr Cooksey.
There is now 25 minutes for discussion.
Likely topics are:

1. Is innovation money limited or ideas limited?
   Possible contributors: Mr Bullock, Barclays Bank
   Mr Chappell, Morgan Grenfell.
2. Different methods of technology transfer.
   Possible contributors: Lord Zuckerman, Wolfson Foundation
   Sir Ieuan Maddock, Cogent Ltd
   Dr Kelly, Surrey University.

3.25 Close discussion and ask delegates to be back at 3.40 sharp for final session after tea in the State Dining Room (downstairs).

Tea

3.40 Open session on Maintaining the Strength of the Science Base by calling on:

Sir Keith Joseph, Secretary of State for Education and Science.

3.55 Thank Sir Keith Joseph and call:

Sir Geoffrey Allen, Unilever.

4.10 Thank Sir Geoffrey Allen and call:

Professor Kingman, Chairman of SERC.

4.25 Thank Professor Kingman.
There is now 25 minutes for discussion.
Likely topics are:

1. Industry's view of basic research.
   Possible contributors: Mr Roberts, GEC
   Mr Morris, Brown Root.

2. The problem of allocating research funds in Research Councils and Universities.
   Possible contributors: Sir David Phillips, Chairman ABRC
   Sir Peter Swinnerton-Dyer, Chairman UGC.

3. 'Big' science versus 'little' science.
   Possible contributors: Sir Alec Merrison, Chairman CERN Research Council
   Sir Peter Hirsch, Chairman UKAEA.

4.50 Close discussion and ask Mr Parkinson to sum up.

5.00 Close seminar by thanking participants especially speakers and contributors to discussion.

D

PRIME MINISTER'S SEMINAR ON SCIENCE, TECHNOLOGY AND INDUSTRY

LANCASTER HOUSE, ST JAMES'S

Monday, 12 September 1983

LIST OF PARTICIPANTS

ADLER, A G F	Director, BHRA Fluid Engineering
ALDRICH, M J	Managing Director, Rediffusion Computers Ltd.
ALEKSANDER, Professor I	Brunel University
ALLAM, Dr D	Chief Executive, Prutec
ALLEN, Sir Geoffrey	Director of Research, Unilever plc
ALUN JONES, D	Managing Director Ferranti plc
ALVEY, J	Engineer in Chief Development and Procurement, British Telecom
ANSON, J	Deputy Secretary HM Treasury
ARMSTRONG, Sir Robert	Secretary of the Cabinet Cabinet Office
ASH, Professor E A	Department of Electronics and Electrical Engineering, University College, London
ASHWORTH, Professor J M	Vice Chancellor, University of Salford
ATKINSON, Dr H H	Director, Science, Science and Engineering Research Council

BAKER, Kenneth MP	Minister of State, DTI
BARRON, Professor Iann	Director, Inmos Ltd
BATISTE, Spencer MP	Member of Parliament
BECKETT, Sir Terence	Director-General, CBI
BEESLEY, I	Cabinet Office
BEEVOR, J	Managing Director, Industrial Finance Division, Midland Bank
BIDE, Sir Austin	Chairman, Glaxo Holdings plc
BIRCHALL, Dr J D	Senior Research Associate, Imperial Chemical Industries plc
BIRKS, Dr J	Chairman, NMI Ltd
BISHOP, Professor R E D	Vice Chancellor, Brunel University
BLACKWELL, Sir Basil	Chief Executive, Westland Group of Companies
BONDI, Sir Herman,	Chairman, NERC
BRABEN, Dr B	Head of Venture Research Unit, British Petroleum Group
BRENNER, S	MRC Laboratory of Molecular Biology Cambridge
BRISCOE, E	Managing Director, Doulton Industrial Products Ltd
BROADBENT, Dr D	Department of Phychology, University of Oxford
BROOKE, Hon Peter MP	Parliamentary Under Secretary of State, DES
BRYANT, Professor S J	Department of Physics Hull University
BULLOCK, M	Corporate Finance Director Barclays Bank International Ltd
BURGESS, Dr G H O	Chief Scientist (Agriculture) MAFF
BURNETT, Professor J	Vice Chancellor University of Edinburgh

BUTCHER, Dr J B

Head of Electronics
Micro Electronics Centre
Middlesex Polytechnic

BUTLER, Sir Clifford

Vice Chancellor
University of Technology
Loughborough

CADBURY, P G	Corporate Finance Director Morgan Grenfell & Co Ltd
CAINES, J	Deputy Secretary, DTI
CALDECOTE, Viscount	Chairman, Investors in Industry plc
CAMPBELL CLOUSTON, D	Director, Science Parks Ltd
CARMICHAEL, P	Head of Small Businesses Division Scottish Development Agency
CASTLE, Dr	Chief Executive, MTI Managers Ltd
CHALLIS, Dr A A L,	Chief Scientist Department of Energy
CHAPPELL, E P	Vice Chairman, Morgan Grenfell Holdings Ltd
CHIENE, J	Senior Partner, Wood Mackenzie & Co
CHILVER, Sir Henry	Chairman, Council for Applied Research and Development
CHORLEY, F	Deputy Chairman and Managing Director The Plessy Co Ltd
CLEREHUGH, G	Director, Research and Development Division British Gas Corporation
CLIVE, C	Joint Managing Director, Thompson Clive & Partners Ltd
COHEN, I H	Managing Director, Mullard Ltd
COHEN, R	Managing Director Alan Patricof Associates
COLBURN, O H	Chairman, Consultative Board, Joint Consultative Organisation, MAFF
COLE, Professor R	Deputy Chief Scientist, DHSS
COLLYEAR, J G	Chairman, AE plc
COOKSEY, Dr D J S	Managing Director, Advent Management Ltd
COPESTAKE, Dr B	Deputy Chief Scientific Officer DTI
CORFIELD, Sir Kenneth	Chairman, Standard Telephones and Cables plc

COTSON, Dr S	Deputy Director Leicester Polytechnic
COURTNEY, R	Deputy Chief Scientific Officer Cabinet Office
COWGILL, A	Director, British Management Data Foundation
CRAWFORD, Professor F W	Vice-Chancellor University of Aston in Birmingham
CROFT, R	Deputy Secretary DTI

DAINTON, Sir Frederick	Chairman, National Radiological Protection Board
DAVIDSON, Professor J F	Department of Chemical Engineering University of Cambridge
DAVIES, C A	Managing Director Information Technology Ltd (ITL)
DAVIES, Dr D	Consultant with DTI, ex Chief Scientist and Engineer, DOI
DAVIES, Professor D E N	Department of Electrical and Electronic Engineering, University College, London
DAVIES, Dr G A O	Department of Aeronautics, Imperial College of Science and Technology
DAVIES, Professor G J	Department of Metallurgy University of Sheffield
DAVIES, Dr P	Adviser Cabinet Office
DILLAMORE, Dr I L	Director of Technology, Inco Alloy Products Ltd
DOLLIMORE, G	Chairman Hunting Engineering Ltd
DOWNS, D	Chairman, Ricardo Consulting Engineers plc
DREW, D	Sales Director Norman Magnetic Ltd
DUCKWORTH, D K	Chairman and Chief Executive, Cosworth Engineering Ltd
DUCKWORTH, W E	Managing Director, Fulmer Research Institute
DURHAM, K	Chairman, Unilever plc
DYKE, J R	Director, Sension Ltd

EDELMAN, DR J	Director, Research Centre Rank Hovis McDougall
EDGE, G	Chief Executive P A Technology
EDWARDS, Sir Sam	Department of Physics, University of Cambridge
EGGINTON, A J	Director, Engineering, Science and Engineering Research Council
ELTON, Dr G A H	Chief Scientist (Fisheries & Food) MAFF

FAIRCLOUGH, J W	Director, IBM(UK) Ltd
FAIRTLOUGH, G	Managing Director Celltech Ltd
FIELDING, C C,	Controller R & D Establishments MOD
FINNISTON, Sir Monty	Chairman, Future Technology Systems
FLESHER, T	Private Secretary 10 Downing Street
FORD, Professor Sir Hugh	Chairman, Ford & Dain Partners Ltd
FORREST, Professor A P M	Chief Scientist, Scottish Home & Health Department (Prof. Clinical Surgery, Univ of Edinburgh)
FOWDEN, Sir Leslie	Director Rothamsted Experimental Station

GAMBLING, Professor W A	Department of Electronics University of Southampton
GIBB, F	Chairman and Managing Director Taylor Woodrow Construction
GIROLAMI, P	Chief Executive Glaxo Holdings plc
GODFREY, M	Second Secretary MRC
GOTLEY, P	Managing Director Neotronics Ltd
GOWANS, Sir James	The Secretary Medical Research Council
GRANT, K	Director, The Design Council
GRAY, A J	Chief Executive, Cogent Ltd
GREGSON, Lord	Director, Fairey Holdings plc

HALL, A V	Investment Manager Shell Pension Fund
HALL, G R	Director, Brighton Polytechnic
HAMMOND, E A B	Executive Councillor, EETPU
HANCOCK, D J	Permanent Secretary, DES
HARRISON, Sir Ernest	Chairman, Chief Executive Racal Electronics plc
HARTLEY, Professor B S	Director, Centre for Biotechnology, Imperial College of Science and Technology, London
HARVEY JONES, J	Chairman, ICI plc
HAUSER, Dr H	Managing Director, Acorn Computers Ltd
HAYES, Sir Brian,	Permanent Secretary, DTI
HESELTINE, Rt Hon Michael	Secretary of State, MOD
HILLS, Dr G J	Principal, University of Strathclyde
HILSUM, Dr C	Chief Scientist, GEC Laboratories
HIRSCH, Sir Peter	Chairman, UKAEA
HOARE, Professor C A R	Computing Laboratory University of Oxford
HOLDGATE, Dr M,	Chief Scientist, DoE
HOLLAND, Professor I B	Director of Bio-Centre University of Leicester
HOLROYDE, G V	Director, Lanchester Polytechnic, Coventry
HORLOCK, Dr J H	Vice Chancellor, Open University
HOWARTH, Dr E A	Director Management Control Systems
HUGHES, Dr J E	Chairman, Johnson Matthey plc
HUGHES, P	Chairman, Logica plc

JAMES, Dr A T	Head of Bioscience Research Division Unilever Research Laboratory
JEFFERSON, Sir George	Chairman, British Telecom
JELLICOE, Rt Hon Earl	Chairman Medical Research Council
JOHNSTON, Dr T L	Principal, Heriot-Watt University
JONES, CS	Chief Manager, Lloyds Bank Business Advisory Service
JOSEPH, Rt Hon Sir Keith	Secretary of State DES

JAMES, Dr A T	Head of Bioscience Research Division Unilever Research Laboratory
JEFFERSON, Sir George	Chairman, British Telecom
JELLICOE, Rt Hon Earl	Chairman Medical Research Council
JONES, CS	Chief Manager, Lloyds Bank Business Advisory Service
JOSEPH, Rt Hon Sir Keith	Secretary of State DES

KELLY, Dr A	Vice Chancellor University of Surrey
KIMBERLEY, M J	Managing Director Lotus Cars Ltd
KING, C S	Deputy Chairman, BL Technology
KINGMAN, Professor, J F C	Chairman, Science and Engineering Research Council
KORNBERG, Professor Sir Hans	Dept of Biochemistry, University of Cambridge

LANG, H	Chairman P E International Ltd
LAW, Dr H D	President Portsmouth Polytechnic
LAWRENSON, Professor P J	Department of Electrical and Electronics Engineering, University of Leeds
LEE, J MP	PPS Secretary of State for DTI
LEONARD, Dr J	Chairman, Joint Managing Director Eurotherm International Ltd
LETWIN, O	Policy Unit 10 Downing Street
LEWIS, Professor Sir Jack	Department of Chemistry University of Cambridge
LIGHTHILL, Sir James	Provost, University College, London
LILLY, Professor M D	Department of Chemical and Biochemical Engineering University College
LINDLEY, Dr B C	Technical Director, Dunlop Holdings plc
LYGO, Admiral Sir Raymond	Managing Director British Aerospace plc

McCASKIE, J C	Technical Director, Baker Perkins Ltd
McCULLOCH, Dr J S G	Director Institute of Hydrology
MACDONALD, K C	Deputy Secretary (Policy) Procurement Executive, MOD
MACFARLANE, Sir George	Board Member, British Telecom
McGREGOR, P	Industrial Director NEDO
MACKENZIE, J	Managing Director, BSC Plates
MADDOCK, Sir Ieuan	Chairman, Fulmer Research Institute
MALLINSON, W	Managing Director, Smiths Industries plc
MANZIE, A G,	Deputy Secretary DTI
MARSHALL, Sir Walter	Chairman, Central Electricity Generating Board
MASON, Sir John	Director, Meteorological Office
MASON, Professor Sir Ronald	Dept. of Chemistry, University of Sussex
MATHIAS, Professor P	Chichele Professor of Economics All Souls College, Oxford
MAUNDER, Professor L	Department of Mechanical Engineering University of Newcastle upon Tyne
MAWSON, A	Director, Innvotec Ltd
MELLOR, C I	Director, Metal Box plc
MELLOR, R W	Vice President, Power Engineering Ford of Europe
MERCER, Dr F B	President, Netlon Ltd
MERRISON, Sir Alec	Vice Chancellor, University of Bristol

Sir Robert Telford

MICHAEL, P C	Deputy Chairman, United Engineering Industries plc
MILLER, Dr K A G	Director-General, Engineering Council
MOFFIT, J	E Moffit & Son
MOORE, J MP	Economic Secretary HM Treasury
MORRIS, J R S	Chairman, Brown & Root (UK) Ltd
MORRISON, The Hon Sara	Director, GEC plc
MOWAT, J F	Managing Director, Anderson Strathcyde Ltd
MUIR WOOD, Sir Alan	Senior Partner, Sir William Halcrow & Partners

NEEDHAM, Professor, R M	Computer Laboratory University of Cambridge
NEWTON, A	Engineering Director Rolls Royce Ltd
NEWTON, Antony MP	Parliamentry Under Secretary of State, DHSS
NICHOLSON, Dr R B	Chief Scientific Adviser Cabinet Office
NOBLE, A S	Managing Director Debenhams plc
NORMAN, Professor R O C,	Chief Scientific Adviser MOD

OAKLEY, B W	Alvey Directorate DTI
OLIVER, Dr D S	Technical Director Pilkington Bros plc
OTTON, Sir Geoffrey	Second Permanent Secretary DHSS

PARKINSON, Rt Hon Cecil	Secretary of State DTI
PASCALL, D	Policy Unit, 10 Downing Street
PEARCE, Sir Austin	Chairman, British Aerospace plc
PERRY, D H	Chief of Defence Procurement MOD
PETERS, R	Director, Murray Johnstone Ltd
PHILLIPS, Professor Sir David	Chairman, Advisory Board for the Research Councils
POPE, Dr G G	Deputy Controller and Adviser (Research and Technology), MOD
PORTILLO, M	Adviser to the Secretary of State for Trade and Industry
POSNER, M	Chairman Social Science Research Council
POUNDS, Professor K A	Director X-ray Astronomy Group Department of Physics University of Leicester

RAINGER, P	Deputy Director of Engineering, BBC
RAWLINSON, Sir Anthony,	Permanent Secretary DTI
REASBECK, Dr P	Chief Scientist and Director of Research, Lucas Group Services Ltd
REECE, Dr C H	Technical Director, Imperial Chemical Industries plc
RICHARDS, Sir Rex	Warden, Merton College, Oxford
RICHMOND, Professor M	Vice Chancellor University of Manchester
RILEY, Dr R	Secretary Agricultural Research Council
ROBERTS, D H	Director of Research, General Electric Company plc
ROBERTS, Dr L E J	Director, Atomic Energy Research Institute
ROBERTSON, Dr A	Chairman, Agricultural Genetics Company
ROITH, O	Chief Engineer and Scientist DTI
ROTHERHAM, Dr L	Wolfson Foundation
ROTHSCHILD, Lord	Director, N M Rothschild & Sons Ltd

SALLABANK, L	Director, George Wimpey plc
SALTER, S H	Department of Mechanical Engineering University of Edinburgh
SCANLON, Lord	House of Lords
SCHOLAR, M	Private Secretary, 10 Downing St.
SCHOLEY, D	Joint Chairman, S G Warburg & Co Ltd
SEGAL, N S	Partner, Segal Quince & Organisation
SELBORNE, Lord	Chairman Agricultural Research Council
SELSDON, Lord	Group Adviser for EEC Affairs, Midland Bank International (Finance)
SHARP, E	Chairman, Cable & Wireless
SINCLAIR, Sir Clive	Chairman, Sinclair Research Ltd
SMALL, B	Managing Director, Ingersoll Engineers Ltd
SMART, A	Director Royal Signals and Radar Establishment
SMITH, A E	Group General Manager, Management Services, Cable & Wireless
SMITH, Professor D C	Dept of Agricultural Science & Forest Science, University of Oxford
SMITH, Professor D	Director, Queen Mary College Industrial Research Ltd
SPACKMAN, Dr J	Director, Social Security Operational Strategy, DHSS
SPARROW, J	Director, Morgan Grenfell & Co Ltd
SPENCE, G B	Conference Officer Cabinet Office
SPICKERNELL, Admiral D G	Director General, British Standards Institution
SPREADBOROUGH, Dr J	Director John Spreadborough & Co Ltd
STERLING, J	Special Adviser to the Secretary of State for Trade and Industry

STEWART, Professor W D P	Department of Biological Sciences University of Dundee
STEVENSON, D	Partner, Specialist Research Unit Ltd
STREET, B	Managing Director, Air Products Ltd
SUGDEN, Sir Morris	Master, Trinity Hall, University of Cambridge
SUGGETT, Dr A	Managing Director, Smith & Nephew Research Ltd
SWINNERTON-DYER, Prof Sir Peter	Master, St Catherine's College, University of Cambridge

TAYLOR, G	Divisional Director, Investors in Industry plc
TELFORD, Sir Robert	Director, GEC plc
THATCHER, The Rt Hon Margaret MP	Prime Minister 10 Downing Street
THOM, I R M	Assistant Secretary DES
THOMAS, Professor J M	Department of Physical Chemistry, University of Cambridge
TODD, Lord	Past President The Royal Society
TOMBS, Sir Francis	Director, N M Rothschild & Sons Ltd

VANE, Dr J R	Group R & D Director, Wellcome Research Laboratories
VARMA, P	Chairman Greenfax Ltd

WADE, K R	Chairman PACTROL Electronics plc
WALDEGRAVE, Hon W MP	Parliamentary Under Secretary DoE
WALKER, D A	Executive Director, Bank of England
WARNER, P	Director Northern Engineering Industries plc
WARNES, B	Managing Director, Midland Bank Venture Capital Ltd
WEBB, T	National Officer, ASTMS
WEINSTOCK, Lord	Managing Director, General Electric Company plc
WHITMORE, Sir Clive	Permanent Secretary MOD
WILLIAMS, A	Under Secretary DTI
WILLOTT, W B	Chief Executive, British Technology Group
WILMOT, R W	Managing Director, International Computers Ltd
WOOD, Sir Frederick	Chairman, British Technology Group
WOOD, M	Deputy Chairman, Oxford Instruments Group Ltd

YOUNG, D	Chairman, Manpower Services Commission
YOUNG, R	Policy Unit, 10 Downing Street

ZUCKERMAN, Lord

Wolfson Foundation

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SUMMARY OF RELEVANT REPORTS

1. Chilver/Merrison report published as Cmnd 8957 stressed the importance of choice in both basic and applied research and drew attention to the need to apply foreign R & D effectively as well as our own, the need for a receptive market for innovation and the need for an education system suited to a technological age.

2. Georgala report on Food Industry and Technology published by ACARD stressed market switch to processed food as distinct from agricultural materials. Expressed concern whether UK food processing industry is competitive in its technology. Criticised Joint Consultative Organisation (JCO) which consists of MAFF, ARC and DAFS) for not listening to the market needs for research.

3. JCO Consultative Board report criticised JCO organisation as costly, cumbersome and unsuited to modern research needs. Lord Rothschild wrote to you, agreeing with report.

4. H.C. Select Committee on Agriculture report rushed out before election and recommended a 'national strategy' on agricultural R & D. Repeated criticism of JCO Consultative Board on JCO organisation.

Government responses on 2,3 and 4 are being prepared by MAFF.

5. Gregson report (H.L. Select Committee on Science and Technology) emphasised the need for UK to have a vigorous and successful manufacturing sector. Recommended (a) more strategic guidance and financial assistance from Government (b) more managerial commitment to innovation (c) better University/industry links.

Government response to 5 is about to come out from Mr Parkinson. It agrees with Gregson's aims but disagrees with many of his methods especially more Government intervention.

6. Kelly report commissioned by DTI from the Fellowship of Engineering

looked at innovation in materials, stresssed the importance of materials as an enabling technology and the long time scale of innovation.

7. Maddock report from NEDO on civil exploitation of defence technology recommends use of 'brokers', more awareness and greater involvement of sub-contractors in defence projects.

8. Merrison report on University research concluded that UGC cuts had disproportionately affected research and Universities should redress the balance, also set up research committees to direct money to best areas of research in each University.

Government response was 'new blood' scheme for fresh academic posts.

9. Morris report on balance of Research Council research 'in-house' and in Universities recommended closer liaison between RC Institutes and Universities and the setting up of any new Institutes on University campuses.

10. Muir Wood report on University/Industry Links gave Universities the principal responsibility of better marketing of their skills with industry. It recommended an industrial 'seed corn' fund to reward Universities which win industrial research support with a greater share of UGC and Science Vote funds.

11. Strathcona report recommended that MoD research establishments should concentrate on research and MoD should place development work in industry.

MoD response accepted Strathcona which is being implemented.

12. Versailles Working Group report on Technology, Growth and Employment published as Cmnd 8818 originated with the 1982 Economic Summit. It stresses the importance of international links in science and the role of technology in providing new growth and new employment.

/cBI

PRIME MINISTER

c. Mr. Butler
cc Mr Fleshman

Science & Technology Seminar

I attach Robin Nicholson's first draft of your speech for this occasion which is on Monday week. The speech will be between 15 and 20 minutes long.

I imagine that you will want to work on the speech during the course of next week and with this in mind I have asked the Policy Unit to look at it with a view to developing some more ideas. Is there anything which at this stage you would like us to produce?

Perhaps we could have a word on your return from Balmoral about drafting sessions next week.

2 September 1983

It is very good - but I think we could say a little more about the need for scientists themselves to see the industrial potential of their development and to be willing to help to exploit it.

Also - a word about 'intellectual property' and taking away the monopoly of BTG to develop

SEMINAR ON 'SCIENCE, TECHNOLOGY AND INDUSTRY'

DRAFT SPEECH FOR THE PRIME MINISTER

I would like to welcome everyone here today for this Seminar on 'Science, Technology and Industry'.

2. This is a vitally important subject. In the recent election campaign, the Government identified as one of the great tasks for the future of the country, the need 'to create an economy which provides stable prices, lasting prosperity and employment for our people'. Our ability to innovate and create wealth through the successful exploitation of our great skills in science and engineering will make a major contribution to the accomplishment of this task.

3. Personally, as a former research scientist myself, I also find the subject fascinating. I am excited by the science and engineering which I see going on in our great laboratories in this country and the way in which it is increasingly being used to create highly successful new products and services.

4. I am excited by advances like the use of Nuclear Magnetic Resonance to develop better and safer methods of medical diagnosis;

the use of electron beam technology to make more powerful silicon chips;

the use of ion implantation to make harder steels;

the use of the new understanding of the structure of proteins to

grow more productive plants;

the novel engineering design which allows the construction of a down-hole pump for more efficient extraction of oil in the North Sea.

5. These and many others were undreamt of when I was doing my own research 30 years ago but no one who has worked as a scientist in industry can fail to be excited by the scientific progress and agog at the commercial potential.

6. The purpose of this seminar is to bring together leaders in industry, academia, the city and government so that we may hear about some of the successful applications of science and engineering, gain a better understanding of the reasons for success and identify constraints on the extension of that success to other companies in all sectors of the economy.

7. All of us have a role to play: the private and public sectors of industry, both large and small companies, which have the primary task of developing, producing and selling innovative products and services, the city which provides the finance for the development of new products and the start-up of new companies, academia which produces the skilled manpower required by industry and undertakes much of our basic research, and government which has the task of providing an economic climate which encourages innovation and enterprise as well as funding much of the country's Research and Development.

8. Today we shall hear from representatives of all these sectors of our community. Three of my Government colleagues will be talking about

Government's role in procurement, in the stimulation of innovation and in funding basic research. But let me first make clear the Government's overall support for science and technology as one means of encouraging a forward-looking and dynamic industry.

9. In the past four years, Government expenditure on Research and Development has been £12.7 billion, an increase in real terms of nearly 10 per cent over the previous four years. We have also taken steps to ensure that this money is properly spent in the right places.

10. The largest component of the expenditure is in support of Government procurement: the building of roads, the purchase of medical equipment, defence procurement, the purchase of office equipment etc. Most of the R & D expenditure which supports this procurement is placed in industry; for example, more than 70 per cent of defence R & D expenditure is with industry.

11. A second component of Government expenditure on R & D is support of basic research at our Universities and the Research Councils. This year we are spending over £500 million of tax-payers' money in the Science Budget and rather more than this through UGC grants to Universities.

12. Certainly Government has a big role in sustaining and nourishing the country's basic scientific competence - a theme we shall return to this afternoon. But this cannot mean insulating it from larger movements in the economy. Nevertheless, as an earnest of our continuing intentions, we have sought to protect the Science Budget,

and more directly to sustain vigour in university research as in the 'new blood' scheme.

13. A third component is the stimulation of successful R & D in industry. Of course the primary responsibility for decisions about the products to be marketed, and the R & D necessary to obtain those products, must rest with industry, which alone can respond to market forces and identify technological areas and products which show most commercial promise.

14. Government can help when firms are unable to commit sufficient resources to implement their product decisions, through for example the 'Support for Innovation' programme of the Department of Trade and Industry. Expenditure in industry in support of R & D, has increased in the last four years from £36.5 million to £122 million and there is provision for spending about £200 million in 1984/85.

15. Support for innovation can take many forms. The DTI sponsored the "Office of the Future" programme in which advanced office technology systems have been purchased by Government for 21 public sector locations in order to provide showcases for their suppliers and to help create an informed market among users.

16. At the other end of the spectrum there is support for R & D in 'enabling technologies' such as biotechnology and information technology. This summer the Government announced its decision to go ahead, in partnership with industry, with the £350 million Alvey programme on collaborative pre-competitive research in advanced information technology.

17. Of course some will say we should be spending more in all of these areas. But spending more can only be done by taking more, and our policy is to reduce the burden of taxation on industry and the people. For example, the progressive reductions in the National Insurance surcharge has left £2 billion each year with industry which would otherwise have been spent by Government.

18. Industry must use these resources wisely and put some towards more R & D and more investment in new products so as to improve its future competitive position. Comparisons with our major industrial competitors show that private industry has in the past contributed a smaller proportion to this country's R & D expenditure than in Germany and Japan. Increased Government R & D spending in industry should be matched by increased spending by industry itself.

19. Spending wisely on R & D is just as important as the amount spent. In Government we are conscious of the need for continual assessment of the balance of our expenditure with advice from both inside and outside Whitehall. Some expenditure, for example in defence, can have an important secondary benefit in civil applications as well as the primary benefit of cost-effective weapons.

Not much spin-off.

20. Nor should we think that only the so-called "high-technology" industries need R & D. The prospects of many of our more traditional industries can be, and are being, revolutionised by the application of modern science and engineering, often developed in the first instance for other purposes.

This is important and could do with another para with examples.

21. But above all today, I want to direct your attention and discussion to questions about the balance of the nation's R & D effort and about

how the results of that effort can be better exploited. Of course I am aware how difficult it can be to relate success in basic research to success in the market place.

22. When I started my own work as a research chemist with BX Plastics, I was working on the problem of polymeric adhesives. This was basic research aimed at understanding the mechanism of bonding between unlike materials.

23. Of course the company had early ideas on the application of the research and was especially interested in the market for bonding floor coverings like vinyl linoleum to concrete. Subsequently in the 1960s the ideas developed from my research were found to be useful for the problem of bonding plastic to steel to produce a low maintenance cost building material.

24. The adhesive, now known as Bexol, is now widely used and exported to a dozen countries. Domestically it is used for the manufacture of the British Steel Corporation's product 'Stelvetite' which can be seen in modern factories and other buildings.

25. This example from my own experience demonstrates the way in which basic research can have quite unforeseen applications and also, most importantly, the long time which can elapse between the carrying out of the research and the successful marketing of the product. Patience, not least financial patience, is necessary for commercial success.

26. We are fortunate in this country to have a long and brilliant record in science and engineering. We are the country of Newton,

Faraday, Maxwell and Fleming; of Stephenson, Brunel, Royce and Barnes Wallis. Many of their successors are sitting in this hall today. We must be as successful as our forefathers in sustaining their genius and exploiting their results to the economic benefit of the country as a whole.

27. Many of these people work in our Universities which is one of the reasons why I want to encourage closer collaboration between Universities and industry. That is why I asked ACARD to look at this with ABRC and we are now actively studying Sir Alan Muir Wood's recommendations.

28. I want to encourage researchers to be alert to the possibilities, however remote - that their basic research can be exploited in the national interest. I am <u>not</u> saying that all their work must be consciously useful because we all know that new developments spring from the most unlikely results. But I am saying that while basic research should be the pursuit of excitement, novelty, and the unexpected in science, there is also a responsibility to the people of this country (who are paying for it) to always be alert for applications.

29. So I say to the Universities and Research Councils - are you sufficiently alive to the opportunities to participate in the application of your ideas, which may point to other research areas of national importance? Industrial contact can provide a wider range of intellectual challenges and can enrich teaching, through experience of current industrial practice. Science Parks developed with local government and industry can transform our inner cities as a place to work and live. Are you going to industry and saying - here is what we have discovered, what are you going to do about it? Many of you here today will have

good answers and a record of success - success measured by profitable new companies with good ideas. How then can your example be multiplied?

30. To industry I say, we still have too many companies who do not sufficiently value R & D, too many with the "not invented here" attitude, too many for whom Universities are places remote from the market and with no contribution to make. There must be a change in attitude and a change in practice on the part of individual companies towards collaboration with researchers in our Universities and Research Councils. Foreign firms are well aware of the assets to be exploited here and are taking advantage of them. I shall not be satisfied until the sheer weight of interest of UK companies in exploiting our superb basic research has crowded out all others.

31. To financiers, I say, are you organised and educated to see the opportunities for profitable investment in the new technologies? Are you placing your financial skills, developed over centuries of successful financing of manufacturing and trade, at the disposal of the young scientists and engineers who have a new product or service which they have developed? Have you the knowledge to assess the investment opportunities properly and so reduce the risks of investing in fast-moving technologies and rapidly-developing markets? Do you recognise the need for long-term finance in which the rewards are commercially attractive but 10 years away?

32. In Government our overall policy is clear. We are committed to the strengthening of the nation's economy through improving the competitiveness of industry. And we are committed to improving the economic climate so that competitive industry can flourish. The quality of our science and

technological resource is the envy of all our industrial competitors. Government will continue to sustain and nourish that resource to the best of our ability but it is up to you to use it to develop, produce and sell marketable products and services. The more you succeed, the greater will be the resources which we can devote to science and technology. And we will have an economy which provides stable prices, lasting prosperity and employment for our people.