

Catalogue of the papers and correspondence of

**Brian Hilton Flowers FRS,
Baron Flowers of Queen's Gate in the
City of Westminster**

(b. 1924)

VOLUME I

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General Introduction
Sections A - E

by Adrian Nardone and Alan Hayward
NCUACS catalogue no. 76/5/98

Title: Catalogue of the papers and correspondence of Brian Hilton Flowers
FRS, Baron Flowers of Queen's Gate in the City of Westminster (b. 1924),
physicist

Compiled by: Adrian Nardone and Alan Hayward

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GENERAL INTRODUCTION

PROVENANCE

The papers were received in December 1995 and May 1998 from Lord Flowers and in April 1997 from the University of Manchester.

OUTLINE OF THE CAREER OF LORD FLOWERS

Brian Hilton Flowers was born in Blackburn, Lancashire on 13 September 1924, although his family moved to Swansea, Wales in 1932. He attended Bishop Gore Grammar School, Swansea and was awarded a State Scholarship to Trinity College, Cambridge to read mathematics. However, Flowers was then offered a State Bursary to take physics and electronics at Gonville and Caius College, Cambridge, in order to assist the war effort. This guaranteed him two years of study before call-up, rather than one. At Gonville and Caius Flowers won an Exhibition and graduated with a wartime degree after two years. In September 1944 he crossed the Atlantic to join the Anglo-Canadian Atomic Energy Project in Canada, working initially at the University of Montreal until moving to Chalk River, Ontario in 1945.

Flowers returned to England in the summer of 1946 and began work at the Atomic Energy Research Establishment, Harwell, where he joined O.R. Frisch's group in the Nuclear Physics Division. His work during this period included measuring the thermal cross-section of tritium and devising a method of measuring the photodisintegration of the deuteron. In 1948 Flowers transferred to the Theoretical Physics Division at Harwell where he undertook work on nuclear reactions under M.H.L. Pryce. In 1950 Flowers was granted study leave to carry out research under R.E. Peierls at the Department of Mathematical Physics, University of Birmingham. During the next two years he worked largely on problems of nuclear structure relating to the nuclear shell model, in collaboration with A.R. Edmonds. His work during this period was the basis of his successful submission to the University of Birmingham for a D.Sc. in 1953.

In the autumn of 1952 Flowers returned to Harwell and was soon appointed Head of the Theoretical Physics Division in succession to K.E.J. Fuchs. He undertook to reconstruct the Division to make it more like a university department, whilst continuing with his own research in collaboration with J.P. Elliott. In 1958 Flowers was appointed Chief Research Scientist but decided in the same year to return to academic life at the University of Manchester, firstly as Professor of Theoretical Physics and then from 1961 as Langworthy Professor of Physics and Head of Department. At Manchester Flowers took on undergraduate teaching responsibilities and some of his lectures formed the basis of his book *Properties of Matter* published in 1970 (with E. Mendoza).

In 1967 Flowers took unpaid leave of absence from the University of Manchester and moved into scientific administration by accepting appointment for a term of five years as Chairman of the Science Research Council (SRC). During that period his achievements as Chairman included ensuring United Kingdom participation in the 300 GeV project at CERN and the SRC's establishment and development of the Engineering Board to sponsor and encourage engineering. He also succeeded in raising the SRC's public profile. In 1972 he agreed to a second term of office as Chairman, this time for three years, and resigned the Langworthy Professorship at Manchester. Almost immediately, however, he was offered and accepted the position of Rector of Imperial College of Science and Technology, London.

Flowers took up his duties as Rector of Imperial College in 1973 and in the same year was also appointed Chairman of the Royal Commission on Environmental Pollution, a position he held until 1976. The 4th, 5th and 6th Reports of the Royal Commission were published during his chairmanship and proved influential, with many of their recommendations subsequently accepted by Government. Flowers continued at Rector of Imperial College until 1985, when he was appointed as Vice-Chancellor of the University of London. Flowers retired in 1990, although he continued to play a very active part in public life and in 1994 was appointed Chancellor of the University of Manchester.

Flowers contributed articles to scientific periodicals about the structure of the atomic nucleus, nuclear reactions, science policy, energy and the environment. He published the books *Properties of Matter*, with E. Mendoza in 1970 and *An Introduction to Numerical Methods in C++* in 1995.

Flowers played an active role in public life from the 1960s, frequently acting as chairman of committees and other bodies. These include the Computer Board for Universities and Research Councils, 1966-1970, the Standing Commission on Energy and the Environment, 1978-1981, the Committee of Vice-Chancellors and Principals, 1983-1985, the House of Lords Select Committee on Science and Technology, 1989-1993 and the Nuffield Foundation, 1987-1998. Flowers served on the Advisory Council on Scientific Policy, 1962-1964 and the Council for Scientific Policy, 1965-1967, and was also President of several societies and organisations including the Institute of Physics, 1972-

1974, the European Science Foundation, 1974-1980 and the Parliamentary and Scientific Committee, 1993-1997.

Flowers was a founder member of the Social Democratic Party in 1981, having been persuaded to join by Shirley Williams MP. As a life peer he served, in his spare time, as a front bench spokesman on issues relating to science, education, energy and the environment until he decided in 1989 to return to the cross benches.

Flowers was accorded many honours and awards for his contributions to both science and public life. He was elected to the Fellowship of the Royal Society in 1961 and awarded the Rutherford Medal by the Institute of Physics and Physical Society in 1968. In the following year he received a knighthood and this was followed in 1979 with a life peerage. Flowers's achievements were also honoured by the French Government in 1975 and 1981 with the titles of Chevalier de la Légion d'Honneur and Officier de la Legion d'Honneur respectively.

DESCRIPTION OF THE COLLECTION

The material is presented in the order given in the list of contents. It covers the period from the early 1940s to 1998.

Section A, Biographical, documents most stages of Flowers's career from 1958 to 1990, including papers relating to his various appointments and the honours and awards he received. His undergraduate studies at Cambridge are also represented, through five notebooks from the early 1940s. There is material reflecting his concerns for science education and research, as well as material relating to his wider political interests such as the Suez Crisis of 1956, the entry of Britain into the Common Market in 1971 and his resignation from the Social Democratic Party in 1989. The section also contains some family material, photographs of Flowers with colleagues at various functions and a large collection of press cuttings illustrating his public profile over the period 1969 to 1981.

Section B, University of Manchester, covers the career of Flowers at that institution from 1960 to 1967 when he was Professor of Theoretical Physics (1958-1961) and Langworthy Professor of Physics (1961-1967) and from 1994 to 1997 when he was Chancellor. There is correspondence and papers relating to University Grants Committee visits, the Department of Physics Steering Committee, the establishment of the Honours School of Liberal Studies in Science, and the office of Chancellor of the University of Manchester.

Section C, Research, consists of a notebook on pulse chambers from the late 1940s and a copy of Flowers's D.Sc. submission to the University of Birmingham in 1953.

Section D, Speeches, lectures and broadcasts, is substantial. Its principal component is a main sequence of invitation and public speeches and lectures covering the period 1946-1995. Flowers gave numerous speeches and lectures over the years especially during his Rectorship of Imperial College, London from 1973 to 1985 and these are well represented, as are his contributions to House of Lords debates from 1979 to 1995. There are also lecture courses which Flowers gave while a lecturer at University of Birmingham (1950-1952) and at the University of Manchester (1958-1967). There is some broadcast material for BBC radio over the period 1957 to 1983.

Section E, Publications, consists of a series of correspondence and drafts chiefly covering the late 1940s to early 1980s. As well as material relating to articles by Flowers and interviews about him there are also papers relating to his books *Properties of Matter* with E. Mendoza (John Wiley & Sons Ltd, 1970) and *An introduction to numerical methods in C++* (Clarendon Press, 1995) as well as two unpublished books from the 1950s entitled 'The Structure of Light Nuclei' and 'Group Theory and Nuclear Structure'. There is also editorial material from the 1970s and a large collection of offprints of Flowers's publications from the late 1940s to the 1990s.

Section F, Societies and organisations documents Flowers's involvement with numerous UK, overseas and international bodies over the period, 1957-1998. His interest in the policy-making and administration of higher education both at home and abroad is represented through papers relating to the Committee of Enquiry into the Organisation of the Academic Year, the Hong Kong University of Science and Technology, the Catching Up with European Higher Education Fund and the Hungarian Accreditation Committee. Flowers's association with the United Kingdom Atomic Energy Authority between 1958 and 1977 is well documented and there is also a considerable body of material relating to his chairmanship of the Computer Board for Universities and Research Councils, the National Physical Laboratory's Steering Committee, the House of Lords Select Committee for Science and Technology and the Nuffield Foundation. Political concerns are reflected through correspondence and papers relating to Pugwash Conferences for the period 1962-1967, while his continued interest and involvement in the affairs of Imperial College of Science and Technology, London and the University of London, following his retirement in 1990, are also well represented in this section.

Section G, Correspondence, includes an extensive sequence described by Flowers as 'personal correspondence', addressed to him in his various official capacities. The subject matter is broad, covering a wide range of professional issues and more personal matters relating to colleagues, friends and family. There is also a sequence of day files from 1990 to 1997. Other series of correspondence are those with J.W. Bray MP in 1966 and Lord Rothschild in the 1970s and 1980s. There is also a large sequence of references and recommendations.

There is also an index of correspondents.

ACKNOWLEDGEMENTS

We are very grateful to Lord Flowers for making his papers available for cataloguing and for his advice and encouragement.

A.F. Nardone
A.P. Hayward
BATH 1998

SECTION A	BIOGRAPHICAL	A.1-A.180
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Biographical

A.7-A.137 CAREER, HONOURS AND AWARDS 1958-1990

Arranged in chronological order.

A.7 Atomic Energy Research Establishment, Harwell, 1958.

Letter *re* promotion, 17 March 1958.

Official Secrets Act declaration, 24 September 1958.

A.8 Professor, Department of Theoretical Physics, University of Manchester, 1958, 1959.

Flowers took up his duties on 1 October.

Correspondence *re* appointment, February-July 1958; 1p typescript form *re* conditions of appointment inscribed 'Original signed 7/10/58' with 1p typescript note attached entitled 'The determination of office of a professor'.

2pp typescript report by Flowers *re* 1958-1959 session of the Department of Theoretical Physics, *ca* 1959.

A.9 Correspondence *re* offer of appointment as Deputy Director of the Atomic Energy Research Establishment, Harwell, (declined), February-May 1960.

A.10, A.11 Langworthy Professor of Physics, University of Manchester, 1961-1972.

Flowers took up his duties on 1 January 1961 and resigned on 30 September 1972. Flowers took leave of absence from the post in October 1967 to assume the Chairmanship of the Science Research. Flowers did not resume his chair and resigned on 30 September 1972.

A.10 Correspondence *re* appointment, December 1960-February 1961; 1p typescript form *re* conditions of appointment (unsigned).

A.11 Correspondence *re* resignation with 1p typescript resolution of thanks from the University Senate and Council attached, November 1972.

Biographical

- A.12-A.15 Fellowship of the Royal Society. 1961.

Letters and telegrams of congratulation. Flowers has numbered the letters 1-116 and has included some additional unnumbered letters at the end.

4 folders.
- A.16 Award of M.Sc., University of Manchester. 1962.

Letter informing Flowers of decision to award him degree, 16 May 1962.
- A.17 'Jobs rejected etc.'. Contents of folder so inscribed. 1964-1966.

Correspondence *re* offers of appointments etc declined:

Principal, University of Swansea, December 1964.

Vice-Chancellor, University of Sheffield, March, April 1965.

Letter from J. Fulton, Vice-Chancellor of the University of Sussex *re* Flowers career, 1 April 1965.

National Physical Laboratory, Teddington, Middlesex, 28 July 1965.

Principal, Queen Elizabeth College, University of London, November 1965.

Vice-Chancellor of proposed new University for Northern Ireland, November 1965.

Vice-Chancellor, University of Technology, Loughborough, Leicestershire, October 1966.
- A.18 'Farewell Card from Manchester 1967'. Contents of envelope so inscribed. 1967.

Best wishes card with signatures.
- A.19-A.31 Chairman, Science Research Council. 1967-1973

Flowers took up his duties on 1 October 1967 obtaining leave of absence from his post as Langworthy Professor of Physics at the University of Manchester in order to do so. He resigned from the Science Research Council on 30 September 1973.
- A.19 Correspondence *re* appointment including arrangements to take leave of absence from Langworthy Chair, October 1966-March 1967.

Biographical

A.20-A.29	Letters of congratulation, January-March 1967. Arranged by surname.
A.20	A, B.
A.21	C, D.
A.22	F, G.
A.23	H, J.
A.24	K, L.
A.25	M, P.
A.26	R, S.
A.27	T, V.
A.28	W, Z.
A.29	Unidentified.
A.30	Letter of congratulation <i>re</i> re-appointment as Chairman, February 1972.
A.31	Correspondence <i>re</i> resignation, October 1973.

Biographical

- A.32-A.48 Award of Knighthood, 1969.

This honour was conferred on Flowers in the Birthday Honours List June 1969.
- A.32 Correspondence etc *re* notification of honour and arrangements for investiture ceremony, April-June 1969.
- A.33 Press cuttings etc, June 1969.
- A.34 Notebook with alphabetical list of persons who sent letters and telegrams of congratulation. *ca* June-September 1969.

See also A.35-A.47.
- A.35-A.47 Letters and telegrams of congratulation, June-November 1969.

Arranged by surname. Unindexed

See also A.34.
- A.35 A.
- A.36 B.
- A.37 C.
- A.38 D.
- A.39 E, F.
- A.40 G.
- A.41 H.

Biographical

- A.42 J-L.
- A.43 M.
- A.44 N-P.
- A.45 R, S.
- A.46 T-Z.
- A.47 Unidentified.
- A.48 'Investiture - July 1969', two 2pp typescript draft accounts by Lady Flowers *re* investiture of Sir Brian, *ca* July 1969.
- A.49-A.72 Appointment as Rector of Imperial College, London, 1973.
Flowers took up his duties on 1 October 1973 and resigned in 1985.
- A.49, A.50 'Imperial College - appointment as Rector'. Contents of folder so inscribed divided into two for ease of reference. 1972-1973.
- A.49 Correspondence *re* appointment, March 1972- January 1973.
- A.50 Typescript papers *re* Murray Report on the governance of the University of London found with preceding, 1973.
10pp minutes of Imperial College, London, Board of Studies special meeting, 10 January; two 6pp typescripts by the Board of Studies commenting on the report, with annotations, 14 February, 9 March.

Biographical

A.51-A.72 'Congratulations letters of Rectorship of Imperial College'. Contents of folder so inscribed, divided into twenty-two for ease of reference.

A.51 Material *re* official announcement of appointment, 1972.

1p typescript formal circular letter on behalf of Flowers, 26 May; 1p typescript press release from Imperial College, London, 26 May 1972; press cutting, *The Times*, 29 May 1972.

A.52 6pp typescript address list of persons thanked by Flowers for their letters or telegrams of congratulation, *ca* May-July 1972.

See also A.53-A.72.

A.53-A.72 Letters and telegrams of congratulation, 1972.

Arranged by surname.

A.53 A.

A.54 B.

A.55 D.

A.56 E.

A.57 F.

A.58 G.

A.59 H.

A.60 J.

A.61 K.

Biographical

- | | |
|------|--|
| A.62 | L. |
| A.63 | M. |
| A.64 | N. |
| A.65 | P. |
| A.66 | R. |
| A.67 | S. |
| A.68 | T. |
| A.69 | V. |
| A.70 | W. |
| A.71 | Z. |
| A.72 | Unidentified. |
| A.73 | Honorary Fellowship, Gonville and Caius College, Cambridge. 1974.
Letter of thanks from Flowers to the Fellows <i>re</i> his election, February 1974. |
| A.74 | Chevalier de la Légion d'Honneur. 1975.
Correspondence <i>re</i> award, January-February 1975.
See also D.139. |

Biographical

- A.75 Honorary Membership, Royal Irish Academy. 1976.

1p typescript letter informing Flowers of election, 16 March 1976.
- A.76 Knight of Mark Twain. 1978.

1p typescript letter etc informing Flowers of his election, 18 October 1978.
- A.77-A.109 Award of Life Peerage, 1979.

Flowers was appointed a life peer in the New Years Honours List of 1 January 1979.
- A.77 'Press cuttings new year's honours list '78-'79'. Contents of folder so inscribed. December 1978-January 1979.
- A.78 Announcement of honour in the Imperial College newsletter *Topic*, front page, 22 January 1979.
- A.79, A.80 'Introduction of Lord Flowers into House of Lords'. Contents of folder so inscribed, divided into two for ease of reference. Correspondence and papers. 1978-1979.

The introduction took place on 28 March 1979.
- A.79 December 1978-February 1979.
- A.80 March-May 1979.
- A.81-A.83 'Maiden Speech'. Contents of folder so inscribed, divided into three for ease of reference. January-July 1979.

Flowers gave his maiden speech in the House of Lords on 5 July 1979.

Correspondence etc *re* proposed European and Economic Social Policy Research Institute and maiden speech.
- A.81 17 January-5 February.

Biographical

- A.82 8 February-19 June.
- A.83 5 July, including 12pp A5 typescript of speech with annotations.
- A.84 33pp typescript list of those sending letters and telegrams of congratulation to Flowers, *ca* January 1979.

See also A.85-A.109.
- A.85-A.109 Letters and telegrams of congratulation etc, August 1978-April 1979.

Arranged by surname. Unindexed

See also A.84.
- A.85 A.
- A.86 B.
- A.87 C.
- A.88 D.
- A.89 E.
- A.90 F.
- A.91 G.
- A.92 H.
- A.93 I.

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A.94 J.

A.95 K.

A.96 L.

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A.99 O.

A.100 P.

A.101 Q.

A.102 R.

A.103 S.

A.104 T.

A.105 U.

A.106 V.

A.107 W.

A.108 Z.

Biographical

- A.109 Unidentified.
- A.110 Officier de la Légion d'Honneur. 1981.
1p photocopy of typescript letter to Flowers announcing the honour, 2 February 1981.
See also D.279 and G.8.
- A.111 Proposal to elect Flowers Governor Emeritus of the Weizmann Institute of Science, Rehovot, Israel, (declined). 1983.
Correspondence, November 1983, January 1984.
- A.112 Honorary D.Sc., University of Oxford. 1985.
Encaenia booklet containing biographical notes on those receiving degrees on 26 June 1985.
- A.113-A.137 Vice-Chancellor, University of London. 1985.
Flowers took up his duties on 1 September 1985 and retired in 1990.
- A.113 *Annual Report 1984-85*, Imperial College, London, 1985.
Incomplete copy of Report with article *re* Flowers's retirement as Rector and appointment as Vice-Chancellor of the University of London.
- A.114-A.135 Letters of congratulation, November 1984-February 1985.
Many of the letters below are accompanied by photocopies of Flowers's acknowledgements. Arranged by surname.
- A.114 A.
- A.115 B.
- A.116 C.

Biographical

A.117 D.

A.118 E.

A.119 F.

A.120 G.

A.121 H.

A.122 I.

A.123 J.

A.124 K.

A.125 L.

A.126 M.

A.127 N.

A.128 P.

A.129 Q.

A.130 R.

A.131 S.

Biographical

- A.132 T.
- A.133 W.
- A.134 Y.
- A.135 Unidentified.
- A.136 Honorary life membership, University of London Union. 1990.
Certificate of honorary life membership, with typescript note attached, presented to Flowers on the occasion of his retirement as Vice-Chancellor, 3 May.
- A.137 Leaflet *re* presentation of graduates to Flowers as Vice-Chancellor, Royal Albert Hall, London, 9 May 1990.
- A.138-A.152 POLITICAL INTERESTS 1956-1990**
- A.138-A.147 Science policy and education
- A.148-A.151 General politics
- A.152 Visit to Bulgaria
- A.138-A.147 Science policy and education 1963-1974**
- A.138-A.140 'Politics'. Contents of folder so inscribed, divided into three for ease of reference. 1963-1966.
Correspondence *re* the state of science administration and higher level science education in England and its future.
- A.138 May 1963, March 1965.
- A.139 April-July 1965.

Biographical

- A.140 November 1965-December 1966.
- A.141-A.143 'Labour Party science meetings'. Contents of folder so inscribed, divided into three for ease of reference. 1964.
- Correspondence and papers *re* Bonnington Science Meeting, London, 29 February, 1 March 1964.
- The meeting concerned the Robbins Report (*Report of the Committee on Higher Education*, HMSO, 1963) and the Trend Report (*Report of the Committee of Enquiry into the Organisation of Civil Science*, HMSO, 1963).
- A.141 Extract from official report on the House of Commons Science Debate, 17pp typescript, 24 February 1964; 2p manuscript notes.
- A.142, A.143 Letter and papers *re* arrangements, 22 February 1964.
- 2 folders.
- A.144-A.146 'Eton Discussion 1967'. Contents of folder so inscribed, divided into three for ease of reference. 1967.
- Correspondence and papers *re* meeting at Eton College, Berkshire, to discuss the supply of graduate teachers in science, 23 May 1967. Flowers attended in his capacity as Chairman of the Science Research Council.
- A.144 *The demand for and supply of teachers 1963-1986*, HMSO, 1965.
- A.145 Correspondence and papers *re* arrangements including 9pp typescript discussion paper entitled 'The future of science education in Britain' by J. Goodier, March-April 1967.
- A.146 Includes correspondence with Tony Benn MP, Minister of Technology *re* findings of meeting.

Biographical

- A.147 Council of Engineering Institutions and Science Research Council Conference on Science and Technology, 30 October 1973.
- Flowers raised the issue of university education and its relationship to the Total Technology concept.
- Brief correspondence *re* amendments by Flowers to the account of his contribution in the report of the Conference, including 1p typescript extract with annotation, February 1974.
- A.148-A.151 General politics 1956-1990**
- A.148 Suez Crisis. 1956.
- Copies of 1p typescript letter to Anthony Eden MP, Prime Minister and 1p typescript letter to A.M.S. Neave MP, Parliamentary Private Secretary to the Secretary of State for the Colonies, November 1956.
- A.149 Common Market entry. 1971.
- 'Common Market Correspondence'. Contents of folder so inscribed.
- Correspondence *re* Flowers's views on Britain's entry into the common market, July 1971.
- A.150 Israeli military policy in the Middle East. 1972.
- Correspondence *re* proposed letter from Flowers to A. Sabin, President of the Weizmann Institute of Science, Rehovot, Israel, September 1972.
- A.151 Resignation from Social Democratic Party. 1989-1990.
- Correspondence etc *re* Flowers's resignation, October 1989-March 1990.
- A.152 Visit to Bulgaria 1977**
- A.152 Visit to Bulgaria. 19-29 March 1977
- Flowers was invited to Bulgaria by the President of the Committee for Science, Technical Progress and Higher Education. At the time Flowers was Chairman of the Royal Commission on Environmental Pollution and President of the European Science Foundation.
- 17pp typescript report.

Biographical

A.153-A.156 **FAMILY** **1947, 1971-1985**

A.153, A.154 'Correspondence *re* Father's death No 36 etc'. Contents of folder so inscribed, divided into two for ease of reference. 1947, 1971-1985.

Correspondence and papers *re* Flowers's parents, Harold Joseph Flowers and M.V. 'Madge' Flowers.

2 folders.

A.155 2pp typescript copy of letter by Flowers *re* his marriage, 17 February 1953.

A.156 Letter and form *re* proposed application of Flowers's step-son to undergraduate study at Gonville and Caius College, Cambridge.

A.157-A.165 **PHOTOGRAPHS** **1960s-1990**

The photographs in folders A.158-A.160, A.162, and A.163, A.164 are accompanied by photocopies annotated by Flowers indicating persons, locations and dates where known.

A.157 Department of Theoretical Physics, University of Manchester, (two photographs), ca 1960s.

A.158 First meeting of the Council for Scientific Policy, 1965.

A.159 Visits made while Chairman of the Science Research Council, 1967-1973.

NASA, Florida, USA.

Royal Observatory, Edinburgh.

A.160 Department of Theoretical Physics, University of Manchester, 1967.

Daresbury Nuclear Physics Laboratory, Cheshire, [between 1967 and 1969].

Biographical

- A.161 'K Transparencies'. Contents of envelope so inscribed.

Three transparencies of Flowers and his wife on the occasion of conferral of Knighthood on Flowers, July 1969.
- A.162 Conferral of Fellowship of Imperial College, London, 1972.

Conferral of Honorary D.Sc., University of Wales, Aberystwyth, 1972.
- A.163 First Imperial College Commemoration Day Speech, Royal Albert Hall, London, 15 October 1973.

See also D.92.
- A.164 Rutherford High Energy Laboratory, Chilton, Berkshire, *ca* 1970s.
- A.165 Retirement of W.M. Lomer, United Kingdom Atomic Energy Authority, Culham Laboratory, Abingdon, Oxfordshire, 1990.
- A.166-A.174 PRESS CUTTINGS 1969-1981**
- A.166-A.173 Folders of press cuttings, 1969-1979.

The original reverse chronological order within each folder has been retained.
- A.166-A.170 Five folders each inscribed with 'Chairman Press Cuttings' and the years covered. 1969-1973.
- A.166 '1969'.

December 1968-December 1969.
- A.167 '1970'.

January-December 1970.

Biographical

- A.168 '1971'.
December 1970-December 1971.
- A.169 '1972'.
January-December 1972.
- A.170 '1973'.
January-November 1973.
- A.171 February 1974-December 1975.
- A.172, A.173 Two folders each inscribed with 'Personal File Press Cuttings' and the years covered. 1976-1980.
- A.172 '1976'.
January-December 1976.
- A.173 '1977, 78, 79 and 80'.
January 1977-August 1980.
- A.174 'Miscellaneous Press Cuttings Sir Brian/Lord Flowers'. Contents of plastic sleeve so labelled. 1972-1981.

Press cuttings, June 1972-December 1981 (including manuscript doodle on photograph of Flowers appearing on press cutting dated 7 December 1979); 1p manuscript doggerel inscribed 'Pomes [Poems] by Sir Denys Wilkinson not to be thrown away', n.d.

Biographical

A.175-A.180 MISCELLANEOUS BIOGRAPHICAL MATERIAL 1961-1986

- A.175 Miscellaneous biographical correspondence. September 1961-April 1986.
- A.176-A.179 'Letters concerning Lord Flowers' ill-health, January to April 1985'. Contents of folder so labelled. Divided into four for ease of reference. 1985.
- A.176 January.
- A.177, A.178 February.
2 folders.
- A.179 March, June.
- A.180 Three University of London Vice-Chancellor seasonal greeting cards (each with a different illustration), ca 1986.

SECTION B

UNIVERSITY OF MANCHESTER

B.1-B.29

Flowers was Professor of Theoretical Physics at the University of Manchester from 1958 to 1961 and Langworthy Professor of Physics from 1961. In 1967 Flowers took leave of absence to assume the chairmanship of the Science Research Council (SRC) and in October 1972 he resigned his position as Langworthy Professor. His professional association with the University of Manchester was renewed when he was elected Chancellor in December 1994 and installed as such in a ceremony on 5 May 1995.

The material in this section has been arranged chronologically, it covers the periods 1960 to 1967 and 1994 to 1997.

B.1-B.3 Visit of the University Grants Committee (UGC) to the University of Manchester, 14-16 February 1961.

Flowers was appointed as a representative of the University Senate to meet the UGC on the occasion of their visit.

Correspondence and papers relating to the visit, 1960-1961.

3 folders.

B.4-B.6 Contents of folder inscribed 'Dept. of Physics Steering Cttee June 1961-Nov. 1966'. Divided into three for ease of reference.

Correspondence and printed matter *re* University of Manchester Department of Physics Steering Committee, 1961-*ca* 1966.

B.4 June 1961-*ca* 1964.

B.5 *ca* 1965.

B.6 *ca* 1966.

University of Manchester

- B.7-B.11 Contents of folder inscribed 'Liberal studies in science', divided into five for ease of reference.
- Correspondence and papers *re* establishment of the Honours School of Liberal Studies in Science at the University of Manchester, 1962-1967.
- Flowers was a key figure in the establishment of this school designed to provide an education for those interested in the function and administration of science.
- See also D.537.
- B.7 1962 July-November.
- B.8 1964 April-1965 January.
- B.9 1965 June-December.
- B.10 1966 January-September.
- B.11 1967 March.
- B.12 Circular letter *re* survey of scientific and technological manpower by the UGC, 21 January 1965.
- B.13 Correspondence and papers *re* UGC etc, 1965-1966.
- Includes papers *re* visit of the UGC to the University of Manchester on 10 and 11 November 1965.
- B.14 Correspondence *re* proposed appointment of H. Kronberger as honorary Professor of Physics, December 1966-March 1967.
- B.15-B.29 'University of Manchester Chancellor 1994-1997', contents of boxfile so inscribed, divided into fifteen for ease of reference. 1994-1997.
- The material below consists of two folders of correspondence *re* Flowers's election as Chancellor and one folder *re* installation details.

University of Manchester

In December 1994 Flowers was elected Chancellor of the University of Manchester and installed on 5 May 1995.

- B.15-B.21 'University of Manchester 1994-end 1995'. Contents of folder so inscribed, divided into seven for ease of reference.
- Correspondence. 1994-1995.
- B.15 1994 September-December.
- B.16 1995 January-February.
- B.17 1995 March.
- B.18 1995 April, May.
- B.19 1995 June-August.
- B.20 1995 September.
- B.21 1995 October-December.
- B.22 Contents of folder *re* installation of Chancellor.
- 1p typescript statement of Vice-Chancellor announcing date of installation, 7 March 1995; programme; 'Fanfare for a new chancellor', 3pp sheet music composed by J. Casken for the installation ceremony; press cuttings, 9, 10 May 1995.
- B.23-B.29 'University of Manchester Jan 1996-Dec 1997'. Contents of folder so inscribed, divided into seven for ease of reference.
- Correspondence 1996-1997.
- B.23 1996 January, February.

University of Manchester

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|------|--------------------------|
| B.24 | 1996 March. |
| B.25 | 1996 April, May. |
| B.26 | 1996 June, July. |
| B.27 | 1996 August-October. |
| B.28 | 1996 November, December. |
| B.29 | 1997 February-December. |

SECTION C

RESEARCH

C.1, C.2

C.1

Softback notebook, *ca* 1947/1948.

'Theory of Pulse Chambers' inscribed on front cover. Contains manuscript notes, calculations, graphs, tables etc. Includes intercalated photograph of laboratory equipment.

'The notebook on pulse chambers was written for my own benefit. I was working on gridded pulse chambers at the time, and O R Frisch gave me some notes of his own on the subject. There was also some published stuff. I assembled what appeared relevant to my needs, working out a few things myself as I went along, although how much was original I can no longer guess. It was done while I was still in the Nuclear Physics Division in Harwell, around 1947-48.' (Lord Flowers, private communication, 10 April 1998).

C.2

D.Sc. submission 'Contributions to the theory of nuclear reactions and of nuclear structures' by Flowers, University of Birmingham, May 1953.

This contains some of Flowers' more important early research papers.

SECTION D

SPEECHES, LECTURES AND BROADCASTS

D.1-D.577

D.1-D.476 INVITATION AND PUBLIC SPEECHES AND LECTURES

D.1-D.469 Main sequence

D.470-D.476 Selected early speeches and lectures

D.477-D.572 TEACHING

D.477-D.525 Birmingham lecture course

D.526-D.572 Manchester lecture courses

D.573-D.577 BROADCASTS

Speeches, lectures and broadcasts

D.1-D.476 INVITATION AND PUBLIC SPEECHES AND LECTURES 1946-1995

The main sequence of invitation and public speeches and lectures (D.1-D.469) covers the period 1946-1995. Flowers gave numerous speeches and lectures when he was Rector of Imperial College, London from 1973-1985 and these are well represented in the main sequence. A folder of selected lectures and speeches (D.470-D.476) compiled in September 1985, covers the period 1956-1965.

When it is not known where a particular speech or lecture was given this has been indicated in the text by '[?]'.
[?]

Arranged in chronological order.

D.1-D.469 Main sequence

D.470-D.476 Selected early speeches and lectures

D.1-D.469 Main sequence 1946-1995

D.1 Eleven typescript lists of lectures and speeches given by Flowers, 20pp, June 1946-July 1985.

Originally each list accompanied a boxfile of lectures and speeches to which it referred. The lists have been grouped together and the lectures and speeches in each boxfile amalgamated, with others found elsewhere in the papers, to form a continuous sequence.

Flowers frequently had his speeches and lectures in large print on approximately A5 format pages to aid his delivery of them to audiences. Where this is the case it has been indicated in the text.

1946

D.2 'The theory of the deuteron: a series of lectures', National Research Council of Canada, Division of Atomic Energy, Chalk River, Ontario, Canada, May, June 1946.

15pp typescript + bibliography with 3pp intercalated notes.

D.3 'On the photo effect in deuterium', Harwell Nuclear Physics Colloquium, Atomic Energy Research Establishment, Harwell, Berkshire, 11 November 1946.

6pp manuscript.

Speeches, lectures and broadcasts

1948

- D.4 'Atomic energy for good or evil', Walter Road Congregational Church, [?], 7 March 1948.
6pp manuscript.
- D.5 'Applications of atomic energy', Rotary Club, Swansea, 8 March 1948.
6pp typescript.
- D.6 'Nuclear properties of the heavy elements', University College of Swansea, 10 March 1948.
5pp manuscript.
- D.7 'The scattering of neutrons in helium', Harwell Colloquium, Atomic Energy Research Establishment (AERE), Harwell, Berkshire, April 1948.
8pp manuscript.

1950-1954

- D.8 'Theory of nuclear cross sections', Physics Colloquium, [?], 19 June 1950.
9pp manuscript.
- D.9 'The nuclei above oxygen', with J.P. Elliott, Glasgow Conference, July 1952.
6pp typescript + graphs and tables.
- D.10 'Nuclear power in the future', Rotary Club, Swansea, 22 June 1953.
4pp typescript.
- D.11 'Statistical theory of fission', theoretical physics seminar, [?], 29 July 1953.
7pp manuscript.

Speeches, lectures and broadcasts

- D.12 'Nuclear spectroscopy', Birmingham, July 1953.

9pp typescript.
- D.13 'Imperial College Lectures', contents of folder so inscribed. ca October 1953.

Flowers gave a series of eight lectures on 'Recent developments in the theory of the stationary states of nuclei', beginning 16 October 1953.

1p typescript list of lectures with annotations; manuscript material for lectures, 39pp.
- D.14 'Law energy spectra of nuclei', Kapitza Club, Cambridge, 7 December 1954.

11pp typescript draft with annotations.
- 1955**
- D.15 American Physical Society Meeting, [?], January 1955.

7pp typescript describing research carried out on the Harwell cyclotron with J.M. Dickson and D.C. Slater.
- D.16 'Nuclear Physics Lectures'. Contents of folder so inscribed. May 1955.

In May 1955 Flowers presented a series of six lectures on 'Recent developments in nuclear structure', at the Cavendish Laboratory, Cambridge.

35pp typescript.
- D.17 'Theory of neutron reactions', Neutronics Symposium at the Atomic Energy Research Establishment, Harwell, Berkshire and Atomic Weapons Research Establishment, Aldermaston, Berkshire, 25-28 October 1955.

7pp typescript; 2pp typescript programme and attached note.
- D.18 'The work of the Theoretical Physics Division, [Harwell]', Colloquium at University College, London, 1955.

15pp typescript with annotations.

Speeches, lectures and broadcasts

- D.19 'Low-lying energy levels of nuclei', Meeting of the Physical Society, Atomic Energy Research Establishment, Harwell, Berkshire 1955.
5pp typescript + figures.
- D.20 'U.C.L.A. University of California, Los Angeles, Lecture course'. Contents of folder so inscribed. 1955.
Flowers gave a series of six lectures on 'Recent developments in nuclear structure'.
56pp typescript.
- D.21 'The structure of nuclei', Ritchie Lecture, University of Edinburgh, ca 1955.
7pp typescript with annotations.
- D.22 'Betu-Brueckner theory of the nucleus', [?], ca 1955.
14pp manuscript draft.
- 1956-1959**
- D.23 'Recent work at Harwell on nuclear structure', Copenhagen, Denmark, April 1956.
13pp typescript with annotations and 1p manuscript notes.
- D.24 'Some reactor calculations of current interest', Stockholm, Sweden, April 1956.
12pp typescript
- D.25 'Personal relations in a research establishment', Research Group Management Conference, AERE, Harwell, Berkshire, 20-24 May 1957.
15pp typescript draft; published transcript of four talks given at conference including that given by Flowers, 27pp typescript with attached 7pp typescript entitled 'Communication in research work'.

Speeches, lectures and broadcasts

- D.26 'Interpretation of transition probabilities in light nuclei', Moscow Conference on Nuclear Reactions, USSR, latest bibliographical reference 1957.
6pp typescript + 4 diagrams.
- D.27 'Lecture series on nuclear physics', annotated 'AERE/TRE Malvern', ca 1958.
Flowers gave six lectures.
21pp typescript.
- D.28 Lecture on atomic energy, Administrative Staff College, Henley, ca 1958.
10pp typescript.
- D.29 'Polarization of nuclear spins', [?], ca 1958.
6pp manuscript draft.
- D.30 'Structure of the atomic nucleus', Manchester University Chemical Society, 19 November 1959.
20pp manuscript draft with annotations.
See also E.18.
- 1961-1966**
- D.31 'The fundamental structure of matter', Percival Lecture, [?], 1961.
11pp typescript.
- D.32 'Symmetry in physics', Manchester Mathematical Society, 14 February 1962.
11pp typescript draft with annotations and 2pp manuscript notes.
- D.33 'Organisation of civil research (as seen from a university)', [?], 25 April 1963.
12pp typescript draft with annotations.

Speeches, lectures and broadcasts

- D.34 Introduction of M. Ryle Guthrie Lecturer for 1964, [?].
1p typescript.
- D.35 'Recent developments in nuclear structure', Institute of Physics and the Physical Society Conference, Liverpool, September 1965.
17pp typescript draft with annotations.
- D.36 'The irrelevance of scientific research', Leeds, 12 October, 1966.
33pp typescript draft with annotations.
- D.37 Talk on a report *re* computers for research, Department of Education and Science, London, 8 December 1966.
Correspondence *re* arrangements, August-November 1966.
- 1967**
- D.38 'Financing science', Nuclear Physics Conference Dinner, Manchester, 27 September 1967.
Correspondence etc *re* arrangements and issues arising from speech, September-October 1967; 7pp typescript notes sent to Flowers by R. Lindgren, 21 September 1967; 7pp manuscript draft and 4pp typescript, *ca* September 1967.
- D.39 Annual Dinner, Institute of Physics, Liverpool and North Wales Branch, 23 November 1967.
5pp typescript.
- D.40 'Technology and the research councils', Institution of Mechanical Engineers, North Western Branch, Manchester, 7 December 1967.
47pp typescript draft.

Speeches, lectures and broadcasts

1968

- D.41 'Other research councils', IPCS [?Institution of Professional Civil Servants] Science Research Council Branch Annual Delegate Conference, [?], 10 February 1968.

16pp typescript.
- D.42 Banquet speech, Fourth International Vacuum Conference, Manchester, 18 April 1968.

7pp typescript.
- D.43 Chairman's opening speech, Second International Cryogenic Engineering Conference, Brighton, 7 May 1968.

Correspondence etc *re* arrangements, December 1967-January 1968; 9pp typescript notes.
- D.44 Inauguration of Hybrid Computing Facility, University of Cambridge Engineering Department, 18 June 1968.

Correspondence *re* arrangements etc, April-July; 15pp typescript of speech by Flowers; 8 photographs of the Computing Facility and the opening ceremony; 1p typescript programme; background material *re* control engineering studies.
- D.45 Reply on behalf of fellow honorary graduates, Degree Ceremony, University of Sussex, Brighton, 9 July 1968.

15pp typescript draft.
- D.46 Opening speech, Summer School in Spectroscopy, Royal Institute of Chemistry, London, 4 September 1968.

Correspondence *re* arrangements etc, June-September 1968; 10pp typescript draft with annotations.
- D.47 Address, Presentation Ceremony, Borough Polytechnic and National College for Heating, Ventilating, Refrigeration and Fan Engineering, London, 27 November 1968.

9pp typescript draft with annotations.

Speeches, lectures and broadcasts

1969

- D.48 Announcement of new radio telescope, Cavendish Laboratory, University of Cambridge, 6 February 1969.
- Correspondence *re* arrangements, January 1969; 6pp typescript; 3pp typescript draft with annotations.
- D.49 'Science, industry and government', University of East Anglia, Norwich, 25 March 1969.
- 43pp typescript draft with annotations.
- D.50 'Industry and the universities', Confederation of British Industries, Leeds, 17 April 1969.
- Due to illness Flowers was unable to give the lecture and it was delivered instead by C. Jolliffe.
- Correspondence *re* arrangements etc, September 1968-April; 3pp typescript notes; 19pp typescript draft with annotations.
- D.51 'Science and society: priorities', Science and Technology Conference, Fabian Society, London, 12 July 1969.
- Correspondence *re* arrangements etc, April-August 1969; 3pp typescript proposal for conference; 3pp typescript programme; 4pp typescript report of conference proceedings and findings; 6pp manuscript notes for lecture by Flowers; 2pp article by unidentified author 'Would Mr Heath have more to offer', *Nature*, **222**, (21 June 1969).
- D.52 After-dinner address, Conference on Computational Physics, Institute of Physics, [?], 30 July 1969.
- 13pp typescript with annotations.
- D.53 1969 International Symposium on Electron and Photon Interactions at High Energies, University of Liverpool, 14-20 September 1969.
- Flowers appears to have addressed the conference on 18 September.
- 10pp manuscript notes for address inscribed 'Daresbury [Nuclear Physics Laboratory, Lancashire] 18/9/69'; 58pp typescript, list of participants, programme and list of contributions.

Speeches, lectures and broadcasts

- D.54 Opening of King's College Computer Centre, King's College, London, 16 October 1969.
- 13pp typescript with annotations.
- 1970**
- D.55 'Engineering and the SRC', Institution of Electrical Engineers, [?], 5 February 1970.
- 56pp typescript with annotations and 2pp manuscript notes of references.
- D.56 'Science in universities', University of Nottingham, 6 March 1970.
- 17pp typescript.
- D.57 Thanks for Lord Bessborough's opening speech, London Science Fair, British Association for the Advancement of Science, Imperial College, London, 13 July 1970.
- 3pp typescript.
- D.58 Opening of the Sir Harold Hartley Computing Laboratory, University of Manchester Institute of Science and Technology, 2 October 1970.
- Correspondence etc *re* arrangements, July-October 1970; 18pp typescript draft; 7pp typescript draft with annotations; 6pp typescript paper + tables *re* grant aid from the University Science and Technology Board.
- D.59 Memorial address for Hans Kronberger, West London Synagogue, 26 October 1970.
- '1970, The Kronberger File. Royal Society: Dr. Hans Kronberger', contents of folder so inscribed.
- Correspondence *re* memorial address, memorial service and biographical memoir by L. Rotherham, October 1970-June 1972; 17pp typescript draft with annotations.
- D.60 Awards presentation address, Colchester Lathe Company Limited, Essex, 3 December 1970.
- 12pp A5 typescript with annotations.

Speeches, lectures and broadcasts

- D.61 Awards presentation address, unidentified school, London, ca 1970.
18pp A5 typescript
- D.62 Notes for French Institute, [?], ca 1970.
2pp manuscript notes inscribed 'Notes for French Institute', n.d. with note attached *re* a speech by Flowers illustrating success stories resulting from Science Research Council support, 22 October 1970.
- 1971**
- D.63, D.64 Degree Conferment Ceremony address, Brighton Polytechnic, Sussex, 2 April 1971.
- D.63 Correspondence *re* arrangements etc, January-April 1971; programme.
- D.64 8pp typescript draft with annotations.
- D.65 Opening of Imperial College High Volt Electron Microscope, Imperial College, London, 20 April 1971.
Correspondence etc *re* arrangements, February, April 1971; 4pp typescript draft with annotations; 4pp typescript.
- D.66, D.67 'Science, industry and government', Copenhagen, Denmark, [22] April 1971.
- D.66 Correspondence etc *re* arrangements, January-May 1971.
- D.67 36pp typescript.
- D.68 Annual Dinner, Institution of Chemical Engineers, Manchester, 27 April 1971.
8pp typescript with annotations.

Speeches, lectures and broadcasts

- D.69-D.71 'The scientific background of electrical engineering in the year 2000', Centenary Congress, Institution of Electrical Engineers, [?], 18 May 1971.
- D.69 Correspondence *re* arrangements, and in response to content of Flowers's speech, August 1970-July 1971; 4pp typescript of speech by H.K. Bourne entitled 'The emerging seventies', April 1970; 4pp typescript notes by W.D.H. Greening *re* Flowers's speech and resulting topics for discussion, 29 May 1971.
- D.70 20pp programme with synopsis of speech by Flowers and biographical note.
- D.71 23pp typescript.
- D.72 Opening of the Oxford Nuclear Physics Laboratory, 20 July 1971.

Correspondence *re* arrangements, March-July 1971; 3pp typescript with annotations.
- D.73 'Science and the Common Market', British Association Meeting, Swansea, 6 September 1971.

13pp typescript.
- D.74 NATO Advanced Study Institute, [?], 22 September 1971.

8pp A5 typescript with annotations.
- D.75 Reply on behalf of guests, Weizmann Dinner, Weizmann Institute for Science, Rehovot, Israel, 20 October 1971.

6pp typescript with annotations.
- D.76, D.77 'Technology and man', First Leverhulme Memorial Lecture, University of Liverpool, 25 October 1971.
- D.76 Correspondence *re* Flower's lecture, November 1971-February 1972; dinner seating plan, 25 October 1971.
- D.77 52pp typescript with annotations.

Speeches, lectures and broadcasts

1972

- D.78 Reply on behalf of guests, Pharmaceutical Society Dinner, [?], 29 February 1972.

6pp typescript with annotations.
- D.79 Silvanus Thompson Memorial Lecture, British Institute of Radiology, London, 20 April 1972.

16pp typescript.
- D.80 Graduation ceremony, Royal Military College of Science, Shrivenham, Wiltshire, 7 July 1972.

13pp A5 typescript.
- D.81 Address at the CER's (Controller, Research and Development Establishments and Research) Winter Conference, Institution of Electrical Engineers, London, 8 December 1972.

The address was a revised version of 'Engineering and the universities', Maitland Lecture 1972, Institution of Structural Engineers, Queen Elizabeth Hall, London, 9 November 1972.

Correspondence *re* arrangements, October, November 1972. 1p manuscript notes; 6pp incomplete typescript draft with annotations + manuscript graphs and tables.

1973

- D.82 'The idea of a research council', University of Newcastle Upon Tyne, 15 March 1973.

Correspondence *re* arrangements, subsequent publication (*Physics Bulletin*, 24 (1973), pp 345-349); correspondence in reaction to lecture from colleagues, December 1971-July 1973; 18pp typescript; 5pp proof.
- D.83 'The organization of scientific research in the United Kingdom', Conference organised by the Association of Research Personnel of the Higher Council for Scientific Research (Spain), Madrid, 12 April 1973.

16pp typescript draft with annotations.

Speeches, lectures and broadcasts

- D.84 Toast to the Institution, Annual Dinner of the Institution of Civil Engineers, London, 16 April 1973.

12pp A5 typescript with annotations.
- D.85 'The Queen's Lecture', Berlin, West Germany, 23 May 1973.

24pp typescript.
- D.86 Address on receipt of Honorary D.Sc., University of Leicester, 13 July 1973.

3pp typescript.
- D.87 'Rector's welcome to postgraduate students', Imperial College, London, 1 October 1973.

7pp typescript draft with annotations.
- D.88 'Rector's welcome to undergraduate students', Imperial College, London, 1 October 1973

5pp typescript draft with annotations.
- D.89 Reply to farewell speech by Margaret Thatcher MP, Admiralty House, London, 4 October 1973.

11pp A5 typescript draft with annotations.
- D.90 Welcome address to guests at sherry party, College and Union Overseas Students Committees, Imperial College, London, 16 October 1973.

Note and 2pp typescript notes for welcome address, 16 October 1973; 3pp typescript.
- D.91 Speech, Farewell Dinner for Flowers, Science Research Council, 17 October 1973.

11pp A5 typescript notes with annotations.

Speeches, lectures and broadcasts

- D.92 Rector's address, Imperial College Commemoration Day, Royal Albert Hall, London, 15 October 1973.

18pp A5 typescript with annotations.

See also A.163.
- D.93 President's welcome, Reception to mark the 50th anniversary of the *Journal of Scientific Instruments (Journal of Physics E)*, Institute of Physics, London, 23 October 1973.

3pp A5 typescript notes with annotations.
- D.94 'Reply by the rector to the toast to the guests', Annual Dinner, Royal College of Science Association, Imperial College, London, 9 November 1973.

5pp A5 typescript with annotations.
- D.95 'Government administration of science', Institute of Physics, Scottish Branch, Edinburgh, 16 November 1973.

11pp A5 typescript with annotations.
- D.96 'Gamekeepers and poachers', Old Centralians' Luncheon, [?], 13 December 1973.

5pp typescript.

1974

- D.97 Rector's welcome to Margaret Thatcher MP at hall dinner, Imperial College, London, 22 January 1974.

2pp A5 typescript with annotations.
- D.98 Address, Presentation Ceremony for students of the Polytechnic of Central London, Royal Festival Hall, London, 25 January 1974.

20pp A5 typescript with annotations.

Speeches, lectures and broadcasts

- D.99 Address by the President, Opening of the Institute of Physics Exhibition to mark the Physical Society Centenary, Science Museum, London, 14 February 1974.
- Includes 8pp A5 typescript with annotations; 1p proof of published version of speech entitled 'Past, present and future' in *Physics Bulletin*, **25**, (January 1974), p 8.
- See also D.105, E.31 and E.33.
- D.100 Welcome address, Meeting with Schools, Imperial College, London, 18-29 March 1974.
- 8pp A5 typescript with annotations.
- D.101 President's opening and plenary session addresses, Institute of Physics Franco-British Centenary Conference, St Helier, Jersey, Channel Islands, 5 April 1974.
- Opening address, 2pp typescript; plenary session address, 27pp typescript.
- D.102 Presentation of the Holweck Prize, St Helier, Jersey, Channel Islands, 7 April 1974.
- 2pp typescript.
- D.103 Welcome by the Rector, British Institute of Radiology 33rd Annual Congress, Imperial College, London, 18 April 1974.
- 14pp A5 typescript.
- D.104 Possible lecture, unidentified, ca April 1974.
- 2pp manuscript notes; 2pp typescript notes; press cuttings re views of Lord Stokes, chairman of British Leyland Motor Corporation on higher education, 19 April 1974.
- D.105 President's welcome to guests, Institute of Physics Centenary Banquet, London, 7 May 1974.
- 10pp typescript.
- See also D.99

Speeches, lectures and broadcasts

- D.106 President's introduction, Institute of Physics Celebrity Lectures, London, 8 May 1974.

12pp typescript.
- D.107 Rector's welcome, Meeting of University Information Officers, Imperial College, London, 16 May 1974.

6pp typescript.
- D.108 Rector's introduction to K. Berrill, Second Joan Woodward Memorial Lecture, Imperial College, London, 30 May 1974.

4pp typescript.
- D.109 Open Day, Department of Physics, University of Surrey, Guildford, 12 June 1974.

11pp A5 typescript draft intercalated with 5pp manuscript additions.
- D.110 'The work of the Royal Commission on Environmental Pollution', National Society for Clean Air, Imperial College, London, 3 July 1974.

46pp A5 typescript with annotations.
- D.111 Speech of thanks on behalf of the Honorary Graduates, Congregation for Conferment of Honorary Degrees, University of Liverpool, 12 July 1974.

16pp A5 typescript; printed orations, ca July 1974.
- D.112 Rector's welcome, 11th International Congress on High Speed Photography, Imperial College, London, 15 September 1974.

3pp typescript.
- D.113 Rector's welcome to undergraduate freshmen, Imperial College, London, 30 September 1974.

8pp typescript draft.

Speeches, lectures and broadcasts

- D.114 Rector's welcome to postgraduate students, 30 September 1974.
6pp typescript.
- D.115 Rector's address, Imperial College, Commemoration Day, Royal Albert Hall, London, 24 October 1974.
24pp A5 typescript with annotations.
- D.116 President's speech, European Science Foundation Dinner, Strasbourg, France, 18 November 1974.
3pp typescript.
- D.117 Hall Dinner, Imperial College Silwood Park, Sunning Hill, Ascot, Berkshire, 22 November 1974.
2pp A5 typescript notes with annotations; letter and note *re* arrangements, October, November 1974.
- D.118 Opening of the Braddick Library, Schuster Laboratory, University of Manchester, 9 December 1974.
7pp typescript.
- D.119, D.120 Rector's farewell to Lord Sherfield, Board of Governors Meeting, Imperial College, London, 20 December 1974.
- D.119 1p typescript.
- D.120 7pp A5 typescript.
- 1975**
- D.121 Rector's address, Opening Ceremony for Computer Laboratory, Imperial College, London, 3 February 1975.
8pp A5 typescript.

Speeches, lectures and broadcasts

- D.122 Rector's speech, British Society for Social Responsibility in Science, Imperial College London Branch, 4 February 1975.
2pp typescript notes.
- D.123 Rector's speech, Registrar's Dinner, Imperial College, London, 13 February 1975.
3pp typescript notes.
- D.124 Address to the European Medical Research Councils (EMRC), [?], 11 March 1975.
4pp typescript.
- D.125 European Science Research Councils Conference, Lady Margaret Hall, Oxford, 7, 8 April 1975.
10pp typescript.
- D.126 Rector's introduction of O. Kahn-Freund, Third Joan Woodward Memorial Lecture, Imperial College, London, 7 May 1975.
3pp typescript.
- D.127 Opening of Computer Gallery, Science Museum, London, 30 May 1975.
2pp typescript.
- D.128 Rector's address, Control of Air and Water Pollution, British Council Course, Imperial College, London, 7 July 1975.
3pp typescript.
- D.129 President's address, Social Science Meeting, European Science Foundation, Stockholm, Sweden, 23 July 1975.
5pp typescript.

Speeches, lectures and broadcasts

- D.130 Opening address, International Scientific Symposium on Man and His Environment - Crisis or Climacteric?, University of Birmingham, 18 September 1975.
- 30pp typescript with annotations.
- D.131 Rector's welcome to undergraduate freshmen, Imperial College, London, 29 September 1975.
- 22pp A5 typescript.
- See also E.35.
- D.132 Rector's welcome to postgraduate students, Imperial College, London, 29 September 1975.
- 14pp A5 typescript.
- D.133 Rector's welcome to overseas students, Imperial College, London, 30 September 1975.
- 6pp A5 typescript with annotations.
- D.134 Farewell address to A.R.J.P. Ubbelohde, Imperial College, London, 10 October 1975.
- 13pp A5 typescript with annotations.
- D.135 Rector's address, Imperial College Commemoration Day, Royal Albert Hall, London, 23 October 1975.
- 23pp A5 typescript.
- D.136 Rector's introduction, University Grants Committee Visitation, Imperial College, London, 28 October 1975.
- 3pp typescript notes; 4pp manuscript notes.
- D.137 Acceptance speech, Honorary Membership of the Institution of Electrical Engineers, [? London], 12 November 1975.
- 2pp typescript.

Speeches, lectures and broadcasts

- D.138 Rector's reply to Prime Minister's speech, Naming of Blackett Laboratory, Imperial College, London, 3 December 1975.
3pp A5 typescript.
- D.139 Acceptance speech, Conferment of the Chevalier de la Légion d'Honneur, Official Residence of the French Ambassador, Kensington Palace Gardens, London, 15 December 1975.
2pp A5 typescript with annotations.
See also A.74.
- 1976**
- D.140 Opening of New Common Room, Department of Biochemistry, Imperial College, London, 3 March 1976.
2pp A5 typescript with annotations.
- D.141 Address, Committee on Science and Technology of the Parliamentary Assembly of the Council of Europe, [?], 25 March 1976.
17pp A5 typescript with annotations.
- D.142 Opening address, Symposium on Design for Need, Royal College Art, London, 12 April 1976.
7pp typescript.
- D.143 'Science in Europe', Monsignor Padrig de Brun Memorial Lecture, University College, Galway, Republic of Ireland, 23 April 1976.
71pp A5 typescript with annotations and 1p A5 manuscript intercalated addition.
- D.144 Introduction to the presidential address, Institute of Physics, London, 5 May 1976.
2pp typescript.

Speeches, lectures and broadcasts

- D.145 Vote of thanks, Opening of the Charles Hayward Research Laboratory, Imperial College, London, 20 May 1976.

2pp typescript.
- D.146 Rector's introduction of Lord Ashby, Fourth Joan Woodward Memorial Lecture, 27 May 1976.

5pp typescript.
- D.147 British Council Scholars Dinner, [?], 21 June 1976.

28pp A5 typescript with annotations.
- D.148 Remarks, National Energy Conference, [?Imperial College, London], 22 June 1976.

6pp A5 typescript with annotations and 1p manuscript addition.
- D.149 Welcoming address, International Conference on Steel Plated Structures, Imperial College, London, 6 July 1976.

10pp A5 typescript with annotations.
- D.150 'The nuclear issue as seen by a watchdog of the public interest', Financial Times Conference on Nuclear power and the public interest, [?], 8 July 1976.

24pp A5 typescript with annotations; 1p typescript distribution list.

See also E.36.
- D.151 Introduction to press conference, Nuclear Power and the Environment, Sixth Report of the Royal Commission on Environmental Pollution, London, 22 September 1976.

13pp A5 typescript.
- D.152 British Pugwash Group Discussion Meeting, [?], 28 September 1976.

16pp A5 typescript.

Speeches, lectures and broadcasts

- D.153 Rector's welcome to undergraduate freshmen, Imperial College, London, 4 October 1976.
20pp A5 typescript.
- D.154 Rector's welcome to postgraduate students, Imperial College, London, 4 October 1976.
14pp A5 typescript.
- D.155 Rector's welcome to overseas students, Imperial College, London, 5 October 1976.
7pp A5 typescript.
- D.156 'Air pollution control: the recommendations of the Royal Commission', 43rd Clean Air Conference, National Society for Clean Air, Edinburgh, 13 October 1976.
27pp A5 typescript with annotations and 1p manuscript addition; 1p typescript distribution list.
- D.157 Rector's address, Imperial College Commemoration Day, Royal Albert Hall, London, 21 October 1976.
22pp typescript with annotations.
- D.158 President's speech, European Science Foundation Dinner, [?], 26 October 1976.
4pp A5 typescript.
- D.159 Speech *re* 2nd Annual Report of the European Science Foundation, British Embassy, Washington D.C., USA, 1 November 1976.
3pp typescript notes.
- D.160 Speech annotated 'Presidents Introduction to the Annual Report: 1976', 1 November 1976.
9pp typescript with annotations.

Speeches, lectures and broadcasts

- D.161 Academy of Sciences, Washington D.C., USA, 2 November 1976.
8pp typescript.
- D.162 Rector's vote of thanks, Opening of the Huxley Building, Imperial College, London, 4 November 1976.
3pp A5 typescript with annotations.
- D.163 Rector's introductory remarks, Meeting on Health and Safety in Universities, Imperial College, London, 25 November 1976.
2pp typescript.
- D.164 'Nuclear power and public policy', British Nuclear Energy Society, [?], 2 December 1976.
71pp A5 typescript with annotations; 19pp typescript draft distribution list with annotations, notes etc.
See also E.37-E.39.
- D.165 Environment Committee, Chemical Industries Association Ltd, [?], 14 December 1976.
12pp photocopy of annotated typescript draft.
- D.166 Speech to postgraduate students, Birkbeck College, London, 15 December 1976.
10pp A5 typescript with annotations.
- 1977**
- D.167 Introductory remarks, Impact of a U.K. Fast Reactor Programme, Imperial College Energy Studies Group, Department of Mechanical Engineering, Imperial College, London, 15 January 1977.
9pp typescript.

Speeches, lectures and broadcasts

- D.168 Conservative Back Bench Committee, House of Commons, Westminster, London, 3 February 1977.
- 9pp photocopy of annotated typescript draft.
- D.169 Speech at Geographical Society Annual Dinner, University College London, 18 February 1977.
- 13pp A5 typescript with annotations.
- D.170 Rector's welcome to the Secretary of State for Education and Science, Meeting with Schools, Imperial College, London, 31 March 1977.
- 6pp A5 typescript with annotations.
- D.171 'The approach of the European Science Foundation', Science Policy Foundation Symposium on Strategies for Europe, Brussels, Belgium, 14-16 April 1977.
- Flowers delivered his speech on 15 April 1977.
- 17pp typescript; 2pp typescript abstract; 1p typescript distribution list, 20 April 1977
- D.172 Informal address, Anglo-Swedish Society and the Danish and Swedish Societies of Engineers in Great Britain, [?], 21 April 1977.
- 33pp A5 typescript with annotations.
- D.173 Rector's introduction of A. Weinstock, Fifth Joan Woodward Memorial Lecture, Imperial College, London, 11 May 1977.
- 4pp A5 typescript with annotations.
- D.174 Rector's introduction, Conference on Technological Assessment and Public Benefit, Council for Science and Society, Imperial College, London, 16 May 1977.
- 4pp typescript.

Speeches, lectures and broadcasts

- D.175 21st Plenary European Committee for Future Accelerators Meeting (ECFA),
[?], 25 May 1977.

2pp typescript notes.
- D.176 Farewell Party for R. Malone, Imperial College, London, 29 June 1977.

4pp A5 typescript with annotations.
- D.177 'HMPI [?Her Majesty's Pollution Inspectorate] in wonderland and other
vexations', National Society for Clean Air, [?], 6 July 1977.

26pp A5 typescript with annotations; 1p typescript distribution list.
- D.178 Opening of the Eastwood Muscular Dystrophy Research Facility, Imperial
College, London, 7 September 1977.

Note *re* distribution of copies; 5pp A5 typescript.
- D.179 'The nuclear debate', Temple University, Philadelphia, Pennsylvania, USA,
23 September 1977.

62pp A5 typescript with annotations; 5pp typescript distribution list.

See also E.41.
- D.180 Rector's welcome to undergraduate freshmen, Imperial College, London, 3
October 1977.

16pp A5 typescript with annotations.
- D.181 Rector's welcome to postgraduate students, Imperial College, London, 3
October 1977.

11pp A5 typescript.
- D.182 Rector's welcome to overseas students, Imperial College, London, 4 October
1977.

7pp A5 typescript with annotations.

Speeches, lectures and broadcasts

- D.183 Address to visiting group of German university professors, Imperial College, London, 6 October 1977.

5pp typescript; 27pp A5 typescript with annotations.
- D.184 Prize giving, Hampton School, Middlesex, 10 October 1977.

23pp A5 manuscript.
- D.185 'Fast reactors and the fuel cycle', Royal Institution Forum, London, 11, 12 October 1977.

15pp typescript;

See also E.40.
- D.186 Rector's address, Imperial College Commemoration Day, Royal Albert Hall, London, 27 October 1977.

14pp A5 typescript draft with annotations.
- D.187 President's introduction to J.C. Kendrew's lecture, European Science Foundation, Palais des Congres, Strasbourg, France, 1 November 1977.

4pp A5 typescript with annotations; 3pp A5 typescript with annotations (French).
- D.188 President's introduction to the Annual Report 1977, European Science Foundation, Palais des Congres, Strasbourg, France, 1 November 1977.

5pp typescript; 8pp A5 typescript.
- D.189 Response to the toast of the guests, Annual Dinner, Institution of Mechanical Engineers, London, 10 November 1977.

8pp A5 typescript with annotations.
- D.190 Rector's opening speech, First Meeting of the Education Forum, Imperial College, London, 15 November 1977.

3pp A5 typescript with annotations.

Speeches, lectures and broadcasts

- D.191 Rector's vote of thanks to I. Maddock, First Jubilee Lecture, Imperial College, London, 22 November 1977.
4pp A5 typescript.
- D.192 Annual Dinner, British Computer Society, Imperial College, London, 2 December 1977.
13pp A5 typescript with annotations.
- D.193 Clean Air Dinner, National Society for Clean Air, [?], 9 December 1977.
10pp A5 typescript with annotations.
- D.194 Rector's opening address, Nuclear Data Forum, Imperial College, London, 12 December 1977.
4pp A5 typescript.
- 1978**
- D.195 Rector's address, installation of new computer system, Imperial College, London, 19 January 1978.
4pp typescript; 7pp typescript
- D.196 'The nuclear debate', Royal Irish Academy, Dublin, Republic of Ireland, 28 January 1978.
60pp A5 typescript.
- D.197 'Social consequences of nuclear dependence', Catholic Chaplaincy for West London, 19 February 1978.
17pp typescript.
- D.198 Opening speech, Conference on New Energy Policies, Department of Extra-Mural Studies, University of London, 27, 28 February 1978.
4pp typescript, 27 February 1978; 8pp A5 typescript with annotations; 2pp typescript programme etc.

Speeches, lectures and broadcasts

- D.199 Environmental Policy Making, Royal Commission on Environmental Pollution, [?], 22 March 1978.

45pp A5 typescript with annotations.
- D.200 Rector's introduction of Lord Plowden, Meeting with Schools, Imperial College, London, 13 April 1978.

4pp A5 typescript with annotations.
- D.201 Introduction of B.J. Mason, Institute of Physics Presidential Address, Department of Physics, Imperial College, London, 3 May 1978.

2pp A5 typescript; 1p typescript notes *re* lecture by Mason and 1p typescript biographical note.
- D.202 'Energy and the environment - the public debate', Gerald Walters Memorial Lecture, University of Bath, Avon, 16 May 1978.

27pp typescript; 56pp A5 typescript; 1p typescript distribution list.

See E.43, E.44.
- D.203 Committee of Vice Chancellors and Principals (CVCP) Meeting with French University Presidents, Imperial College, London, 9 June 1978.

16pp A5 typescript draft with annotations.
- D.204 Rector's introduction of M.F. Perutz, Opening of the Biophysics Section, Imperial College, London, 9 June 1978.

5pp A5 typescript.
- D.205 Rector's introduction of Tony Benn MP, 'Industry and democracy', Second Jubilee Lecture, Imperial College, London, 15 June 1978.

6pp A5 typescript.
- D.206 Dinner, Committee of Vice Chancellors and Principals (CVCP) Introductory Course for University Administrators, Imperial College, London, 13 September 1978.

4pp typescript.

Speeches, lectures and broadcasts

- D.207 Rector's address, farewell drinks for C. Grey, Imperial College, London, 27 September 1978.
4pp A5 typescript with annotations.
- D.208 'Energy and the environment - the public debate', 45th Clean Air Conference, Brighton, Sussex, 2 October 1978.
47pp A5 typescript.
- D.209 Rector's welcome to undergraduate freshmen, Imperial College, London, 2 October 1978.
9pp typescript.
- D.210 Rector's welcome to postgraduate students, Imperial College, London, 2 October 1978.
14pp typescript.
- D.211 Rector's welcome to overseas students, Imperial College, London, 3 October 1978.
7pp typescript.
- D.212 Rector's speech, ICI (Imperial Chemical Industries) Symposium Dinner, Imperial College, London, 11 October 1978.
3pp A5 typescript with annotations.
- D.213 Rector's speech, Opening Ceremony, Anti-Racist Festival, Imperial College, London, 23 October 1978.
6pp A5 typescript with annotations.
- D.214 Rector's address, Imperial College Commemoration Day, Royal Albert Hall, London, 26 October 1978.
4pp typescript.

Speeches, lectures and broadcasts

- D.215 President's introduction of L. van Hove, Second Annual Lecture, European Science Foundation, Paris, France, 7 November 1978.
- 2pp A5 typescript.
- D.216 President's introduction to the Annual Report, European Science Foundation, Paris, France, 7 November 1978.
- 9pp A5 typescript.
- D.217 President's speech, Dinner, European Science Foundation, Jardins de l'Orangerie, Paris, France, 7 November 1978.
- 3pp typescript.
- D.218 Chief guest's speech, 10th Anniversary Dinner, International Computers Limited (ICL), London, 15 November 1978.
- 12pp A5 typescript.
- D.219 'The European Science Foundation', European Meeting of National Research Institutions, Rome, Italy, 20 November 1978.
- 16pp typescript with attached note.
- See also D.125.
- D.220 Rector's speech, Annual Dinner, Royal College of Science Association, Imperial College, London, 24 November 1978.
- 4pp A5 typescript with annotations.
- D.221 Rector's introduction of D. Davies, Sixth Joan Woodward Memorial Lecture, Imperial College, London, 28 November 1978.
- 4pp A5 typescript.
- D.222 Farewell Party for L. Scarborough, Imperial College, London, 6 December 1978.
- 3pp A5 typescript with annotations.

Speeches, lectures and broadcasts

1979

- D.223 'European Science Policy', Department of Science and Technology, Delhi, India, 1 January 1979.

16pp typescript with annotations.

See also D.124.
- D.224 'The nuclear debate', Department of Science and Technology, Delhi, India, 2 January 1979.

38pp typescript with annotations.
- D.225 Cocktail party in celebration of Flowers' peerage, [?Imperial College, London], 16 January 1979.

3pp A5 manuscript notes.
- D.226 'Problems of nuclear power', Colloquium on Nuclear Energy, Groupe de Bellerive, Geneva, Switzerland, 15 February 1979.

24pp typescript.
- D.227 'The work of the standing commission on energy and the environment', speech to the Parliamentary Liaison Group for Alternative Energy Strategies, House of Commons, London, 5 March 1979.

35pp A5 typescript with annotations and attached distribution list.
- D.228 Rector's introduction of Sir John Hackett, Third Jubilee Lecture, Imperial College, London, 13 March 1979.

4pp A5 typescript with annotations.
- D.229 'The work of the Commission on Energy and the Environment', Seminar to M.Sc. Environmental Technology students, Imperial College, London, 21 March 1979.

45pp A5 typescript.

Speeches, lectures and broadcasts

- D.230 Rector's address and introduction of G. Allen, Meeting with Schools, Imperial College, London, 29 March 1979.
4pp A5 typescript.
- D.231 Chairman's introduction of D.E.C. Wedderburn, Inaugural Lecture, Department of Social and Economic Studies, Imperial College, London, 1 May 1979.
4pp A5 typescript with annotations.
- D.232 Rector's welcome at 'Meet Imperial College', Imperial College, London, 2 May 1979.
24pp A5 typescript with annotations.
- D.233 'The European Science Foundation - an experiment in international collaboration in science and the humanities', Tenth J.D. Bernal Lecture, Birkbeck College, London, 10 May 1979.
43pp A5 typescript with annotations.
- D.234 Prize giving, Queenswood School, Hertfordshire, 24 May 1979.
11pp typescript.
- D.235 Dinner, Lycée Français, [?], 20 June 1979.
3pp typescript.
- D.236 Toast to the College, Foundation Dinner, Wolfson College, Oxford, 25 June 1979.
6pp A5 typescript with annotations.
- D.237 Farewell Party for M.J. Davies, Imperial College, London, 27 June 1979.
6pp A5 typescript.

Speeches, lectures and broadcasts

- D.238 Annual Dinner, British Academy, Middle Temple Hall, London, 28 June 1979.
20pp A5 typescript with annotations and 1p attached distribution list.
- D.239 Farewell Party for J. Webb, Imperial College, London, 29 June 1979.
2pp A5 typescript.
- D.240 Farewell Party for F.W.G. Annas and J. Annas, Imperial College, London, 4 July 1979.
3pp A5 typescript.
- D.241 Introduction of incoming president, D. Ezra by Flowers (outgoing president), Council Meeting, National Society for Clean Air, [?], 19 July 1979.
3pp A5 typescript with annotations.
- D.242 Presentation Dinner, Total Technology Undergraduate Course in Mechanical Engineering, Imperial College, London, 11 September 1979.
8pp A5 typescript with annotations.
- D.243 Farewell Party for D. Huddie, Imperial College, London, 25 September 1979.
6pp A5 typescript with annotations.
- D.244 Rector's welcome to undergraduate freshmen, Imperial College, London, 1 October 1979.
8pp A5 typescript.
- D.245 Rector's welcome to postgraduate students, Imperial College, London, 1 October 1979.
9pp A5 typescript with annotations.
- D.246 Rector's welcome to overseas students, Imperial College, London, 2 October 1979.
5pp A5 typescript with annotations.

Speeches, lectures and broadcasts

- D.247 Inauguration of session, Institution of Electrical Engineers, [?London], 4 October 1979.
- 6pp A5 typescript with annotations.
- D.248 Presentation of an ambulance by Imperial College to the British Red Cross Society, Imperial College, London, 30 October 1979.
- 3pp A5 typescript.
- D.249 Speech on receipt of Chalmers Medal, Chalmers University of Technology, Gothenberg, Sweden, 5 November 1979.
- 6pp A5 typescript with annotations.
- D.250 Rector's introduction of H. Phelps Brown, Seventh Joan Woodward Memorial Lecture, Imperial College, London, 4 December 1979.
- 3pp A5 typescript.
- 1980**
- D.251 Rector's introduction of A. Salam, Special Lecture, Imperial College, London, 18 February 1980.
- 3pp typescript.
- D.252 President's introduction to the Annual Report 1979, European Science Foundation, [?], [?1 March 1980].
- 8pp A5 typescript.
- D.253 Address to the Joint Medical Advisory Committee of the Academic and Collegiate Councils, [?], 11 March 1980.
- 13pp A5 typescript.
- D.254 Rector's introduction of Lord Denning, Fourth Jubilee Lecture, Imperial College, London, 13 March 1980.
- 3pp A5 typescript with annotations.

Speeches, lectures and broadcasts

- D.255 'International co-operation in science and humanities', Inaugural Einstein Memorial Lecture, Israel Academy of Science and Humanities, Israel, 25 March 1980.
70pp A5 typescript.
- D.256 'Issues of nuclear power', Meeting of the Eye Constituency Labour Party, Leiston, Suffolk, 12 May 1980.
19pp typescript.
See also D.270.
- D.257 Response to the toast of the guests, Tenth Standard Telephones and Cables Communication Lecture, London, 13 May 1980.
7pp A5 typescript with annotations; 'What to say and how to say it' by Edward Heath MP, published lecture.
- D.258 Rector's speech, Imperial College Association of Scientific, Technical and Managerial Staffs (ASTMS) Commemoration Dinner, Imperial College, London, 23 May 1980.
4pp typescript.
- D.259 Farewell to H. Ford, Imperial College, London, 15 July 1980.
4pp typescript.
- D.260 Rector's welcome to undergraduate freshmen, Imperial College, London, 29 September 1980.
8pp typescript with annotations.
- D.261 Rector's welcome to postgraduate students, Imperial College, London, 29 September 1980.
5pp typescript with annotations.
- D.262 Rector's introduction of T. Beckett, 25th Anniversary of Management Science, Imperial College, London, 15 October 1980.
9pp A5 typescript with annotations.

Speeches, lectures and broadcasts

- D.263 Retirement presentation to C. Newens, Imperial College, London, 31 October 1980.
8pp A5 typescript.
- D.264 General Council and International Conference of the Duke of Edinburgh's Award, Imperial College, London, 5 November 1980.
3pp A5 typescript.
- D.265 President's speech, General Assembly, European Science Foundation, [?], 12 November 1980.
8pp typescript.
- D.266 'Nuclear power policy and prospects', Churchill College, Cambridge, 17 November 1980.
29pp typescript with annotations and notes *re* distribution of copies.
- D.267 Rector's presentation speech, Imperial College award scheme for members of the non-academic and related staff, Imperial College, London, 26 November 1980.
1p typescript notes with annotations; letter and attached details *re* scheme 27 February 1980.
- D.268 Prize giving, Tiffin School, Kingston-upon-Thames, Surrey, 5 December 1980.
11pp typescript with annotations.
- 1981**
- D.269 Rector's introduction of W.K.H. Panofsky, Special Lecture, Imperial College, London, 14 January 1981.
2pp typescript with annotations.

Speeches, lectures and broadcasts

- D.270 'Issues of nuclear power', Catholic Chaplaincy for West London, 18 January 1981.

Correspondence *re* arrangements, October 1980-January 1981.

See also D.257.
- D.271 Unveiling Ceremony of the Donald Campbell Laboratory, Department of Aeronautics, Imperial College, London, 11 February 1981.

7pp A5 typescript with annotations.
- D.272 Opening of Imperial College International Week, Imperial College, London, 16 February 1981.

7pp A5 typescript.
- D.273 Speech by Flowers in debate on the nature and organisation of research funded from the public purse, especially in relation to forestry.

The parliamentary debates (Hansard): House of Lords: official report, H.M.S.O., 417, 23 February 1981.

See columns 910-913.
- D.274 Rector's introduction of P. Baxendell, Fifth Jubilee Lecture, Imperial College, London, 10 March 1981.

4pp A5 typescript with annotations.
- D.275 Annual General Meeting, Royal College of Science Association, Imperial College, London, 5 May 1981.

5pp A5 manuscript notes.
- D.276 'Prospects for Universities', Diplomatic Scientific Club, London Diplomatic Corps, 6 May 1981.

Correspondence *re* arrangements, April, May 1981; 7pp A5 manuscript notes.

Speeches, lectures and broadcasts

- D.277 'Energy and the environment', 1981 Marc Finnegan Memorial Lecture, Kensington, London, 21 May 1981.

31pp A5 typescript with annotations.
- D.278 'Fundamental research and the universities of Europe', Fifth Parliamentary and Scientific Conference, Committee on Science and Technology, Council of Europe, Helsinki, Finland, 3-5 June 1981.

4pp typescript with 1p manuscript distribution list.
- D.279 Acceptance speech for Conferment of Officier de la Légion d'Honneur, Official Residence of the French Ambassador, Kensington Palace Gardens, London, 9 June 1981.

3pp typescript (French).

See also A.110 and G.8.
- D.280 Speech as guest of honour, Reception, Friends of the Hebrew University of Jerusalem, Royal Academy of Arts, London, 21 September 1981.

6pp A5 typescript.
- D.281 Chairman's welcome, Press Conference to launch report on Coal and the Environment, Commission on Energy and the Environment, [?], 30 September 1981.

6pp typescript.
- D.282 Rector's introduction of Lord McCarthy, Ninth Joan Woodward Memorial Lecture, Imperial College, London, 13 October 1981.

3pp typescript with annotations and 1p typescript guest list.
- D.283 Rector's welcome, 'International Year of Disabled People (IYDP) and then...?', Active Autumn Conference, Imperial College, London, 17 October 1981.

2pp typescript with annotations; programme.

Speeches, lectures and broadcasts

- D.284 Guest speaker, Oxford Students' Social Democratic Club, Lincoln College, Oxford, 28 October 1981.

9pp typescript.
- D.285 Rector's introduction of M. Finniston, Total Technology Dinner, Imperial College, London, 10 November 1981.

4pp A5 typescript.
- D.286 Introduction of Lord Todd, Centenary Lecture, Royal College of Science Centenary Celebrations, Imperial College, London, 16-27 November 1981.

2pp A5 typescript with annotations, 16 November 1981; programme.
- D.287 'Universities' contribution to industry, particularly in science and engineering', Universities and Industry, Committee of Vice-Chancellors and Principals Imperial College, London, 19 November 1981.

11pp typescript.
- D.288 Speech in support of Shirley Williams Social Democratic Party candidate for Crosby, Lancashire, 1981 by-election, 21 November 1981.

8pp A5 typescript with annotations.
- D.289 Rector's introduction of G. Holton, lecture, Imperial College, London, 24 November 1981.

4pp A5 typescript with annotations.
- D.290 Guest speaker, Annual General Meeting, Kensington Committee of Friendship for Overseas Students, London, 25 November 1981.

7pp typescript.
- D.291 Rector's welcome and introduction of A.F. Huxley, Royal College of Science Association Ball, Imperial College, London, 27 November 1981.

4pp A5 typescript.

Speeches, lectures and broadcasts

- D.292 Speech by Flowers in debate on the effects of Government policies on education, training opportunities and industrial efficiency, House of Lords, London, 2 December 1981.
- 11pp typescript with annotations.
- D.293 Guest of honour, Jubilee Speech Day, Chislehurst and Sidcup Grammar School, Kent, 16 December 1981.
- 10pp typescript with annotations; programme; correspondence *re* issue raised in speech, March 1982.
- D.294 Farewell for J. Brown, Imperial College, London, *ca* 1981.
- 4pp A5 manuscript.
- 1982**
- D.295 Rector's introduction, Nuclear Power and Radioactivity: a short course for elected members of local authorities, Imperial College, London, 7-8 January 1982.
- 8pp typescript, 7 January 1982.
- D.296 Rector's introduction of C. Freeman, First Science, Technology and Public Policy Lecture, Imperial College, London, 9 February 1982.
- 5pp typescript.
- D.297 Speech by Flowers in debate on Tidal power from the Severn Estuary, House of Lords, Westminster, London, 15 February 1982.
- 11pp typescript with annotations.
- D.298, D.299 Speech by Flowers in debate on the first report of the Select Committee on Science and Technology on 'Science and Government', House of Lords, London, 15 February 1982.
- D.298 17pp manuscript draft.
- D.299 14pp typescript with annotations.

Speeches, lectures and broadcasts

- D.300 Rector's introduction of Lord Zuckerman, Sixth Jubilee Lecture, Imperial College, London, 18 February 1982.
4pp A5 typescript.
- D.301 Rector's introduction of K. Cornfield, Imperial College Industrial Society, Imperial College, London, 9 March 1982.
6pp typescript.
- D.302 Annual Dinner, 75th Anniversary of the British Federation of University Women, London, 19 March 1982.
8pp typescript.
- D.303 Speech for Hong Kong Imperial College Alumni Association Meeting, Hong Kong, 20 April 1982.
1p typescript.
- D.304 Speech for Hong Kong Imperial College Alumni Association Inauguration Dinner, Hong Kong, 20 April 1982.
7pp typescript.
- D.305 Discussion evening on the report on coal and the environment, Fellowship of Engineering, [?], 11 May 1982.
16pp typescript.
- D.306 Speech by Flowers in debate on the report of the Commission on Energy and the Environment entitled 'Coal and the Government', House of Lords, London, 19 May 1982.
14pp typescript with annotations.
- D.307 Bearwood College Speech Day, [Wokingham, Berkshire], 19 June 1982.
7pp typescript.

Speeches, lectures and broadcasts

- D.308 Meeting of the Parliamentary and Scientific Committee, House of Commons Grand Committee Room, London, 22 June 1982.
12pp typescript with annotations.
- D.309 Symposium in commemoration of the late F. Schneider, Bonn, West Germany, 8 July 1982.
15pp typescript with annotations.
- D.310 Opening speech, Britain, Europe and the Environment 1982, Centre for Environmental Technology Conference, [Imperial College, London] 24 September 1982.
4pp typescript.
- D.311 Rector's welcome to undergraduate freshmen, Imperial College, London, 4 October 1982.
7pp typescript with annotations.
- D.312 Rector's welcome to postgraduate students, Imperial College, London, 4 October 1982.
5pp typescript.
- D.313 Rector's speech, 'Class of '42' 40th Anniversary Dinner, Imperial College, London, 16 October 1982.
3pp typescript with annotations and 1p manuscript addition.
- D.314 Press Conference, Launch of Imperial Software Technology Ltd, [Imperial College, London], 18 October 1982.
3pp typescript.
- D.315 49th Conference, National Society for Clean Air, Llandudno, Gwynedd, 18 October 1982.
21pp A5 typescript with annotations.

Speeches, lectures and broadcasts

- D.316 Rector's address, Imperial College Commemoration Day, Royal Albert Hall, London, 28 October 1982.
8pp typescript with annotations.
- D.317 Rector's introduction of Lord Caldecote, Guest of Honour, Total Technology Dinner, Imperial College, London, 9 November 1982.
5pp typescript with annotations.
- D.318 Rector's speech, Dinner to celebrate the 75th anniversary of the granting of the Imperial College Royal Charter, Imperial College, London, 16 November 1982.
8pp typescript with annotations.
- D.319 'Relationship between university research and national research agencies', CRE [?Conference of Rectors, Presidents and Vice-Chancellors of the European Universities] Conference, Hamburg, West Germany, 18-19 November 1982.
14pp typescript.
- D.320 Rector's introduction of P. Baxendell, Third Pryor Memorial Lecture, Imperial College, London, 22 November 1982.
3pp A5 typescript.
- D.321 Rector's speech and toast, Farewell dinner for B. Neal, Imperial College, London, 1 December 1982.
5pp A5 typescript.
- D.322 Speech by Flowers in debate on the continued development of the commercial fast reactor, House of Lords, London, 8 December 1982.
12pp A5 typescript with annotations.
- D.323 Introduction of D. Rooke, W.A. Simmonds and P.A. Cabbage, Nuffield Lecture, [?London], 9 December 1982.
3pp A5 typescript.

Speeches, lectures and broadcasts

- D.324 Retirement presentations to J. Lindley, A. Loveday, M. Loveday, L. Pelham and E. Whitehead, Imperial College, London, 13 December 1982.

8pp typescript with annotations.

- D.325 Prize giving at South Hampstead High School, Camden, London, 13 December 1982.

13pp typescript with annotations.

1983

- D.326 Speech by Flowers in debate on the second reading of the Water Bill, House of Lords, London, 7 February 1983.

9pp A5 typescript with annotations and 2pp A5 manuscript additions.

- D.327 Speech by Flowers in debate on report of the European Communities Committee on Strategic Minerals, House of Lords, London, 21 February 1983.

10pp A5 typescript with annotations.

- D.328 Speech by Flowers in debate on reactivating the Commission on Energy and the Environment, House of Lords, London, 21 February 1983.

8pp A5 typescript with annotations.

- D.329 Rector's introduction of B.A.O. Williams, Seventh Jubilee Lecture, Imperial College, London, 24 February 1983.

4pp A5 typescript.

- D.330 'Issues of nuclear power', Harrow School, London, 12 March 1983.

20pp typescript with annotations.

- D.331 Speech by Flowers in debate on the second reading of the Nuclear Material Offences Bill, House of Lords, 21 March 1983.

9pp A5 typescript with annotations.

Speeches, lectures and broadcasts

- D.332 Speech by Flowers in debate on Government policies for protecting the Environment, House of Lords, London, 23 March 1983.

13pp A5 typescript with annotations.
- D.333 Rector's introduction of M. Bullock, Imperial College, London, 24 March 1983.

2pp A5 typescript.
- D.334 'The painter and the swordsman: insulting tales for engineers', Sefi: Second World Conference on Continuing Engineering Education, Paris, France, 6-8 April 1983.

37pp A5 typescript with annotations; 11pp typescript (French).

See also E.46.
- D.335 'Issues and non-issues', International Conference on the Urban Transportation of Irradiated Fuel, London, 12-14 April 1983.

46pp typescript.
- D.336 Rector's introduction of P.F. Chester, Imperial College, London, 13 April 1983.

3pp A5 typescript with annotations.
- D.337 Convocation address, Technical University of Nova Scotia, Canada, 7 May 1983.

23pp A5 typescript with annotations and 1p A5 manuscript addition.
- D.338 Speech in support of Shirley Williams, Social Democratic Party parliamentary candidate for Crosby, Lancashire, 1983 General Election, Hightown and Melling, Merseyside, 27 May 1983.

16pp A5 typescript and manuscript with annotations.
- D.339 Farewell for D.D. Raphael, Department of Humanities, Imperial College, London, 27 June 1983.

5pp A5 typescript with annotations.

Speeches, lectures and broadcasts

- D.340 Farewell for A. Sloman, Chairman of the Committee of Vice Chancellors and Principals, [?], 1 July 1983.

3pp A5 typescript with annotations.
- D.341 'Using our technological expertise', Conference on Industry and Higher Education: Future Collaboration, London Business School, 7 July 1983.

28pp A5 typescript with annotations.
- D.342 'Coal and the Environment', Annual Conference, Royal Institution of Chartered Surveyors, Stratford upon Avon, Warwickshire, 20 July 1983.

34pp A5 typescript with annotations.
- D.343 'Improving collaboration between universities and industry', Cranfield/University of Manchester Institute of Science and Technology Conference, Imperial College, London, 21 July 1983.

48pp A5 typescript.
- D.344 Introduction to Lord Caldecote, Guest of Honour, Cranfield/University of Manchester Institute of Science and Technology Conference, Imperial College, London, 21 July 1983.

6pp A5 typescript with annotations.
- D.345 Chairman's introduction to discussion on lecture by B. Williams, Thirteenth Commonwealth Universities Congress, Birmingham, 14-20 August 1983.

8pp A5 typescript with annotations.
- D.346 Committee of Vice Chancellors and Principals Special Meeting, Imperial College, London, 28 September 1983.

1p typescript programme.
- D.347 Rector's welcome to undergraduate freshmen, Imperial College, London, 3 October 1983.

21pp A5 typescript.

Speeches, lectures and broadcasts

- D.348 Rector's welcome to postgraduate freshmen, Imperial College, London, 3 October 1983.
18pp A5 typescript with attached note *re* amendments.
- D.349 Farewell for H. Evans, Imperial College, London, 11 October 1983.
2pp A5 typescript.
- D.350 Rector's address, Imperial College Commemoration Day, Imperial College, London, 27 October 1983.
14pp typescript with annotations.
- D.351 'Malaysians', Imperial College, London, 21 November 1983.
1p manuscript notes.
- D.352 Rector's welcome to Dutch administrators, Imperial College, London, 23 November 1983.
5pp A5 typescript notes with annotations.
- D.353 Rector's opening address, Seminar on Traffic in Towns - 20 Years On, Department of Civil Engineering, Imperial College, London, 23 November 1983.
7pp A5 typescript.
- D.354 'After Flowers', Surgical Specialists Annual Dinner, [?], 2 December 1983.
18pp typescript with 1p manuscript notes.
- 1984**
- D.355 Speech by Flowers in debate on the Alvey Report, House of Lords, London, 18 January 1984.
14pp typescript with annotations.

Speeches, lectures and broadcasts

- D.356 Speech by Flowers in debate on the first joint report by the Chairman of the Advisory Council for Applied Research and Development and the Advisory Board for the Research Councils etc, House of Lords, London, 10 February 1984.
- 13pp typescript with annotations.
- D.357 Conference on Anglo-Korean Collaboration in Science and Technology, London School of Economics, 1 March 1984.
- 10pp typescript; correspondence *re* conference June 1984.
- D.358 Annual Dinner, Medical Society of London, 8 March 1984.
- 6pp typescript.
- D.359 Speech by Flowers in debate on the need for change in universities, polytechnics and colleges in higher and further education, House of Lords, London, 14 March 1984.
- 11pp typescript with annotations.
- D.360 Rector's introduction of J. Egan, Eighth Jubilee Lecture, Imperial College, London, 15 March 1984.
- 2pp typescript.
- D.361 Annual Dinner, Institution of Chemical Engineers, 16 March 1984.
- 5pp typescript.
- D.362 Assembly dinner, Annual Assembly of the Engineering Professors' Conference, University of Surrey, Guildford, 22 March 1984.
- 13pp typescript.
- D.363 Spring meeting on the public image of the universities, Standing Conference of University Information Officers, King's College, London, 23 March 1984.
- 16pp typescript.

Speeches, lectures and broadcasts

- D.364 Symposium dinner, APCOM '84 Application of Computers and Mathematics in the Mineral Industries, Eighteenth International Symposium, Imperial College, London, 29 March 1984.
- 8pp typescript with annotations.
- D.365 Speech by Flowers in debate on report on 'Remote sensing and digital mapping', House of Lords, Westminster, London, 25 April 1984.
- 15pp typescript with annotations; 1p incomplete typescript.
- D.366 Toast to the Institution, Anniversary Dinner, Institution of Structural Engineers, London, 10 May 1984.
- 10pp typescript with annotations.
- D.367 Rector's introduction of W. Rodgers MP, First O'Sullivan Lecture, Imperial College, London, 23 May 1984.
- 4pp A5 typescript with annotations and attached note *re* lecture details.
- D.368 Rector's introduction of Sir Denys Wilkinson, Eighth Science, Technology and Public Policy Lecture, Imperial College, London, 5 June 1984.
- 3pp typescript with annotations.
- D.369 Rector's welcome to undergraduate freshmen, Imperial College, London, 1 October 1984.
- 15pp typescript.
- D.370 Rector's welcome to postgraduate freshmen, Imperial College, London, 1 October 1984.
- 13pp typescript.
- D.371 Rector's address, Imperial College Commemoration Day, Royal Albert Hall, London, 25 October 1984.
- 12pp typescript with annotations and attached distribution list.

Speeches, lectures and broadcasts

- D.372 Speech by Flowers in debate on the Tenth Report of the Royal Commission on Environmental Pollution, House of Lords, London, 29 October 1984.
- 11pp typescript with annotations and attached note *re* arrangements.
- D.373 Prize giving presentations, College Award Scheme for Non Academic Staff, Imperial College, London, 5 November 1984.
- 5pp A5 typescript with annotations.
- D.374 'University research and industrial development', National Autonomous University of Mexico, 13 November 1984.
- 9pp typescript.
- D.375 'The ESF - the first twenty years!', Annual Lecture, European Science Foundation, Strasbourg, France, 20 November 1984.
- 12pp typescript.
- D.376 Degree day, Newcastle Polytechnic, Newcastle Upon Tyne, 28 November 1984.
- 11pp typescript with annotations.
- D.377 'The future of co-operation', Confederation of British Industry (CBI) Conference on Innovation Through Co-operation with Higher Education, [?], 29 November 1984.
- 10pp typescript with attached notes *re* speech.
- D.378 Rector's address to senate, Imperial College, London, 12 December 1984.
- 2pp A5 manuscript notes.
- 1985**
- D.379 Rector's welcome and introduction of N.S.H. Lamont MP, Major Projects Symposium, Imperial College, London, 4 January 1985.
- 5pp typescript.

Speeches, lectures and broadcasts

- D.380 Symposium on Organisation of Basic Research in the United Kingdom, Imperial College, London, 10 January 1985.

5pp typescript notes.
- D.381 Farewell for V. Mooney, Imperial College, London, 13 May 1985.

3pp A5 typescript with annotations.
- D.382 Vote of thanks for N.L. Franklin, Imperial College Science Policy Research Unit Lecture, Imperial College, London, 4 June 1985.

2pp typescript notes; 1p manuscript notes.
- D.383 Introduction of P.L. Brooke MP, Opening of the IBM Institute Project, Department of Chemical Engineering and Chemical Technology, Imperial College, London, 27 June 1985.

3pp typescript with annotations.
- D.384 Rector's farewell to the Governors, Imperial College, London, 2 July 1985.

13pp typescript with annotations.
- D.385 Annual Dinner, British Student Health Association, Imperial College, London, 18 July 1985.

3pp typescript.
- Schuster Centenary Celebration, Schuster Laboratory, University of Manchester, 23 November 1988.

See also G.68, G.72.
- 1989**
- D.386 Toast to the couple, Wedding of Monica Flowers (Flowers's sister) and Thomas Stiff, Headington, Oxford, 9 September 1989.

3pp typescript.

Speeches, lectures and broadcasts

1990

D.387 Opening address, 40th Pugwash Conference, Egham, Surrey, 16 September 1990.

16pp A5 typescript with annotations.

See also G.101.

D.388 Reply to Vice Chancellor, Collegiate Council Dinner, Senate House, University of London, 8 October 1990.

12pp A5 typescript with annotations.

D.389 Dinner, Launch of the Imperial College Computing Forum, Imperial College, London, 19 October 1990.

11pp A5 typescript.

D.390 Vote of thanks to J. Ziman, 24th Science and Public Policy Lecture, Imperial College, London, 20 November 1990.

7pp A5 typescript with 1p manuscript addition.

D.391 Farewell dinner for L. Cohen, Cafe Royal, London, 4 December 1990.

12pp A5 typescript with annotations.

1991

D.392 Opening speech, University of London Interdisciplinary Research Centre for Semiconductor Materials, Imperial College, London, 11 February 1991.

6pp A5 typescript with annotations.

D.393 Conference banquet, First Annual Public Health Forum on Malaria - waiting for the vaccine, London School of Hygiene and Tropical Medicine, 16 April 1991.

10pp A5 typescript with annotations and 2pp manuscript additions.

Speeches, lectures and broadcasts

- D.394 Conference dinner, Annual conference, United Kingdom Environmental Law Association, Nottingham, 20 April.
19pp A5 typescript with annotations.
- D.395 Tribute by Flowers, thanksgiving service for the life of D.F. Jackson, Guildford Cathedral, Surrey, 24 April 1991.
17pp A5 typescript with annotations.
- D.396 Speech by Flowers in debate on education, House of Lords, London, 1 May 1991.
13pp A5 typescript with annotations.
- D.397 Computer Board Commemorative Dinner, London Zoo, 2 May 1991.
9pp A5 typescript with annotations.
- D.398 Speech by Flowers in debate on reports by the Select Committee on Science and Technology, House of Lords, London, 23 May 1991.
19pp A5 typescript with 1p manuscript addition.
- D.399 Centenary dinner celebration for Goldsmith's College, London, Worshipful Company of Goldsmiths, London, 23 May 1991.
22pp A5 typescript with annotations.
- D.400 Seminar on Research Evaluation, Oslo, Norway, 29 May 1991.
21pp A5 typescript.
- D.401 'Science and politics in the House of Lords - another sort of peer review', Royal Norwegian Academy, Oslo, Norway, 30 May 1991
58pp A5 typescript with annotations; 1p typescript note *re* lecture (Norwegian).
The speech was later adapted for use on other occasions, see D.411, D.415.

Speeches, lectures and broadcasts

- D.402 Conference dinner, Conference on Developing Medical Education, University of London, 26 June 1991.

19pp A5 typescript with annotations.
- D.403 Speech by Flowers in debate on amendments to the British Technology Group Bill, House of Lords, London, 27 June 1991.

8pp A5 typescript with annotations.
- D.404 Presentations to Fellows, Lloyd's Tercentenary Foundation, [?London], 12 July 1991.

6pp A5 typescript.
- D.405 Birthday speech, [?], 21 July 1991.

1p A5 typescript notes.
- D.406 Speech by Flowers in debate on amendments to the British Technology Group Bill, House of Lords, London, 22 July 1991.

10pp A5 typescript with annotations and 1p manuscript addition.
- D.407 Lunch, Nuffield Council on Bioethics, [?], 26 July 1991.

1p typescript notes, small note paper format.
- D.408 Presentation Day, Goldsmith's College, London, 27 September 1991.

6pp A5 typescript with annotations.
- D.409 Speech by Flowers in debate on amendments to the British Technology Group Bill, House of Lords, Westminster, London, 15 October 1991.

6pp A5 typescript with annotations.

Speeches, lectures and broadcasts

- D.410 'The case of the Nature Conservancy Council', Centre for Environmental Technology M.Sc. Lecture, Imperial College, London, 28 October 1991.

9pp typescript.

- D.411 'Science and politics in the House of Lords - another sort of peer review', Centre for Environmental Technology, M.Sc. Lecture, Imperial College, London, 28 October 1991.

11pp typescript.

See also D.401, D.415.

- D.412 Speech by Flowers in debate on second reading of the Further and Higher Education Bill, House of Lords, London, 21 November 1991.

3pp typescript; 11pp A5 typescript with annotations and 2pp manuscript additions.

- D.413 Speech by Flowers in debate on committee stage of the Further and Higher Education Bill, House of Lords, London, [21 November 1991].

5pp A5 typescript with annotations.

- D.414 'The future of higher education', Court and Council, University of Bristol, 19 December 1991.

13pp typescript; 56pp A5 typescript with annotations.

1992

- D.415 Annual Luncheon, Parliamentary and Scientific Committee, London, 26 February 1992.

An earlier speech by Flowers, 'Science and politics in the House of Lords - another sort of peer review', appears to have been used as the basis for the Parliamentary and Scientific Committee speech.

25pp A5 typescript with annotations; 13pp typescript of Flowers's 'Science and politics...' speech with annotations.

See also D.401, D.411.

Speeches, lectures and broadcasts

- D.416 'Who wants nuclear weapons now?', Birmingham Town and Gown Club, Birmingham, 9 March 1992.
24pp A5 typescript.
- D.417 Awards ceremony, Faculty of Science, Engineering and Mathematics, Middlesex Polytechnic, London, 4 April 1992.
16pp A5 typescript with annotations.
- D.418 Speech by Flowers in debate on Queen's speech, House of Lords, London, 13 May 1992.
12pp A5 typescript with annotations.
- D.419 Speech by Flowers in debate on safety aspects of ship design and technology, House of Lords, London, 1 June 1992.
15pp A5 typescript with annotations.
- D.420 Speech by Flowers in debate on the committee work of the House, House of Lords, London, 3 June 1992.
12pp A5 typescript with annotations.
- D.421 Opening speech, Conference on Technology Transfer and Implementation, Queen Elizabeth Conference Centre, London, 6 July 1992.
16pp A5 typescript.
See also G.162.
- D.422 Speech by Flowers in debate on systematic biology, House of Lords, London, 9 July 1992.
16pp A5 typescript with annotations and 1p manuscript addition.
- D.423 Reception in memory of A. Sier, Imperial College, London, 15 July 1992.
10pp A5 typescript with annotations.

Speeches, lectures and broadcasts

- D.424 Presentation of A. Rutherford for Honorary Fellowship of the College, Presentation Day, Goldsmiths' College, London, 26 September 1992.

18pp A5 typescript with annotations.

- D.425 Farewell to D. Tyrrell, Nuffield Foundation, London, 5 November 1992.

1p typescript notes.

1993

- D.426 Introduction to R.E. Peierls, Lunch Time Lecture, Imperial College, London, 20 January 1993.

8pp A5 typescript with annotations.

- D.427 Introduction to interim report *Review of the academic year*, Higher Education Funding Council for England Annual Conference, Birmingham, 6 April 1993.

34pp A5 typescript with annotations.

- D.428 Speech by Flowers in debate on forensic science, House of Lords, London, 15 April 1993.

15pp A5 typescript with annotations.

- D.429 Introduction to interim report *Review of the academic year*, Higher Education Funding Council for Wales Seminar, Cardiff, 17 May 1993.

36pp A5 typescript with annotations.

- D.430 'Science and parliament', Czech Academy of Sciences, Prague, Czechoslovakia, 28 May 1993.

59pp A5 typescript.

- D.431 'Structure of the academic year', AGCAS [Association of Graduate Careers Advisory Service] Conference, London, 9 June 1993.

38pp A5 typescript with annotations.

Speeches, lectures and broadcasts

- D.432 'Structure of the academic year', Northern Universities Working Group, Sheffield, 15 June 1993.
34pp A5 typescript with annotations.
- D.433 'Innovate or perish', North West Innovation Lecture, Manchester, 12 October 1993.
69pp A5 typescript with annotations.
- D.434 Welcome to the Chinese Committee for Science and Technology, Parliamentary and Scientific Committee, London, 12 November 1993.
6pp A5 typescript with annotations.
- D.435 Dinner speech, Parliamentary and Scientific Committee, Chinese Embassy, London, 12 November 1993.
7pp A5 typescript.
- D.436 Press launch *re* report *Review of the academic year*, Senate House, University of London, 1 December 1993.
9pp A5 typescript with annotations.
- D.437 Talk *re* report *Review of the academic year*, 5th Annual Conference on 'Europe and beyond', European Association for International Education, The Hague, Netherlands, 3 December 1993.
29pp A5 typescript with annotations.
- 1994**
- D.438 Talk *re* report *Review of the academic year*, Access and Community Education Services Conference, London 14 January 1994.
45pp A5 typescript.

Speeches, lectures and broadcasts

- D.439 Welcome and toast to guests, Annual Luncheon, Parliamentary and Scientific Committee, London, 2 February 1994.

9pp A5 typescript with annotations.
- D.440 Speech by Flowers in debate on statutory instruments *re* scientific research, House of Lords, London, 7 February 1994.

11pp A5 typescript with annotations.
- D.441 Faculty Research Day Programme, Middlesex University, London, 9 February 1994.

8pp typescript notes with annotations and 1p manuscript notes.
- D.442 Speech by Flowers in debate on the report *Priorities for the science base*, House of Lords, Westminster, London, 3 March 1994.

22pp A5 typescript with annotations.
- D.443 Talk *re* report *Priorities for the science base*, London Diplomatic Science Club, 21 March 1994.

25pp A5 typescript with annotations.
- D.444 Speech by Flowers in debate on his move to amend the Education Bill 1994, House of Lords, London, 22 March 1994.

9pp A5 typescript with annotations.
- D.445 Introduction to B. Wiik and the First Pickavance Lecture, Rutherford Appleton Laboratory, Oxford, 21 April 1994.

7pp A5 typescript with annotations.
- D.446 Council dinner, General Dental Council, [?], 10 May 1994.

19pp A5 typescript.

Speeches, lectures and broadcasts

- D.447 Presentation Speech to St Mungo and Centrepoint, 50th anniversary of the Nuffield Foundation, Nuffield Foundation, London, 6 July 1994.
- 7pp A5 typescript.
- D.448 Response to the toast of the guests, Livery dinner, Tallow Chandlers Company, 17 November 1994.
- 8pp A5 typescript with annotations.
- D.449 Opening address, Annual Residential Conference on Communication, Learning and Technology, Association for Colleges, Glasgow, 22 November 1994.
- 19pp A5 typescript with annotations.
- D.450 Opening address, General Assembly, European Science Foundation, Strasbourg, France, 24 November 1994.
- 21pp A5 typescript with annotations.
- 1995**
- D.451 President's toast to the guests, Annual Luncheon, Parliamentary and Scientific Committee, London, 22 February 1995.
- 6pp A5 typescript with annotations.
- D.452 'Environmental policy: the last 25 years and the next 25 years', Jubilee Seminar, Royal Commission on Environmental Pollution, London, 28 March 1995.
- 13pp A5 typescript with annotations.
- See also G.193, G.194.
- D.453 Chancellor's speech, Convocation dinner, University of Manchester, 29 April 1995.
- 14pp A5 typescript with annotations.

Speeches, lectures and broadcasts

- D.454 President's vote of thanks, Presentation of Beacon awards by T. Boswell, Institution of Mechanical Engineers, London, 3 May 1995.
- 3pp A5 typescript with annotations.
- D.455 Chancellor's response, Inauguration of the Chancellor, University of Manchester, 9 May 1995.
- 8pp A5 typescript.
- D.456 Speech by Flowers in debate on second reading of Atomic Energy Authority Bill, House of Lords, London, 19 May 1995.
- 7pp A5 typescript with annotations.
- D.457 Farewell dinner for J.L. Knill, Radioactive Waste Management Advisory Committee, St Ermin's Hotel, [?], 31 May 1995.
- 11pp A5 typescript.
- D.458 President's speech, Annual General Meeting Reception, Association for Colleges, House of Commons, London, 14 June 1995.
- 6pp A5 typescript.
- D.459 Chancellor's address, Degree Ceremony, University of Manchester, 3 July 1995.
- 7pp A5 typescript with annotations.
- D.460 Speech by Flowers in debate on second reading of the Queen Mary and Westfield College Bill, House of Lords, London, 19 July 1995.
- 7pp typescript with annotations.
- D.461 Address by Flowers at Annual Prize Giving, Colston Girls' School, Bristol, 22 September 1995.
- 13pp A5 typescript with annotations.

Speeches, lectures and broadcasts

- D.462 Funeral address for R.E. Peierls, Oxford Crematorium, Oxford, September 1995.

9pp A5 typescript with annotations.
- D.463 Speech by Flowers as President of the Association for Colleges, Opening of New Building, Barnet College, London, 6 October 1995.

8pp A5 typescript with annotations.
- D.464 Introduction, as President of the Association for Colleges, Conference on Catchwords and Policies, Association for Colleges, London, 26 October 1995.

7pp A5 typescript with annotations.
- D.465 Chancellor's speech, Honorary Masters Degree Ceremony, University of Manchester, 1 November 1995.

5pp A5 typescript with annotations.
- D.466 Videoconference launch, East Anglian Distance Learning Project, BT Centre, [?], 16 November 1995.

6pp A5 typescript with annotations.
- D.467 Welcome speech, 1995 Annual Conference, Association for Colleges, London, 21 November 1995.

3pp typescript.
- D.468 Chancellor's speech, University of Manchester Annual Alumni Dinner, The Reform Club, London, 1 December 1995.

12pp A5 typescript with annotations.
- D.469 Chancellor's response, 'Spade in the ground ceremony', Chancellor's House, University of Manchester, 7 December 1995.

6pp A5 typescript.

Speeches, lectures and broadcasts

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|--------------|--|------------------|
| D.470-D.476 | Selected early speeches and lectures | 1956-1965 |
| | 'Selected early speeches and lectures by Brian Hilton Flowers IC September 1985'. Contents of folder so labelled. 1956-1965. | |
| D.470, D.471 | 'The structure of the nucleus', Salford Lectures, [?], 1956.
A series of two lectures. | |
| D.470 | 'Lecture 1 Nuclear Forces', 12pp manuscript. | |
| D.471 | 'Lecture 2 Nuclear Structure', 10pp typescript. | |
| D.472 | 'High energy physics', Properties of Matter Colloquium, [?], 18 March 1959.
22pp manuscript. | |
| D.473 | 'Some reflections on reactor theory', [?], ca 1950s.
13pp manuscript. | |
| D.474 | Going down dinner, Ashburne Hall, University of Manchester, July 1961.
4pp typescript, small note paper format. | |
| D.475 | 'Science, state, society', Old Dy'vorians, Swansea, 18 October 1962.
20pp typescript. | |
| D.476 | After dinner speech, Old Dy'vorians Annual Dinner, Swansea, 1 March 1965.
Correspondence <i>re</i> arrangements and biographical profile for the <i>Western Mail</i> ; 10pp A5 typescript; etc. | |

Speeches, lectures and broadcasts

D.477-D.572 TEACHING ca 1951-1967

The material below consists of lecture courses given by Flowers as a lecturer at the Department of Mathematical Physics, University of Birmingham, (1950-1952), as Professor of Theoretical Physics (1958-1961) and then Langworthy Professor of Physics (1961-1972) at the University of Manchester, 1958-1972.

D.477-D.527 Birmingham lecture course

D.528-D.572 Manchester lecture courses

D.477-D.527 Birmingham lecture course ca 1951-1959

D.477-D.527 Lecture course etc, Department of Mathematical Physics, University of Birmingham, ca 1951.

'Final Year Honours Physics/Postgraduate Quantum Mechanics Birmingham 1951/52 Harwell 1955/56 Harwell 1956/57 Manchester 1958/59'. Contents of folder so inscribed, divided into 50 for ease of reference.

The material consists of manuscript notes for a lecture course. In general Flowers has indicated the number and date of each lecture. He has numbered the pages 1-317 but there has been sub-numbering, and occasionally additional pages have been added.

D.477 3pp manuscript syllabus for quantum mechanics course, n.d.; 1p manuscript note of recommended books, n.d.

D.478-D.526 Lectures 1-[49].

The lecture titles given are those listed by Flowers in his syllabus for the course, see D.477.

D.478 1. 'Classical mechanics', 6pp.

D.479 2. 'Wave nature of electrons', 'Schrödinger's equation', 7pp.

D.480 3. 'One dimensional Schrödingers equation', ['Eigen solutions for bound states'], 9pp.

Speeches, lectures and broadcasts

- D.481 4. 'Normalisation and orthogonality', 'Expansion theorem', 8pp.
- D.482 5. 'Free Rotator', 'Continuous eigen values', ' δ -function', 7pp.
- D.483 6. [' δ -function'], 'Momentum representation', 'Harmonic oscillator', 12pp.
- D.484 7. 'Properties of Hermite polynomials', 4pp.
- D.485 [8]. 'Periodic potential', 'Uncertainty principals and complementarity', 23pp.
- D.486 9. 'Minimum uncertainty product', 'Spread of a wave packet with time', 6pp.
- D.487 10. 'Three dimensional wave equation', 4pp.
- D.488 11. 'Properties of the Legendre polynomials', 6pp.
- D.489 12. ['Angular momentum operators'], '3-dimensional square well potential', 7pp.
- D.490 13. 'Hydrogen atom (Bound States)', 'Momentum distribution of H-atom ground state', 10pp.
- D.491 14. 'Collision Problems', 10pp.
- D.492 15. 'Phase shift', 'Matrices', 7pp.
- D.493 16. ['Matrices and linear transformations'], 8pp.
- D.494 17. ['Matrix mechanisms'], 11pp.

Speeches, lectures and broadcasts

- D.495 18. 'Solution of Harmonic Oscillator in matrix mechanisms', 'Transformation from Schrödinger to Heisenberg equation of motion', 4pp.
- D.496 [19]. 'Angular momentum', 9pp.
- D.497 20. 'Variational method', 5pp.
- D.498 21. 'Helium atom', 7pp.
- D.499 22. 'Perturbation theory, (non-degenerate and discrete case)', 7pp.
- D.500 23. 'Stark effect of a one dimensional harmonic oscillator', 'Slightly anharmonic oscillator', 'Degenerate case', 'Discrete spectrum', 7pp.
- D.501 24. ['?Degeneracy in perturbation theory: two electron atom'], 'Stark effect in hydrogen', 7pp.
- D.502 25. 'A generalized perturbation treatment', 'Contour integration', 'Cauchy, Taylor, Laurent theorems', 'Singularities', 'Calculus of residues', 'Sketch of theory of contour integration', 'Perturbation treatment in the continuum: Born's approximation', 'Green's function', 13pp.
- D.503 26. 'Born approximation formula', 7pp.
- D.504 27. 'Rutherford formula', 'Complete integral equation for scattering', 'Transition matrix', 'Greens function', 'Phase shifts', 17pp.
- D.505 28. 'Time dependent perturbation theory', 5pp.
- D.506 29. 'Elastic scattering', 'Interaction representation', 15pp.
- D.507 30. '[Hamiltonian] oscillating in time', 'Theory of radiation', 'Hamiltonian for charged particles in electromagnetic field', 7pp.

Speeches, lectures and broadcasts

- D.508 31. ['Hamiltonian for charged particles in electromagnetic field'], 6pp.
- D.509 [32]. 'Spontaneous emission', 'Live breadth', 'Derivation of Planck's radiation hypothesis', 6pp.
- D.510 33. 'Quantization of the radiation field', 6pp.
- D.511 34. 'Methods depending upon $\partial H/\partial t$ ', 6pp.
- D.512 35. 'Sudden approximation', 6pp.
- D.513 36. 'Identical particles', 'Distinguishability', 'Exclusion principle', 5pp.
- D.514 37. 'Spin', 'Addition of angular momenta', 'Spins of several particles', 6pp.
- D.515 38. 'Spin functions', 6pp.
- D.516 39. 'H-atom zero order perturbation [wave functions]', 'Scattering of identical particles', 'Exchange collisions of electrons with hydrogen', 7pp.
- D.517 40. 'Relativistic quantum mechanics', 'Diracs theory of the electron', 6pp.
- D.518 41. 'Dirac equation', 6pp.
- D.519 42. ['Diracs equation for the electron, anomalous magnetic movement of the electron'], 'Large and small components', 6pp.
- D.520 43. ['Large and small components'], 'Angular momentum', 'Polar variables, Hydrogen atom', 'Negative energy solutions', 12pp.
- D.521 44. 'Nuclear dispersion theory', 'Orthogonality', 4pp.

Speeches, lectures and broadcasts

- D.522 45. 8pp.
- D.523 46. 6pp.
- D.524 [47]. 'The Born-Oppenheimer approximations', 'Rotational and vibrational motion', 9pp.
- D.525 [48]. 'Crystal dynamics. The Phonon Field. 1. The Linear Chain', 'Specific heat', 'Fermi pseudo potential', 11pp.
- D.526 [49]. [?'Neutron scattering by crystals: Debye-Walter factor', 8pp].
- D.527 2pp manuscript entitled 'Further examples', 2pp manuscript calculations entitled 'Perturbation Theory in Matrix Form'.
- D.528-D.572 Manchester lecture courses 1958-1967**
- D.528-D.534 'The University of Manchester'. Contents of ring binder so inscribed, divided into seven for ease of reference. ca 1958-1960.
- D.528 'Electromagnetism 1958-9', 2pp typescript.
- D.529-D.534 'Relativity and Electrodynamics', 99pp manuscript lecture course so inscribed.

The material has been annotated with dates from January to March 1960 but it is probable that it originally dates from 1958 (see D.528).

6 folders.
- D.535, D.536 'The University of Manchester'. Contents of ring binder so inscribed. September 1959.

'Jugoslav Summer Meeting Sept 1959 General Theory of Nuclear Reactions', 55pp manuscript lecture course so inscribed. September 1959.

2 folders.

Speeches, lectures and broadcasts

- D.537-D.549 Lecture course entitled 'Properties of matter'.
See also E.21-E.28.
- D.537-D.543 'Properties of matter Part I', lecture course so entitled. 1959.
- D.537 3pp manuscript notes *re* lecture course, *ca* 1959 and 1966.
See also B.7-B.11.
- D.538-D.543 114pp manuscript lecture course, October-December [1959].
6 folders.
- D.544-D.549 'Properties of matter Part II', 117pp manuscript lecture course so inscribed.
1960.
6 folders.
- D.550-D.566 Two drafts of a nuclear physics course given by Flowers. *ca* 1961-1963.
- D.550-D.557 'Nuclear Physics Course (3H2)'. Contents of ring binder so inscribed, divided
into seven for ease of reference.
- D.550 1p typescript syllabus.
- D.551-D.557 158pp manuscript lecture course. Annotated with dates covering October
1961-February 1962 but probably earlier.
7 folders.
- D.558-D.566 177pp manuscript lecture course. *ca* 1962-1963.

This lecture course is a later draft of D.550-D.557 and incorporates pages
taken from the earlier draft.
9 folders.

Speeches, lectures and broadcasts

- D.567-D.572 Material *re* first year honours physics lecture course entitled 'Vibrations and Waves 1964/65 and 65/66'. 1964-1967.
- D.567-D.571 'The University of Manchester'. Contents of ring binder so inscribed, divided into five for ease of reference.
- D.567 Correspondence etc *re* syllabus for course including typescript and manuscript notes and 1p manuscript and 4pp typescript drafts, July 1965.
- D.568-D.571 85pp manuscript lecture course.
4 folders.
- D.572 'Vibration's and Waves for Chemists Manchester 1st year Hons Chemists 1966/67', note-book so inscribed. 1966.

Manuscript lecture course.
- D.573-D.577 **BROADCASTS** **1957-1983**

Arranged in chronological order.
- D.573 '4. Parity and particles', BBC 'Third programme'. 1957.
18pp typescript transcript, first broadcast 15 July 1957.
- D.574 'The emigration of scientists', BBC 'Third Network'. 1964.

Correspondence *re* arrangements, March, April 1964; 7pp typescript transcript, first broadcast 3 April 1964.
- D.575 'What future for nuclear power', BBC World Service. 1977.

11pp typescript transcript, first broadcast 30 January 1977.
- D.576 'Whipping the cream', BBC Radio Four 'Analysis' programme. 1981.

Letter *re* broadcast, June 1981; 11pp typescript transcript, first broadcast 3 June 1981.

Speeches, lectures and broadcasts

D.577

Interview *re* university finance cuts, BBC Radio Four 'Today' programme. 1983.

Letter *re* broadcast, November 1983; 3pp typescript transcript, broadcast 9 November 1983.

SECTION E

PUBLICATIONS

E.1-E.70

E.1-E.56 DRAFTS

E.57-E.67 EDITORIAL CORRESPONDENCE

E.68-E.70 OFFPRINTS

Publications

E.1-E.56 DRAFTS 1947/1948-1982

Arranged in chronological order.

E.1 'Theory of ionization chambers'. Contents of folder so inscribed, ca 1947/1948.

9pp incomplete typescript draft entitled 'The Theory of Pulse Chambers'; 1p manuscript graph; 3pp incomplete manuscript notes.

In a private communication of 10 April 1998 Lord Flowers indicated that he wrote an article on the theory of pulse chambers in the period 1947-1948 but that it was never published. The material above may relate to this.

E.2-E.6 'Unfinished Book. Group Theory and Nuclear Structure'. Contents of boxfile so inscribed. ca 1952-1954.

In June 1952 the North-Holland Publishing Co., Amsterdam, wrote to Flowers inviting him to participate in the writing of a book on group theory as part of their series Monographs on Theoretical and Applied Physics. Flowers was to co-author the book with A.R. Edmonds.

E.2 'Book'. Contents of folder so inscribed, 1952-1954, n.d.

Correspondence etc *re* negotiations with North-Holland Publishing Co., N.F. Mott and Clarendon Press; 1p typescript abstract entitled 'Group Theory and Nuclear Spectra', June-December 1952.

Correspondence with A.R. Edmonds *re* book; 10pp typescript notes, and 4pp typescript scheme of book, October 1952-May 1954. 15pp typescript draft scheme for the book entitled 'Group Theory and Nuclear Spectra', n.d.

E.3 'Chapter I. Group Theory and Nuclear Structure'. Contents of folder so inscribed, n.d.

1p typescript entitled 'Notation'; 19pp manuscript draft entitled 'Chapter I. Non-Relativistic Quantum Mechanics'.

E.4 'Chapter II. The Concepts of Groups & Rings'. Contents of folder so inscribed.

23pp manuscript draft and later 27pp annotated typescript draft, n.d.

Publications

- E.5 'Chapter III. Representation Theory'. Contents of folder so inscribed.
14pp manuscript draft and later 16pp typescript draft, n.d.
- E.6 'Chapter IV. the Group of the Hamiltonian'. Contents of folder so inscribed.
7pp typescript draft entitled 'Chapter IV' and annotated by Flowers 'A R E's rough draft' with attached 4pp manuscript draft, in the hand of A.R. Edmonds, entitled 'Ch IV. continued. Diagonalisation of the Energy Matrix'. n.d.
- E.7-E.17 'Unfinished Book, The Structure of Light Nuclei'. Contents of boxfile so inscribed. The contents were further contained within a folder entitled 'The Structure of Light Nuclei' (retained at E.7). Latest bibliographical reference 1958.
- E.7 'The Structure of Light Nuclei', Atomic Energy Research Establishment (AERE), Harwell issue folder so inscribed enclosing E.8-E.17. The contents were subdivided by Flowers into a bundle consisting of nine manuscript draft chapters of the book (E.8-E.13) and 2 folders with further draft material (E.14-E.16 and E.17).
- E.8-E.13 Bundle consisting of manuscript drafts of chapters 1-9, with annotations, divided into six for ease of reference.
- E.8 'Chapter I. Introduction', 14pp; 'Chapter II. Nuclear Forces and the Many-Body Problem', 22pp.
- E.9 'Chapter III. The Simple Shell Model', 30pp+graph.
- E.10 'Chapter IV. Refinements of the Simple Shell Model', 40pp.
- E.11 'Chapters V. Angular Momentum and Tensor Operators', 20pp; 'Chapter VI. The Symmetries of Nuclear States', 21pp.
- E.12 'Chapter VII. Individual Particle Wave Functions', 21pp+table; 'Chapter VIII. Other Coupling Schemes', 12pp+table.

Publications

- E.13 'Chapter IX. Fractional Parentage Coefficients', 18pp.
- E.14-E.17 Further draft material.
- E.14-E.16 Contents of folder. Typescript draft of chapters 1-9, divided into three for ease of reference. The typescript draft incorporates in the text changes made in annotated form to the manuscript draft bundle (see E.8-E.13).
- E.14 'Chapters I Introduction', 9pp; 'Chapter II Nuclear forces and the many body problem', 14pp.
- E.15 'Chapter III The simple shell model', 16pp; 'Chapter IV Refinements of the simple shell model', 26pp; 'Chapter V Angular momentum and tensor operators', 18pp; 'Chapter VI The symmetries of nuclear states', 16pp.
- E.16 'Chapters VII Individual particle wave functions', 18pp; 'Chapter VIII Other coupling schemes', 11pp complete draft, 7pp incomplete draft; 'Chapter IX Fractional parentage coefficients', 17pp.
- E.17 'Structure of light nuclei. Typed Chapters'. Contents of folder so inscribed.

7pp incomplete typescript draft of Chapter 3 with manuscript graph and corrections; 8pp incomplete typescript draft of Chapter 6; 18pp typescript draft of Chapter 7 with manuscript graph.
- E.18 'The structure of the atomic nucleus', *The Times Science Review*, Spring 1960, pp 14, 17-18. The article was subsequently printed as 'The structure of the nucleus' in *Journal of Chemical Education*, 37, (December 1960), pp 610-615.

18pp typescript draft.

See also D.30.
- E.19 *Computers in the service of medicine, I and II*, edited by G. McLachlan and R.A. Shegog, Oxford University Press, 1968.

Flowers wrote an introduction.

Correspondence etc *re* publication and critical response, December 1967-August 1968; 3pp typescript draft with annotation.

Publications

- E.20 'Confidential. Prof. Sir Rudolph Peierls. Draft obituary notice. (1972!!!). Contents of folder so inscribed. 1968-1972.
- Flowers wrote an obituary notice of Peierls at the invitation of the Oxford University Correspondent of *The Times*.
- Correspondence etc relating to the production of the obituary; typescript and manuscript bibliographies, three typescript drafts (4pp, 5pp and 4pp) with annotations and 2pp typescript notes *re* Peierl's war and post war atomic energy work.
- E.21-E.28 *Properties of Matter* by B.H. Flowers and E. Mendoza, John Wiley & Sons Ltd, 1970.
- The book was based on a lecture course on statistical properties of matter considered as a collection of interacting atoms and molecules first given at the University of Manchester in the 1959-1960 academic session.
- See also G.46.
- E.21-E.23 Correspondence *re* publication, subsequent new and foreign editions etc, 1968-1979.
- E.21 1968 March-1969 December.
- E.22 1970 January-1971 October.
- E.23 1972 July-1979 May.
- E.24-E.27 Folder of correspondence and proofs, divided into four for ease of reference. 1969-1970.
- E.24 Correspondence *re* proofs, November 1969-March 1970.
- E.25-E.28 Publishers proofs with annotations.
- E.25 'Chapter 1 The study of the properties of matter', 61pp.
- E.26 'Chapter 4 Energy, temperature and the Boltzmann distribution', 17pp; 'Chapter 5 The Maxwell speed distribution and the equipartition of energy', 20pp; 'Chapter 6 Transport properties of gasses', 20pp.

Publications

- E.27 'Chapter 7 Liquids and imperfect gasses', 22pp; 'Chapter 8 Thermal properties of solids', 19pp; 'Chapter 9 Defects in solids: Liquids as disordered solids', 27pp; 'Index' 4pp.
- E.28 'Science on a tight budget', *Science*, **170**, (25 December 1970), p 1361.
Flowers wrote a short editorial.
Letter *re* publication including attached 1p proof with annotations.
- E.29 Authorised statement prepared for *The Times*, *New Scientist* etc.
Two letters *re* statement made by Flowers as Chairman of the Science Research Council *re* parliamentary Green Paper, January 1972.
- E.30 *Tenth year anniversary publication*, Atlas Computer Laboratory, (1974).
Flowers wrote a short article entitled 'Atlas plus and minus ten'.
Correspondence *re* publication; 3pp typescript draft, October 1973-January 1974.
- E.31 'Past present and future', *Physics Bulletin*, **25**, (January 1974), p 8.
Correspondence etc *re* publication; 1p proof with annotations and 3pp typescript draft, October-December 1973.
See also D.99, D.105.
- E.32 'Funding research', *Physics Bulletin*, **25**, (July 1974), pp 293-298.
Correspondence *re* publication including 6pp proof with annotations, 28 June 1974.
- E.33 '1874-1974 The Physical Society of London', *Physics Bulletin*, **25**, (October 1974), pp 435-437.
3pp proof with annotations.
See also D.99, D.105.

Publications

- E.34 'Universities finance', *University of London Bulletin*, 21, (December 1974), pp 2-3.

Correspondence *re* publication; four typescript drafts 33pp, October-December 1974.
- E.35 'Rectors welcome to freshers', *FELIX*, Imperial College, London, newsletter, (29 September 1975).

4pp typescript draft, annotated on first page 'Rector's article for FELIX-to be published on 29/9/75 sent to Felix on 15/9/75', 15 September 1975.

See also D.131.
- E.36 'Nuclear power and the public interest a watchdog's view', *Bulletin of the Atomic Scientists*, (December 1976).

Note with attached photocopied first page of article, 10 February 1977.

See also D.150.
- E.37-E.39 'Nuclear power and public policy'.

Originally a lecture given by Flowers to the British Nuclear Energy Society, 2 December 1976 it appeared in print in three different publications.

See also D.164.
- E.37 'Nuclear power problems', *Morning Star*, *ca* February 1977.

Correspondence *re* publication; 6pp typescript draft, January 1977.
- E.38 'Nuclear power and public policy', *J. Br. Nucl. Energy Soc.*, 16, (April 1977), pp 113-121.

Correspondence *re* publication; 8pp proof with corrections, February 1977; 29pp typescript of lecture annotations for publication.
- E.39 'Nuclear power and public policy', *Chemtech*, 7, (August 1977), pp 484-494.

Correspondence *re* publication; 6pp incomplete typescript draft with annotations, February-July 1977; 29pp typescript of lecture annotated for publication.

Publications

- E.40 'Fast reactors and the fuel cycle', *Nuclear or not?: choices for our energy future: a Royal Institution forum*, edited by Gerald Foley and Ariane van Buren, Heinemann Educational (1978).
- Flowers's lecture at the Royal Institution Forum on 11/12 October 1977, was adapted for publication.
- Correspondence *re* publication including 15pp typescript of lecture annotated for publication, February 1978
- See also D.185.
- E.41 'The Nuclear Debate', *Bulletin of the Atomic Scientists*, (March 1978).
- Flowers's lecture at Temple University, Philadelphia, USA on 23 September 1977, was adapted for publication.
- Correspondence *re* publication; 38pp typescript of lecture annotated for publication. 1977 November–1978 March
- See also D.179.
- E.42 Foreword to proposed handbook.
- Flowers wrote a foreword to a proposed handbook 'Principia' to celebrate the centenary of the Royal College of Science Association. No evidence of publication.
- Letter *re* possible publication, 26 October 1981; 3pp typescript draft.
- E.43-E.44 'Energy and the environment - the public debate', *Energy policy: a common approach* edited by D. Ezra.
- Flowers's Gerald Walters Memorial Lecture at the University of Bath on 16 May 1978, was adapted for publication. No evidence of publication.
- See also D.202.
- E.43 Correspondence *re* publication, January 1980-June 1982.
- E.44 29pp typescript draft with annotations and 1p contents page of book.

Publications

- E.45 'Ecology observed', *Ecology in the 80's* edited by J.N.R. Jeffers, Institute of Terrestrial Ecology, (1984).

Correspondence *re* publication including 3 typescript drafts with annotations, October 1982-September 1984.
- E.46 'The painter and the swordsman: insulting tales for engineers'.

Flowers keynote address at the Second World Conference on Continuing Engineering Education, Paris, France, 6 April 1983 entitled 'The painter and the swordsman: insulting tales for engineers', was adapted for publication in the *Journal of Engineering Education*. No evidence of publication.

Letter *re* publication, 15 April 1985; 21pp typescript draft with annotations.

See also D.334.
- E.47-E.56 *An introduction to numerical methods in C++*, Clarendon Press, 1995.

'B.H. Flowers Draft C++ book', contents of ring binder so inscribed. Typescript draft with annotations, divided into ten for ease of reference.
- E.47 7pp figures.
- E.48 Title pages, 'Contents'; 7pp, 'Preface', 4pp; '1 Preliminaries', 17pp.
- E.49 '2 Expressions, statements and functions', 29pp.
- E.50 '3 Errors, theorems and speed', 12pp; '4 Roots of non-linear equations', 22pp.
- E.51 '5 Classes', 23pp; '6 Derived classes and streams', 22pp; '7 Integer arithmetic', 24pp with intercalated addition.
- E.52 '8 Tests or randomness', 16pp; '9 Vectors and matrices', 14p; '10 Direct solution of linear equations', 21pp.
- E.53 '11 Errors in matrix manipulation', 9pp; '12 Iterative solutions of systems of equations', 10pp; '13 Matrix eigenvalue problems', 27pp.

Publications

- E.54 '14 Interpolation and data fitting', 22pp; '15 Graphics', 23pp; '16 Differentiation and integration', 20pp with intercalated addition.
- E.55 '17 Orthogonal polynomials', 24pp; '18 Differential equations', 27pp.
- E.56 '19 More about differential equations', 22pp; '20 Recursive data types – lists', 29pp; '21 Elements of Fourier analysis', 9pp; 'Bibliography', 2pp; 'Appendix', 7pp.

E.57-E.67 EDITORIAL CORRESPONDENCE 1973-1977

Arranged alphabetically by publisher or journal title.

- E.57 Cambridge University Press 1973
Invitation to comment on a book submitted for publication (declined), November 1973.
- E.58 *Central* 1973
Correspondence *re* article on Flowers, September, October 1973; 11pp typescript draft with annotations.
- E.59 *Financial Times* 1973-1974
Invitation to comment on a chapter of a proposed book entitled *The business of science* by D. Fishlock, December 1973, January 1974.
- E.60 *Higher Education* 1976
Invitation to write reviews (declined), July, August 1976.
- E.61 London Institute of World Affairs 1977
Invitation to write article for the 1978 yearbook on the subject of deficiencies in the international control of nuclear energy (declined), June 1977.

Publications

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| E.62 | <i>Nature</i> | 1973-1974 |
| | Invitations to write reviews (declined), 1973-1974. | |
| E.63 | <i>New Scientist</i> | 1974, 1977 |
| | Invitation to write review (declined), December 1974. | |
| | Invitation to write article (declined), February 1977. | |
| E.64 | Oxford University Press | 1977 |
| | Correspondence <i>re</i> invitation to write a book on energy resources (declined) and Flowers offer to assist in finding a suitable author, August 1977. | |
| E.65 | <i>Scotsman</i> | 1977 |
| | Invitation to write article (declined), 28 April 1977. | |
| E.66 | <i>Survival</i> | 1977 |
| | Invitation to write review (declined), November 1977. | |
| E.67 | <i>Times Higher Education Supplement</i> | 1977 |
| | Invitations to write articles (declined), January, February and August 1977. | |
| E.68-E.70 | OFFPRINTS | 1947-1992 |
| E.68 | List of articles published by Flowers 1947-1969. | |
| E.69 | Bundle of offprints, 1947-1974. | |
| E.70 | Bundle of offprints, 1977-1995. | |