Catalogue of the papers and correspondence of

Peter Dennis Mitchell FRS

(1920 - 1992)

VOLUME I

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by Alan Hayward, Adrian Nardone and Timothy E. Powell NCUACS catalogue no. 65/3/97 P.D. Mitchell NCUACS 65/3/97

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P.D. Mitchell NCUACS 65/3/97

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GENERAL INTRODUCTION

PROVENANCE

The papers were received in August 1996, from the Glynn Research Institute, Bodmin, Cornwall. In May 1997 Mrs Helen Mitchell made available for cataloguing two extracts of her husband's diary.

OUTLINE OF THE CAREER OF P.D. MITCHELL

Peter Dennis Mitchell was born in Mitcham in Surrey on 29 September 1920. He was educated at Queen's College, Taunton, 1932-1938 and in 1939 he gained admittance to Jesus College, Cambridge. He obtained a Third Class in Part I of the Natural Sciences Tripos and after specialising in biochemistry in Part II he gained an Upper Second Honours Degree.

In 1942 Mitchell accepted a research post in the Department of Biochemistry at Cambridge at the invitation of J.F. Danielli. His first research concerned the development of a glycoside of BAL (British Anti-Lewisite) to treat skin lesions resulting from use of the chemical warfare agent, lewisite. This secret war work was published in 1946 and 1947 but was considered an unsuitable basis for a doctoral thesis. In 1945 Mitchell began research towards his Ph.D and following Danielli's move to London became a research student of E.F. Gale, Director of the Sub-Department of Microbial Biochemistry, in the Cambridge Biochemical Department. It was during this period that he was first introduced to Jennifer Moyle who acted as his research associate from 1948 until her retirement in 1983, apart from a short period between 1952 and 1955 when she was an assistant to Malcolm Dixon at Cambridge. While at Cambridge Mitchell also consulted David Keilin who had a strong influence on him scientifically. Mitchell's doctoral thesis 'Nucleic acid synthesis and the bactericidal action of penicillin' was initially rejected in 1950 but was passed early in the following year after resubmission. In 1950 Mitchell became Demonstrator in the Biochemistry Department at Cambridge where from 1951 to 1953 he designed and carried out experiments on the exchange and uptake of inorganic phosphate and arsenate through the osmotic barrier of *Micrococcus pyogenes*.

In 1955 Mitchell moved from Cambridge to the University of Edinburgh, where he accepted Professor Michael Swann's invitation to set up a biochemical research unit in the Zoology Department. Mitchell in turn asked Jennifer Moyle to join him which she did. It was at Edinburgh University that the chemiosmotic theory of oxidative phosphorylation was developed by Mitchell. He first used the term 'chemiosmotic' in a lecture read to a Biochemical Society Symposium in February 1957 and in 1961 he set out the principal features of his hypothesis in a paper for 'Nature', entitled 'Coupling of phosphorylation to electron and hydrogen transfer by a chemiosmotic type of

mechanism'. At this time Mitchell was appointed as a Senior Lecturer and in the following year (1962) he became a Reader.

Severe gastric ulcers in 1962 led Mitchell to take a long leave of absence from Edinburgh in order to recuperate in a holiday cottage, Glynn Mill, at the entrance to Glynn House, near Bodmin, Cornwall. He had already purchased Glynn House with a view to restoring it, just as he had bought a manse in Temple, ten miles south of Edinburgh and used his building skills to renovate it several years earlier. It was only after Mitchell's illness that he decided to establish a research institute at Glynn House. Jennifer Moyle agreed to act as co-founder and Mitchell left Edinburgh in 1963. Between 1963 and 1965 he withdrew from scientific research. By the autumn of 1964 Glynn House had been completely reconstructed and restored at a cost of £70,000, paid for by Mitchell himself. The Institute was provided with an endowment of £240,000 by Peter Mitchell and his brother, Christopher, who transferred their shares in Wimpey and Co. to Glynn Research Limited. This charitable company administered the Institute until its name was changed to the Glynn Research Foundation Limited in 1985.

From 1964 to 1986 Mitchell held the post of Director of Research at the Glynn Research Institute. The chemiosmotic hypothesis he had advocated during his years at Edinburgh University did not gain immediate acceptance but he continued to support it. In 1965 Mitchell, Moyle and a technician, Roy Mitchell (later research associate), began work, planning and carrying out the experimental research required to test the hypothesis. This was an extension of the experiments with mitochondria and bacteria which Mitchell and Moyle had carried out at the University of Edinburgh. Mitchell spent a considerable amount of time on theoretical work, while Moyle and the other members of the research group did much of the experimental work. In 1966 the first 'grey book' was produced (so called because of the cover's colour) entitled 'Chemiosmotic Coupling in Oxidative and Photosynthetic Phosphorylation'. A second 'grey book', 'Chemiosmotic Coupling and Energy Transduction' followed in 1968. Both were published by Glynn Research Limited and the ideas they contained remained fundamentally unaltered by Mitchell until 1975. From the beginning scientists were invited to stay briefly at Glynn House so that informal, private discussion could take place. Robert Crane made the first visit, to be followed by over 150 other scientists during the ensuing twenty years.

By 1970 a large amount of evidence had been accumulated which supported the chemiosmotic hypothesis and Mitchell's work continued to examine its application for the next twenty years. The early 1970s saw criticism of his linear loop model for the respiratory chain. Mitchell's own concerns about this model led to a major breakthrough on 20 May 1975, when he came up with the concept of the Q cycle. Although the Q cycle faced opposition from various quarters, by the mid-1980s the weight of evidence stood in its favour. Throughout the 1980s Mitchell continued to apply his chemiosmotic theory to experimental evidence, using it for example to examine the model of the

ATPase mechanism and the functioning of cytochrome oxidase. Mitchell was a prominent figure in the scientific debate as to whether cytochrome oxidase acts as a proton pump. He arranged a conference at Glynn on this subject on 22-24 March 1983 in the form of an 'octavian discussion', at which no more than eight of the twenty participants sat at the table at any one time. By 1985 the controversial issue was resolved. Mitchell changed his views, accepting that cytochrome oxidase has a proton pumping function, and proceeded to propose mechanisms for cytochrome oxidase.

In 1987 Mitchell became Chairman and Honorary Director of The Glynn Research Institute, with Dr Peter Rich given the position of Director of Molecular Research. Much of the last decade of Mitchell's life was devoted to fund raising for the Institute to prevent its closure. Mitchell died on 10 April 1992.

Mitchell had numerous interests besides scientific research and the restoration of buildings of historical interest. He was elected as a member of the Economic Research Council in 1975 and his interest in economic matters is further reflected by a number of letters he wrote to the *Financial Times* as well as his open letter in 1982 to Sir Jeremy Morse, Chairman of the Committee of London Clearing Bankers. Mitchell was interested in communication problems between individuals in civilised societies and sought to promote studies of human communication at Glynn alongside the molecular research. Mitchell's other interests included the minting of his own silver coins.

Peter Mitchell was accorded many honours for his contributions to biochemistry, starting with the Ciba Medal from the Biochemical Society in 1973. He was elected to the Fellowship of the Royal Society in 1974 (Copley Medal, 1981, Croonian Lecturer, 1987) and made an Honorary Member of the US National Academy of Sciences in 1977. He was awarded the Nobel Prize for Chemistry in 1978 'for his contribution to the understanding of biological energy transfer through the formulation of the chemiosmotic theory'. He was elected Honorary Fellow of Jesus College, Cambridge, in 1980.

Mitchell's main contribution to biochemistry was his chemiosmotic theory. In a document drawn up for the Central Office of Information in 1989 (see A.10) he wrote about the theory in the following way:

'Dr Mitchell's theory explains the main mechanism by which the energy of electron-transfer, associated with light absorption or oxidation, is made available in the living cells of plants, animals and microbes. He first proposed it as a hypothesis in 1961, challenging the prevailing view that energy-supplying actions, such as absorption of sunlight in a plant or oxidation of chemicals in an animal, were coupled to the synthesis of the universal energy-storage substance adenosine triphosphate (ATP) through a series of unstable chemical intermediaries. He suggested instead that the electron-transfer process, associated with light absorption or oxidation, generated proticity (the

protonic analogue of electricity) in modules of molecular dimensions plugged through a membrane, and that the proticity drove the production of ATP in other modules plugged through the same membrane.'

DESCRIPTION OF THE COLLECTION

The material is presented in the order given in the List of Contents. This large collection is uneven in its coverage as Mitchell destroyed much material on his move from Edinburgh in 1963. However, significant earlier material does survive with the comprehensive documentation of his career and work at Glynn.

Section A, Biographical, is not extensive. It includes obituaries of Mitchell, entries for biographical source-books and biographical information provided to researchers. The award of the Nobel prize is particularly well-documented including letters of congratulation and papers relating to the visit to Stockholm to collect the prize. There is also material relating to other honours and awards accorded Mitchell including the Fellowship of the Royal Society, 1974, the Royal Society's Copley Medal in 1981, and a number of honorary degrees. The section also includes two extracts from Mitchell's diary covering the period 1983-1992.

Section B, Glynn Research Institute, brings together material relating to its administration, with particular emphasis on fund-raising, although there is very little material predating 1979. The desk diaries are useful sources for the daily running of the Glynn Research Institute and provide insights into Mitchell's day-to-day activities. The methods employed at the Institute to raise funds for its survival are well reflected by the material, including documentation regarding the production and use of brochures, appeal letters, advertisements and articles to encourage donations. Formal grant applications to funding bodies, such as the Medical Research Council, Nuffield Foundation and Wellcome Trust, with related correspondence are also included. Folders relating to visits to the Institute were also kept from the early 1980s and these papers have been presented in a chronological sequence. Information concerning earlier visitors is to be found in section G in the correspondence files of the visitors concerned.

Section C, Research, Includes both Mitchell's own research material and that of research collaborators. Mitchell's own papers includes a student notebook dating from 1940, and some material relating to his wartime work on the chemical warfare agent Lewisite, undertaken with J. F. Danielli. The post-war papers runs from the late 1940s to 1989 and include material concerning all aspects of his research work at Cambridge to 1955, Edinburgh University 1955-1963 and at Glynn from 1964. The material comprises notebooks, manuscript and typescript drafts, manuscript notes and calculations. The bulk was found in Mitchell's own folders, sometimes with a note of the subjects

of the research inscribed thereon. The research material of collaborators comprises notebooks of his long-term research colleague Jennifer Moyle, a research student Steven Clarke, and Roy Mitchell, who was Chief Technician at Glynn 1965-1970 and research associate thereafter. The research work of Roy Mitchell, covering the period 1970-1994, is of importance in supplementing the records of the research of Mitchell and Jennifer Moyle under whom he worked.

Section D, Publications, lectures and broadcasts, is extensive. It covers the period 1958-1991 and includes drafts of many of Mitchell's scientific publications, including work undertaken in collaboration with other researchers, most notably Jennifer Moyle. The largest single sequence is material relating to Perspectives in Vectorial Metabolism and Osmochemistry, the book produced by the Glynn Research Institute to mark its 25th anniversary in 1990. The section also includes material relating to historical retrospectives on the origins of the chemiosmotic theory, with particular reference to the discussion between Mitchell and R.J.P. Williams. There is a sequence of editorial correspondence, principally requests to Mitchell to referee articles for journals or to write articles or books. Publications material also includes correspondence and papers relating to Mitchell's many letters to the Financial Times and The Times on economic and related matters. The lectures material chiefly covers public lectures given to learned societies and student university societies after Mitchell's move to Glynn. University teaching at Edinburgh may be represented, however, by a set of twelve lectures on the chemical aspects of biology dating from about 1960. Among the more prestigious lectures documented are the Ninth CIBA Medal Lecture of 1974, the Royal Institution of Chemistry's Humphrey Davy Memorial Lecture, 1980, and the Royal Society's Croonian Lecture of 1987. Broadcasts material includes transcripts of some of Mitchell's contributions to radio and television broadcasts. There are also audio and video tapes of interviews with Mitchell and a set of reprints of Mitchell's publications 1943-1992.

Section E, Societies and organisations, documents Mitchell's association with 81 UK, overseas and international bodies. There are few extended sequences and the greatest proportion of the material dates from the 1970s and 1980s. Mitchell's membership of British learned societies is poorly documented, the best being that relating to the Royal Institution and the Royal Society. However, he was elected to the membership of a number of overseas learned societies and academies and this is well reflected in the material. Among the largest sequences in the section are those relating to Mitchell's service as referee for grants, fellowships etc. for the Commission of the European Communities, the Medical Research Council, the US National Science Foundation and the Science (later Science and Engineering) Research Council. Also well-documented is Mitchell's membership of the Winnicott Trust (Chairman of the Advisory Committee from 1991). There is material relating to Jesus College Cambridge of which he was elected Honorary Fellow in 1980. He was also approached by a number of human rights and peace organisations seeking his support for various international campaigns.

Section F, Visits and conferences, covers the period 1958-1992. It documents much of Mitchell's attendance at conferences and seminars and travels in the UK and abroad. Mitchell travelled extensively although he rarely spent prolonged periods away from Glynn. The bulk of the material dates from the period after the award of the Nobel Prize in 1978, when his presence was particularly sought-after at important international and national meetings. The papers also document many invitations he declined and show that Mitchell was forced to cancel or withdraw from a number of engagements because of ill-health. Some of his later visits to London and elsewhere were in connection, or combined with, fund-raising for the Glynn Research Institute.

Section G, Correspondence, is the largest in the collection. It is arranged alphabetically by individual or organisation, following the Glynn Research Institute's arrangement, with most of the material dating from the period 1961-1992. Much of Mitchell's earlier correspondence was lost or destroyed when he moved from Edinburgh to Glynn. The correspondence is largely scientific in content and documents well the development of Mitchell's chemiosmotic hypothesis and the attitudes of fellow scientists to his work in the bioenergetics field. It also indicates his reactions to the work of other researchers since the section includes numerous manuscripts sent to Mitchell for comment. Scientists whose correspondence with Mitchell is of particular significance include P.D. Boyer, B. Chance, J.F. Danielli, A.L. Lehninger, E. Racker, E.C. Slater, M.K.F. Wikström and R.J.P. Williams. Mitchell's fund-raising activities to prevent the closure of the Glynn Research Institute are illustrated in this section in various forms, such as informal applications for grants and donations as well as requests for advice and assistance. There is also a little personal correspondence with B.H. Weber is accompanied by transcripts of an interview conducted by Weber in 1980, containing significant biographical information.

There is also an index of correspondents.

ACKNOWLEDGEMENTS

We are very grateful to Professor P.R. Rich, Mrs Stephanie Key, Dr B.H. Weber and Dr J.N. Prebble for their advice and encouragement, and to Dr J.M. Moyle for making available her notebooks and other research material for cataloguing with the Mitchell collection. We are also grateful to Mrs Helen Mitchell for making available extracts of her husband's diary.

A.F. Nardone A.P. Hayward T.E. Powell BATH 1997 P. D. Mitchell NCUACS 65/3/97

| SECTION A | BIOGRAPHICAL | A.1-A.100 |
|-----------|--------------|----------------------------------|
| | A.1-A.24 | BIOGRAPHICAL AND BIBLIOGRAPHICAL |
| | A.25-A.47 | NOBEL PRIZE |
| | A.48-A.89 | CAREER, HONOURS AND AWARDS |
| | A.90-A.98 | MISCELLANEOUS |
| | A.99, A.100 | DIARY |

BIOGRAPHICAL AND BIBLIOGRAPHICAL

| A.1 | Memoirs by E.C. Slater, <i>Biographical memoirs of Fellows of the Royal Society</i> , 40 , 1994. Includes microfiche containing Mitchell's bibliography. |
|----------|--|
| A.2 | Copy of completed Personal Records of Fellows of the Royal Society booklet, <i>ca.</i> 1985. |
| A.3, A.4 | Copies of obituaries and appreciation. |
| A.3 | The Times, 15 April 1992, 21 April 1992. |
| | Daily Telegraph, 15 April 1992. |
| | Daily Mail, 15 April 1992. |
| | Cornish Guardian (Bodmin edition), 16 April, 1992. |
| | Cornish Guardian, 16 April 1992. |
| | Independent, 16 April 1992. |
| | The Times Higher Educational Supplement, 17 April 1992. |
| A.4 | Western Morning News, 20 April 1992. |
| | Nature, 30 April 1992. |
| | TIBS, August 1992. |
| | Undated obituary by E. Quagliariello. |
| A.5 | Curricula vitae, 1974, 1980, 1987, <i>ca</i> . 1987, 1991. |
| A.6 | Scholar of the House Honors Thesis. 'Selected contributions leading to the recognition of mitochondrial sub-structure and its importance in oxidative phosphorylation' by Kent W. Gabriel, Yale University. Includes excerpts from interviews with Mitchell, about his educational background at Cambridge, his early research interests, the development of his ideas concerning vectorial metabolism, the influence of colleagues on his ideas |

| A.7 | Article, 'No more Darwins nowadays' by Terence Kealey, <i>Spectator</i> , 19/26 December 1987, referring to Mitchell. |
|----------|---|
| A.8 | Draft copy of biography (annotated with corrections by Mitchell), 9pp typescript, submitted for publication in <i>Biographical Dictionary of Nobel Prize Laureates in Chemistry</i> ed. Laylin James. Includes related correspondence. |
| A.9-A.16 | Requests for information from publishers of biographical source-books, 1974-1992, with copies of Mitchell's entries. |
| A.9 | Who's Who, 1974, 1977, 1985, 1992. |
| | McGraw-Hill Modern Scientists and Engineers, 1978-1979. |
| A.10 | Requests from the Central Office of Information for biographical information to use in their Reference Biography Service, 1979, and their pamphlet, <i>British Winners of Nobel Prizes</i> 1984, 1989. |
| A.11 | Who's Who in the World, 1979, 1986, 1990, 1991. |
| | Who's Who of British Scientists, 1980, 1983 |
| | Who's Who in the Commonwealth, 1980, 1982. |
| A.12 | International Who's Who, ca. 1980, 1981, 1987, 1991. |
| | Men of Achievement, 1981, 1983, 1990. |
| | Who's Who in Western Europe, 1982. |
| A.13 | Deike-Gedenktage, 1982, 1989. |
| | Dictionary of International Biography, 1984, 1985, 1989. |
| A.14 | Requests from American Biographical Institute for information to use in <i>International Book of Honor</i> , 1984, 1986-1987, <i>International Directory of Distinguished Leadership</i> , 1984, 1989, <i>Community Leaders of the World</i> , 1985. Includes correspondence concerning the accuracy of Mitchell's entries. |

| A.15 | Who's Who in Science, 1986, 1988. |
|------|--|
| | Who's Who in Europe, 1987, 1989, 1991. |
| | Who's Who in America, 1988, 1992. |
| | American Men and Women of Science, 1988, 1991. |
| A.16 | Römpp-Chemielexikon, 1990. |
| | Debrett's Distinguished People of Today, 1989-ca. 1991. |
| | Who's Who in Science and Engineering, 1991-1992. |
| A.17 | Request to interview Mitchell for the 'In Person' profile series in the New Scientist (declined), 1974. |
| | Correspondence <i>re</i> article about Mitchell for <i>Chemistry in Britain</i> . Includes 3pp typescript copy of article (annotated with corrections by Mitchell); 3pp typescript copy of article, incorporating Mitchell's earlier corrections. November 1978. |
| A.18 | Correspondence <i>re</i> requests for photographs of Mitchell, to be used in an article for a children's science encyclopaedia about the Nobel Prize winners in Physics and Chemistry. 1978-1979. |
| | Request for Mitchell to select his favourite poem for inclusion in an anthology of poems, chosen by famous men and women (answer not extant), 1979. Includes photocopy of letter from John Tessimond about his favourite poets, 1960. |
| A.19 | Request from Austrian National Library, for a photograph of Mitchell to use in its Portrait Collection (accepted). Includes photocopy of the photograph and Mitchell's accompanying comments. |
| | Copy of completed response form, indicating the years of Mitchell's life which were especially rich with scientific ideas and less productive as a result of illness, stress and other conditions, 1981. |
| | |

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| <i>I</i> | Correspondence <i>re</i> Mitchell's visit to Manchester for video interview with J.M. Moyle as part of the Biochemical Society's 'Conversations with Eminent Biochemists' series, 27-28 June 1984. Includes 1p Mitchell's manuscript notes. See also D.471. |
|------------|---|
| A.20 | Papers relating to the painting of Mitchell by Giovannella as part of her collection of Nobel Laureates' portraits. 1987-1989. |
| A.21, A.22 | 'Daily Telegraph'. Contents of folder so inscribed, divided into two for ease of reference. |
| A.21 | Papers <i>re</i> a request (accepted) for Mitchell to respond to five questions put to British Nobel Prize winners for publication in a special edition of the <i>Daily Telegraph</i> . Includes 1p typescript copy of Mitchell's answers; newspaper cuttings, <i>Daily Telegraph</i> , 11 September 1989. |
| A.22 | Papers <i>re</i> a request (accepted) for Mitchell to respond to questions about British Science, put to British Nobel Prize winners for publication in the <i>Daily</i> <i>Telegraph Science Extra</i> . Includes 1p typescript copy of Mitchell's answers; copy of preliminary programme for the Glynn Research Foundation's Silver Jubilee Meeting, May 1990; newspaper cutting, <i>Daily Telegraph</i> , 17 August 1990. |
| A.23 | Correspondence <i>re</i> a request from the Japan Science Foundation (accepted) for Mitchell to answer two questions about how he made his discoveries and what he viewed as the most important scientific questions, for display in a science museum in Hitachi, Japan. 1990. Includes 4pp typescript copy of Mitchell's answers, with brief biographical sketch attached, August 1990. |
| A.24 | Draft copy of biographical notes (annotated with additions by Mitchell) for a volume on Nobel Laureates who have been members of the Athenaeum Club, 2pp typescript. Includes related correspondence; description by Mitchell of his innovative work, 1p typescript. September-November 1991 |
| | Request for photograph of Mitchell for use in a Scottish Medical Research Fund brochure (accepted), 1992. |

NOBEL PRIZE

Mitchell was awarded the Nobel Prize for Chemistry in 1978 for his formulation of the chemiosmotic theory. In accordance with tradition Mitchell gave his Nobel Lecture during his visit to Stockholm to receive the award and accepted invitations to talk at a number of Swedish and Danish universities.

The material is presented as follows:

| A.25-A.33 | Letters of congratulation |
|-----------|------------------------------|
| A.34-A.41 | Visit to receive Nobel Prize |
| A.42-A.44 | Publications |
| A.45-A.47 | Miscellaneous |

Letters of congratulation

| A.25-A.28 | Letters and cables of congratulation, with copies of Mitchell's replies, 1978- 1979. These have been removed from the main correspondence sequence (Section G) and arranged alphabetically by surname. |
|-----------|--|
| A.25 | A-F. |
| A.26 | G-K. |
| A.27 | L-P. |
| A.28 | Q-Z. |

| A.29 | 'Answered congrat. letters'. Contents of folder so inscribed. Letters and telegrams of congratulation, 1978-1979. | |
|------------------------------|---|--|
| A.30, A.31 | 'Nobel correspondence. private letters'. Contents of folder so inscribed. 1978-1979. 2 folders. | |
| A.32 | 'Nobel correspondence. Lab letters'. Contents of folder so inscribed, 1978- 1979. | |
| A.33 | 'Nobel correspondence. Cables'. Contents of folder so inscribed, <i>ca.</i> October 1978. | |
| Visit to receive Nobel Prize | | |
| | The material relates to Mitchell's visit to receive his Nobel Prize in December 1978. It is arranged chronologically, according to the lectures he gave, reflecting the original order of the documents. Most of the material relates to the arrangements for visits. | |
| A.34-A.37 | Nobel Lecture for Chemistry, Royal Swedish Academy of Sciences, Stockholm, 8 December 1978. Mitchell spoke on 'David Keilin's Respiratory Chain Concept and its Chemiosmotic Consequences'. These papers also relate to the arrangements for Nobel Week. | |
| A.34 | Correspondence <i>re</i> arrangements for Mitchell's Nobel Lecture and Nobel Week. October-December 1978. Includes letter confirming award of Nobel Prize for Chemistry, 17 October 1978; 1p Mitchell's manuscript notes concerning the title for his Nobel Lecture. | |
| A.35 | Papers <i>re</i> arrangements for Nobel Week. Includes itineraries, typescript and manuscript secretarial notes etc. October-December 1978. | |

| A.36 | Correspondence <i>re</i> arrangements for Nobel Week. October 1978-February 1979. Includes invitation to dine with the Swedish Ambassador in London, 5 December 1978 (accepted); invitation to luncheon at the British Embassy, Stockholm, 9 December 1978 (accepted); letter <i>re</i> the filming of a television programme by Trans World International about the Nobel Prize awards, November 1978; correspondence with Swedish Broadcasting Corporation concerning Mitchell's participation in the round table conference 'Science and Man', broadcast on television in connection with the Nobel Prize celebrations, 1978-1979. |
|------|---|
| A.37 | Invitations to lecture to the Chemical Society of Uppsala and the Danish Biochemical Society during the visit to collect his Nobel Prize (both declined). |
| A.38 | Seminar, Arrhenius Laboratory, University of Stockholm, 11 December 1978. The subject of the seminar was 'Mitochondrial Protonmotive Stoicheiometry'. |
| | Correspondence re arrangements, October-December 1978. |
| A.39 | Lecture, Gothenburg University and Chalmers University of Technology, Gothenburg, 13 December 1978. Mitchell spoke on 'The Protonmotive Stoicheiometry of the Mitochondrial Respiratory Chain with special reference to Cytochrome Oxidase'. |
| | Correspondence <i>re</i> arrangements to lecture and have discussions with B.G. Malmström and his research group, October-December 1978. |
| A.40 | Lecture, The Chemical Society of Lund, Sweden, 14 December 1978. Mitchell spoke on 'David keilin's respiratory chain concept and its chemiosmotic consequences'. |
| | Correspondence re arrangements, October-December 1978. |
| A.41 | Lecture, Danish Biochemical and Biological Societies, Copenhagen, 15 December 1978. Mitchell spoke on 'David Keilin's respiratory chain concept and its chemiosmotic consequences'. |
| | Correspondence re arrangements, October-December 1978. |

Publications

| A.42, A.43 | 'David Keilin's respiratory chain concept and its chemiosmotic consequences', <i>Bibliog</i> . M1979d. |
|------------|---|
| | 73pp typescript of Mitchell's Nobel Lecture. 2 folders. |
| A.44 | Papers re publication of Nobel Lecture etc., 1978-1980. |
| | Request (accepted) for Mitchell's consent to reproduce his response at the Nobel banquet, in the commemorative volume 1901-1990 Neunzig Jahre Nobelpreis, 1991. |

Miscellaneous

A.45, A.46 'Nobel Press'. Contents of file so inscribed. Newspaper cuttings, photocopies of newspaper articles etc. relating to Mitchell's Nobel Prize, 1978-1979, 1985. 2 folders

A.47 Correspondence *re* presentation of six commemorative medals of the 1978 Nobel Laureates to Mitchell, 1979.

CAREER, HONOURS AND AWARDS

A.48 Ph.D. thesis, 'The rates of synthesis and proportions by weight of the nucleic acid components of a micrococcus during growth in normal and in penicillin containing media with reference to the bactericidal action of penicillin', by P.D. Mitchell, University of Cambridge, September 1950. 144pp typescript, bound with hard cover. Includes 3pp typescript material intercalated, with 'Intro of rejected thesis' annotated on first page.

| A.49 | Invitation to become a visiting lecturer at Indiana University for a semester (no answer extant), December 1961. |
|---------------------------|---|
| | Brief correspondence <i>re</i> invitation to take up a post in the Senior Research Officer grade, in the Division of Biosciences, National Research Council, Ottawa, Canada (declined), March 1965. |
| A.50 | Admission to Fellowship of the Royal Society, 4 April 1974. |
| | Correspondence <i>re</i> admission to Fellowship etc.; agenda of Ordinary meeting, 4 April 1974. |
| | See also E.111-E.128 for further material relating to Mitchell's Fellowship of the Royal Society. |
| | |
| A.51 | The Louis and Bert Freedman Foundation Award for Research in Biochemistry, by the New York Academy of Sciences, 1974. |
| | Correspondence <i>re</i> the proposal of Mitchell for the Award and its bestowal upon him. Includes copy of Mitchell's curriculum vitae, 1974. |
| | |
| | See also G.233 for further related material. |
| | See also G.233 for further related material. |
| A.52 | See also G.233 for further related material. Award of the Wilhelm Feldberg Foundation Prize for Anglo/German Scientific Exchange by the Feldberg Foundation, 15 June 1976. |
| A.52 | See also G.233 for further related material. Award of the Wilhelm Feldberg Foundation Prize for Anglo/German Scientific Exchange by the Feldberg Foundation, 15 June 1976. Speech, 1p manuscript. |
| A.52 | See also G.233 for further related material. Award of the Wilhelm Feldberg Foundation Prize for Anglo/German Scientific Exchange by the Feldberg Foundation, 15 June 1976. Speech, 1p manuscript. See also D.397 for further material relating to Mitchell's Feldberg Lecture in Wilhelmshaven, Germany. |
| A.52 | See also G.233 for further related material. Award of the Wilhelm Feldberg Foundation Prize for Anglo/German Scientific Exchange by the Feldberg Foundation, 15 June 1976. Speech, 1p manuscript. See also D.397 for further material relating to Mitchell's Feldberg Lecture in Wilhelmshaven, Germany. |
| A.52 A.53-A.55 | See also G.233 for further related material. Award of the Wilhelm Feldberg Foundation Prize for Anglo/German Scientific Exchange by the Feldberg Foundation, 15 June 1976. Speech, 1p manuscript. See also D.397 for further material relating to Mitchell's Feldberg Lecture in Wilhelmshaven, Germany. Award of Honorary Degree, in the form of <i>Doctor honoris causa rerum</i> <i>naturalium</i> by the Technische Universität Berlin, 19 November 1976. |
| A.52 A.53-A.55 A.53 | See also G.233 for further related material. Award of the Wilhelm Feldberg Foundation Prize for Anglo/German Scientific Exchange by the Feldberg Foundation, 15 June 1976. Speech, 1p manuscript. See also D.397 for further material relating to Mitchell's Feldberg Lecture in Wilhelmshaven, Germany. Award of Honorary Degree, in the form of <i>Doctor honoris causa rerum naturalium</i> by the Technische Universität Berlin, 19 November 1976. Correspondence <i>re</i> proposal of Mitchell, arrangements to attend the presentation etc., 1975-1977. Includes scientific correspondence with H.T. Witt, November 1975; copy of the <i>Laudatio</i> read out during the ceremony. |

| A.54 | Typescript drafts (English and German) and manuscript drafts (German), of Mitchell's speech of thanks, undated. Includes letter and invoice <i>re</i> the translation work, November 1976. |
|------------|--|
| A.55 | Correspondence etc. <i>re</i> travel and accommodation arrangements, October-November 1976. Includes itineraries. |
| A.56, A.57 | Lewis S. Rosenstiel Award, by the Rosenstiel Basic Medical Sciences Research Center, Brandeis University, USA, 16 March 1977. |
| A.56 | Bundle of correspondence etc. <i>re</i> arrangements to collect Award and deliver two lectures at Brandeis University, 1976-1977. Includes copy of poster, advertising Mitchell's Award lectures; 2pp manuscript notes for speech of thanks; itineraries. |
| A.57 | Letters of congratulation, 1977. Invitations to visit Amherst College and the Department of Biochemistry, University of Iowa, during his visit to the USA (declined), 1977. |
| A.58 | Offer of appointment as a Fogarty International Center Scholar-in- Residence at the National Institutes of Health, Bethesda, USA (declined), 1977. |
| A.59 | Award of Honorary Degree of Doctor of Science, University of Exeter, 7 July 1977. Owing to ill-health Mitchell's honorary degree was conferred <i>in absentia</i> on 7 July. He had an informal lunch with the Vice-Chancellor and visited the Chemistry Department on 25 November 1977. |
| | Correspondence etc. <i>re</i> arrangements for Mitchell's attendance at the degree ceremony and informal lunch, 1976-1977. Includes cutting from <i>University of Exeter Gazette</i> about Mitchell. |
| A.60 | Invitation from the Australian Academy of Sciences to accept the inaugural Rudi Lemberg Travelling Fellowship (declined), 1977. |

| A.61 | Award of Honorary Degree of Doctor of Science, University of Chicago, 6 October 1978. |
|------|---|
| | Correspondence etc. <i>re</i> arrangements for Mitchell to receive his Honorary Degree etc., June-October 1978. |
| A.62 | Award of Honorary Degree of Doctor of Science, University of Liverpool, 27 June 1979. |
| | Correspondence etc. <i>re</i> arrangements, 1978-1979. Includes itinerary; pamphlet of the Orations delivered at the ceremony; photograph of Mitchell, Sir Hans Krebs and others. |
| A.63 | Invitation to receive an Honorary Degree of Doctor of Science from the University of Michigan and speak at the Winter Commencement Exercises (declined, Mitchell unable to attend), 16 December 1979. |
| A.64 | Award of Honorary Degree of Doctor of Science, University of Bristol, 23 January 1980. |
| | Correspondence <i>re</i> arrangements, 1979-1980 etc. Includes table plan for degree congregation luncheon. |
| A.65 | Guest of Honour at the Penrice School Awards Evening, St. Austell, Cornwall, 25 September 1980. |
| | Correspondence etc. <i>re</i> arrangements to attend the Awards Evening, 1980. Includes typescript copy of letter, giving biographical details about Mitchell, 19 September 1980; correspondence concerning Mitchell's interest in Chinese philosophy, October 1980; copy of Awards Evening programme (annotated with manuscript notes by Mitchell <i>re</i> his presentation). |
| A.66 | Award of Honorary Degree of Doctor of Science, University of Edinburgh, 29 November 1980. |
| | Correspondence etc. <i>re</i> arrangements for Mitchell to receive his Honorary Degree and give a James Rennie Bequest Lecture, 1979-1980. Includes brief biographies of Mitchell, December 1979, January 1980; itinerary; programme of Graduation Ceremonial; Laureation address, containing biographical details and reminiscences about Mitchell. |
| | See also D.416 for Mitchell's notes for the James Rennie Bequest Lecture. |

| A.67 | Award of Honorary Degree of D.Sc., University of Hull, 12 December 1980. |
|------------|---|
| | Correspondence etc. <i>re</i> arrangements, 1979-1981. Includes invitation to visit Department of Biochemistry after the Degree Congregation (accepted); special programme of the Congregation; itinerary; etc. |
| A.68 | Award of Honorary Degree of Doctor of Science, University of East Anglia, 9-10 July 1981. |
| | Correspondence etc. re arrangements, 1980-1981. Includes itineraries; etc. |
| A.69 | Award of the Royal Society's Copley Medal, 30 November 1981. |
| | Correspondence etc. <i>re</i> arrangements to attend the Anniversary Meeting of the Society and receive the Copley Medal. Includes agenda and seating plan for Anniversary Meeting; itinerary; newspaper cutting about Mitchell's Copley Medal, <i>C[ornish] Guardian</i> , 6 August 1981. |
| A.70, A.71 | Award of Honorary Degree of Doctor of Science, University of York, 9 July 1982. |
| A.70 | Correspondence etc. <i>re</i> arrangements, 1982. Includes some scientific correspondence between Mitchell and R. A. Reid, April-May 1982; itinerary; etc. |
| A.71 | Speech by Mitchell at the Graduands Dinner, proposing the health of the University, 8 July 1982. 4pp manuscript. |
| A.72-A.74 | Award of Honorary Degree of Doctor of Science, University of Cambridge, 13 June 1985. |
| A.72, A.73 | Correspondence etc. re arrangements, 1984-1985. 2 folders. |
| A.74 | 'Biographical info on others receiving Hon. Degrees at Cambridge'. Contents of file so inscribed. |

| A.75 | Invitation to receive Honorary Degree of Doctor of Science, University of Warwick, 12 July 1985 (declined, Mitchell unable to attend). |
|------------|---|
| A.76 | Appointment as Visiting Professor in the Department of Biochemistry, King's College, University of London, 1989 |
| A.77 | Attendance at Luncheon, in honour of British Science Nobel Prizewinners at 10 Downing Street, 14 April 1989. |
| | Correspondence etc. re arrangements, 1989. Includes itinerary; table plan. |
| | Typescript copy of letter to the Prime Minister from Sir John Cornforth, refusing to attend the luncheon, 19 March 1989. |
| | Typescript copy of letter to the Prime Minister from Mitchell <i>re</i> the problems for smaller research organisations, 11 April 1989, with photocopy of a commentary from <i>Nature</i> attached. |
| A.78 | Award of Honorary Fellowship, University of Manchester Institute of Science and Technology (UMIST), 16 May 1990. |
| | Correspondence etc. re arrangements, 1989-1990. |
| A.79-A.81 | Award of Honorary Degree of Doctor of Science, University of Aberdeen, 4 July 1990. |
| A.79, A.80 | Correspondence etc. re arrangements, 1988-1990. 2 folders. |
| A.81 | Letters of thanks by Mitchell, July 1990. |
| A.82 | Letter awarding Mitchell the diploma of a member of the Academy of Creative Endeavors of the USSR, 12 December 1991. Includes diploma. |
| A.83 | Typescript copy of Mitchell's response, April 1992, to the presentation of the Diploma of Honorary Membership of the Russian Biochemical Society (Mitchell was elected an Honorary Member in 1991). |

| A.84-A.89 | 'PDM's memorial contributors and letters of condolence'. Contents of file so inscribed, divided into six for ease of reference. |
|---------------|--|
| | Following Mitchell's death, a Peter Mitchell Memorial Scheme Fund was set up. It was decided that a Peter Mitchell Memorial Lecture should be given at each European Bioenergetics Conference and an award medal provided. The remainder of the money was to be contributed to the Peter Mitchell Summer Student Scheme, which had already been running for a number of years to support an undergraduate student, carrying out a research project at Glynn. |
| A.84 | Typescript and manuscript secretarial notes <i>re</i> appeals, 1992. |
| A.85-A.89 | Correspondence <i>re</i> contributions to the Peter Mitchell Memorial Scheme Fund, 1992-1993. Includes letters of condolence etc. |
| | Arranged in alphabetical order, by surname of contributor. |
| A.85 | A-C. |
| A.86 | D-G. |
| A.87 | H-L. |
| A.88 | M-Q. |
| A.89 | R-Z. Includes photocopies of pages from David Tyler's <i>The Mitochondrion in Health and Disease</i> , containing references to Mitchell. |
| MISCELLANEOUS | |
| A.90-A.96 | Requests for autographs etc. |
| A.90-A.92 | 'Autograph hunters file 1'. Contents of folder so inscribed, divided into three for ease of reference, 1978-1986. |

| A.93-A.95 | 'Autograph hunters - file 2'. Contents of folder so inscribed, divided into three for ease of reference, 1987-1992. |
|-----------|---|
| A.96 | 'Autographs (Children sent to)'. Contents of folder so inscribed, 1978-1987. |
| A.97 | 'Chain letter <i>re</i> nuclear disarmament'. Contents of folder so inscribed. Includes copies of chain letters sent out by Mitchell in 1984, with related correspondence. 1984, 1987. |
| A.98 | 'Biography'. Contents of file so labelled. Includes: |
| | Photocopy of article, 'From Pasteur to Mitchell: a hundred years of bioenergetics' by Efraim Racker, <i>Federation Proceedings</i> , vol. 39, February 1980. |
| | Typescript paginated 1-14: 'Thematic principles and conjectures in the development of the subjects of vectorial metabolism and osmochemistry', 'Documentation of the development of chemiosmotic ideas', photocopy of letter to Mitchell from Sir Hans Krebs, 13 October 1961. |
| | Birthday card from Bruce [Weber], [1990]. |
| DIARY | |
| | The material catalogued below was received after the deposit of the main collection. Mitchell kept a diary relating to his personal and professional life which is known to cover the period 1983-1992. Two extracts from this diary are presented here. These two extracts were separated out of the diary because of their scientific content, while the remaining part of the diary is retained by Mitchell's widow, Mrs Helen Mitchell. |
| | Although mainly containing notes of a scientific nature the extracts below also include entries concerning Mitchell's general daily activities. See also D.170. |
| A.99 | Diary pages from ring-binder, headed variously 'Appointments', 'Plans' and 'Diary', manuscript pencil entries, 20 October 1983-25 March 1987. |
| A.100 | Diary pages from ring-binder, headed variously 'Diary' and 'Plans', manuscript pencil entries, 24 December 1987-16 February 1992. |

SECTION B GLYNN RESEARCH INSTITUTE

In 1962 Peter Mitchell purchased Glynn House, a semi-derelict Regency-fronted mansion. He restored the building, established his laboratory there and in 1964 together with Jennifer Moyle co-founded the charitable company, Glynn Research Limited to administer and finance the Institute. The Institute was provided with an endowment of £240,000 by Peter Mitchell and his brother Christopher. The company name was later changed (in 1985) to The Glynn Research Foundation Limited. Research commenced in 1965 with four permanent members of staff - Mitchell as Research Director, Moyle as Research Fellow together with a technician and Company Secretary. Experimental work was undertaken to test the chemiosmotic hypothesis, which Mitchell had formulated at the University of Edinburgh.

By the mid-1970s the hypothesis had become widely accepted as a theory and in 1978 Mitchell received recognition for his achievements with the award of the Nobel Prize for Chemistry. Work continued at the Institute to develop the chemiosmotic theory and improve knowledge about the molecular mechanisms of energy transfer in cells. Mitchell remained Director of Research until 1987, when he became Chairman and Honorary Director of the Glynn Research Institute and Peter Rich was appointed Director of Molecular Research.

| B.1-B.32 | GENERAL ADMINISTRATION | | | |
|-------------|------------------------|-----------------------------|--|--|
| | B.1-B.24 | Desk Diaries | | |
| | B.25-B.32 | Miscellaneous | | |
| B.33-B.127 | FUND-RAISIN | IG | | |
| | B.33-B.67 | Fund-raising Administration | | |
| | B.68-B.126 | Applications | | |
| | B.127 | Miscellaneous | | |
| B.128-B.172 | VISITS TO TH | E GLYNN RESEARCH INSTITUTE | | |
| B.173-B.177 | JUBILEE SYM | POSIUM 1990 | | |

27

GENERAL ADMINISTRATION

When research commenced at the Glynn Research Institute in 1965 the secretarial staff comprised solely the Company Secretary. This post, which involved a wide range of duties, was held from 1969 by Stephanie Key. In 1979 a second member was added to the secretarial staff, with the appointment of a Personal Secretary to the Director of Research.

Desk Diaries

There are two distinct sets of desk diaries. Mitchell was not responsible for the entries in either but they are of value since they shed light on both his activities and the Glynn Research Institute. One set, B.1-B.13, relates largely to the general administration of the Institute, including fund-raising and is mostly in Stephanie Key's hand. The other, B.14-B.24, was kept by Mitchell's Personal Secretary and relates largely to his activities and interests.

| В. | 1. | -В. | 1 | 3 | Administrative | + | desk | diarie | es. |
|----|----|-----|---|---|----------------|---|------|--------|-----|
| | | | | | | | | | |

- B.1 1980.
- B.2 1981.
- B.3 1982. 'Steph' inscribed on front cover.
- B.4 1983. 'Stephanie' inscribed on front cover.
- B.5 1984. 'Steph' labelled on front cover.
- B.6 1985.
- B.7 1986.

| B.8 | 1987. |
|-----------|---|
| B.9 | 1988. |
| B.10 | 1989. |
| B.11 | 1990. |
| B.12 | 1991. |
| B.13 | 1992. |
| B.14-B.24 | Desk diaries of Mitchell's Personal Secretary. 1980, 1982-1991. |
| B.14 | 1980 |
| B.15 | 1982. 'Pat' inscribed on inside cover. |
| B.16 | 1983. 'Pat' inscribed on inside cover. |
| B.17 | 1984. 'Pat' inscribed on inside cover. |
| B.18 | 1985. |
| B.19 | 1986. |

| B.20 | 1987. |
|---------------|--|
| B.21 | 1988. |
| B.22 | 1989. |
| B.23 | 1990. |
| B.24 | 1991. |
| Miscellaneous | |
| B.25 | Copies of correspondence <i>re</i> Mitchell's donations to Glynn Research Ltd. and Glynn Research Foundation Ltd. of furnishings, journals etc., 1964-1988. Includes copy of arrangements for a deposited covenant, 1987. |
| B.26 | 'Unsolicited Job Applications'. Contents of folder so inscribed, 1979-1985. |
| B.27-B.28 | 'General information for personal secretary'. Contents of folder so labelled, divided into three for ease of reference. Mostly contains manuscript and typescript notes providing information for a new secretary about office methods and procedures. 1980-1987. |
| B.27 | 1980-1981. Includes notes giving information <i>re</i> invitations to Mitchell, visitors to the Institute, financial support for visits etc. |
| B.28 | 1982-1987. |
| B.29 | 'Mailing list (correct - April 1980), 124 at 19/11/81'. Contents of folder so labelled. |

| B.30 | Correspondence and typescript secretarial notes <i>re</i> the possible effects on research at the Institute of a planning application to quarry at Cabilla Wood, Cardinham, October-December, 1984. | | |
|----------------------|--|--|--|
| B.31 | Papers <i>re</i> attempts to find out whether the Glynn Research Institute was unique 'in being a research laboratory which is a private limited company, limited by shares not by guarantee, which is also a registered charity', 1984-1985. | | |
| B.32 | Correspondence <i>re</i> the property at Glynn, between Stephanie Key and J.W. Newey of Stratton and Holborow, Chartered Surveyors, Land Agents, Valuers, Auctioneers and Estate Agents, 1985; secretarial note of meeting between Mitchell, as landlord of the property, and J.W. Newey, 12 September 1985. | | |
| | Manuscript draft of standard letter by Mitchell, declining requests to give talks, undated. | | |
| | Draft letters, announcing Mitchell's death, April 1992. | | |
| | See also G.1099 for copies of extracts from the Glynn Research Institute Council and Annual General Meeting reports, 1965-1979. | | |
| FUND-RAISING | | | |
| | By about 1980 the original endowment provided by Peter Mitchell and his brother had doubled in nominal capital value through investment. The real value of the investment income had been considerably reduced, however, by the high inflation of the 1970s. As a result it became necessary actively to seek donations to the endowment of Glynn Research Limited and apply for research grants. | | |
| Fund-raising Adminis | stration | | |
| B.33-B.40 | Papers <i>re</i> publicity brochures printed by Quintrell & Company Ltd, 1979-1989. | | |

| B.33 | Correspondence with printers <i>re</i> quotes for a brochure. Includes manuscript and typescript notes. September-October 1979. |
|------------|--|
| B.34 | Correspondence with Quintrell & Co. Ltd <i>re</i> printing the 'Scientific Research at Glynn' brochure. Includes manuscript and typescript notes; photograph used on front cover of brochure. 1979-1980. |
| B.35-B.38 | 'Quintrell Old Brochures'. Contents of file so inscribed, divided into three for ease of reference. |
| B.35 | Copy of Glynn Research Institute 'Outline of research topics', January 1979; copy of an article <i>re</i> award of Nobel Prize for Chemistry to Mitchell, <i>ca</i> .1979. |
| B.36 | Draft copies of brochure 'Scientific Research at Glynn' (annotated), 1979. |
| B.37 | Draft copy of brochure 'Scientific Research at Glynn' (annotated), includes 'PM's corrected copy. 9/11/79' inscribed on the front. |
| B.38 | Draft copy of brochure 'The Research Foundation at Glynn' (annotated), includes 'Dr Mitchell's (first) draft. This is PM's special annotated copy. 23/10/86' inscribed on the front. |
| B.39, B.40 | 'Quintrell's New Brochures'. Contents of file so inscribed, divided into two for ease of reference. Papers <i>re</i> printing two brochures, 'The Glynn Research Foundation' and 'A short history of Glynn'. Includes proofs (annotated); 1987-1989. |
| B.39 | October-December 1987. |
| B.40 | December 1987-September 1989. |
| B.41, B.42 | 'Current (Master) Copies of Fund-Raising letters etc. and Stored Tracks on Memory Typewriter'. Contents of folder so inscribed, divided into two for ease of reference. |

| B.41 | Standard fund-raising letters etc., ca.1982-ca.1984. |
|-----------|---|
| B.42 | Material used as enclosures to fund-raising letters. Includes Memorandum and Articles of Association of Glynn Research Limited, 1964; photocopy of article about Mitchell's work, <i>The Economist</i> , 6-12 September 1980; 'Scientific Research at Glynn' brochure; deed of covenant forms etc. |
| B.43-B.49 | 'Fund Raising Letters from Liz'. Contents of file so inscribed. (This file appears to be a continuation of the material in B.41, B.42.) Includes photocopies of letters to named individuals, standard letters, typescript notes, material used as enclosures etc. 1984-1993. |
| B.43 | 1984-1986. |
| B.44 | 1987. |
| B.45 | 1988. |
| B.46 | 1989. |
| B.47 | 1990. |
| B.48 | 1991. |
| B.49 | 1992-1993. |
| B.50 | 'Publicity'. Contents of file so inscribed. Includes: |
| | Photocopies of advertisements, 1983-1985. |
| | Photocopy of Mitchell's entry in 'The Fontana biographical companion to modern thought' ed. A. Bullock & R.B. Woodings, 1983. |

| 1 | Newsers at the 1005 1000 |
|------------|---|
| | Newspaper articles, 1985, 1989. |
| | Brochure 'The pharmaceutical & health care industry in Devon & Cornwall', 1985. |
| | Photocopy of unused What Investment editorial about Mitchell, undated. |
| B.51, B.52 | 'GLYNFUND Advertisement in <i>The Times</i> '. Contents of folder so inscribed, divided into two for ease of reference, 1987. |
| B.51 | Correspondence and papers <i>re</i> advertisements in <i>The Times</i> . Includes copies of advertisements to be used; newspaper advertisements, 10,17 April 1987 and photocopy of advertisement, 24 April 1987; etc. |
| B.52 | Papers <i>re</i> the GLYNFUND appeal. Includes appeal leaflets; deed of covenant form etc. 1987. |
| B.53-B.62 | 'PM's fund-raising - Info for'. Contents of folder so inscribed, divided into ten for ease of reference. Papers <i>re</i> fund-raising activities. Includes typescript secretarial notes; reports entitled 'Approaches made in fund-raising'; etc. 1986-1992. |
| B.53 | 1986-1987. |
| B.54 | 1988(1). |
| B.55 | 1988(2). |
| B.56 | 1989(1). |
| B.57 | 1989(2). |
| B.58 | 1990. |
|------------|---|
| B.59 | 1991(1). |
| B.60 | 1991(2). |
| B.61 | 1992(1). |
| B.62 | 1992(2). |
| B.63 | 'Information about the Glynn Research Foundation and Institute'. Contents of file so labelled ('PM's copy' annotated on the label). Includes: |
| | Photocopy of 'The hypothetical way of progress', a commentary by V.A. Huszagh and J.P. Infante, <i>Nature</i> , 338 , 1989. |
| | Statement of the Honorary Director and Chairman of the Foundation, for the year ended 31 March 1989. |
| | Notice of Meeting, Report of the Council, Statement of the Honorary Director and Chairman of the Foundation, Income and Expenditure Account for the year ended 31 March 1990, Balance Sheet, 31 March 1990. |
| B.64 | Proposals for the establishment of a new library and the posts of Fellow in Osmochemistry and Professor of Osmochemistry at Glynn. Includes plan of new library. <i>ca</i> .1990. |
| B.65 | Proposal entitled 'Determination of the chemical basis of the biological effects of quinones', 1p typescript; 1p manuscript calculations attached. <i>ca</i> .1990. |
| B.66, B.67 | 'My copies'. Contents of file so inscribed by Mitchell, divided into two for ease of reference. Material used in fund-raising appeals, <i>ca</i> .1991. |
| B.66 | Standard appeal letters, 1991; 2pp of Mitchell's manuscript notes <i>re</i> fund raising, <i>ca</i> .1991. |

| B.67 | Reprints, brochures etc. used in fund-raising. Includes: |
|--------------|---|
| | 'How cells make ATP' by Peter C. Hinkle & Richard E. McCarty, <i>Scientific American</i> , 1978. |
| | 'The culture of imagination' by Peter Mitchell, <i>Journal of the Royal Institution of Cornwall</i> , 1980. |
| | 'A short history of Glynn', 1988. |
| | 'The Glynn Research Foundation. For partnership in the creation of wealth', 1989. |
| | Notice of Meeting, Report of the Council, Statement of the Honorary Director and Chairman of the Foundation, Income and Expenditure Account for the year ended 31 March 1991, Balance Sheet, 31 March 1991. |
| Applications | |
| | Original sequence of papers, arranged alphabetically by organisation. Further material relating to individual fund-raising approaches can also be found amongst the correspondence in section G. |
| B.68 | Anglo American Corporation of South Africa Ltd 1981-1988 |
| | Correspondence, typescript secretarial notes etc. |
| | See also B.137 for papers <i>re</i> visit to the Glynn Research Institute of M.C. O'Dowd, Anglo American Corporation of South Africa, 24-25 August 1984. |
| | |
| B.69-B.73 | British Petroleum Company Ltd (BP), Venture Research Unit 1980-1986 |
| B.69 | Draft agreements drawn up by BP, 1980. |
| | Research proposal on subject 'Compartmentation and Communication in Living Systems: A. Bioenergetics and Biomechanics, B. Idiosyncratics.', 1980. |

| B.70 | Correspondence, mostly re research funding, 1980-1981. |
|---|---|
| | Includes manuscript notes by Mitchell for a meeting with D.W. Braben of the BP Venture Research Unit on 19 September 1980; scientific correspondence, November 1980. |
| D 71 | Correspondence and transprint accreterial pates to response funding 1094 |
| B.71 | 1986. |
| | Includes reprints and drafts of papers by Braben (some annotations by Mitchell); photocopies of newspaper articles concerning BP's Venture Research Unit; 2pp manuscript notes by Mitchell <i>re</i> a meeting with Braben on 7 November , 1986 (attached to annotated reprint 'Innovation and academic research', by D.W. Braben, <i>Nature</i> , vol. 316, 1985). |
| | |
| B.72, B.73 | Papers <i>re</i> Mitchell's visit to the Venture Research Unit, London, 7 November 1986, for a meeting with Braben. |
| B.72 | Correspondence and typescript secretarial notes, October-November 1986; 1p manuscript notes, 7 November 1986; itinerary; photocopy of an annotated agreement between BP International Ltd and the Glynn Research Foundation Ltd, 1986 (copies of related correspondence, January-February 1986, attached). |
| B 73 | Copy of P.B. Bich's curriculum vitae 1986 |
| | Copies of proposals for a Computing Easility and Dynamia Melasular |
| | Modelling Facility at the Glynn Research Institute, <i>ca</i> .1986. |
| | Copies of talk and leaflet by Braben, 1986 |
| | Notice of Meeting, Report of the Council, Statement of the Director of the Foundation, Income and Expenditure Account for the year ended 31 March 1986, Balance Sheet, 31 March 1986. |
| D 74 D 00 | |
| D.74-D.80 | (CEC) 1975-1979, 1985-1986 |
| B.74, B.75 | 'EEC Grant, Prof. David Hall'. Contents of file so labelled. |
| And a state of the second s | |

| B.74 | Correspondence, 1975; copy of application for research grant on subject 'Molecular mechanics of electromotive/protonmotive reaction systems in coupling membranes: analytical and synthetic studies', November 1975. |
|------------|---|
| B.75 | Correspondence and typescript secretarial notes <i>re</i> application for a research grant and Mitchell's possible involvement as a consultant for the CEC. Includes 2pp Mitchell's manuscript notes. 1976-1979. |
| B.76-B.80 | Papers re application for a CEC 'Operation' grant, 1985-1986. |
| B.76 | 'Preparation of CEC Application'. Contents of folder so labelled. Contains typescript drafts of application (some annotations); manuscript and typescript figures. 1985. |
| B.77 | Copy of grant application on subject 'Osmoenzyme action. Molecular mechanisms of physical and chemical force development and energy interconversion across natural and artificial membrane interfaces', June 1985. |
| B.78-B.80 | 'Ordering of Equipment - CEC Application'. Contents of folder so inscribed. Correspondence, typescript secretarial notes, manuscript notes, brochures etc. 3 folders. 1985-1986. |
| B.81, B.82 | English Clays Lovering Pochin & Co. Ltd (ECLP), English 1981-1982 China Clays Group. |
| B.81 | Papers <i>re</i> financial support for the Institute's work and arrangements for meetings between Mitchell and the Directors of ECLP etc., 1981-1982. |
| B.82 | Typescript notes (with copies of <i>Who's Who</i> entries affixed) <i>re</i> English China Clays Ltd, English Clays Lovering Pochin & Co. Ltd and their Directors, October 1981. |
| | English China Clays Ltd 'Annual Report and Accounts for the year ended 30 September 1979'. |

| B.83-B.85 | International Foundation for the Advancement of 1984-1986 Knowledge (IFAK) |
|-----------|--|
| B.83 | General correspondence and typescript secretarial notes <i>re</i> application for grant support, August 1984-October 1986. |
| B.84 | Correspondence with Professor Mario Gosálvez <i>re</i> grant application, the financial position of the Glynn Research Institute etc., November 1984-June 1985. |
| B.85 | Original copy of grant application on subject 'Development of realistic biomechanics from abstract bioenergetics', January 1985. |
| | Incomplete draft applications (annotated), ca. 1984. |
| | Copies (annotated) of earlier applications to the Office of Naval Research and the Wellcome Trust. See B.103 and B.122 for copies of the completed applications. |
| B.86-B.96 | Medical Research Council (MRC) 1982-1988 |
| | An application for a programme grant was made in September, 1983 but this was withdrawn in April, 1984. An application was then sent to the MRC in July 1984 for a project grant. This was successful. |
| B.86-B.89 | Correspondence, typescript secretarial notes etc. <i>re</i> applications for MRC grants, 1982-1988. |
| B.86 | 1982-1983. |
| B.87 | 1984 (1). |
| B.88 | 1984 (2). |
| B.89 | 1986-1988. |

| B.90 | Draft application for programme grant on subject 'Stoichiometry, energetics and mechanics of mitochondrial respiratory metabolism and oxidative phosphorylation', June 1983; manuscript figure and notes. |
|------------|--|
| B.91-B.93 | 'First MRC Application. Original typing of MRC Draft Application - copies of which were sent to PDM in France'. Contents of folder so inscribed, divided into three for ease of reference. |
| B.91 | Correspondence between Mitchell and staff at the Glynn Research Institute <i>re</i> drafts of grant application, July-August 1983. |
| B.92, B.93 | Drafts of grant application, typescript secretarial notes etc. 2 folders, <i>ca.</i> July-August 1983. |
| B.94 | Copy of application for programme grant on subject 'Stoichiometry, energetics and mechanics of mitochondrial respiratory metabolism and oxidative phosphorylation', September, 1983. |
| B.95 | Draft application (incomplete) for a project grant on subject 'Function of the mitochondrial cytochrome system in respiratory metabolism'; letter to Mitchell from Jennifer Moyle <i>re</i> the application, <i>ca.</i> July 1984. |
| B.96 | Copy of application for a project grant on subject 'Function of the mitochondrial cytochrome system in respiratory metabolism', July 1984. |
| B.97-B.102 | Nuffield Foundation 1963-1966, 1980-1986 |
| B.97 | Correspondence <i>re</i> the use of equipment supplied by the Nuffield Foundation for Mitchell's research at Edinburgh University, 1963-1964. |
| | Correspondence seeking financial support for research at Glynn, 1966. |

| B.98 | Correspondence, typescript secretarial notes, manuscript notes etc. <i>re</i> financial support for the Glynn Research Institute's behavioural biology studies, 1980-1982. Includes papers <i>re</i> meeting with J.W. McAnuff, Deputy Director of the Nuffield Foundation, London, 31 March 1981. |
|------------|---|
| | Brief correspondence between Mitchell and J.P. Cornford <i>re</i> Mitchell's open letter to Sir Jeremy Morse, Chairman of Lloyds Bank, about economic issues, 1982. See also D.328, D.329, G.713. |
| B.99-B.102 | Original bundle of papers, divided into four for ease of reference, concerning a grant application to the Nuffield Foundation to support a Collaborative Consultation at the Glynn Research Institute on the subject 'Electron translocation and proton ejection by cytochrome oxidase vesicles' etc. The application was successful. |
| B.99 | Papers <i>re</i> application for grant to support the Collaborative Consultation, October 1982-March 1983: |
| | Copy of grant application, October 1982. |
| | Copy of arrangements and programme for the Collaborative Consultation, October 1982. |
| | Correspondence <i>re</i> the organisation of the Collaborative Consultation, October 1982-March 1983. Includes copy of 3pp typescript letter by Mitchell in support of the grant application, 2 December 1982; copy of 2pp typescript letter, giving brief progress report on arrangements for the Consultation, 15 March 1983 etc. |
| B.100 | Refereeing grant application, March 1983. |
| B.101 | Correspondence and typescript secretarial notes <i>re</i> the Collaborative Consultation and the use of residual grant funds on follow up activities, August-November 1983. Includes: |
| | Copies of financial statement for the Consultation, dated July; 4pp typescript letter reporting the results of the Consultation and plans for collaboration with other research groups, 12 October; 1p typescript letter <i>re</i> attempts to resolve the question of proton pumping by cytochrome oxidase etc. |

| B.102 | Correspondence and typescript secretarial notes <i>re</i> the use of residual funds from the Nuffield Foundation grant and <i>re</i> financial support for proposed computing facilities at the Glynn Research Institute, 1985-1986. Includes: Typescript summaries of the grant's expenditure, October 1985, October 1986; copy of proposal for computing facilities, <i>ca.</i> 1986 etc. |
|-------------|---|
| B.103-B.105 | Office of Naval Research, Department of the Navy, USA 1979-1985 |
| B.103 | 2pp typescript notes of information given by M. Cassidy, 26 October 1979, <i>re</i> applying for financial assistance from the Office of Naval Research; 1p manuscript notes attached. |
| | Copy of unsolicited contract proposal on subject 'Protonmotive cytochrome system of mitochondria: stoichiometry, energetics and mechanism.', August 1980. |
| B.104 | Copy of research grant agreement, June 1981; copy of grant modification, attached, August 1982. |
| B.105 | Correspondence, typescript secretarial notes etc. <i>re</i> Office of Naval Research grant, 1981-1985. Includes programme description, 2pp typescript, October 1981; status reports, December 1981, July 1982; etc. |
| B.106-B.115 | Science Research Council (SRC) / Science and Engineering 1979-1988 Research Council (SERC) |
| B.106-B.109 | 'SRC Grant Application, Dec. 1979'. Contents of folder so labelled, divided into four for ease of reference. |
| B.106 | Copy of research grant application on subject 'The active/inactive states of chloroplast coupling factor and their role in regulation of the enzyme <i>in vivo</i> ', December 1979. |

| B.107 | Correspondence, typescript secretarial notes, etc. re application, 1979-1983. |
|-------------|---|
| | |
| B.108 | Research report on 'The active/inactive states of chloroplast coupling factor (CF_0-CF_1) and their role in regulation of the enzyme <i>in vivo</i> ' [by J.D. Mills], 17pp manuscript, ca 1983. |
| B.109 | Research report on 'The active/inactive states of chloroplast coupling factor (CF ₀ -CF ₁) and their role in regulation of the enzyme <i>in vivo</i> ' [by J.D. Mills], 10pp typescript, attached to Research Grant Report form (signed by Mitchell), November 1983. Typescript secretarial note, 1988. |
| B.110 | 'Science Research Council (Investigators's file in connection with John Mill's salary under SRC grant 1980-1983)'. Contents of file so inscribed: typescript secretarial notes; correspondence from SRC <i>re</i> revised research grants. 1981-1983. |
| B.111 | 'SERC. Respiratory Metabolism'. Contents of folder so inscribed. Contains correspondence <i>re</i> research funding, including an outline research proposal on subject 'Respiratory metabolism and oxidative phosphorylation', September 1982. |
| B.112-B.115 | Copies of applications by P.R. Rich for SERC grants, 1986-1988. |
| B.112 | 'The role of semiquinones in the <i>bc</i> and <i>bf</i> complexes', September 1986, December 1986; typescript and manuscript notes, 1986-1987. |
| B.113 | 'A critical examination of the putative variable proton stoichiometry of the chloroplast <i>bf</i> complex', April 1987; typescript and secretarial notes, 1987. |
| B.114 | 'Flash induced chemical photoreduction of cytochrome oxidase', September 1987; typescript secretarial notes 1987-1988. |

| B.115 | 'Flash induced chemical photoreduction and pure electronic state change of cytochrome oxidase', September 1988; typescript and manuscrip secretarial notes, 1988; copy of research grant announcement, <i>ca.</i> Januar 1989. |
|-------------|---|
| B.116-B.126 | Wellcome Trust 1981-1988 |
| B.116 | Papers <i>re</i> possible financial support, 1981-1983. |
| B.117-B.121 | Material relating to 1983 grant application to the Wellcome Trust. |
| B.117 | Papers <i>re</i> the financing of the Glynn Research Institute, prepared for Mitchell's visit to Wellcome Foundation [28 March 1983]; found with 1 manuscript notes headed 'Protonic chemiosmotic mechanism Consequences for Medicine' and 1p manuscript notes headed 'The advancement of medical and scientific research which may improve the physical conditions of mankind' etc. |
| B.118-B.121 | Original bundle of correspondence <i>re</i> 1983 grant application, 1983-1988 divided into four folders for ease of reference. |
| B.118 | 1983 (1). Includes copy of grant proposal on subject 'Spacially Realisti Biochemistry of Respiratory Metabolism and Oxidative Phosphorylation 12pp typescript, May 1983. |
| B.119 | 1983 (2). Includes copy of 3pp typescript letter suggesting the names of additional referees, 14 June; copy of substitute title page and page 1 for the grant proposal, September; copy of projected costing for the grant November. |
| B.120 | 1984. Includes copy of draft press release (annotated) <i>re</i> grant of £150,000 by Wellcome Trust, January; invitation to meeting on 'new approaches to the study of membranes and calcium', The Wellcome Trust, 18 October 1984 (declined); correspondence <i>re</i> application to Wellcome Trust for supplement to a Medical Research Council grant, November-December. |

| B.121 | 1985-1988. Includes copy of progress report, September 1985. |
|--------------|---|
| B.122 | Copy of grant proposal on subject 'Spacially realistic biochemistry of respiratory metabolism, oxidative phosphorylation, and other processes involving chemical, osmotic and chemiosmotic ligand-conduction', [<i>ca.</i> November 1983]. |
| B.123 | Correspondence, typescript secretarial notes etc., <i>re</i> proposal to establish a computer facility for dynamic molecular modelling, 1986-1987. Includes copy of 3pp typescript proposal by Mitchell and P.R. Rich, November 1986. See also papers <i>re</i> visit of M. Morgan of Wellcome Trust, 18-19 November 1986, B.150. |
| B.124 | Papers <i>re</i> grant application on subject 'Structural chemistry of the quinone binding sites of the <i>bc</i> complexes' by P.R. Rich, 1987. Includes copy of application, April 1987. |
| B.125, B.126 | Papers re 1988 Wellcome Trust application. |
| B.125 | Typescript and manuscript notes, 1987. Drafts of outline request to support a project on subject 'Fundamental principles of chemiosmotic systems. The protonmotive mechanism of cytochrome oxidase', <i>ca.</i> January-March 1988. |
| B.126 | Correspondence, typescript secretarial notes etc., April-November 1988. Includes copy of outline request for support, April 1988; copy of grant application on subject 'Fundamental principles of chemiosmotic systems: The protonmotive mechanism of cytochrome oxidase', May 1988. |
| | Miscellaneous |
| B.127 | 'Donations'. Contents of folder so inscribed, 1979. |

VISITS TO THE GLYNN RESEARCH INSTITUTE

Papers concerning arrangements made for visits to the Glynn Research Institute for scientific, fund-raising and other purposes.

The material is presented in chronological order, 1980-1992. Visitors came to the laboratories at Glynn from 1964 but individual folders of papers relating to particular visits do not appear to have been kept until the early 1980s. Information relating to visits to the Institute can also be found in Section G, Correspondence.

1980

C.H. Shelden, Huntingdon Institute of Applied Medical Research, California, 28-29 August.

Includes scientific correspondence concerning mitochondrial function and the treatment of tumours.

M.W. Hill, Agricultural Research Council, 11 November.

Includes letter of thanks, mentioning Hill's views on the results of their scientific discussions at Glynn.

1981

B.129

B.128

A. Azzi, Universität Bern, 21-23 October.

1982

B.130 F. Kavaler, State University of New York, Brooklyn, 28 September.

To discuss the question of the ATP-dependent extrusion of Ca^{2+} in cardiac muscle.

B. H. Weber, California State University, Fullerton, 2-6 October.

To discuss Mitchell's scientific ideas and their evolution.

| / | A. R. Michaelis, Interdisciplinary Science Reviews, 1 November. |
|-------|---|
| | Papers re arrangements etc. |
| B.131 | R. C. Hill, Johnson & Johnson Ltd., 5 November. |
| | <i>Re</i> the possible therapeutic effects of electromagnetic energy applied to wounds. Includes correspondence <i>re</i> donation to the Institute by Johnson & Johnson Ltd; copies of articles etc. |
| | 1983 |
| B.132 | J. Moody, University of York, 13-14 June. |
| | R. Mann, University of Auckland, 23 June. |
| | D. Nicholls, 21 October. |
| | D.H. Bell, University of Glasgow, 20-22 December. |
| | To discuss the problems of accurate intravescular pH measurement, in relation to the Institute's work on cytochrome oxidase vesicules. |
| | 1984 |
| B.133 | M.K.F. Wikström, University of Helsinki, and John Wrigglesworth, 15-20 March. |
| | To discuss the functioning of cytochrome oxidase. |
| | P.R. Rich, Cambridge, 30 March. |
| | K. Miura, Tokyo, 7 May. |
| | To interview Mitchell at Glynn for Kagaku Asahi, a monthly Japanese science magazine. |
| | |

| B.134 | P.D. Boyer, University of California, Los Angeles, 8-9 June. |
|-------|---|
| B.135 | J. Godfrey, 24 June and 17 August. <i>Re</i> Godfrey's visits as a consultant. Includes samples of press releases, newspaper articles etc. written by Godfrey. |
| B.136 | J.D. Robinson, State University of New York, Syracuse, 30-31 July. To discuss the chemiosmotic hypothesis and membrane processes in general. |
| | Includes correspondence <i>re</i> the possibility of Mitchell visiting China. |
| B.137 | W. Epstein, University of Chicago, 11-13 August.M.C. O'Dowd, Anglo American Corporation of South Africa, 24-25 August.To discuss the Institute's studies of methods of improving techniques of communication. |
| B.138 | L. M. Rinaldini, Academia Nacional de Ciencias, Argentina, 30-31 October. To consult Mitchell on chemiosmotic systems in vascular smooth muscle. Includes 1p of Mitchell's manuscript notes. S. Khan, Marine Biology Laboratory, Woods Hole, Massachusetts, 6-8 December. Includes correspondence concerning Khan's work on flagellar rotation and Mitchell's paper on a possible rotatory mechanism relevant to the operation |
| | or nagonal motoro. |

| | 1985 |
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| B.139 | P. Archer, Western Morning News, 31 January and 13 March. |
| | To write a short profile of Mitchell. |
| | S. Batt, Devon and Cornwall Development Bureau, 14 February. |
| | <i>Re</i> the production of a brochure on the Pharmaceutical & Health Care Industry. Includes annotated draft of the entry for the Glynn Research Institute. |
| | See also B.50 for a copy of the brochure. |
| B.140 | P.R. Rich, Cambridge, 28-30 March. |
| | G. von Jagow, Universität München, 29-30 March. |
| | Includes correspondence <i>re</i> possibility of obtaining EEC funds for a joint research project by Mitchell and von Jagow; 5 pp manuscript notes. |
| B.141 | D.S. Bendall, University of Cambridge, 1-3 May. |
| | M.T. Wilson, University of Essex, 28-30 May. |
| | P.R. Rich, 6-8 June. |
| | P.R. Rich, 19-21 September. |
| | Includes 2pp Mitchell's manuscript notes. |
| | Manager, Lloyds Bank, Bodmin, 7 November. |
| | To see members of Council. |
| | |

| | 1986 |
|-------|--|
| B.142 | D.A. Moss, University of Cambridge, 3-4 January. |
| | S. Papa, University of Bari, 10-14 March. |
| | To discuss the stoichiometry question and related matters. Includes 5pp Mitchell's manuscript notes; typescript tables of experimental results etc. |
| B.143 | S. Ferguson-Miller, Michigan State University, 21-23 March. |
| | To discuss cytochrome oxidase. |
| | G. von Jagow, Universität München, 23-25 April. |
| B.144 | K. Spouse, Biometric Systems Ltd., Truro, 20 May. |
| | To discuss the possible influence of magnetic fields on physiological processes. Includes correspondence <i>re</i> electromagnetic effects in biology etc. |
| B.145 | R.L. Gregory, University of Bristol, 6 June and 13 July. |
| | Includes copy of 4pp manuscript notes [by Gregory?]; letter to Gregory from P.H. Borcherds, University of Birmingham, attached to copies of papers by Borcherds. |
| | See also G.308 for correspondence re the visits. |
| B.146 | Mr & Mrs R. Temple and H.T. Huang, National Science Foundation, 8 July. |
| | Includes articles <i>re</i> a drug supposed to regenerate hearing in humans and reduce tinnitus (from which Mitchell suffered); photographs of the visit. |
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| B.147 | P. & A. Joliot, Institut de Biologie Physico-Chimique, Paris, 15-16 July. |

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| | Mr. & Mrs. G. von Jagow and T. A. Link, Universität München, 16-18 July. |
| | Includes 2 pp manuscript notes, entitled 'Q[uestions] for Gebhard' etc. |
| B.148 | H. Gutman and family, Tel-Aviv University, 25-27 July. |
| | Includes photographs. |
| B.149 | D. Allchin, University of Chicago, 11-12 August. |
| | To discuss the history of Mitchell's chemiosmotic theory and its conceptional origins. |
| | J. Ross, Stanford University, California, 6 October. |
| B.150 | M.J. Morgan, Assistant Director of The Wellcome Trust, 18-19 November. |
| | Includes copy of proposal for a Dynamic Molecular Modelling Facility for the Glynn Research Institute; copy of P.R Rich's curriculum vitae; 2pp Mitchell's manuscript notes; etc. |
| | See also B.123. |
| B.151 | Mr & Mrs Rinaldini, Universidad Nacional de Cuyo, Argentina, 21-22 November. |
| | To discuss chemiosmotic effects in relation to the pathogenesis of hypertension. |
| | 1987 |
| | |
| B.152 | R. Keat, Chemdata Ltd., 6 March. |
| | Includes 1p Mitchell's manuscript notes; 'Microcomputer based Molecular Graphics/Chemdata Ltd. A summary of current and projected developments, March 1987', 4pp typescript; etc. |

| B.153 | K. Wood, 13 March |
|-------|---|
| | Includes 1p Mitchell's manuscript notes. |
| | Mr & Mrs R.K.G. Temple and Mr & Mrs L.E. Tice, 23-24 June. |
| | J. Lander, Western Morning News, 24 June. |
| | Re an article about The Glynn Research Foundation. |
| | |
| B.154 | C. Waters, 6th form student at Truro, 2 July. |
| | To talk to Mitchell about careers. Includes 1p Mitchell's manuscript notes. |
| | A. Biggs, 7 July. |
| | Re fund-raising. |
| | G. George, Exxon Research and Engineering Co., USA, 4-5 August. |
| | P.A. Lumkin, Principal Projects Consultancy, 12 August. |
| | To discuss fund-raising. Includes copies of 'Will to Charity' advertisements, produced by the Glynn Research Institute. |
| | |
| B.155 | G. von Jagow and family, 24 August-3 September. |
| | B.H. Weber, California State University, Fullerton, 8-11 October. |
| | To discuss numerous topics, including the background and ideas for Mitchell's papers on the ATPase mechansim, the O-loop and the Cu-loop. |
| | 1988 |
| B.156 | P. Nicholls, Brock University, Ontario, 6 July. |
| | For scientific discussion. |

| B.157 | K.D. Garlid, Medical College of Ohio, 12-18 July. |
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| | For scientific discussion. Includes paper (annotated by Mitchell) 'The permeability barrier to ions in energy-transducing membranes', by K.D. Garlid, A.D. Beavis and S.K. Ratkje, 23pp typescript. |
| B.158 | V. Sitaramam, University of Poona, India, 18-19 July. |
| | To discuss recent findings relating to oxidative phosphorylation. |
| B.159 | S.R. Dennison, English China Clays, 25 July. |
| | To discuss the issues of scientific understanding in relation to industrial activity and everyday life and <i>re</i> possible financial help for the Institute. Includes papers <i>re</i> arrangements for a visit by Dennison on 30 March 1988 (cancelled); letter by Mitchell concerning the benefits of promoting new knowledge and understanding, 28 July 1988. |
| B.160 | V.P. Skulachev, Moscow State University, 25-26 July. |
| | W.H. Koppenol, Louisiana State University, 28-30 July. |
| | To discuss the problems of Cu chemistry in relation to cytochrome oxidase action. |
| | G. von Jagow, 29 August-2 September. |
| | 1989 |
| B.161 | R. Youlton, Department of Trade & Industry, C. Langridge, LNL Ltd, E. Taylor, Atomic Energy Commission, P. Benetto, King's College, London, 31 January. |
| | Includes 2pp Mitchell's manuscript notes. |
| | M. Charleston, Western Morning News, 13 February. |
| | To write article about Mitchell and Glynn. Includes 'Outline of some discoveries promoted by the Glynn Research Foundation', 1p typescript; photocopy of newspaper article. |

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B.162

Glynn Research Institute

M. F. Morales, University of California, San Francisco, 10-11 March.

A.A. Eddy, University of Manchester Institute of Science of Technology, 12-13 April.

To discuss porter 'slip'.

L. Weiss, Roswell Park Memorial Institute, Buffalo, New York, 23-24 April.

Includes correspondence about approaching the Ludwig Foundation for financial assistance.

S. Karmi, 13 June.

Re interview of Mitchell for broadcast in the Middle East, organised through Cornwall County Council.

J. Clark, schoolboy, Lostwithiel, Cornwall, 17 July.

To visit the Institute to gain an insight into research work.

J. Turney, Science Editor of *The Times Higher Education Supplement*, 12 December.

To write article on Mitchell and his work. Includes newspaper article by Turney, March 1990.

1990

L. Woon, photographer, 14 March.

To photograph Mitchell, part of a series of portraits of Britain's Nobel Prize Winners. Includes photograph.

M. H. Saier, University of California, San Diego, 18-30 May.

To gather material for a biography of Mitchell. Includes correspondence *re* the production of the biography and *re* arrangements for a further visit in August, 1990; copy of letter, 28 February 1990, containing details about events in Mitchell's life between 1962 and 1965 and his invention of the group translocation mechanism in general principle.

B.163

| B.164 | J.E. Page, Coutts Bank, London, 1 June (cancelled). |
|-------|--|
| | J.D. Robinson, State University of New York, 3-7 June. |
| B.165 | S. Motoike, European Editor of The Yomiuri Shimbun, 29 August. |
| | Japan Broadcasting Corporation, 2-3 October. |
| | To film an interview with Mitchell for a T.V. programme, as one of the six participants in the Nobel Laureates Forum in Japan. |
| | See also D.476 for a copy of the interview and F.330-F.341 for papers <i>re</i> Mitchell's attendance at the Nobel Laureate's Forum. |
| | P. Nicholls, Brock University, Ontario, 10-11 December. |
| B.166 | A.L. Rowse and D. Treffry, 13 December. |
| | To look at Glynn House. Includes copy of 2pp article about Glynn House's Regency interior, by A.L. Rowse. |
| | J. Dismore, Yorkshire Television, 17 December. |
| | To discuss the possibility of using Mitchell's breakthrough in bioenergetics for a programme in the <i>Science Fiction</i> series. |
| | 1991 |
| B.167 | C. Brownlee, Marine Biological Association, Plymouth, L.N. Vorobiev, Moscow State University, 7 January. |
| | To discuss matters relating to Mitchell's chemiosmotic theory. Includes correspondence with Vorobiev <i>re</i> membrane potentials in plant cells, 1974. |
| B.168 | Manager, Lloyd's Bank, Bodmin, 9 January. |
| | Includes copy of <i>Independent</i> article <i>re</i> Glynn Research Institute's fund- raising difficulties, October 1990; copies of proposals for establishing a new library and the posts of Fellow in Osmochemistry and Professor of Osmochemistry at the Institute, <i>ca.</i> 1990; etc. |

| B.169 | N. Kurti, Department of Engineering Science, University of Oxford, 26 February. |
|-------|---|
| | Includes 1p Mitchell's manuscript notes. |
| | J.N. Prebble, Royal Holloway and Bedford New College, University of London, 15 March. |
| | J.C. Kendrew, 7-9 May. |
| | To advise on fund-raising and discuss the proposed new A38 road. |
| B.170 | M. James, Director of the Winnicott Trust, 13 May. |
| | <i>Re</i> fund-raising and Mitchell's role as Chairman of the Winnicott Research Unit's Advisory Committee. See also E.165-E.171. |
| | J.W. Black, 20-21 May. |
| B.171 | B. Weber, California State University, Fullerton, 25 August-1 September. |
| | To discuss the early days of the Institute and work on cytochrome oxidase after 1982. |
| | L. Murray, Winnicott Research Unit, Cambridge, 23-25 October. |
| | To consult with Mitchell about the agenda for the Winnicott Research Unit's Advisory Committee meeting. See also E.170. |
| | 1992 |
| B.172 | C. Rassam, journalist, 14-15 January. |
| | J. Glass, 16 March (cancelled). |

SILVER JUBILEE SYMPOSIUM, 1990

A Silver Jubilee meeting was held on 11 and 12 October 1990 to celebrate twenty five years of research at the Glynn Research Institute and was attended by over a hundred scientists, including five Nobel Prize winners. On the first day there was an International Symposium and Conversazione on the subject, 'Vectorial metabolism, molecular dynamics and chemiosmotic systems in biology', This was followed on 12 October by a Discussion on 'Strategies for Cost-Effective Research' and a Special Lecture by Bruce Weber. B.173 Outlines of talks for Jubilee Symposium. Includes: 'Introduction' and 'Foundations of osmochemistry' by Peter Mitchell, 4pp typescript. 'Chemiosmotic theory and medicine' by P. B. Garland, 2pp typescript. 'Electron transfer-driven chemiosmotic molecular mechanisms' by P.R. Rich, 2pp typescript. 'Chemiosmosis in bioenergetics' by V.P. Skulachev, 2pp typescript. 'Chemiosmotic borderlands: from vectorial chemistry to morphogenesis' by F.M. Harold, 2pp typescript. Copy of untitled outline, 2pp typescript. B.174-B.176 'My Symp. paper'. Contents of folder so inscribed by Mitchell, divided into three for ease of reference. B.174 'Introduction' and 'Foundations of osmochemistry'. Draft of outline for Mitchell's talk (annotated), 4pp typescript, May 1990. 2pp manuscript notes; 1p manuscript figure.

- B.175 'Themes of the Symposium' and 'Foundations of osmochemistry'. Draft of talk by Mitchell (annotated), 23pp typescript, 9 September 1990.
- B.176 'Themes of the Symposium' and 'Foundations of osmochemistry'. Typescript of talk by Mitchell, 18pp; typescript figures and copies of manuscript figures, 17pp.

B.177

Articles *re* the Silver Jubilee Symposium, Mitchell's achievements, and the problems of obtaining funds for scientific research. *The Observer*, 14 October 1990; *Nature*, 18 October 1990; *Western Morning News*, 30 October 1990.

See also D.477 for audio-visual tapes of Silver Jubilee Symposium.

P. D. Mitchell NCUACS 65/3/97

| SECTION C | RESEARCH | | | C.1-C.400 |
|-----------|-------------|-------------|------------------|-----------------|
| | | | | |
| | C.1-C.240 | RESEARCH OI | F P.D. MITCHEL | L |
| | | C.1-C.207 | Dated | |
| | | C.208-C.216 | Undated | |
| | | C.217-C.240 | Figures and illu | strations |
| | C.241-C.400 | RESEARCH O | F COLLABORAT | TORS |
| | | C.241-C.337 | Notebooks | |
| | | | C.241-C.274 | J.M. Moyle |
| | | | C.275 | S. Clarke |
| | | | C.276-C.337 | J.R. Mitchell |
| | | C.338-C.400 | Research Notes | s of J.M. Moyle |

RESEARCH OF P.D. MITCHELL

The material was found in a state of disorder. It has been placed in chronological order as far as possible. Notebooks found among Mitchell's research notes have being catalogued within the chronological sequence.

| Dated | |
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| C.1 | Hardcover ruled notebook inscribed on inside cover 'P.D. Mitchell Jesus [College Cambridge]' and on the facing page 'Practical Biochemistry'. Apparently a student laboratory notebook. Some of the entries are initialled 'EW' between 17 October (p.5) and 23 November 1940 (p.59). Paginated 1-201 entries continue to p.[205]. There is considerable intercalated material. |
| C.2-C.6 | 'Old dyeing info'. Contents of folder so inscribed divided into five for ease of reference. The material concerned dates from the period 1942-1945 when Mitchell was a researcher in the Department of Biochemistry at Cambridge working under the guidance of J.F. Danielli on the chemical warfare agent, Lewisite. |
| C.2 | 31pp untitled typescript with graphs and tables, annotated with corrections, dealing with the attempt to develop a method by which the passage of plasma protein through a capillary wall can be directly studied using tagged serum proteins. |
| | 'The application of dyed proteins to the problem of shock', 25pp typescript; letter attached at end dated 21 December [?]. |
| C.3 | 'Secret. Extra-mural research - Dr. Malcolm Dixon. Report No.[25] - Local and systemic plasma albumin exchanges in Lewisite poisoning with special reference to therapeutic measures' by P.D. Mitchell, J.F. Danielli and R.H.D. Short, 17pp typescript, circulated 29 April 1944. <i>Bibliog.</i> 1944*. |
| C.4 | 'Secret. Extra-mural research - Dr. Malcolm Dixon. Report No. 20 - Interim report on the study of capillary permeability to protein in lewisite poisoning', circulated 23 July 1943, 4pp typescript copy of an interim report. <i>Bibliog</i> 1943 ^{**} . |

^{*} See catalogue of the papers of Malcolm Dixon FRS, deposited in Cambridge University Library, NCUACS 23/8/90, B.93.

^{**} See catalogue of the papers of Malcolm Dixon FRS, deposited in Cambridge University Library, NCUACS 23/8/90, B.87.

| C.5 | Correspondence, orders and receipts <i>re</i> laboratory equipment 5 July 1942- 18 October 1944; manuscript memorandum addressed to Mitchell dated <i>ca.</i> 14 August 1945; miscellaneous manuscript notes on protein research; 'Work on The Benzidine Disazo Dyes', 11pp typescript. |
|----------|--|
| C.6 | Manuscript protein research notes bound in folder by screw fasteners with intercalated manuscript notes and references; 'Practical Work Done on Died [sic] Proteins', 1p typescript relating to a laboratory method employed by J.F. Danielli. |
| C.7-C.10 | 'Electrophoresis' and 'Paper submitted to Nature 1950'. Contents of folder so inscribed divided into four for ease of reference. |
| | The material dates from 1945 to 1950 when Mitchell was working on his thesis, and from 1950 to 1955, when a demonstrator in the Biochemistry Department at Cambridge. |
| C.7 | Manuscript calculations; 'Studies in the Distribution of Substances in Systems with Continuous Inhomogenity, Relevant to the Organisation of Biological System', 9pp typescript with annotations, 10 April 1946. |
| C.8 | Loose notebook pages of manuscript calculations and experimental notations, one sheet dated 20 October; 4pp untitled manuscript draft discussing the electrokinetic relationship at a solid-liquid interface. |
| C.9 | 'CHAPTER VIII Some New Theoretical Electrokinetic Considerations', 9pp typescript, latest bibliographical reference, 1947 and 4pp manuscript experimental readings, calculations and graphs |
| | Letter to Mitchell from 'Mike', Radcliffe Infirmary, Oxford <i>re</i> electro-phoretic cell results, 23 September 1954; manuscript notes and diagrams re electrophoretic cell and further related notes and drafts, etc., Latest bibliographical reference 1961. |
| C.10 | Manuscript calculations, experimental data and graphs; 'A New Electrophoresis Cell for Microscopic Observations Aug [?23] 46', loose pages from laboratory notebook so inscribed; draft appendix from unidentified paper; 'Sept. Oct. 49', three laboratory notebook pages so inscribed <i>re</i> gelatin particles. |

| C.11 | '10' and 'Dyes'. Contents of folder so inscribed. |
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| | 'Dyestuff Chemical Compounds', 6pp typescript list; manuscript notes and chemical diagrams <i>re</i> dyestuffs; correspondence with Imperial Chemical Industries Ltd (ICI) <i>re</i> procurement of dyestuff chemical compounds, 28 February-10 May 1946. |
| C.12, C.13 | 'Graded Composition Systems in Steady States (Theory). First [?serious] formulation Apr. 1946'. Contents of folder so inscribed divided into two for ease of reference. |
| C.12 | '2nd copies of Nature Letter'. Contents of envelope so inscribed. |
| | Manuscript and typescript draft pages of unidentified paper, latest bibliographical reference 1949. |
| | |
| C.13 | Studies in the distribution of substances in systems with continuous inhomogeneity, relevant to the organisation of biological systems', 9pp typescript, latest bibliographical reference 1942; 2pp manuscript notes <i>re</i> Fluctoids, 17 September 1946; miscellaneous typescript and manuscript notes <i>re</i> Fluctoids <i>ca.</i> 1946. |
| | 'Electrokinetic effects and the location of accessible charged sites below the surface of shear', 6pp typescript with note from <i>Nature</i> declining to publish the paper, 26 October 1950, see C.25. |
| | 'The influence of concentration gradients on the distribution of proteins in initially homogeneous systems, and its possible biological significance', 11pp typescript including graph and diagram. Undated. |
| C.14-C.20 | 'Laboratory notes <i>ca.</i> 1955'. Contents of folder so inscribed divided into seven for ease of reference. |
| | Experimental data on loose pages, possibly surviving parts of laboratory notebooks. C.14-C.16 are the contents of a single folder found within the main folder. |
| C.14 | ca. 1 October-14 October 1948. |
| C.15 | ca. 29 June-28 July [?1948]. |

| C.16 | 29 July-7 August [?1948]; 20 November [?1948]; 3 December 1953; 28 January [?1954]. |
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| C.17 | 10 February- <i>ca.</i> 23 April 1954. |
| C.18 | 13 April [?1954]-19 April [?1954]. |
| C.19 | 7 May [?1954]-19 June [?1954]. |
| C.20 | 16 December [?1954]; 10 April 1955. |
| C.21-C.24 | Contents of folder divided into four for ease of reference: |
| C.21 | Manuscript notes; letter and data <i>re</i> heavy bacterial (and other) turbidites, 11 November 1949; correspondence, 26 April 1950 and 26 June 1961; etc. |
| C.22 | Manuscript notes and diagrams etc., possibly draft pages of unidentified paper, no date. |
| C.23 | Manuscript notes and diagrams etc.; 'Preparation of Submitochondrial Particles', manuscript foolscap sheet with attached notes; 7pp manuscript draft apparently discussing a paper by V.P. Skulachev, latest bibliographical reference 1970. |
| C.24 | Manuscript note <i>re</i> photometer; tables illustrating data <i>re</i> salicylate analogues, undated. Manuscript drafts: 'Membrane Penetration' 7pp undated: 'Possible |
| | explanation of Ca ²⁺ ', 5pp, 31 August 1967; 'Experimental Approaches', 5pp latest bibliographical reference 1960; pages 2 and 3 of possible draft. |

| C.25 | Bundle of papers bound together. |
|-----------|---|
| | Page of experimental results; 'Ion Displacement and Electrical Potential at the Interface of a Gel and an Aqueous Phase Containing a Uni-univalent Electrolyte', incomplete manuscript and typescript draft; 'Electrokinetic effects and the location of accessible charged sites below the surface of shear', incomplete typescript drafts; unidentified incomplete typescript and manuscript drafts, see C.13. |
| | Experimental data etc. |
| C.26-C.34 | 'Gram stain V A Knivett M.R.C. Unit Biochem Lab'. Contents of folder so inscribed divided into nine for ease of reference. |
| C.26 | Loose pages found at front of original folder consisting of: 'The Absorption of C.V. by Bacteria', 1p manuscript draft, undated; three laboratory notebook pages, 27 October 1949; 'GRAM STAIN' 5pp typescript/manuscript from small notebook, May 1949-13 August 1949; manuscript note and graphs <i>re</i> dye experiments involving <i>Escherichia coli</i> and <i>Streptococcus faecalis S.T.</i> , undated. |
| C.27-C.34 | Contents of Mitchell's folder divided into eight for ease of reference. |
| C.27 | 'The Uptake of Crystal Violet by Bacteria', 5pp typescript with corrections, undated; table annotated 'Fig 1', 3 February 1950; notes and graphs of experimental results. |
| C.28 | 'E. coli 86', table of experimental data so inscribed, <i>ca</i> .1949-1950. |
| C.29 | 'Streptococcus Faecalis S.T.', table of experimental data so inscribed, ca.1950. |
| C.30 | 'Studies on the uptake of Crystal Violet', 9pp typescript with corrections, undated, (see C.31); table of experimental data. |
| C.31 | 'Studies on the uptake of Crystal Violet', later 9pp typescript, see also C.30. |

| C.32 | Graphs of experimental data, 30 August, 4 October, 9 November 1949. |
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| C.33 | Graphs of experimental data, undated. |
| C.34 | Graphs of experimental data, 30 August, 4-6 October 1949, and 11 October 1949. |
| C.35 | 'Improvements in or relating to Anti-Toxic Agents', patent specification, 17 May 1949. |
| C.36-C.43 | Eight notebooks bound with screw fasteners without covers. These are manuscript indexes of publications relevant to areas of scientific interest to Mitchell. Mainly consisting of publications from the 1950s although some references are to earlier works. The latest bibliographical reference is 1960. |
| C.44 | Seven paginated notebook pages and headed 'Enzymic Hydrolysis of IP. January [?]1951'. |
| C.45 | 'c. 1952/3'. Contents of folder so inscribed. |
| | Notebook bound by screw fasteners without covers. Some intercalated material. |
| C.46-C.50 | Research experimental data divided into five for ease of reference, <i>ca.</i> 1952-1954. |
| C.51-C.53 | 'Wedge section cell [?Electrophoresis]'. Contents of folder so inscribed divided into three for ease of reference. |
| C.51 | Correspondence <i>re</i> manufacture of the glass wedge section cell including rough manuscript diagrams to illustrate design, 24 March 1952-17 June 1953. |

| C.52, C.53 | Instructions for practical work and examination papers used as note paper for experimental data, <i>ca.</i> 1953; miscellaneous notes etc. <i>ca.</i> 1953-1962. 2 folders. |
|------------|--|
| C.54,C.55 | Contents of folder divided into two for ease of reference. |
| C.54 | Correspondence with J.N. Davidson of the Department of Biochemistry, University of Glasgow <i>re</i> research carried out by Mitchell and J.M. Moyle on polyglycerophosphates, 28 July-31 August 1954. |
| C.55 | Highly fragile experimental data found with C.54. |
| C.56, C.57 | Two notebook fragments. |
| C.56 | 17 November 1955 - 24 January 1956. |
| C.57 | This notebook fragment was enveloped by a slip of paper inscribed '2/ Permeability of the osmotic barrier of <u>Bacterium coli</u> to small molecular weight solutes', 15 February [?1956]. |
| C.58-C.60 | Manuscript research data, divided into three for ease of reference, 9 February-12 April 1955. |
| C.61-C.64 | Unbound notebook divided into four for ease of reference, 24 November 1955-18 December 1956. |
| C.65-C.67 | '[?] Pombe work'. Contents of folder so inscribed divided into three for ease of reference. |
| | Research data ca. 1956. |
| C.68-C.70 | Research data ca. 1956-1957, 3 folders. |

| C.71, C.72 | 'Permease'. Contents of folder so inscribed divided into two for ease of reference. |
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| C.71 | 'Definition of Permease'. Contents of envelope so inscribed. |
| | Draft letter to A. Novick, Biochemistry Unit, University of Edinburgh discussing permease with typescript and manuscript drafts of an enclosure to be sent in the letter, 20 August 1958. |
| C.72 | Correspondence, 3 June 1957-1 September 1960. |
| C.73 | 'Macfarlane Lyso lipid c 1960'. Contents of folder so inscribed. |
| | Correspondence with M.G. Macfarlane, Lister Institute of Preventitive Medicine <i>re</i> phospholipid related research including manuscript notes; reprint by Macfarlane; 'Isolation of a phosphatidylglycerol', typescript of paper by Macfarlane, 3 July 1959-14 December [1961]. |
| C.74-C.77 | 'Includes β galactosidase location expts.'. Contents of folder so inscribed divided into four for ease of reference. |
| C.74 | Research data and notes, 14 February [?1958]-13 March [?1958]. |
| C.75 | ${}^{\prime}\!\beta$ galactosidase and permease Peter Kelsall'. Contents of envelope so inscribed. |
| | Research data, 18 June [1958]-27 June 1958. |
| C.76 | Loose notebook pages of research data, 10 June [?1959]-1 December 1959. |
| C.77 | Loose notebook pages of research data, 7 December 1959-3 March 1960. |
| C.78, C.79 | 'G-6-Pase'. Contents of folder so inscribed divided into two for ease of reference. |

| C.78 | 'APPENDIX Glucose-6-phosphatase activity of <u>Escherichia</u> <u>coli'</u> , manuscript draft pages, latest bibliographical reference 1961. |
|-----------|---|
| C.79 | Loose notebook pages of research data, 6 October 1959-11 January [1960]. |
| C.80 | Contents of ring-bound notebook. Manuscript notes with some entries not in Mitchell's hand, possibly 1960. A few pages are inscribed with the day and the month, the latest date appearing at the front. |
| C.81 | 'Lyso membrane'. Contents of folder so inscribed. Loose notebook pages, 29 April 1960-26 February 1963. |
| C.82-C.87 | Unbound notebook research data divided into six for ease of reference. The papers were found enclosed in a heavily annotated folder which has been retained. |
| C.82 | Original annotated folder. |
| C.83 | 8 May -13 May 1961. |
| C.84 | 23 May -31 May 1961. |
| C.85 | 1 June -22 June 1961. |
| C.86 | 23 June -26 July 1961. |
| C.87 | 10 August -24 October 1961. |

| C.88-C.91 | 'Titration work with bug and mito c.1961/62'. Contents of folder so inscribed, divided into four for ease of reference. C.88 and C.89 originally formed a single bundle of papers. |
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| C.88 | 16 November 1961-7 June [?1962]. |
| C.89 | 8 June [?1962]-11 July [?1962]. |
| C.90 | 12 December 1961-12 July 1962. |
| C.91 | 12 July -20 July 1962. |
| C.92 | "A new approach to Non-equilibrium thermodynamics", 3pp manuscript, undated with diagram attached dated 9 November 1961; loose notes etc. <i>ca.</i> 1960; research data bound together, undated; 3pp manuscript draft; manuscript and typescript draft <i>ca.</i> 1959, calculations on reverse of pages suggest possible use as rough paper. |
| C.93, C.94 | Contents of folder divided into two for ease of reference. Manuscript and typescript loose pages and index cards used as index of bibliographical references, latest reference 1964. |
| C.95-C.100 | Contents of Mitchell's five folders, divided into six for ease of reference. |
| | A chronological sequence of laboratory research data <i>re M. lyso</i> , carried out in 1962. |
| | The inscriptions on the folders have been reproduced in the catalogue entries. |
| C.95 | 'Incinerations with HNO_3 ' and 'Incineration method'. 21 March 1962-6 April 1962. |

| C.96 | 'Direct Spray of Cells' and 'Direct Spray of Bug'. 6 April-5 May 1962. |
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| C.97, C.98 | 'Washing of M. Lyso'. Contents of folder so inscribed divided into 2 for ease of reference. |
| C.97 | 7 May-8 June 1962. |
| C.98 | 'Direct Spray of HCI Extract'. Research data so labelled, 25 May-24 August 1962. |
| C.99 | 'Changing Preincubation Medium'. 29 August-20 December 1962. |
| C.100 | 'Alterations in preincubation media'. Research data, 10 October-19 October 1962; manuscript note dated 19 July 1961. |
| C.101 | 'Chloroplasts' and 'Work on chloroplasts-reprints etc. 1963-1967' and 'Coenzymes and Carriers?'. Contents of folder so inscribed. Manuscript notes; correspondence with A.T. <i>re</i> artificial pH transition and membrane potential, 6, 17 December 1965. See also G.444-G.450 for correspondence <i>re</i> Jagendorf. |
| C.102 | Miscellaneous notes and research data, <i>ca</i> .1964-1965. |
| C.103 | Manuscript notes and drafts, <i>ca.</i> 1966. |
| C.104-C.108 | 'Various Information'. Contents of folder so inscribed divided into five for ease of reference, <i>ca.</i> 1966. |
| C.104 | Manuscript research data, notes, calculations etc. |
| C.105 | Manuscript notes, calculations etc. |
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| C.106 | Manuscript notes, calculations etc. including part of possible draft entitled 'The Chemical Hypothesis'. |
| C.107 | Manuscript research data, notes and calculations; 5pp incomplete manuscript draft; 'The Stoichiometry of proton translocation through the respiratory chain and ATPase systems of rat liver mitochondria' by Mitchell and J.M. Moyle, 5pp incomplete typescript draft, <i>Bibliog.</i> MM1965a. |
| C.108 | Manuscript notes, diagrams and calculations including draft pages of paper with references to research by A.T. Jagendorf; 'Metabolic Flow in the Mitochondrial Multiphase System: An Appraisal of the Chemi-Osmotic Theory of Oxidative Phosphorylation', abstract with corrections, <i>Bibliog</i> . M1966a; notes, calculations and draft page of paper. |
| C.109 | Reprint of 'Chemiosmotic Coupling in Oxidative and Photosynthetic Phosphorylation' inscribed on cover 'My Copy PM' and heavily annotated, containing intercalated material, <i>Bibliog.</i> M1966b. |
| C.110-C.115 | 'ATP synthesis Expts. Phase I'. Contents of folder so inscribed divided into six for ease of reference.Experimental research data carried out over the period 6-26 September 1966, retained in Mitchell's original arrangement of reverse chronological order. |
| C.110 | 26 September 1966. |
| C.111 | 23-21 September 1966. |
| C.112 | 20-19 September 1966. |
| C.113 | 18-16 September 1966. |

| C.114 | 15-13 September 1966. |
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| C.115 | 9-6 September 1966. |
| C.116 | 'ATP synthesis by pH shift Phase II'. Contents of folder so inscribed. 'Estimation of ATP', manuscript note entitled. Experimental research data 19-12 October 1966. |
| C.117-C.119 | 'Bits of unused review on oxphos etc.'. Contents of folder so inscribed divided into three for ease reference. |
| C.117 | Manuscript page headed 'Chapter X. Glycoyl-Transfer Reactions'; 1p unidentified manuscript draft; 'Active Transport and Ion Acc ^m [umulation]', 2pp manuscript draft, <i>Bibliog.</i> M1967d; 'Translocations Through Natural Membranes', incomplete manuscript and typescript draft, with corrections, <i>Bibliog.</i> M1967a, consisting mainly a section headed 'The Facilitation of Diffusion by Catalytic Carriers', see D.14. |
| C.118 | 'The Facilitation of Oxygen Diffusion by Catalytic Carriers', incomplete manuscript draft with related manuscript calculations, <i>Bibliog.</i> M1967a. See D.14. |
| C.119 | Manuscript calculations. |
| C.120-C.125 | 'Theory of pulses, etc. 1967 cancelled'. Contents of folder so inscribed, divided into six for ease of reference. |
| C.120 | 'Some Stoichiometric and Kinetic Features of Proton Translocation According to the Chemiosmotic Hypothesis', 34pp incomplete typescript draft with corrections, latest bibliographical reference 1967. |
| C.121 | 'Translation of exponential decay systems to new notation', 9pp manuscript calculations; 'Translation to new notation October 1967', 9pp manuscript. |

| C.122-C.124 | Manuscript calculations. 3 folders. |
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| C.125 | 'New calculations of constants (old notation)', 5pp manuscript calculations; 'For ATPase work' 5pp manuscript calculations; loose pages of manuscript calculations. |
| C.126 | Incomplete typescript, with manuscript notation by Mitchell on reverse of last page <i>re</i> 'activation of succinate entry', latest bibliographical reference 1968. |
| C.127-C.156 | Contents of Mitchell's twelve folders of spectrophotometric readings on light sensitive paper, divided into thirty for ease of reference, 25 April-7 May 1969. |
| | The inscriptions on Mitchell's folders are reproduced in the catalogue entries. |
| C.127 | 'April 25th'. Reading inscribed 'April 25th Azide and whole mitos'. |
| C.128 | 'April 27th'. Three readings inscribed 'Expt 2', 'Expt 3' and 'Expt 4'. |
| C.129, C.130 | 'April 28th'. Divided into two for ease of reference. |
| C.129 | 2pp manuscript notes <i>re</i> experimental data; three readings inscribed 'Expt 1', 'Expt 2' and 'Expt 3'. |
| C.130 | Three readings inscribed 'Expt 4', 'Expt 5 Succ.' and 'Expt 6'. |
| C.131, C.132 | 'April 29th'. Divided into two for ease of reference. |
| C.131 | 1p manuscript note <i>re</i> experimental data. Three readings inscribed 'Exp 1', 'Expt 1B' and 'Finish of Expt 1B' respectively. |

| C.132 | Four readings inscribed 'Expt 2', 'Expt 2 contd (FCCD)', 'Exp 3' and 'Exp 4' respectively. |
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| C.133, C.134 | '30th April 1969 Doublebeam'. Divided into two for ease of reference. |
| C.133 | 1p manuscript note <i>re</i> experimental data. Three readings inscribed '1', '2' and '3'. |
| C.134 | Two readings inscribed '4' and '5'. |
| C.135,C.136 | 'May 1st'. Divided into two for ease of reference. |
| C.135 | 2pp manuscript notes <i>re</i> experimental data; two readings inscribed 'Expt 1' and 'Expt 2'. |
| C.136 | Three readings inscribed 'Exp 3', 'Exp 4' and 'Exp 5'. |
| C.137-C.142 | 'May 2nd 1969'. Divided into five for ease of reference. |
| C.137 | 4pp manuscript notes <i>re</i> experimental data; three readings inscribed 'Exp 1', 'Exp 1B' and 'Exp 2' respectively. |
| C.138 | Three readings inscribed 'Exp 2B', 'Exp 3' and 'Exp 3'. |
| C.139 | Three readings inscribed 'Exp 3B', 'Exp 3B contd' and '4B'. |
| C.140 | Three readings inscribed 'Exp 5', '5B' and 'Exp 6'. |
| C.141 | Four readings inscribed 'Expt 6', '6B', 'Exp 7' and '7B'. |

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| C.142 | Three readings inscribed 'Exp 8', 'Exp 8 contd' and '8B'. |
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| C.143, C.144 | 'May 3rd KF'. Divided into two for ease of reference. |
| C.143 | Manuscript note and two graphs both entitled 'Reduction of cytochrome C in intact mitochondria and sonic particles showing onset of cytochrome oxidase inhibition'; manuscript note <i>re</i> experimental data; two readings inscribed '1' and '2'. |
| C.144 | Two readings inscribed '3' and '4'. |
| C.145-C.148 | 'May 4th H ₂ S'. Divided into four for ease of reference. |
| C.145 | 4pp manuscript notes <i>re</i> experimental data; two readings inscribed '1' and '2'. |
| C.146 | Three readings inscribed '3', '4' and '5'. |
| C.147 | Two readings inscribed '6' and '7'. |
| C.148 | Three readings inscribed '8', '9' and '10'. |
| C.149, C.150 | 'May 5th H ₂ S'. Divided into two for ease of reference. |
| C.149 | 1p manuscript note re experimental data; two readings inscribed '1' and '2'. |
| C.150 | Three readings inscribed '6', '7' and '8'. |
| C.151-C.154 | 'May 6th H_2S' . Divided into four for ease of reference. |

| C.151 | 4pp manuscript notes <i>re</i> experimental data; two readings inscribed '1' and '2'. |
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| C.152 | Three readings inscribed '3', '4' and '5'. |
| C.153 | Three readings inscribed '6', '7' and '8'. |
| C.154 | Four readings inscribed '9', '10', '11' and '12'. |
| C.155, C.156 | 'May 7th'. Divided into two for ease of reference. |
| C.155 | 1p manuscript note <i>re</i> experimental data; two readings inscribed '1' and '2'. |
| C.156 | Three readings inscribed '3', '4' and '5'. |
| C.157-C.161 | Material relating to spectrophotometer experiments carried out between 4 July and 3 September 1969, divided into five for ease of reference. |
| C.157 | 4pp manuscript index to experiments by type and by date; 'Guide to the Lab Notebook, giving motivations and more precise details of the experiments' 10pp manuscript; 'L.S. Changes and the osmolarity of Choline Chloride Experimental Data', 11pp manuscript. |
| C.158 | 'L.S. Changes and Osmolarity of Choline Acetate Data of August 8, August 14, July 31', 1p manuscript with graph of resulting data; 'Reversibility of L.S. changes brought on by low osmolar Choline Chloride or Choline Acetate Experimental Data', 8pp manuscript with graphs; 'Effect of NaAc on L.S. with ChCl as a supporting', 6pp manuscript with graph; 'The Effect of Ammonium Acetate on L.S. with Choline Chloride and Choline Acetate as supporting electrolytes Experiments of August 13 and 14', 4pp manuscript with graph. |

| C.159 | Ultraviolet spectrophotometer readings, 22 July-14 August 1969. |
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| C.160 | Ultraviolet spectrophotometer readings, 19 August-3 September 1969. |
| C.161 | Ultraviolet spectrophotometer readings, with attached note: 'Data of July 4- 18 (Not used in calculations)'. |
| C.162, C.163 | 'Certain cases'. Contents of folder so inscribed. Divided into two for ease of reference. |
| C.162 | 'Relationships Defining the Equilibrium Distribution of Solutes across the M Phase', 5pp incomplete typescript draft with corrections, latest bibliographical reference 1969; 'The mitochondrial phosphorine acid porter', 3pp incomplete manuscript draft, latest bibliographical reference 1969. |
| C.163 | Manuscript calculations ca. 1969. |
| C.164 | 'This one for general theory' and 'Duke Ms 1'. Contents of folder so inscribed. |
| | 'Relationships Defining the Steady State Cyclic Ion Fluxes', incomplete typescript and manuscript drafts with corrections, latest bibliographical reference 1970. |
| C.165,C.166 | Contents of folder divided into two for ease of reference. |
| C.165 | 2pp manuscript draft of paper <i>re</i> experimental techniques applied to the understanding of molecular mechanisms in biochemistry; manuscript notes on experimental techniques; research data 13 May 1970-1 September 1971. |
| C.166 | Research data 30 April 1970-23 June 1972; research notes 'March-Aug 72'; diagram <i>re</i> ligand flow/conduction; transparencies dated '3/4/84' and '1/11/85'. |

| C.167 | 'From March 1976 ATPase theory'. Contents of folder so inscribed. |
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| | 3pp notes and calculations entitled 'Eureka! March-April 1976'. |
| C.168 | 'ATPase theory continuation for March 1976'. Contents of folder so inscribed. |
| | Manuscript notes, diagrams and calculations, including list of references (latest reference 1980). |
| C.169 | 'Osmoenzymology'. Contents of folder so inscribed. |
| | Typescript note <i>re</i> laws of molecular mechanics; 'Blackboard' manuscript note <i>ca</i> .1981; reprint of <i>Bibliog</i> . MM1979a. |
| C.170 | 'Drafts of Research plans. September 1982. Masters', contents of folder so inscribed. |
| | 'Possible Research Topics I <i>Molecular Biology: Bioenergetics-Biomechanics'</i> , 3pp typescript. |
| C.171 | 'COV problem'. Contents of folder so inscribed. |
| | 'Q for J', 2pp manuscript list of questions; manuscript note <i>re</i> FCCP; reprints 1982. |
| C.172 | 'Cyto Oxidase Own Notes'. Contents of folder so inscribed. |
| | Manuscript note <i>re</i> lipids; summary of experimental research data dated 15 |
| | manuscript note with general comments about P/O and H ⁺ /P ratios; 'Buffering powers in COV expts.', manuscript note; ' <i>Re</i> : Wikström and cyt. ox. in RLM', manuscript note dated October 1981; ' <i>Re</i> : COVs explanation', manuscript note; etc. |
| C.173 | '[?Electrorheotropy] Artificial flagellar Motor Studies Dec 83 to'. Contents of folder so inscribed. |
| C.173 | 'Pebruary 1983 with appended hole entitled For PM's visit to John W, manuscript note with general comments about P/O and H⁺/P ratios; 'Buffering powers in COV expts.', manuscript note; '<i>Re</i>: Wikström and cyt. ox. in RLM', manuscript note dated October 1981; '<i>Re</i>: COVs explanation', manuscript note; etc. '(?Electrorheotropy] Artificial flagellar Motor Studies Dec 83 to'. Contents of folder so inscribed. 'Artificial Flagellar Motor Studies' research data so inscribed, 8 December 1983-13 January 1984; manuscript notes and diagrams; correspondence <i>re</i> Mitchell's high voltage power supply requirements. 14 February 1984. |

| C.175 | 'Research Plans Behavioural Biology Human Communication and Resolution of Conflict'. Contents of folder so inscribed. |
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| | 'Possible Research Topics II <i>Behavioural Biology: Human Communication and Resolution of Conflict'</i> , typescript with annotations and additions; circular letter including list of recipients etc. written by Mitchell <i>re</i> ethics in science. |
| C.176 | 'Own Notes'. Contents of folder so inscribed. |
| | Two photocopied pages each headed 'Diary' and dated 18, 19 August 1984; 2pp manuscript calculations. |
| C.177-C.185 | Sequence of eight folders divided into nine for ease of reference. The inscriptions on Mitchell's folders have been reproduced in the catalogue entries. |
| C.177, C.178 | '1 Chemiosmotic stoichiometry of exogenous cytochrome c oxidation by cytochrome oxidase in rat liver mitochondria'. Divided into two for ease of reference. |
| C.177 | Typescript list of the contents of the eight folders; research notes and data <i>ca</i> .1982. |
| C.178 | Letter <i>re</i> a forthcoming paper signed 'Jennifer [?Moyle]', 18 July 1984; 'Measurements of protonic input and output and electric charge translocation stoichiometries associated with the oxidation of cytochrome <u>c</u> by cytochrome oxidase in rat liver mitochondria' with J.M. Moyle and I. West, incomplete typescript draft with corrections; 1p diagrams. |
| C.179 | '2 Chemiosmotic stoichiometry of ferrocyanide oxidation by rat liver mitochondria in the presence of rotenone and antimycin'. |
| | Manuscript notes, research data and graphs ca.1981. |

| C.180 | '3 Chemiosmotic stoichiometry of N,N,N,'N'-tetramethyl-p- phenylenediamine oxidation by rat liver mitochondria in the presence of rotenone and antimycin'. |
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| | Manuscript notes, research data and graphs <i>ca</i> .1982. |
| C.181 | '4 Chemiosmotic stoichiometry of diaminodurene oxidation by rat liver mitochondria in the presence of rotenone and antimycin'. |
| | Manuscript notes, research data and graphs <i>ca.</i> 1982. |
| C.182 | '5 Kinetics and chemiosmotic stoichiometry of ubiquinal oxidation in rat liver mitochondria under various conditions'. |
| | Manuscript notes and research data <i>ca</i> .1984. |
| C.183 | '6 Lytic and inhibitory actions of dicyclohexylearbodiimide on respiring rat liver mitochondria'. |
| | Manuscript note and research data ca.1982. |
| C.184 | '7 Effect of temperature and the viscosity of the medium on the rate of ATP hydrolysis and rate of change of catalytic activity of ATPase from rat liver mitochondria'. |
| | Manuscript notes and research data ca.1976. |
| C.185 | '8 Effect of temperature on the rate of throughput of reducing equivalents through various regions of the respiratory chain of rat liver mitochondria'. |
| | Research data <i>ca</i> .1980. |
| C.186-C.188 | 'Research Strategy Molecular'. Contents of folder so inscribed divided into three for ease of reference. |
| C.186 | Manuscript notes etc. <i>ca</i> .1987. |

| C.187, C.188 | Contents of plastic sleeve found within main folder. |
|--------------|--|
| C.187 | Manuscript notes, diagrams and draft papers and figures May 1985. |
| C.188 | Letter (17 May 1986) to Mitchell from G. von Jagow <i>re</i> proton pump including diagrams with note by Mitchell, 28 June 1986; manuscript diagrams 25 April-15 November 1986. |
| C.189-C.193 | 'Cytochrome oxidase research!'. Contents of folder so inscribed divided into five for ease of reference. See <i>Bibliog</i> . M1988m, D.184 and F.264-F.267. |
| C.189 | Copy of letter to 'Peter [?Rich]' with manuscript diagram <i>re</i> oxidemotive mechanism for cytochrome oxidase, 5-6 September 1987; 'John 06/11/90' manuscript note so inscribed. |
| C.190 | '[] Manuscript of lecture for Rome meeting June 1988'. Contents of plastic sleeve found within main folder. |
| | typescript, annotated 'Spoken version notes'. |
| C.191 | Annotated reprints by R.J.P. Williams and K. Kreb and M. Wikström. |
| C.192 | 2pp manuscript coupling diagrams, 5, 6 March 1986; 'A new redox loop formality involving metal-catalysed hydroxide-ion translocation', 26pp typescript with corrections, <i>Bibliog</i> . M1987f. |
| C.193 | Manuscript notes and diagrams, <i>ca.</i> 1987 and 1988. |
| C.194-C.200 | Contents of folder divided into seven for ease of reference. Includes material relating to a workshop on 'Membrane ATPases' at the University of Osnabrück attended by Mitchell, 28 February - 3 March 1988. See F.258, F.259. |

| C.194 | Manuscript notes <i>ca</i> .1987; 'PM's Notes of meeting 29/02/88', 26pp manuscript notes. |
|-------------|---|
| C.195 | Diagrams; 'Ca experiments of JM (RM has results in parallel) April 1983', 2pp notes; 'History of Ca^{2+} estimations in mitochondria', manuscript notes on metabolism transport with summary of experimental results attached covering the period 1966-1982; 3pp typescript with corrections <i>re</i> coupling between transport and metabolism, possibly for lecture. |
| C.196 | Manuscript notes on points of scientific interest from meetings, manuscript lecture drafts etc. |
| C.197 | Notes, drafts etc. <i>re</i> Mitchell's Humphrey Davy Memorial Lecture in May 1980. See D.414, D.415. |
| C.198 | 'Charge stoicheoimetry of Ca uptake', manuscript note with reprint extract attached <i>ca</i> .1978; manuscript notes; 'the molecular mechanism of the mitochondrial proton translocating ATPase', 4pp typescript with diagram and annotated with 'Poster Presentation Fasano, Italy September 1975' (see F.59, F.60). |
| C.199 | Manuscript notes ca.1980, manuscript calculations, undated. |
| C.200 | Typescript and manuscript notes, <i>ca</i> .1967; 'General info Wikström's query about $\leftarrow H^+/0$ values in rotenone-treated RLM in various media \pm NEM 9/4/84', manuscript research data. |
| C.201-C.203 | 'Oxidase-Ideas and Presentations'. Contents of folder so inscribed divided into three for ease of reference. |
| C.201 | Diagram illustrating possible protonmotive Cu_B zoop mechanism for cytochrome oxidase also 'Transparencies for discussion. <i>Re</i> Oxidase', contents of plastic sleeve so inscribed, <i>ca.</i> 1988. See also D.248, F.264-F.267. |

| C.202 | Manuscript notes re oxidase systems ca.1988. |
|--------------|--|
| C.203 | Correspondence re cytochrome oxidase nomenclature, 12 May-10 June 1988. |
| C.204, C.205 | 'FoF1 ATPase c.1989'. Contents of folder so inscribed divided into two for ease of reference. |
| C.204 | Manuscript notes with reprint (<i>Bibliog.</i> MM1970b), <i>ca.</i> 1984; manuscript notes <i>re Bibliog.</i> M1989j; diagrams annotated 'With Albert's [Mildvan] letter of 29/5/86', see G.688, G.689. |
| C.205 | 'Single-letter code for amino acids' list so inscribed; reprint, 1986; references and summaries to papers of interest, <i>ca</i> .1986; manuscript note and typescript <i>re</i> ATPase. |
| C.206, C.207 | 'Various Russian bits and pieces'. Contents of folder so inscribed divided into two for ease of reference. Possibly related to the International Symposium on 'Molecular organisation of biological structures', Moscow, 19-24 June 1989 attended by Mitchell, see F.302-F.305. |
| | |
| Undated | |
| C.208 | 'Mathematics of exchange process'. Contents of envelope so inscribed. |
| | 27pp loose notebook pages of manuscript calculations. |
| C.209, C210 | ' Π 2'. Contents of envelope so inscribed divided into two for ease of reference. |
| C.209 | Research data. |

| C.210 | Graphs. |
|--------------|---|
| C.211 | 'IP. Insol. Ba salt.', 3pp manuscript notes with note appended <i>re</i> unpublished paper 'Hydrolytic products of a bacterial glycerophospho- compound: possible structural relationship to ribonucleic acid' with J.M. Moyle. |
| C.212, C.213 | 'Calculations of [?ion] distributions for certain special cases in mitos etc.'. Contents of folder so inscribed, divided into two for ease of reference. |
| C.212 | 'Case I' and 'Case II' manuscript and typescript notes and calculations. |
| C.213 | Manuscript notes and calculations entitled 'Working of Case III', 'Case IV', 'Working of Case IV', 'Working of Case IV 2' and untitled. |
| C.214 | 'Relationship between Δp , ΔpH and $\Delta \Psi$ '. Contents of folder so inscribed. 'Relationships between ΔpH , $\Delta \Psi$ and ion distributions in chemiosmotic systems', 4pp manuscript and typescript draft. |
| | |
| C.215 | Manuscript calculations. |
| C.216 | 'Actomyosin ATPase'. Contents of folder so inscribed. |
| | Manuscript notes and diagrams. |
| C.217 | 'Re: [?]Tapei Cunie and Slater'. Contents of folder so inscribed. |
| | Manuscript notes, research data and graphs. Some notes discuss research by 'Slater and Co' on NADH oxidation. Possibly late 1960s or early 1970s when articles by Mitchell were appearing in <i>Nature</i> . |

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Research

Figures and illustrations

| C.218, C.219 | 1960s. |
|--------------|--|
| | Figures, captions, graphs etc. 2 folders. |
| C.220-C.225 | 1970s. |
| | Figures, captions, graphs etc. 6 folders. |
| C.226-C.235 | 1980s. |
| C.226 | Graph and two charts illustrating the support of scientists for the chemiosmotic rationale over the 1960s and 1970s. |
| C.227 | Figures, captions, graphs etc. |
| C.228 | Chart and draft chart illustrating trends of opinion about cytochrome oxidase proton pumping from 1977 to 1986. Figures, graphs, tables etc. |
| C.229-C.235 | Figures, captions, graphs etc. 7 folders. |
| C.236-C.240 | Undated figures, captions, graphs etc. 5 folders. |

RESEARCH COLLABORATORS

Notebooks

J.M. Moyle

Jennifer Moyle was a co-founder of the Glynn Research Institute and long term research associate of Mitchell's.

Manuscript notebooks bound with screw fasteners and card covers, compiled by Moyle while working at the Glynn Research Institute. Arranged in chronological order. Where possible the inscription on the cover of the notebook has been reproduced in the catalogue entry, many covers are also inscribed with a table of contents.

- C.241 'Mito[deleted] Expts. [9] Oct 1964-[26] Feb 1965'. Also contains photographic material.
- C.242 'Mito[chondria] Expts. [2-29] March 1965'.
- C.243 'Mito[chondria] Expts. [5] April-[19] July 1965'.
- C.244 'Mito[chondria] Expts. [5] Aug 1965-Dec 13th 1965'.
- C.245 Lacking covers. Rat liver mitochondria experiments. 16 December 1965-16 February 1966.
- C.246 'Mito[chondria] Expts. [4] March 1966-May (deleted) [29] Nov 1966' and table of contents.
- C.247 Lacking covers. First page inscribed 'Index of Expts. Rat liver mitochondria Stoichiometries.' Covering the period 26 March 1965-18 May 1966.

| C.248 | 'December 15th 1966-September 27th 1967' and table of contents. |
|-------|---|
| C.249 | '[24] October 1967 to June 5th 1968' and table of contents. Rat liver mitochondria experiments. Some intercalated material. |
| C.250 | 'June 7th 1968-April 22nd 1969' and table of contents. Rat liver mitochondria experiments. The notebook begins on 11 June |
| C.251 | 'April 30th 1969-Sept 19th 1969' and table of contents. |
| C.252 | 'September 23rd 1969 to February 27th 1970' and table of contents. |
| C.253 | 'March 4th 1970-July 14th 1970' and table of contents. |
| C.254 | 'July 16th 1970-December 31st 1970' and table of contents. |
| C.255 | 'Jan. 1st 1971-May 13th 1971' and table of contents. |
| C.256 | 'May 14th 1971-Jan. 4th 1972' and table of contents. |
| C.257 | 'Jan. 6th 1972-Nov. 28th 1972' and table of contents. First page dated 11, 12 May 1971 but thereafter in sequence as indicated in inscription on cover. |
| C.258 | 'Dec. 1st 1972-July 6th 1973' and table of contents. |
| C.259 | 'July 10th 1973-December 19th 1973' and table of contents. |

| C.260 | 'Jan. 18th 1974-May 24th 1974' and table of contents. |
|-------|---|
| C.261 | 'October 22nd 1974-March 13th 1975' and table of contents. |
| C.262 | 'May 28th 1974-Oct 17th 1974' and table of contents. |
| C.263 | 'Mar 18th 1975-Nov 12th 1975' and table of contents. |
| C.264 | 'Nov 14th 1975-Mar. 26th 1976' and table of contents. |
| C.265 | 'Mar 30 1976-Nov 30 1976' and table of contents. |
| C.266 | 'December 10th 1976-June 9th 1977' and table of contents. |
| C.267 | 'June 21st. 1977-February 3rd 1978' and table of contents. |
| C.268 | 'February 15th 1978-October 27th 1978' and table of contents. |
| C.269 | 'November 3rd 1978-July 25th 1979' and table of contents. |
| C.270 | 'August 15th 1979-March 31st 1980' and table of contents. |
| C.271 | 'April 1st 1980-March 6th 1981' and table of contents. |
| C.272 | 'March 10th 1981-Feb 19th 1982' and table of contents. |

| C.273 | 'Feb 24th 1982-Feb 9th 1983' and table of contents. |
|-------------|---|
| C.274 | Notebook enclosed in hard cover 'Twinlock' binder with 'Moyle' inscribed on spine. Card cover inscribed 'February 17th 1983-[17] June 1983' and table of contents. |
| | Steven Clarke |
| | Clarke was a National Institutes of Health (NIH) research student at the Glynn Research Institute in the summer of 1969. See G.145. |
| C.275 | Hardcover ruled notebook inscribed on inside cover 'Steven Clarke' and '760 South Oak Knoll Ave., Pasadena, California 91106 U.S.A.' with 'Glynn Research Laboratories Bodmin, Cornwall' deleted. Research data covering the period 3 July 1969-3 September 1969. With notes and tables from published sources towards rear. Manuscript page of figures found interleaved at page 61. |
| | J.R. Mitchell |
| | Joseph Roy Mitchell joined the staff at Glynn as Chief Technician in 1965 and progressed to research work in 1970, mainly investigating the properties of the respiratory chain in mitochondria from rat liver and insect flight muscle. |
| C.276-C.283 | Eight Glynn Research Laboratories Report folders containing summarised manuscript research results from the main series of Roy Mitchell notebooks C.284-C.337. |
| | The inscriptions on the folders are reproduced in the catalogue entries. |
| C.276 | 'Summary of Experimental Results R. Mitchell [1 January] 1970-[21 December] 1972'. |
| C.277 | 'Pyrophosphatase of R. Rubrum. Summary of Experimental Results. [19] JanMarch 1972. (Roy Mitchell)'. |

| C.278 | 'MITO.[chondria] EXPTS Summary of Results R. Mitchell [2 January] 1973- [11 December] 1979'. |
|-------------|--|
| C.279 | 'BLOWFLY MITOCHONDRIA Summary of Experimental Results RM. [16 March] 1973-[24 January] 74'. |
| C.280 | 'SUMMARY OF EXPERIMENTAL RESULTS 18-6-74 - 14-3-75 NAD(P)/NAD(P)H Redox Titrations'. |
| C.281 | 'MITO.[chondria] EXPTS 20-3-75 - 28-10-76 Summary of Results (P:O Measurements)'. |
| C.282 | 'MITO.[chondria] EXPTS [3 January] 1980-[17 December] 1985'. |
| C.283 | 'R.M. EXPTS [7 January] 1986- 1991 ([10] May)'. |
| C.284 | Notebook bound with screw fasteners and card covers. Inscribed 'MITO[chondria] EXPTS. [1] Jan-10th July 1970 R. Mitchell'. First page of notebook dated 25 November 1969 but thereafter as indicated on cover. |
| C.285-C.288 | Notebooks bound with screw fasteners and hardback covers. |
| | The inscriptions on the folders are reproduced in the catalogue entries. |
| C.285 | 'MITO.[chondria] EXPTS. [15] July-[8] December 1970'. |
| C.286 | 'MITO.[chondria] EXPTS. [15] December 1970-[30] March 1971'. |
| C.287 | 'MITO.[chondria] EXPTS. [1] April-[19] August 1971'. |

| C.288 | 'MITO.[chondria] EXPTS. 24th August 1971-14th Jan. 1972'. |
|-------------|--|
| C.289-C.330 | Notebooks bound with screw fasteners and card covers. |
| | The inscriptions on the folders are reproduced in the catalogue entries. |
| C.289 | 'R. RUBRUM EXPTS [19 January] 1972-[17 March 1972]'. |
| C.290 | 'MITO.[chondria] EXPTS. (Mostly Blowfly) [16] March-[29] May 1972'. |
| C.291 | 'MITO.[chondria] EXPTS. 28th March 1972-6th July 1972'. |
| C.292 | 'MITO.[chondria] EXPTS. 11th July 1972-2nd Nov 1972'. |
| C.293 | 'MITO.[chondria] EXPTS. [3] Nov. 1972-[27] Feb. 1973' |
| C.294 | 'MITO.[chondria] EXPTS. (Blowfly flight muscle) [31] May-[25] Sept 1973'. |
| C.295 | 'MITO.[chondria] EXPERIMENTS (Mostly Sarcophaga) [27] Sept[20] Dec. 1973'. |
| C.296 | 'MITO.[chondria] EXPERIMENTS (Mostly rat liver some sarcophaga) 3rd Jan 1974-14th May 1974'. |
| C.297 | 'MITO.[chondria] EXPTS. 18th June 1974-11th Sept 1974 (NAD(P) Titrations)'. |
| C.298 | 'MITO.[chondria] EXPTS. 12th Sept. 1974-12th Dec. 1974 (Pyridine Nucleotide Titrations)'. |

| C.299 | 'MITO.[chondria] EXPTS. 13th Dec. 1974-14th March 1975 (NAD(P) Titrations)'. |
|-------|--|
| C.300 | 'MITO.[chondria] EXPTS. 20th March 1975-16th July 1975'. |
| C.301 | 'MITO.[chondria] EXPTS. 18th July 1975-5th Dec. 1975 (P:O Ratio and ATP Synthesis using TH)'. |
| C.302 | 'MITO.[chondria] EXPTS. 9th Dec. 1975-27th April 1976 ATP [?Assays] (G6PDH and HK and Firefly [?Lantern] Extract) During activation of the Transhydrogenase loop'. |
| C.303 | 'MITO.[chondria] EXPTS. 29th April 1976-21st Sept. 1976 ATP Assays in Samples Taken During Activation of the Transhydrogenase loop. G6PDH/HK and FLE'. |
| C.304 | 'MITO.[chondria] EXPTS. 28th Sept. 1976-22nd Feb. 1977 ATP synthesis by transhydrogenase?' |
| C.305 | 'MITO.[chondria] EXPTS. 24th Feb. 1977-27th June 1977' |
| C.306 | 'MITO.[chondria] EXPERIMENTS. 28th June 1977-27th Oct 1977' |
| C.307 | 'MITO.[chondria] EXPTS. 28th Oct. 1977-28th Feb. 1978' |
| C.308 | 'MITO.[chondria] EXPTS. 1st March 1978-6th July 1978' |
| C.309 | 'MITO.[chondria] EXPTS. 7th July 1978-23rd Oct 1978 NAD/NADP and Substrate Assays'. Final entry in notebook dated 20 October 1978. |

| C.310 | 'MITO.[chondria] EXPTS. 25th Oct 1978-14th March 1979 NAD. NADP and substrate assays'. |
|-------|--|
| C.311 | 'MITO.[chondria] EXPTS. 15th March 1979-19th July 1979 [?] Pyrioline Nucleotide Assays'. |
| C.312 | 'MITO.[chondria] EXPERIMENTS 24-7-79 - 30-11-79 Pyrioline Nucleotide and Ubiquinone Assays'. |
| C.313 | 'MITO.[chondria] EXPERIMENTS 3-12-79 - 10-6-80 Ubiquinone Assays NAD ⁺ and NADP ⁺ Assays etc'. |
| C.314 | 'R.L. Mito Expts 11th June 1980-24th Nov 1980'. |
| C.315 | 'R.L. Submitochondrial Particle Expts. 25th Nov. 1980-5th May 1981'. |
| C.316 | 'S.M.P. Expts. 6th May 1981-24th Sept. 1981'. |
| C.317 | 'S.M.P. Expts. 1st Oct 1981-15th March 1982'. Final entry in notebook dated 8 March 1982. |
| C.318 | 'S.M.P. and Mito[chondria] Expts. 16th March 1982-11th Nov. 1982 (Inc. Wil Konings Expts.).' |
| C.319 | 'Mito[chondria] Expts 16th Nov. 1982-19th April 1983 Mostly \rightarrow Ca ⁺ measurements'. Final date in notebook 29 April 1983. |
| C.320 | 'Mito[chondria] and COV Expts. 4th May 1983-11th Oct 1983'. |

| C.321 | 'C.O.V. Expts (and some with mitos during Wikströms visit) 19th Oct 1983- 23nd March 1984'. See G.1154-G.1173. |
|-------|--|
| C.322 | 'COV and Mito[chondria] Expts 29-3-84 - 1-11-84'. |
| C.323 | 'MITO.[chondria] EXPTS 2nd Nov. 1984-3rd April 1985'. |
| C.324 | 'MITO.[chondria] EXPERIMENTS 12th April 1985-17th Dec. 1985'. |
| C.325 | 'MITO and CYT. c OXIDASE EXPTS 7-1-86 - 28-8-86'. |
| C.326 | 'MITO and Cyt. Oxidase Expts 3-9-86 - 26-6-87'. |
| C.327 | 'Experiments 1-7-87 - 9-3-88'. |
| C.328 | 'Experiments. (Mostly Cyt oxidase) 10-3-88 - 30-11-88'. |
| C.329 | 'Experiments [1] December 1988-[26] Sept 1989'. |
| C.330 | 'Experiments 5th Oct. 1989-22nd Aug 1990'. |
| C.331 | Notebook bound in hardcover 'Twinlock' binder. Dates on spine read '23-8- 90 - 14-2-91'. |
| C.332 | Green A4 ringbinder labelled on spine 'R.M. Lab. Work 18-2-91 - 16-7-91'. Further notes towards rear under various headings including 'Cytochrome Oxidase (Wikströms Review)', 'Kinetics' and 'Aprotic Solvents', and notes on experimental results from the 1970s and 1980s. |

| C.333 | Black A4 ringbinder labelled on spine 'R.M. Lab. Work 17-7-91 - 25-10-91'. |
|------------------------------|---|
| C.334-337 | Four red A4 sized hardcover ruled notebooks used for laboratory research. The inscriptions on the folders are reproduced in the catalogue entries. |
| C.334 | 'R.M. 28-10-91 - 5-5-92' |
| C.335 | 'R.M. 6-5-92 - 15-10-92'. |
| C.336 | 'R.M. 16-10-92 - 17-6-93'. |
| C.337 | 'R.M. 22-6-93 - 7-4-94'. |
| Research notes of J.M. Moyle | |

C.338 <u>BIOCHEMICAL JOURNAL. Paper No.1171.</u> <u>Nucleic Acid Metabolism of</u> <u>Escherichia coli</u>. By M. Stephenson and J.M. Moyle (Received 13 December 1948) Editors (1) Dr. McIlwain (2) Dr. Greville'. Contents of folder so inscribed.

Draft figures; research data; correspondence *re* arrangements for attendance at 278th Meeting of the Biochemical Society, University College Dundee, 29 July 1949; 2pp annotated typescript with captions and photographs; referees' reports on paper dated 29 December 1948 and 14 March 1949.

C.339, C.340 'Enzyme and Carrier Systems of the Plasma-membrane of Staphylococci: Accessibility to Substrates and Inhibitors Approaching from the External and Internal Media' by J.M. Moyle. *ca.* 1958.

C.339 26pp manuscript draft.

| C.340 | 23pp typescript and manuscript draft. |
|--------------|--|
| C.341-C.397 | Folders of experimental data some of which appears on light sensitive paper. 29 March 1967-11 January 1983. Where applicable the inscription on the original folders has been reproduced in the catalogue entries. |
| C.341 | 'March 29th 1967'. |
| C.342 | 'Sept. 4th 1967'. |
| C.343, C.344 | 'Nov. 28th 1967'. 2 folders. |
| C.345, C.346 | 'March 29th 1968'. 2 folders. |
| C.347 | 'May 3rd [19]68'. |
| C.348 | '17 January [19]69'. |
| C.349, C.350 | 'July 31st 1969'. 2 folders. |
| C.351 | '10th December 1969'. |
| C.352 | '18 February [19]70'. |
| C.353 | '13 May 1970'. |
| C.354, C.355 | '(New techn[ique])'. Contents of folder so inscribed divided into two for ease of reference. 21 October 1970-26 January 1971. |

| C.354 | 21, 22, 27, 29 October 1970. |
|--------------|-----------------------------------|
| C.355 | 6 November 1970, 26 January 1971. |
| C.356 | 'Nov 20th [19]70'. |
| C.357 | 'Nov. 19th 1971'. |
| C.358, C.359 | 18 May-6 June 1972. |
| C.358 | 18, 19, 25 May 1972. |
| C.359 | 5, 6 June 1972. |
| C.360 | '20th July 1972'. |
| C.361 | 'Nov. 3rd. 1972'. |
| C.362 | 'Nov 8th [19]73'. |
| C.363 | '28th February 1975'. |
| C.364 | '8th October 1975'. |
| C.365 | '2nd Feb 1976'. |

| C.366 | '2nd April 1976'. |
|--------------|------------------------------|
| C.367 | '18th August 1976'. |
| C.368, C.369 | 17-19 May 1977. |
| C.368 | 17, 18 May 1977. |
| C.369 | 19 May 1977. |
| C.370, C.371 | 19-21 July 1977. |
| C.370 | 19, 20, July 1977. |
| C.371 | 21 July 1977. |
| C.372, C.373 | 14 June-21 July 1978. |
| C.372 | 14 June, 19 July 1978. |
| C.373 | 20, 21 July 1978. |
| C.374-C.376 | 26 September-6 October 1978. |
| C.374 | 26, 28 September 1978. |
| C.375 | 3 October 1978. |

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| C.376 | 4, 6 October 1978. |
|--------------|--------------------------|
| C.377, C.378 | 5-12 April 1979. |
| C.377 | 5, 6 April 1979. |
| C.378 | 11, 12 April 1979. |
| C.379-C.382 | 10 February-6 March 1981 |
| C.379 | 10, 11 February 1981. |
| C.380 | 17, 18 February 1981. |
| C.381 | 25 February 1981. |
| C.382 | 6 March 1981. |
| C.383-C.387 | 1 July-4 August 1981. |
| C.383 | 1 July 1981. |
| C.384 | 21, 22 July 1981. |
| C.385 | 28 July 1981. |
| C.386 | 31 July 1981 |

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| C.387 | 4 August 1981. |
|-------------|----------------------------------|
| C.388-C.393 | 19-29 April 1983. |
| C.388 | 19 April 1983. |
| C.389 | 20 April 1983. |
| C.390 | 22 April 1983. |
| C.391 | 26, 27 April 1983. |
| C.392 | 29 April 1983. |
| C.393-C.397 | 7 December 1982-11 January 1983. |
| C.393 | 7 December 1982. |
| C.394 | 8 December 1982. |
| C.395 | 14, 15 December 1982. |
| C.396 | 21 December 1982. |
| C.397 | 11 January 1983. |
| C.398 | Manuscript figures ca. 1970 |

| C.399, C.400 | Contents of folder divided into two for ease of reference. C.399 is contents of a folder found within this. |
|--------------|---|
| C.399 | 'Notes on building the time machine'. Contents of folder so inscribed. Manuscript figures <i>ca</i> . August 1984. |
| C.400 | Manuscript figures <i>ca.</i> 1987. |