

Catalogue of the papers and correspondence of

Joseph Needham CH FRS

(1900 - 1995)

VOLUME I

Introduction

Sections A - D

by Timothy E. Powell and Peter Harper
NCUACS catalogue no. 54/3/95

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(1900-1995), biochemist and historian of science

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GENERAL INTRODUCTION

PROVENANCE

The papers were received in September 1992 from Cambridge University Library.

OUTLINE OF THE CAREER OF JOSEPH NEEDHAM

Noel Joseph Terence Montgomery Needham (known as Joseph) was born in London on 9 December 1900, the son of Joseph Needham (1852-1920) and Alicia Adelaide Needham, née Montgomery (1863-*ca.*1940). His father was a London doctor specialising in anaesthetics and his mother achieved some fame as a pianist and composer of songs. Joseph Needham was educated at Oundle School 1914-1918 and Gonville and Caius College, Cambridge 1918-1922 where he studied for the Natural Sciences Tripos, specialising in physiology with biochemistry as a subsidiary subject. Needham then went on to postgraduate research in the Cambridge Biochemistry Department under Frederick Gowland Hopkins. He held a Benn Levy Studentship 1922-1924, studying the biochemistry of inositol. He was elected a Fellow of Gonville and Caius College in 1924 and in the same year married Dorothy Mary Moyle (1896-1987), a fellow researcher in the Department. Dorothy Needham was to become an eminent biochemist in her own right (FRS 1948). Needham was appointed University Demonstrator in Biochemistry in 1928 and in 1933 succeeded J.B.S. Haldane as Sir William Dunn Reader in Biochemistry. He held this post until 1966 when he became Master of Gonville and Caius College. He retired from the Mastership in 1976.

Needham's early biochemical research focused on embryology. He studied the development of a complex and sophisticated organism with specialised organs from a single fertilised egg-cell. In his three volume book *Chemical Embryology* published in 1931, Needham explained embryological development as a chemical process, rejecting the view that such development was caused by an undefined vital spark. He then extended this work with research into various aspects of morphology, culminating in his 1942 book *Biochemistry and Morphogenesis*. As well as these two books, Needham produced three other major books on biochemistry and numerous scientific papers.

He combined this high rate of productivity in biochemistry with a prolific output of articles on religious, political and philosophical subjects. Many of these were subsequently republished in Needham's four collections of articles and essays *The sceptical biologist* (1929), *The Great Amphibium* (1931), *Time the refreshing river* (1943) and *History is on our side* (1946). Needham also gave many lectures, likewise on philosophical, religious and political subjects in addition to those of purely

biochemical interest. Of particular note are the 1935 Terry Lectures on 'Order and Life' delivered at Yale University, and his Herbert Spencer lecture 'Integrative levels; a revaluation of the idea of Progress' at Oxford, May 1937.

As well as his contributions to the development of biochemistry in Cambridge Needham was an important figure in the establishment of the history of science as an academic discipline at Cambridge. He was a founder member of the History of Science Lectures Committee in 1936 which set up a programme of lectures in the history of science, featuring some of the greatest scientists of the time - including Barcroft, W.H. Bragg, Haldane, Eddington, Hopkins and Rutherford - lecturing on the history of their disciplines. After the Second World War he served on the History of Science Committee and the History and Philosophy of Science Committee until 1971. Needham was also a leading figure in the International Union of the History and Philosophy of Science. He served on the Council of the Division of the History of Science 1969-1977 (President 1972-1974) and was President of the Union 1972-1975.

Needham's interest in China was awakened by Chinese students at Cambridge from the mid 1930s. He began to learn Mandarin Chinese and study Chinese history, particularly the Chinese contribution to science which he believed had been overlooked by western historians. Needham also became an enthusiastic supporter of British academic assistance to Chinese universities. Joseph and Dorothy Needham volunteered to go to China to help in reconstruction of academic science there. The outbreak of war in Europe set back their plans but in 1942 Needham went to China as Head of the British Scientific Mission and later Scientific Counsellor to H.B.M. Embassy at Chungking (then the 'acting-capital' of China). He also acted as advisor to various arms of the Chinese government and military. Under the auspices of the British Council Needham established the Sino-British Science Cooperation Office (SBSCO). The SBSCO was responsible for assessing the needs of Chinese scientific, technological and medical institutions and researchers, and facilitating the supply of equipment and medicines, books and journals to China. Needham was Director of the SBSCO and Dorothy Needham was Associate Director.

The success of the SBSCO was the immediate inspiration for Needham's vision of postwar international science co-operation. With the form of the future United Nations organisation under intense discussion Needham sent three memoranda to a wide range of political and scientific leaders pressing for the inclusion of scientific co-operation under its auspices. He argued that the proposed United Nations Educational and Cultural Organisation should include science within its remit and he may have been the first to use the abbreviation 'UNESCO'. It was appropriate that in 1946 when Needham left the SBSCO he was appointed the first Director of the Section of Natural Sciences of UNESCO. He served for two years.

On his return to Cambridge in 1948 Needham began work on his new project - a history of the contribution of China to science and civilisation. This monumental work was to occupy Needham for most of the rest of his life; the first volume of *Science and Civilisation in China* appeared in 1954 and by his death it had run to sixteen volumes. Among those Chinese students who had first encouraged Needham's interest in China was Lu Gwei-Djen, a research student studying under Dorothy Needham in the late 1930s. The Needhams became close friends with Lu and their careers came together again when she returned to Cambridge in 1957 to assist Needham in this work. This immense work of scholarship found a permanent home with the later establishment in Cambridge of the Needham Research Institute as a centre for research on Chinese science. Needham's interest in Chinese civilisation led to his appointment in 1949 to the University Faculty Board of Oriental Languages (later Oriental Studies).

Needham's political sympathies lay very much with the Left. He was a member of the Labour Party and in the 1930s served on the executive committee of the university branch. Needham was on the left of the party and from 1933 was Chairman of the Cambridge branch of the Socialist League. This was dissolved in 1937 following its expulsion from Labour Party for launching a 'Unity Manifesto' with the Independent Labour and Communist parties. In the 1930s Needham was also an active member of the Cambridge Scientists Anti-War Group, which campaigned against militarism and played an important part in securing better air raid precautions by illustrating the inadequacies of government preparations. From 1937 to 1939 Needham served as Treasurer of the Cornford-Maclaurin Memorial Committee. This was established in memory of two Cambridge men killed fighting with the International Brigade to raise funds for the republican cause in Spain. On the outbreak of the Second World War, Needham participated in discussions among Communist Party members and others on the Left as to whether they should support the British war effort. After the German attack on the USSR in 1941 Needham was active in promoting Anglo-Soviet friendship until his departure for China.

After the war Needham supported peace and disarmament campaigns. His strong sympathies for China led to his being a founder of the Britain-China Friendship Association, of which he was President, and its successor the Society for Anglo-Chinese Understanding, of which he was Chairman. In 1952 Needham served on an international scientific commission investigating alleged American use of bacteriological weapons in North Korea and China. The commission's report concluded that the US had indeed been using such weapons and this led to intense criticism of Needham in the UK. Needham opposed the Vietnam war and this led him to refuse invitations to conferences or to lecture in the USA during the 1960s and early 1970s. Needham was also much

concerned for human rights and civil liberties, both at home and abroad, and believed strongly in the social responsibility of the scientist.

Needham was a religious man. From his student days he was a high church Anglican but combined this with a commitment to social justice. In the 1930s Needham was active in propagating a highly political Christianity emphasising its closeness to Marxism. He was a member of the *ad hoc* editorial board behind the controversial book *Christianity and the social revolution* (1935), to which he also contributed a chapter 'Laud, the Levellers and the Virtuosi'. This and writings such as *The Levellers and the English revolution* (1939), published under the name 'Henry Holorensaw', linked radical Christianity of the seventeenth century with the politics of the twentieth century. In later years Needham was drawn to Daoism, which he believed offered hope of reconciliation between science and religion. This concern also led to his Presidency of the Teilhard de Chardin Centre for the Future of Mankind. His religious outlook notwithstanding, Needham was also an Honorary Associate of the Rationalist Press Association.

Needham was elected to the Fellowship of the Royal Society in 1941 and in 1971 elected a Fellow of the British Academy, thus becoming one of very few to attain this double distinction. In 1992 he was appointed a Companion of Honour. He also held many honorary Chairs, fellowships and doctorates worldwide. Needham died in 1995, outliving both Dorothy Needham, who died in 1987, and his second wife Lu Gwei-Djen, whom he had married in 1989 but who died in 1991.

DESCRIPTION OF THE COLLECTION

The material is presented in the order given in the List of Contents. The collection is very extensive and includes important records of Needham's family background, his career as a biochemist, his work with the Sino-British Science Cooperation Office and UNESCO, and his political and religious interests.

Section A, Biographical, is the largest in the collection. Needham's childhood and school-days are represented chiefly by correspondence with his parents. His period as an undergraduate and postgraduate at Cambridge is documented by correspondence with his mother and material concerning his religious activities, including his membership of the Oratory of the Good Shepherd and the Guild of St Luke and some of his religious writings. Needham's later career is less well documented, although there is material relating to his election to the Fellowship of the Royal Society in 1941.

The largest component of the section is the papers of his mother, Alicia Adelaide Needham, which were inherited by Joseph Needham on her death. These include her autobiography 'A Daughter of Music', her diaries covering the period 1879-1924, a long sequence of her musical compositions (many of which were published) together with other material relating to her career as pianist and composer, and an extensive correspondence 1877-1921. In addition there is a little material relating to Needham's father and maternal grandfather. Family material also includes papers relating to Needham's cousin Elizabeth Montgomery Wilson, a nurse who served in the 1899-1902 South African War. The papers include photographs, letters and memorabilia from her time in South Africa.

The section also documents some of the trades union and charitable bodies with which Needham was associated, social engagements and functions (many at Cambridge 1919-1937), and family and personal finance 1933-1959.

Section B, Cambridge, includes documentation of the Department of Biochemistry, general University matters, the development of history of science at Cambridge, the Faculty of Oriental Studies and Gonville and Caius College. The bulk of the material relates to the Department of Biochemistry. This is chiefly syllabuses, bibliographical references, notes on the literature, annotated offprints etc used for Needham's lectures on biochemistry to postgraduates in the 1950s and 1960s. There is also significant material regarding the funding of research in the Department, 1925-1943, and visitors to the Department. Also of interest is correspondence and papers relating to Needham's contribution to the co-ordination of wartime biological and biochemical research in Cambridge. This includes papers of the Biochemistry Subcommittee of the Advisory Research Council of the Chemical Society and the Biology War Committee, set up to continue the co-ordination of research.

The documentation of Needham's role in the establishment of the history and philosophy of science as an academic discipline in Cambridge University includes papers from the History of Science Lectures Committee 1936-1937 and, postwar, the History of Science Committee and the History and Philosophy of Science Committee.

Section C, Sino-British Science Cooperation Office (SBSCO), includes correspondence on the origins of the China mission, chiefly relating to the Needhams' support for Chinese academics and students 1939-1942 and arrangements for Needham's journey to China in 1942, and correspondence from Needham's time in China and later correspondence arising from the contacts he made while in China. There are also Needham's manuscript notes on his visits to scientific, medical, industrial and educational institutions throughout China, manuscript and typescript drafts for lectures - frequently delivered in association with his visits to various institutions, detailed reports of travels within China

for the British Council, and publications arising from his work, including accounts for *Nature* and material relating to his book *Science Outpost* in which he described the work of the SBSCO.

Section D, United Nations Educational, Scientific and Cultural Organisation (UNESCO), documents Needham's role in the establishment of UNESCO and his Directorship of the Section of Natural Sciences. From an early date Needham kept material he believed would be of historical significance, particularly those papers relating to his three memoranda on the establishment of international science co-operation and the creation of UNESCO. The largest component is material relating to the Section of Natural Sciences 1946-1948. There are also papers from meetings of the UNESCO General Conference, administrative papers and correspondence from the UNESCO Executive, and papers relating to the project for a Scientific and Cultural History of Mankind. The section also includes papers of the British Committee for Co-operation with UNESCO in the Natural Sciences.

Section E, Undergraduate and research work, presents a record of Needham's work in biochemistry and embryology from undergraduate notes and essays, postgraduate studies and research in embryology and morphology in the 1920s and 1930s, to research completed just before his departure for China in 1942. There are notebooks used for undergraduate notes on lectures by many leading Cambridge scientists including Hopkins, H. Hartridge, R.A. Peters and Barcroft, notebooks used during long vacation courses, and notebooks covering research from 1921 to 1943. The research notebooks are particularly striking for the high quality of information they present. The entries usually identify the nature of the experiment and its date and are often annotated with remarks on why the results of particular experiments were not as expected, what might have gone wrong and how this might be remedied. The section also includes undergraduate and postgraduate lecture notes, notes on the literature, and research material 1924-1942. The research material was mostly found in Needham's folders with a note of the subject inscribed thereon. The notes, bibliographical references, offprints and correspondence found in these folders may cover a period of many years, reflecting Needham's continuing interest in all aspects of research into embryology and morphology.

Section F, Publications, is extensive but chiefly relates to Needham's pre-war and wartime publications. Included in the section are not only drafts of many of his scientific papers and books but also writings on philosophical, religious and political themes. A number of his more scientific works are particularly well-documented. These include his philosophical monograph *Man a Machine* (1927) and his two most significant biochemistry books *Chemical Embryology* (1931) and *Biochemistry and Morphogenesis* (1942). Among Needham's political writings represented are his article 'Laud, the Levellers and the Virtuosi', published in *Christianity and the social revolution* (1935), and *The Levellers and the English revolution* (1939), which was published under the name 'Henry

Holorenschaw'. There is also good documentation of the books *The sceptical biologist*. (1929), *The Nazi Attack on International Science* (1941), *Science in Soviet Russia* (1942), and his two final collections of articles *Time the refreshing river* and *History is on our side*, published in 1943 and 1946 respectively. Needham's later publications represented include his paper 'History and Human Values: a Chinese perspective for world science and technology', published in the *Centennial Review* and subsequently in *The radicalisation of science. Ideology of/in the natural sciences* (1976) edited by S.P.R. and H. Rose.

The section also includes a number of Needham's translations of Polish and Chinese texts, including *Green Thralldom* by Tang Pei-Sung (1949), extensive editorial correspondence, including requests to write articles or books, and an incomplete set of Needham's offprints.

Section G, Lectures and broadcasts, presents some of Needham's public and invitation lectures delivered on scientific, philosophical, political and religious subjects 1921-1977. There is also a little material relating to broadcasts. Among Needham's lectures documented here are the Terry Lectures on 'Order and Life' at Yale University, 1935, the Herbert Spencer lecture on 'Integrative levels', Oxford, 1937, the Schiff Foundation Lecture on 'The position of science in Europe today', delivered at Cornell University, October 1940, and his 1961 commemorative lecture on 'The Life and Work of Sir Frederick Gowland Hopkins' delivered at Cambridge. The section also includes invitations either declined or for which there is no evidence or acceptance, 1927-1974. Broadcasts material includes a BBC radio talk by Needham on 'Recent advances in medical science', broadcast from Glasgow, 19 August 1923.

Section H, Visits and conferences, presents a chronological sequence of material relating to some of Needham's visits and conferences 1920-1984. It is similar to sections F and G in representing not only Needham's biochemical interests but also his political and religious concerns. Thus the section includes conferences of the Student Christian Movement held at Swanwick in Derbyshire in the 1920s and 1930s and the 1936 World Congress of Faiths. There is correspondence and papers relating to his visit to the USA in 1940, during which scientific engagements were combined with lectures on the position of science in Europe, with particular emphasis on the damage to scholarship caused by the Nazis. Also particularly well-documented are the 220th Anniversary of the Academy of Sciences of the USSR, June 1945, the First International Congress of Biochemistry, Cambridge, August 1949, Needham's visit to the USA March - May 1950 as the Hitchcock Visiting Professor at the University of California, Berkeley, and the First Congress of Polish Science held in Warsaw, 1951. The sequence includes many invitations declined. From the late 1950s Needham declined many invitations, being occupied with his work on *Science and Civilisation in China*, and he also

refused to visit the USA during the period of American involvement in Vietnam as an expression of his disapproval of US government policy.

Section J, Societies and organisations, is substantial. It brings together documentation of Needham's involvement with 44 British and international societies and organisations. However, the material relating to scientific societies is disappointing. Perhaps of most interest are papers of the Theoretical Biology Club, an informal gathering of biologists and others established by J.H. Woodger in 1932 to discuss philosophical implications of developments in the biological sciences, and papers from meetings of the Society of Experimental Biology and the Physiological Society. Needham's interest in the history of science is better documented in the papers of a number of organisations including the Académie Internationale d'Histoire des Sciences and the International Union for the History and Philosophy of Science. Needham's international outlook is illustrated by his chairmanship of the Commission on the University of Ceylon in 1958, for which there is extensive documentation, and his support of the World Academy of Art and Science from its foundation in 1959. Other societies and organisations for which there is substantial material include the Louis Rapkine Memorial Fund Appeal and the British Society for Social Responsibility in Science.

Section K, Politics, documents Needham's wide-ranging and active involvement in politics of the Left. Pre-war material includes documentation of the Labour Party in Cambridge in the mid-1930s, including Dorothy Needham's campaigns as a Labour candidate for Cambridge City Council in 1935 and 1936, and the Cambridge Scientists Anti-War Group. There are also comprehensive records of fund-raising for the Cornford-Maclaurin Memorial Committee, and notes of the discussions which took place among Cambridge Communists and sympathisers on the outbreak of the Second World War as to whether they should support the British war effort. Post-war documentation suggests Needham played a less active role in British political life. Most of this material relates to his support of peace and disarmament campaigns.

Needham's international outlook, naturally focused on China, is well-represented in the papers. After the establishment of the People's Republic in 1949 Needham was keen to strengthen links between the Peking government and the UK. Both the Britain-China Friendship Association and its successor organisation the Society for Anglo-Chinese Understanding are documented, especially the response of these organisations to the border dispute between India and China, the ideological conflict between China and the USSR and the Cultural Revolution. There is also material relating to the 1952 International Scientific Commission investigating the alleged US use of bacteriological weapons in North Korea and China, opposition to the Vietnam war, and to Needham's concern about human rights abuses worldwide, reflected in papers of organisations such as Amnesty International.

The section also includes material relating to Needham's interest in civil liberties, academic freedom and the role of the scientist as political activist. Represented are organisations such as the Association of Scientific Workers, the National Council for Civil Liberties, the Society for Freedom in Science and the World Federation of Scientific Workers. There is also a little material on environmental causes, most notably the Anti Concorde Project 1967-1975.

Section L, Religion and society, represents Needham's more religious and philosophical concerns. It includes documentation of his association with various religious (and humanist) organisations including the Oldham Group and the Teilhard Centre for the Future of Man, and religious and philosophical literature including tracts, sermons and offprints. Much of this is concerned with the relationship between science and religion.

Section M, Correspondence, consists of a sequence of longer exchanges arranged alphabetically by correspondent, a sequence of shorter exchanges and single letters arranged chronologically and, for convenience, sequences of correspondence relating to China, Poland and the Soviet Union, and with British and international orientalists, kept together by Needham. Correspondents of particular note include Jean Brachet, the refugee German scientist J.K.F. Holtfreter, the Roumanian scientist Basile Marza, C.H. Waddington and J.H. Woodger, founder of the Theoretical Biology Club. The pre-war correspondence is chiefly incoming letters, there are few carbon copies or drafts of outgoing letters. Most of the letters relate to some aspect of Needham's scientific research. The postwar correspondence has a higher proportion of letters relating to Needham's philosophical, political and religious concerns.

It should be noted that there is extensive correspondence throughout the catalogue. Much of Needham's correspondence is to be found in other sections where it is retained with the material with which it was found.

There is also a conspectus to the partial listing of Needham papers and correspondence compiled by G. Werskey in 1968 and an index of correspondents.

A.642-A.655	CLUBS, ASSOCIATIONS AND OTHER INTERESTS
A.656-A.677	SOCIAL ENGAGEMENTS AND INVITATIONS
A.678-A.693	FINANCIAL
A.694, A.695	MISCELLANEOUS

BIOGRAPHICAL AND AUTOBIOGRAPHICAL

- A.1 Obituaries of Needham, 27 March 1995:
The Times.
Daily Telegraph.
Guardian.
Independent. With reminiscences, 29 and 30 March and 24 April 1995.
- A.2 Biographical notes ca.1936, ca.1947 (compiled for UNESCO Section of Natural Sciences) and 1948 (compiled for unidentified Chinese institution).

Entry from *Who's Who*, 1995.
- A.3, A.4 Bibliographies.
- A.3 1927, 1932.
- A.4 1934, ca.1937.
- A.5, A.6 'Joseph Needham, a great amphibian'.

Typescript draft of chapter four of *The Rebirth of Organic Form: an Organismic Paradigm in Twentieth Century Developmental Biology* by D.J. Haraway (Yale, 1975) sent to Needham by the author. Paginated 155-225. 2 folders.

The chapter describes the part Needham played in linking biochemistry with morphogenesis in the 1930s.
- A.7-A.9 Correspondence with J.A. Witkowski, 1980-1986. 3 folders.

Witkowski researched into the history of biochemistry and embryology. He drafted papers on biochemical work on the evocator in the 1930s (at A.8) and on the Cambridge school of chemical embryology 1920-1942 (at A.9), both of which centred on the work of Needham.

- A.10 Correspondence with H.F. Bradford, Honorary Archivist of the Biochemical Society, *re* videotaped interviews of Needham's recollections, 1986.
- A.11-A.13 Other requests for autobiographical information and historical or philosophical reflections.
- A.11 Correspondence 1972-1978.
- A.12 13pp typescript of interview with Theresa Brennan about the historian Gordon Childe, 17 March 1977.
- A.13 Correspondence *re* J.H. Quastel, 1985, 1987.
- A.14-A.17 'The personal papers of Dr. Joseph Needham, F.R.S.: A Preliminary Catalogue by Gary Werskey...August 1968'. 89pp photocopied typescript and manuscript. 4 folders.
- A.18 Passport, 1935-1945. Includes travel permits enclosed at front.

CHILDHOOD

- A.19-A.29 Infancy
- A.30-A.43 Oundle School

Infancy

- A.19-A.21 Birth and Christening.
- A.19 Letters and telegrams of congratulations on birth, enquiries after health of mother and son etc.
- A.20 Memorabilia from Christening, 28 February 1901, including telegrams of good wishes.

- A.21 Miscellaneous memorabilia.
- A.22, A.23 'Letters about Darling Little Baby'. Contents of envelope so inscribed divided into two for ease of reference.
- A.22 Correspondence from nurse to mother, reporting on the baby's welfare, July 1901.
- A.23 Miscellaneous memorabilia, including material 1902, 1903.
- A.24, A.25 Letters from nurse and maid to his mother (visiting Ireland), reporting on the baby's welfare, *ca.* April-May 1902. 2 folders.
- A.26 Early letters from Needham to his mother.
- A.27 Letters from parents to Needham 1902-1906.
- A.28 Letters from parents to Needham 1907-1908.
- Letter from Needham, on holiday in France, to father, 19 April 1913.
- A.29 Childhood drawings and other memorabilia.

Oundle School

See E.1-E.4 for notebooks which include science notes from Oundle School.

- | | |
|-----------|---|
| A.30-A.38 | Correspondence between Needham at Oundle School, and parents, 1914-1918. |
| A.30 | 1914. |
| A.31 | 1915 January, February. |
| A.32 | 1915 May. |
| A.33 | 1915 June, July. |
| A.34 | 1915 November. |
| A.35 | 1916 January - June. |
| A.36 | 1916 September - December. |
| A.37 | 1917, 1918. |
| A.38 | Nd. |
| A.39 | Letters from staff at Oundle to Needham's parents, chiefly <i>re</i> Needham's health, 1914-1917. |

- A.40 Hardback notebook inscribed on first pages alternately 'History notes volume ii' and 'Vol. 3 (notes) History notes. From "The Black Death" to '. Used Easter and Summer terms 1916. Paginated 1-82, with index at back. Not all pages used. Intercalated loose is duplicated manuscript French and Greek teaching material.
- A.41 Essay on 'Roman Medicine', 15pp manuscript.
- A.42 Manuscript essays on 'My first operation', 4pp, 20 January 1917; 'A true war memorial', 4pp; 'The king who fights his subjects fights himself', 4pp; 2pp English essay; 4pp essay on D.W. Griffiths.
- A.43 Miscellaneous material from school years, including manuscript poems 'The younger generation', 15 May 1917; 'Questions', August 1917; and untitled.

UNDERGRADUATE AND POSTGRADUATE

For undergraduate and postgraduate notebooks and notes see section E.

First World War

- A.44 Papers *re* service in Cambridge University Officer Training Corps, 1918; ration book.

King's College London

- A.45 Timetable for Faculty of Science, 1917-1918; annotated Zoology examination papers, June 1918; timetable for occasional student in Faculty of Medical Science, 1919-1920; calendar of advanced lectures in physiology, 1919-1920; manuscript notes on morbid anatomy.

Gonville and Caius College Cambridge

Academic

- A.46 Correspondence *re* admission to Gonville and Caius, 1918.
- A.47 Booklet of Previous Examination papers, October 1917, probably used in preparation for taking the examination in March 1918; annotated Previous Examination papers, March 1918.
- A.48 Examination papers for Preliminary Examination in science, 1918; Natural Sciences Tripos examination papers 1920, 1922; first page of essay on 'Blood as a Tissue', inscribed 'Caius Nat. Sci. Essay Prize 21.vi.'21'.
- A.49 List of College residents 1919; manuscript timetables; manuscript notes on work to be done; etc.

Religious societies

- A.50 Guild of St Luke.
- Needham was admitted to the Guild in 1919. His name was removed from the membership list in 1936.
- Pocket manual; calendars; letter informing Needham of the removal of his name from the membership list, 11 November 1936.
- A.51-A.53 Church of the Holy Spirit, Clapham.
- Needham served at the Church during vacations.
- Church newsletters, calendars etc, 1920-1923. 3 folders.
- A.54-A.61 The Oratory of the Good Shepherd.
- This was an Anglican fellowship established in 1913. The headquarters in Cambridge provided a semi-communal Anglo-Catholic environment.
- /...
.../
Needham applied to join the Oratory as a probationer in 1920 and 1921, and was admitted as a novice from 1921. He was resident at Oratory House.

- A.54 Printed material 1915, 1916, 1919; application to reside in Oratory House and begin noviciate from October 1920; list of the confraternity and calendar; application to become a probationer and reside at Oratory House.
- A.55 Pocket notebook inscribed on first page 'O. G. S. Register of Rcts and payments' September 1921 - 1923. Most pages not used.
- A.56 Hardback pocket notebook inscribed inside front cover '...Admitted to Noviciate, 10.ix.'21. Professed...' and on first page 'Faults in the Rule of O.G.S.'. Used to record his own failings in performing the duties of the Oratory September 1921 - ?January 1922. Most pages not used.
- A.57 Hardback notepad inscribed on first page '..Retreat addresses'. Used for texts of Needham's sermons given while on OGS annual retreat 1921. In pocket at back are loose notes from OGS retreats 1920 and 1922. Most pages not used.
- A.58 Needham's manuscript notes on the Rule of the OGS and personal religious observances; 12pp manuscript draft 'Apology for the Scientific Work of the Oratory' by Needham.
- A.59 Miscellaneous OGS papers, including duplicated manuscript notes of meetings, calendars etc, 1921.
- A.60 Correspondence from OGS members in Cambridge and overseas, March - May 1922 and nd; miscellaneous OGS papers, including duplicated manuscript notes of meetings, etc, 1922, 1923, 1925.
- A.61 Annual reports 1920-21 - 1940-41. Not a complete sequence.

- A.62 Confraternity of the Holy Trinity.

Needham was admitted as a member in October 1920.

Pocket manual.

Religious and literary writings

- A.63-A.67 Religious verse, notes on the religious life etc.
- A.63 Exercise book inscribed on front cover 'Sound' but used for 'Abstracts of books bearing on the religious life'.
- A.64 Manuscript draft ?of sermon on Epiphany.
- A.65 'Introit to be sung by the Medical procession of the Guild of St Luke in St Paul's Cathedral'; 'Litany of Natural Science'; poem in honour of St Luke.
- A.66 Poems: 'To the priests of ancient Egypt'; 'The Way'; 'Lord of the World'.

Responsive prayer.
- A.67 Poems: 'Agnosticism'; 'To D.A.'; 'To the Anglican branch of the Catholic Church'; 'The Song of Praise'; 'The Immortality of Matter'; 'Psalm'.

Miscellaneous untitled verse and manuscript notes.
- A.68-A.71 Other verse etc.
- A.68 Poems: 'To the Order of Knights Templars', one dated October 1918; 'On the Chemical Laboratories Cambridge Univ', 28 December 1918; 'Labor Omnia Vincit', January 1919; untitled, December 1918 and January 1919; 'Coal tar', March 1919.
- A.69 Poems: 'The District railway The Power Station, Red Lion Square Kingsbury', May 1919; 'The message [or call] of science', May 1919; 'From the Observatory', June 1919; 'The call of Pan', June 1919; 'Peace 1919', 1 July 1919; 'The Labour Party in Palestine', July 1919; 'A dream', July 1919.

- A.70 Undated poems: 'The burden of medical science'; 'The hospital'; 'The bacteriologist's song'; 'In the dissecting-room'; 'In the anatomical department'; 'Traffic'; 'Cui Bono?'; two untitled.
- A.71 'Shakespearian Fragment', 4pp manuscript play; 'The Drama. Ancient and Modern', 2pp typescript.

Correspondence with parents 1919-1923

Needham's father died on 2 August 1920. Nearly all the correspondence is between Needham and his mother. Needham gives accounts of his daily routines, including his private studies, religious observances, and public and university lectures attended. Visits from his mother and financial concerns of the family also figure in the papers.

- A.72 1919.
- A.73 1920 January - August.
- A.74 1920 October.
- A.75 1920 November.
- A.76 1920 December.
- A.77 1921 January - March.
- A.78 1921 April - November.
- A.79 1922 January - April.
- A.80 1922 May, July. Includes correspondence *re* visit to Germany. See also H.1A.

A.81 1922 October - December.

A.82 1923.

A.83 Nd.

CAREER, HONOURS AND AWARDS

A.84 Grant from Worts Fund for visit to Marine Biological Station, Roscoff, October 1925.

Application for Harrison Memorial Prize, November 1926.

Payment for Demonstrating, 12 May 192[?].

A.85 Application for Royal Society Smithson Research Fellowship, 1930.

A.86 Degree of Sc.D., Cambridge University, 1932.

Includes accounts of scientific researches and bibliography.

A.87 Letter from A.R. Moore *re* possible offer of post at Philadelphia, 1932.

- A.88 Readership in Biochemistry, 1936.
- Draft of letter to F.G. Hopkins *re* post of laboratory manager, 2 November 1939.
- A.89-A.93 Election to Fellowship of the Royal Society, 1941.
- A.89 Proposal for Election. Includes Needham's 'Memorandum on scientific work from 1923 to 1941' and list of publications.
- A.90-A.93 Letters of congratulation. 4 folders.
- A.90 A-E.
- A.91 F-L.
- A.92 M-S.
- A.93 T-Z, unidentified.
- A.94 Offer of CBE, 1946.
- Election to Membership, Royal Central Asian Society, 1947.
- Award of Order of the Brilliant Star with Cravat, 1949.
- This was awarded to Needham by the Republic of China 'in recognition of his constant efforts in promoting good relations between China and Great Britain'. See also C.42, C.47.
- A.95 Invitation to lead Agricultural Research Council research group on comparative biochemistry, 1951.
- A.96 Invitation to become Patron of Cambridge University Graduate Society, 1970.

Invitation to serve as President of British Society for the History of Science, 1972.

Invitation to become Patron of the Needham Society, Royal Holloway and Bedford College, 1984.

FAMILY

A.97-A.601	Alicia Adelaide Needham (mother)
A.602-A.611	Joseph Needham (father)
A.612-A.616	John W. Montgomery (maternal grandfather)
A.617-A.621	Dorothy Mary Moyle Needham (first wife)
A.622	Lu Gwei-Djen (second wife)
A.623-A.636	Elizabeth A. Montgomery Wilson (cousin)
A.637-A.641	Photographs

Alicia Adelaide Needham (mother)

The material presented here was kept by Mrs Alicia Adelaide Needham and passed to Joseph Needham on her death.

Alicia Adelaide Needham (née Montgomery) was born in Ireland in 1863 into a Church of Ireland family in Downpatrick. Alicia Adelaide was an accomplished pianist and had a career as a music teacher. She graduated from the Royal Academy of Music in 1887 and became a Licentiate of the Academy in 1889. In 1892 she married Joseph Needham, a London doctor specialising in anaesthesia. They had one child, Noel Joseph Terence Montgomery Needham, born in 1900.

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Alicia Adelaide Needham continued to give piano recitals after her marriage and in 1893 she passed the examinations to the Associateship of the Royal College of Music. Although she had composed music before her marriage, some of which was performed, she made her reputation as a composer of

songs after her marriage. Her first major success was with 'An Irish Lullaby' and other songs at public performances in 1896. Thereafter she was a prolific song-writer and very many of her compositions were published.

Alicia Adelaide Needham was a frequent prize-winner at 'Feis Ceoil' competitions for music with a Celtic theme. In 1902 she won the Earl of Mar's £100 prize for the best March composed in honour of the Coronation of Edward VII. She was the first woman President of the Royal National Eisteddfod of Wales and during the First World War she became the first woman to conduct at the Royal Albert Hall (the band of the Irish Guards).

The material includes her autobiography 'A Daughter of Music', her diaries covering the period 1879-1924, musical compositions and material relating to her career as pianist and a song-writer, and extensive correspondence 1877-1921, chiefly that of Alicia Adelaide Needham but also including letters of her husband (Joseph Needham). The marriage was not always happy and the marital difficulties are frequently reflected in the diaries and later correspondence.

The material is presented as follows:

A.97, A.98	Autobiographical
A.99-A.135	Diaries
A.136-A.417	Musical career
A.418-A.464	Notes and reflections
A.465-A.596	Correspondence
A.597-A.601	Miscellaneous

Autobiographical

- A.97 Alicia Adelaide Needham's autobiography, 'A Daughter of Music'.
122pp typescript, with extensive manuscript corrections and additions.
The autobiography records her life up to 1926 and concludes with an account of her visit to Italy in that year.
- A.98 Autobiographical account by Alicia Adelaide Needham in 'M.A.P.' magazine, March 1906, pp.276-277.

Biographical account of Alicia Adelaide Needham by Eitne Ni Peadair in *The Leader* **23** no. 14 (April-May 1916), pp.277-278.

Diaries

A sequence of Alicia Adelaide Needham's private diaries in varying formats. The diaries document family relationships, domestic arrangements, finances, health, emotional states, music, social activities and visits. There are also a number of notebooks used for diary style entries for short periods and particular purposes, such as foreign holidays and family illnesses. A.99 is a condensed chronicle from the diaries she kept in Downpatrick in Ireland before her marriage in 1892.

Many of the diaries are in poor condition and, particularly those from 1917, are bulky with loose papers intercalated or with diary entries pasted or, more usually, pinned into the volumes. Intercalated material may include manuscript notes, entries torn from other (mostly pocket) diaries or written on loose scraps of paper, newspaper cuttings, letters and drafts of letters, and memorabilia.

- A.99 Notebook inscribed on first page 'Ada Montgomery Condensed Diary Private Downpatrick' covering the period 1879-1891 and 'The honeymoon with my own Doctor Darling August 1892'.
- A.100 1893. Loose papers enclosed inside front cover.
- A.101 1895. Last entry 26 July. Loose papers enclosed.

- A.102 1895. Used from 27 July.
- A.103 1896. Pasted at front of diary are newspaper reports of death of mother, Mrs J.W. Montgomery, in Downpatrick. Loose papers enclosed.
- A.104 Notebook used for diary of visit to France, August 1897. Loose papers enclosed.
- A.105 1898. Loose papers enclosed.
- A.106 1899. Loose papers enclosed.
- A.107 Notebook used for diary style entries for December [1900] and January 1901. Last entry is for 24 January. Loose papers enclosed including notes dated 2 August 1897 and pages torn from 1901 pocket diary.
- A.108 1901. Used from 25 January. Loose papers enclosed.
- A.109 1903. Loose paper enclosed.
- A.110 1904. Loose papers enclosed.
- A.111 1904. Used March to July only. Brief entries relating to her son, Joseph. Later entries in other hands, probably his nurses'.
- A.112 Foolscap notebook used as 1905 diary.
- A.113 Notebook used for diary entries May to August 1905. Loose papers enclosed.

- A.126 1918. Very few diary entries before October. Loose papers enclosed, including at front letter from Joseph Needham to his wife, 3 November 1918, written on receipt of telegram from her at Cambridge relating to the health of their son. See A.127.
- A.127 Notebook used for record of progress of son's illness at Gonville and Caius College, Cambridge, [October] - November [1918].
- A.128 1919. At front of diary is brief account of her wartime work for the army. Many loose papers enclosed.
- A.129 1919. Use largely confined to April - July and October. Loose papers enclosed.
- A.130 1920. Many loose papers enclosed, including at front unfinished draft letter to Lloyd George, Prime Minister, *re* reward for Dr Needham 'before it be too late'. The first three pages of the memoranda section of the diary are used for a draft letter on behalf of her husband and herself to Winston Churchill MP, giving account of their services to the army and navy and seeking recognition, dated 16 June 1920.
- A.131 Notebook used for record of final days of Joseph Needham, husband, 20 July - 2 August 1920. Most pages not used. Loose papers enclosed at rear.
- A.132 1921. Many loose papers enclosed including at back two letters from Mrs Needham's bank, 26 and 27 May, *re* overdraft.
- A.133 1922. Includes entries for holiday on the continent, accompanied for some of the period by her son (see A.80, H.1A). Many loose papers enclosed.
- A.134 1924. Many loose papers enclosed.
- A.135 Exercise book used for brief diary entries, November - December 1932.

Musical career

Most of the correspondence relating to Alicia Adelaide Needham's musical career as a pianist, composer and examiner is retained with other personal and domestic correspondence at A.465-A.596.

- A.136 Testimonials and references 1884-1889, on Alicia Adelaide Needham's musical and other accomplishments and personal character.
- A.137 'First letter' from A.D. O'Leary, tutor; receipts for fees for study at Royal Academy of Music, London, 1887.
- A.138 Correspondence and papers *re* examinations for Licentiatehip of Royal Academy of Music, 1888-1889. For letters of congratulation see A.544.
- Notification of date of examination for sight-singing examination, Royal Academy of Music, 7 June 1894.
- A.139, A.140 Papers *re* Associateship of Royal College of Music, 1893.
- A.139 Examination papers, annotated by Alicia Adelaide Needham.
- A.140 Application to enter for examination; notice of those passing examination; etc.
- A.141, A.142 Performances by Alicia Adelaide Needham.
- A.141 Ulster Minor Hall, Belfast, 4 September 1890.
- Programme: press review.
- Town Hall, Castletown, 13 January 1891.
- Programme; press review.

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- /... Cutler's Hall, [?Sheffield], April 1891.
Programme.
- Lecture Hall, Stamford Street, London, 31 October 1891.
Programme.
- A.142 Royal Academy of Music Fortnightly Concert, 16 June 1894.
Annotated programme.
- Clapham Philharmonic Society, 26 March 1896.
Programme.
- A.143-A.145 Performances by others of music by Alicia Adelaide Needham.
- A.143 'Olympia' March, Royal Irish Rifles, Downpatrick Amateur Athletic Sports Day, 28 June 1888.
Programme.
- 'An Irish Lullaby' and 'The Exile's Return', Albert Hall, London, 17 March 1896.
Press review.
- Press notice of performances of 'An Irish Lullaby', 'Maureen' and 'Pastheen Fion', March 1896.
- A.144 'Salutation to the Celts' and 'The Irish Lullaby', Pan-Celtic Congress, Caernarvon, 30 August - 3 September 1904.
Programme of Congress, including concerts.

- A.145 'Patriotic Song Cycle', Palladium, London, June 1913.
Press review.

Two songs, Rochdale Philharmonic Society, 15 March 1921.
Press review.
- A.146-A.409 Songs.
- | | |
|-------------|--------------------|
| A.146-A.350 | Individual songs |
| A.351-A.400 | Song cycles |
| A.401-A.409 | Instrumental music |
- A.146-A.350 Individual songs
- A.146 'Ambitions'
Words by Frederic Manley.
- A.147 'Among the stubble barley'
Words by Katherine Tynan Hinkson
- A.148 'An ancient lullaby'
- A.149 'And Ihesus is hys name'
Words from a fifteenth-century manuscript.
- A.150 'And then no more'
Words by James Clarence Mangan.

- A.151 'The apostles' creed'
- A.152 'The army and navy of Britain for ever!'
- A.153 'As Joseph was a-walking'
- A.154 'At last'
Sacred Song. Words by Whittier. Dated Summer 1899.
- A.155 'Awake! Awake!'
Words by Elizabeth Birch. Copyright Boosey & Co. 1907.
- A.156 'Bad luck to their marching'
Words by Charles Lever. Dated ?1903.
- A.157 'The barley sheaves'
Words by Gunby Hadath. Copyright Boosey & Co. 1902.
Composed for and sung by Madame Clara Butt.
- A.158 'Basket-makers'
Words by E.V. Lucas.

'Behave yoursel' afore folk'
Words by Alex Rodger.
- A.159 'Bespattered'

- A.160 'Bethlehem'
Words by Phillips Brooks.
- A.161 'The bird in the woods'

'The birds in the winter'

'A bright idea'
- A.162 'The brown thrush'
Words by Lucy Larkom.
- A.163 'Bumble Bees'
Words by Frederic Manley.
- A.164 'A bunch of heather'
Copyright Boosey & Co. 1910.
- A.165 'The chase'
Words by H. Suso.
- A.166 'Christmas Bells'
Words by Longfellow.
- A.167 'Christmas carol'

- A.168 'Christmas cradle hymn'
Words attributed to Martin Luther.
- A.169 'Christmas cradle song'
Words by Isaac Watts.
- A.170 'The Christmas log'
- A.171 'Christmas merrymaking'
Words by George Wither.
- A.172 'Chums'
Words by W.M. Hackleton.
- A.173 'Clip, Clap goes the mill'

'Clipped wings'
Words by G.M. George. Copyright Houghton & Co. 1908.
- A.174 'Come let us adore him'

'Hymn no.1'
Words by 'Nunc aut nunquam'.
- A.175 'Content (Ike Walton's Prayer)'
Words by James Whitcomb Riley. Copyright Boosey & Co. 1902.

- A.176 'The coolin'
Arrangement of ancient Irish air. Words (translated from the ancient Irish) by Francis A. Fahy. Copyright Ascherberg, Hopwood & Crew Ltd 1909.
- A.177 'The conjurer'
- A.178 'Cradle song'

'The crows'
- A.179 'The cuddle place'
Words by M.L.A.

'Curly locks'
- A.180 'Daffodil'
- A.181 'The dashing white sergeant'
- A.182 'Daughters of England'
Words by Margaret A. Martin. Copyright Houghton & Co. 1908.
- A.183 'Dear Erin, how sweetly thy green bosom rises'
- A.184 'Dolly'
- A.185 'Dolly's funeral'

- A.186 'Dream, darling, dream'
Dated 3 December 1905.
- A.187 'Drinking song'

'Eileen Aroon'
Arrangement of ancient Irish air and words.
- A.188 'Ere the daylight be gone'
- A.189 'Facts for little folks'

'The fairies'
- A.190 'The fairy's lullaby'
- A.191 'Far from my heavenly home'
Sacred song. Words by Henry Francis Lyte.
- A.192 'Fighting on'
Words by Constance Clyde. Copyright Houghton & Co. 1908.
- A.193 'The fireman'
- A.194 'The fountain'
Words by James Russell Lowell. Dated 20 February 1905.
- A.195 'Frowns and smiles'

- A.196 'The geese are getting fat'

Christmas carol.
- A.197 'The girl I left behind me'

Arrangement of ancient Irish air. Words by Alfred Percival Graves.
Copyright Boosey & Co. 1900.
- A.198 'Girl of the red mouth'

Words by Martin MacDermott.

'A gladsome hymn of praise will sing'

Hymn. Dated Christmas 1893.
- A.199 'Glenara'

Words by Robert Dwyer Joyce. Copyright Boosey & Co. 1900.
- A.200 'God rest ye merry gentlemen'

Christmas carol.
- A.201 'Golden bridges'

Words from the German.
- A.202 'Golden feather.
- A.203 'Good luck and bad'

'The good shepherd'

- A.204 'Goodnight little maid'

'Great golden sun'
Words by Rona White. Dated 26 July 1905.
- A.205 'Great, wide, beautiful wonderful world'
Words by W.B. Rands.
- A.206 'Green sprigs'
Words by Augusta Hancock.
- A.207 'He, she and they'
- A.208 'Help yourself'
- A.209 Here's a health unto his majesty'
- A.210 'The holly'
Cornish Christmas carol. Words by R.S. Hawker.
- A.211 'Hope or a winter's view'
Words by J. Logie Robertson.
- 'Hot potatoes'
Words by E.V. Lucas.

- A.212 'How many days has my baby to play?'

'I need thee, precious Jesus'
- A.213 'I once loved a boy'

An old street ballad (1800). Dated October 1904.
- A.214 'I think when I read that sweet story of old'
- A.215 'I walk with God, he walks with me'
- A.216 'I wouldna gie a copper plack'

Words by Mary A Barr.
- A.217 'If'

Words by Morley Roberts.
- A.218 'If and perhaps'
- A.219 'If I were a fish'

Words by S.A.G.
- A.220 'If thoughts were birds'

Dated July 1909.
- A.221 'Ilka blade of grass'

Words by James Ballantine.

- A.222 'I'm a merry, merry squirrel'
Words by Norman MacLeod.
- A.223 'In a wooden cradle'
Christmas carol

'In defence of his country'
Words by E. Searchfield.

'Dedicated to my little soldier Terence.'
- A.224 'In my dreams'
Words by Pakenham Thomas Beatty. Copyright Boosey & Co. 1902.
- A.225 'In the fields with their flocks abiding'
Christmas carol.

'In the swing'
Words by Eudora S. Bumstead.
- A.226 'Irish cradle song'
Words by Francis A. Fahy. Copyright Pigott & Co. 1910.
- A.227 'Irish education'
- A.228 'An Irish lullaby'
Full score. Words by Francis A. Fahy, orchestrated by John Storer.

- A.229 'The iron horse'
Dated 8 July 1905.
- A.230 'It's no very lang sin syne'
Stamped Boosey & Co. 11 January 1910.
- A.231 'A jack o'tar'
- A.232 'The jolly ploughboy'
Arrangement.

'Keep a watch on your words my darlings'
- A.233 'Keep pegging away'
Words by Rev. Canon Langridge.
- A.234 'The key to the box'

'Kind, beautiful wonderful God'
- A.235 'The kiss ahint the door'
Words by T.C. Latto.
- A.236 'Kittens'
Words by Betty Sage.

- A.237 'Knitting war song "Soldier, soldier dear unknown" '
Words by Adrienne Cambry. Dated 12 February 1915.
Dedicated to the British Expeditionary Force and Britain's allies.
- A.238 'Knowest thou God for thy father?'
- A.239 'Ladybird, ladybird'
- A.240 'Lady Moon'
Words by Lord Houghton.
- A.241 'Land of our fathers'
Arrangement. Words by Alfred Percival Graves.
Dedicated 'to all our pan-celts'
- A.242 'Land of the Counterpane'
Words by Robert Louis Stevenson. See also A.284.
- A.243 'The lapful of nuts'
Words by Sir Samuel Ferguson. Copyright Boosey & Co 1912.
- A.244 'Laugh it off'
Words by Henry Rutherford Elliot.
- A.245 'The limitations of youth'
Words by Eugene Field. Dated 3 February 1902.

- A.246 'Listen, lordlings unto me'
Carol for Christmas Eve.

'A little bird'
- A.247 'The little boy and the stars'
- A.248 'A little cradle song'
Christmas carol. Words from the Spanish.
- A.249 'The little drummer'
Words by Gouverneur Morris. Copyright Boosey & Co. 1906.
- A.250 'Little Poll parrot'

'Little shoes'
Words by Theodore Botrel.
- A.251 'Little soldiers'.

'The lobster and the can'
Words by Felix Leigh.
- A.252 'Look up the street'
- A.253 'Lord of our far-flung battle-line'
Words by Rudyard Kipling.

- A.254 'The Lord's Prayer'
- A.255 'The lost boy'
Words by Ellen Manly.
- A.256 'The lost doll'
(From the Water Babies) Charles Kingsley .

'Love song of Elizabethan days'
Words by Michael Scanlon. Dated 23 January 1905.
- A.257 'A lovely lady sat and sang'
Christmas carol.

'Making cakes'
- A.258 'Mamma's kisses'
- A.259 'Marching on'
Words by John Russell.

'A merry, merry Christmas'
Words by Robert Herrick.
- A.260 'La meunière'
Words by Theodore Botrel. Copyright Boosey & Co. 1906.

- A.261 'The milestone'
Words by Patrick Byrne. Copyright Boosey & Co. 1912.
- A.262 'The mill'
- A.263 'Miss Maria (The sewing-woman)'
Words by Betty Sage.
- A.264 'The moon shone bright'
Christmas carol.
- A.265 'Mr Nobody'
Words by E. Snowden.
- 'Mustard and cress'
Words by Norman Gale. Dated 2 September 1911.
- A.266 'My ain hoose'
- A.267 'My heart's delight'
Words by E. Nesbitt. Copyright Boosey & Co. 1902.
- A.268 'My little secret'
Words by A.M.R.D.
- 'My mither tongue'
Words by David Grant. Copyright Boosey & Co. 1910.

A.269 'My wings were so bedraggled with the wet'

A.270 'Nail your colours to the mast'

Words by J. Lea.

A.271 'The nest'

'A nestful of wrens'

Words by Queenie Scott-Harper.

A.272 'The new moon'

Words by A. Follen.

A.273 'Now! Now! Now!'

Words by Adelaide A. Proctor.

A.274 'Now the day is over'

'On yesternight I saw a sight'

Christmas carol.

A.275 'One and two'

A.276 'One at a time'

A.277 'One nest together'

Words by Christina Rossetti.

- A.278 'Our bank'
Words by E.V. Lucas.
- 'Our student days'
Words by H. MacNaughton-Jones.
- A.279 'Out over the Forth'
Words by Robert Burns.
- A.280 'Pansies, lilies, roses'
Hymn for children. Dated December 1893.
- A.281 'Peace and goodwill'

'Peace be around thee'
Words by Thomas Moore.
- A.282 'Perpetual Christmas in thy soul'
Words by Lucy A. Bennett.
- 'Piggie-wig, and Piggie-wee'
- A.283 'Pitty-pat and tippy-toe'
Words by Eugene Field. Copyright Boosey & Co. 1901.
- A.284 'The pleasant land of counterpane'
Words by Robert Louis Stevenson. See also A.242.

- A.285 'Please'

 'Politeness'
- A.286 'The post office or a stamp'

 'A prayer'
 Words by James Whitcomb Riley.
- A.287 'Queer relations'
- A.288 'The red deer'
 Words by Katherine Tynan Hinkson.
- A.289 'Riflemen, form'
 Words by Lord Tennyson.

 'The robin'
- A.290 'The rock-a-bye lady'
 Words by Eugene Field.
- A.291 'Saw ye him whom my soul loveth saw ye him?'
- A.292 'Scarlet and gold'
 Words by May Byron.

- A.293 'Scotch lines to A.S.B. (from an unintelligent foreigner)'
Words by Bret Harte.
- A.294 'Scotland yet'
Words by Henry Scott Riddell.
- A.295 'A sea-song'
Words by James Whitcomb Riley.
Dedicated 'to my little boy-blue'.
- A.296 'Serenade "Eager night enfolds thee" '
- A.297 'Seven times one'

'Singing merrily'
- A.298 'Snow (in town)'
Words by Rickman Marks.
- A.299 'Soft is the music'
Waltz song. Words by C. H. St. L. Russell.
- A.300 'The sparrows'
Words translated from the German by Francis A. Fahy.
- A.301 'The spider and his wife'

- A.302 'Spinning song Nance O'Neill'
Words by Katherine Tynan Hinkson. Dated Sunday 7 December 1902.
- A.303 'Spring song'

'Spring song'
Words by Marcia Tyndale.
- A.304 'A stirrup cup song'
- A.305 'Sweet and low'
Words by Tennyson.

'The sweet May weather'
Words by Katherine Tynan Hinkson.
- A.306 'The sweet o' the year'
Words by Katherine Tynan Hinkson.
- A.307 'Sweetest love, I do not go for weariness of thee'
Words by John Donne. Copyright in the US Black and White Publishing Co.
1905.
- A.308 'The swing'
Words by Robert Louis Stevenson.

'Swinging and swaying'
Cradle song. Copyright by Alicia Adelaide Needham 1907.

- A.309 'Sympathy'
- A.310 'There is joy in heaven'
- A.311 'There was a knight of Bethlehem'
Christmas carol.
- A.312 'There was a little girl'
Words by Longfellow.

'There were two birds'
- A.313 'Thine in storm and shine'
Words by Katherine Tynan Hinkson. Dated 14-15 February 1902.
- A.314 'Tit for tat'

'To let - a little lonely heart'
Copyright G.Ricardi & Co. 1921.
- A.315 'To my fair colleen'
Words by 'Cruck-a-Leaghan'
Dedicated to Mrs Benecke (née Mendelssohn-Bartholdy).
- A.316 'To set the world rejoicing'
- A.317 'To the unknown many'

- A.318 'Tortoise shell'

'The trees or Spring song'
Words by E.Nesbit.
- A.319 'Trumpets and drum'

Cradle song. Words by Sir Walter Scott.

'Twitter and cheep'
- A.320 'The two dollies'

Words by L.E. Tiddiman.
- A.321 'The two Johnnies or two different little boys'

Dated 11 October 1910.
- A.322 'Under-the-table manners'
- A.323 'Up at Piccadilly, oh!'

'Very tired'
Words by H.P. Hawkins.
- A.324 'The virgin & child'

Christmas carol.
- A.325 'The virgin's cradle hymn'

Christmas carol.

- A.326 'Visitors'
Words by Helen H. Whitney.
- A.327 'Waiting for the May'
Words by Florence McCarthy.
- A.328 'Waking up'
Words by Alexander Anderson.
- A.329 'Wander-thirst'
- A.330 'The wandering knight's song'
Words from the Spanish. Copyright Boosey & Co. 1902.
- A.331 'Washing the dishes'
Words by Hannah G. Fernald.
- 'The watchmaker'
Words by E.V. Lucas.
- A.332 'The waves on the seashore'
Words by Mrs Hawkshawe.
- A.333 'The way of the world'
Words by Ella Wheeler Wilcox. Dated July 1903.

- A.334 'Wee Willie Winkie'
Copyright Boosey & Co. 1910.
- A.335 'What are little boys made of?'

'What I learn'
Words by Constance M. Lowe.
- A.336 'What my lover said'
Words by Horace Greeley.
- A.337 'What the clock says'
- A.338 'What the flowers said'
- A.339 'When I'm a grown-up lady'

'When in death I shall calm recline'
Arrangement of ancient Irish air. Words by Thomas Moore. Dated 13
September 1933.
- A.340 'Which'

'Which way does the wind blow?'
Word by Lucy Aikin.
- A.341 'White bread and brown bread'

- A.342 'Wishing'
Words by William Allingham.
- A.343 'With all your might'
- A.344 'Wynken, blynken and nod'
Words by Eugene Field. Dated May 1920.
- A.345 'Ye bargayne'
Copyright G. Ricardi & Co. 1921.
- A.346 'Young birds'
Words by E. Snowden.
- A.347 'Your father's boreen'
Copyright Dr Joseph Needham 1897.
- A.348 Untitled and incomplete.
- A.349, A.350 Miscellaneous shorter pieces. Principally children's and nursery songs. 2 folders.
- A.351-A.400 Song collections
- A.351-A.359 Army and Navy song cycle for four voices.
Orchestrated by Cellan Kottaun. Copyright Boosey & Co. 1912.
9 folders.

- A.360-A.363 Scottish song cycle
4 folders.
- A.364-A.369 Song cycle for four voices.

List of twelve songs (one crossed out) and music and words for ten of the remaining eleven listed songs.

6 folders.
- A.370 Song cycle for four voices.

List only of twelve songs. Not identical to the preceding.
- A.371, A.372 Four trios for ladies voices.

2 folders.
- A.373 Three sacred songs.

Copyright Boosey & Co. 1903.

Two copies.
- A.374, A.375 Ten sacred songs.

List of ten songs with music and words for three of them.

Dedicated 'to my son Doctor Joseph Needham Sc.D. M.A.. Ph.D. Fellow of Caius Coll. Cambridge.'

2 folders.
- A.376-A.378 Six old English songs.

3 folders.

- A.379 'Feis'. Contents of folder so inscribed: manuscripts of songs composed for ?Irish song festival.
Dated December 1898.
- A.380 Four Irish songs.
List only.
- A.381 Hymns for children.
Dated 1893.
- A.382-A.385 Songs for children.
List of twelve songs and words and music of ten of them.
4 folders.
- A.386-A.390 French songs for children.
List and words and music for ten songs.
5 folders.
- A.391-A.399 Twenty songs.
List and words and music of the first nineteen songs.
9 folders.
- A.400 Lists of contents of published volumes of songs: 'Three volumes very easy for children'; '5 volumes, songs for children'; '3 duets for ladies voices'; 'Good night songs'; 'Songs for grownups'.

- A.401-A.409 Instrumental music
- A.401 'Duet in canon'
'Copied' 1891.
- A.402 'Work in free Bach style'
Dated in November 1897, February 1898.
- A.403 Manuscript music book containing Irish airs, reels. Letter pasted inside front cover dated 1 June 1899.
- A.404 'Arrangement of Irish airs ... for the Harp'
Dated 27 February 1902.
- A.405 'Lament for violin and pianoforte'
- A.406 'Berceuse'
'Gigue'
- A.407 'Nocturne'
'Invitation to the dance'
- A.408 'In C'
- A.409 Untitled and incomplete.

- A.410-A.417 Miscellaneous material
- A.410 *Aufgabenbuch zu E. Friedr. Richter's Harmonielehre* by A. Richter (Leipzig 1892), annotated by Alicia Adelaide Needham.
- A.411 Calendars for Royal Academy of Music, 1893-1894, 1894-1895.
- A.412 Student's Concert Tickets for Royal Academy of Music, 1887, 1893-1895.
- A.413 Examination papers for Licentiatehip of Royal Academy of Music 1890-1893.
- A.414 Manuscript timetables for music practice or tuition 1893, 1894, 1896 and nd.
- A.415, A.416 Programmes of concerts attended etc. 2 folders.
- A.417 Royalty account from Boosey & Co., January - June 1916.

Notes and reflections

Alicia Adelaide Needham's manuscript notes on books read, including biographies and religious and philosophical literature, and notes on similar themes. She may have planned to write a reflective book on religious themes, possibly drawing on her own experiences and thoughts. The material appears to date from after the First World War, perhaps after the death of her husband in 1920.

Unless otherwise indicated the notes are in Alicia Adelaide Needham's exercise books. However, some have had pages removed, and many were used only for a few pages and not always from the front. A number lack their covers. There are also loose manuscript notes, some on pages torn from similar exercise books.

- A.418-A.421 Four exercise books used for notes on 'Books read'.

- A.422 Used for 'Notes from books'.
- A.423 Used for notes on 'The 7 strings of the lyre George Sand by Elizth
[?]Schennerhorn. Heinemann'.
- A.424 Used for notes on biography of 'Bryon by Brecknock (Cecil Palmer) [...]'.
Bryon
- A.425 Used for notes on biographies of 'Leo Tolstoy Lord Kitchener'.
- A.426 Used for notes on 'The Tragedy of Ruskin by Amabel Williams Ellis [...]'.
The Tragedy of Ruskin
- A.427 Used for notes on 'Eleanor Duse by Rheinhardt (Martin Secker)'.
- A.428 Used for notes on biography of Mozart.
- A.429 Used for notes on biographies of Prince ?Lichnosky and Lady Byron.
Prince ?Lichnosky
- A.430 Used for notes on biographies of Tolstoy, Blavatsky and W.S. Gilbert.
- A.431 Used for notes on Woodrow Wilson, wartime reminiscences of Colonel
House and biography of Schubert.
- A.432 Used for notes on Ernest Renan, biographies of General Gordon and
Abraham Lincoln, and work of R.H. Benson.
- A.433 Used for notes on life of Christ and biography of 'The Two Carlyles'.
- A.434 Used for notes on 'The Hand [palmistry] The Story of Christ Plato'.

- A.435 Used for notes on 'Lectures'.
- A.436 Used for notes on works of T.E. Lawrence (of Arabia).
- A.437 Used for notes on 'Blavatsky + Gounod'.
- A.438 Used for notes 'From Climax of Ages' and on books by Sir Oliver Lodge and Maude Royden.
- A.439 Used for notes on poetry of Robert Browning, work of G.K. Chesterton.
- A.440 Pocket notebook used for notes on the religious life, especially the hereafter.
- A.441 Used for notes on 'Adventure (Rosita Forbes) Cassell & Co.'
- A.442 Used chiefly for notes on astrology.
- A.443, A.444 Two exercise books used for 'Notes for Book'.
- A.443 Includes notes on indigestion, King Edward VII's illness, and notes on books 'The Aquarian Gospel' by Levi and 'Esoteric Christianity' by A. Besant.
- A.444 Notes on 'My Life & Times' by Jerome K. Jerome and 'Goodbye to all that' by Robert Graves'.
- A.445 Used for notes on 'Diary A.B. Benson My dreams'.
- A.446 Used for notes on 'Dreams + Parry R.L. Stevenson'.

- A.447 Used for notes on 'Dreams'.
- A.448 Used for notes on 'Agonies, Remember Dreams'.
- A.449 Used for notes on psychical experiences.
- A.450 Used for notes on 'psychic photography' etc.
- A.451 Used for notes on meanings of Biblical passages and records of dreams.
- A.452 Used for notes on body and spirit and on 'Lecture on Egypt'.
- A.453 Used for notes on the supernatural power etc of the hands, and lists of photographs taken. Also includes draft letter to Eamon de Valera, August 1927, expressing willingness to join his Fianna Fail party and if required serve the party in the Irish parliament.
- A.454 Used for 'Prayer to God' (in Latin).
- A.455 Used for notes at front including list of books on Palestine and the Bible.
- A.456 Used for brief notes at back on the First World War, an Everest expedition, and life of Christ.
- A.457 Inscribed on front cover 'Italian Words Composition'. Used for list of Italian words and expressions for use in music, and notes on religious themes.
- A.458-A.464 Loose manuscript notes.
- A.458 'Notes for book' on inoculation, Pompeii and India.

- A.459 Biographical notes on Marconi, Clemenceau and Goethe.
- A.460 Notes on Plato and Platonism.
- A.461 Notes on 'Dreams', 'The Shining Ones from the Great Beyond', 'The Devil' and 'Religious experience'.
- A.462 Notes found clipped together relating chiefly to art and religion including 14pp account beginning 'Mr Heaphy spent a night in the catacombs', and to financial matters.
- A.463, A.464 Miscellaneous notes. 2 folders.

Correspondence

The material presented here is family, personal and professional correspondence received by Alicia Adelaide Needham, together with family correspondence sent by her and subsequently recovered on the deaths of the relatives to whom they were sent.

The principal sequence of correspondence is that between Alicia Adelaide and her husband Joseph Needham. The bulk dates from their courtship and engagement, November 1891 - August 1892. There are also some later letters.

There are personal letters received before and after her marriage, letters to other family members (chiefly her parents), and correspondence relating to her songs and performances.

A.465-A.537 Correspondence with Joseph Needham

A.538-A.596 Other correspondents

- A.465-A.537 Correspondence with Joseph Needham, 1891-1914.
- Alicia Adelaide Montgomery and Joseph Needham met in London in autumn 1891. Joseph proposed in December 1891 and they were married in August 1892. During their engagement they conducted a voluminous correspondence, very often she wrote him more than one letter a day.
- Alicia Adelaide's letters are often illustrated by her with decorative or humorous pictures, often self-portraits, or have bars of music or verse. A number contained enclosures such as newspaper cuttings, posies of flowers and pieces of fabric. Some of her earlier letters are represented by rough drafts.
- Also included in this sequence is memorabilia from their engagement and their honeymoon in Scotland.
- A.465 1891 November 5-20. Includes rough drafts.
- A.466 1891 November 24-29. Includes rough drafts.
- A.467 1891 December 7-12.
- A.468 1891 December 13-16.
- A.469 1891 December 19-22. Includes rough draft.
- A.470 Notebook used at the back for rough drafts of letters 6 December 1891 - 22 January 1892 and at the front for record of their meetings 16 November - 4 December 1891. Loose at back are family and personal letters to Alicia Adelaide Needham, 1892, 1893 and nd.
- A.471 Nd [1891]. Includes rough drafts.
- A.471A Memorabilia from 1891: list of teachers at Clapham Ladies College (includes Alicia Adelaide Montgomery), programmes for Crystal Palace, 12 and 19 December.

- A.472 1892 January 5-10.
- A.473 1892 January 11-14.
- A.474 1892 January 15-20.
- A.475 1892 January 21-25.
- A.476 1892 January 26-31.
- A.477 Notebook used for rough drafts of letters January - February 1892.
- A.478 1892 February 1-3. Includes rough drafts.
- A.479 1892 February 3-6.
- A.480 1892 February 8-10. Includes rough draft.
- A.481 1892 February 11-13. Includes rough draft.
- A.482 1892 February 14-18.
- A.483 1892 February 19-21.
- A.484 1892 February 22-25.
- A.485 1892 February 26-29.

- A.486 1892 March 1-4.
- A.487 1892 March 5-10.
- A.488 1892 March 11-20.
- A.489 1892 March 21-22, 27-29. Alicia Adelaide Montgomery visited Joseph Needham 23-26 March.
- A.490 1892 March 30-31.
- A.491 1892 April 1-6.
- A.492 1892 April 7-11.
- A.493 1892 April 12-16.
- A.494 1892 April 17-20.
- A.495 1892 April 21-26.
- A.496 1892 April 27-30.
- A.497 1892 May 1-6.
- A.498 1892 May 7-10.

A.499	1892 May 11-15.
A.500	1892 May 16-20.
A.501	1892 May 21-25.
A.502	1892 May 26-28.
A.503	1892 May 29-31.
A.504	1892 June 2-7.
A.505	1892 June 8-11.
A.506	1892 June 12-16.
A.507	1892 June 17-20.
A.508	1892 June 22-23.
A.509	1892 June 25-30.
A.510	1892 July 1-5.
A.511	1892 July 6-9.

A.512	1892 July 11-14.
A.513	1892 July 15-17.
A.514	1892 July 19-21.
A.515	1892 July 22-23.
A.516	1892 July 24-27.
A.517	1892 July 28-31.
A.518	1892 August 1-3.
A.519	1892 August 4-6.
A.520	1892 September - December.
A.521	1892. Incomplete letters.
A.522, A.523	Nd [1892]. 2 folders.
A.524-A.526A	Memorabilia from 1892.
A.524, A.525	'Scotch Tour 1892 Honeymoon'. Contents of envelope so inscribed divided into two for ease of reference.
A.524	Letters of congratulation on marriage, September - October.

- A.525 Receipts and other memorabilia from honeymoon in Scotland.
- A.526 Miscellaneous memorabilia, including receipt for wedding ring.
- A.526A Flower display sent to Joseph Needham by Alicia Adelaide.

Large sheet of blotting paper to which thirteen flowers have been attached by white thread. The flowers are numbered 0-12 and beneath each are lines identifying (or failing to identify) them.
- A.527 1893-1894.
- A.528 1895 July.
- A.529 1895 August.
- A.530 1895 September, October.
- A.531 1896-1898.
- A.532 1902. Chiefly correspondence to Alicia Adelaide Needham on holiday in Switzerland.
- A.533 1904.
- A.534 1907-1909.
- A.535 1912, 1914.

A.536 Incomplete and undated letters.

A.537 Notebook used for drafts of letters to Joseph Needham, nd.

A.538-A.596 Other correspondents.

Frequent correspondents include J. Frizelle, chiefly on religious matters 1885-1890, who proposed to her in October 1890; Blanche and Bec Stevenson, friends in Ireland; J.P. Addey and A.D. O'Leary, tutors at the School of Art, Londonderry and the Royal Academy of Music, London respectively; her parents John W. and Mary Jane Montgomery and her sisters Annie Elizabeth Montgomery and Maude Pilcher; F.A. Fahy of the Irish Literary Society, London; and Emily Ward ca.1900-1903.

There are many undated or partially dated letters.

A.538 1877, 1881, 1884.

A.539 1885.

A.540 1886.

A.541 1887.

A.542 1888 February - July.

A.543 1888 August - December.

A.544 1889 January - June. Includes letters of congratulation on passing examination for Licentiatehip of Royal Academy of Music.

A.545 1889 July - December.

- A.546 1890 January - March.
- A.547 1890 April - August.
- A.548 1890 September - December. Includes proposal of marriage from J. Frizelle, 31 October.
- A.549 1891.
- A.550 1892 January - September. Includes letters of congratulation on engagement and *re* marriage.
- A.551 1892 October - November.
- A.552 1892 December.

Nd [1892].
- A.553 1893 January - May.
- A.554 1893 June - August.
- A.555 1893 September - December.
- A.556 1894 January - February. Includes correspondence *re* concert given on 1 February 1894.

Alicia Adelaide Needham gave a piano recital. The concert was organised by Joseph Needham.
- A.557 1894 March - April. Includes correspondence from F.A. Fahy *re* her admission to the Irish Literary Society, London.

- A.558 1894 May - June. Includes correspondence *re* arrangements for concert under the auspices of the Irish Literary Society, 5 and 6 July 1894.
- The concert was organised by the Needhams. Some of Alicia Adelaide Needham's Irish songs were performed.
- A.559 1894 July - August. Includes correspondence *re* Alicia Adelaide Needham's songs.
- A.560 1894 September - October.
- A.561 1894 November. Includes correspondence *re* songs.
- A.562 1894 December. Includes correspondence *re* songs.
- A.563 1895 January - June. Includes correspondence *re* arrangements for concert, 21 February 1895.
- A.564 1895 July - August. Chiefly *re* songs.
- A.565 1895 September - December, 1896 January. Includes letters of congratulation on success in music examination [?at Oxford], October.
- A.566 1896 March 18-24. Chiefly letters home from M.J. Montgomery (mother of Alicia Adelaide Needham) who was unwell and visiting her daughter in Clapham Park.
- A.567 1896 March 25-31. Chiefly letters home from her mother.

- A.568 1896 April 1-6. Chiefly letters home reporting on condition of her mother.
- A.569 1896 April 7-30. Chiefly *re* illness of her mother.
- A.570 1896 May. Chiefly *re* death of her mother.
- A.571 1896 June - December. Includes telegrams of congratulation on passing music examination.
- A.572 1897-1899.
- A.573 1900.
- A.574 1901. Includes letter *re* prize-giving at Stratford Music Festival, London, February, and notification of prize for song 'Innisfail' at Feis Ceoil.
- A.575 'Letters from K.T.H.'. Letters from Katharine Tynan Hinkson, who wrote the words for a number of her songs, 1901-1903, 1906.
- A.576 1902 January - March. Includes invitations to lecture to National Literary Society, Dublin and to Celtic Association 'conversazione'; correspondence *re* prize-giving at Stratford Music Festival, March, and correspondence *re* possible concert before the King and Queen in Dublin.
- A.577 1902 April - August. Includes telegrams of congratulation on her prize-winning song on coronation of Edward VII, and notification of her election as Associate of the Philharmonic Society.
- A.578 1902 September - December. Includes letters *re* dedication of songs by Alicia Adelaide Needham.

- A.579 1903 January - February. Includes notifications of election to Royal Academy Musical Union and of Feis Ceoil prize for song 'Servato Fidem'.
- A.580 1903 March - May. Includes correspondence *re* adjudication of song competitions by *The Girl's Realm*, Sunday School Union and *The Gentlewoman*.
- A.581 1903 June - December. Includes letters of thanks for copies of Alicia Adelaide Needham's collection of 'Soldiers' Songs'.
- A.582 1904, 1906. Includes correspondence from Katharine Tynan Hinkson, 1906.
- A.583 1907. Includes letters *re* dinner at the Irish Club, and letters to her father J.W. Montgomery *re* her financial situation.
- A.584 1908. Chiefly letters to her father *re* financial situation.
- A.585 1909. Letters to her father.
- A.586 1910. Letters to her father.
- A.587 1911-1915.
- A.588 1917. Chiefly drafts of letters to Lloyd George, Prime Minister, *re* possibility of civil list pension, and acknowledgements.
- A.589 1920.
- ?1931. Letter of congratulation to her son, possibly on publication of his book *Chemical Embryology* in 1931. The letter also includes Alicia Adelaide Needham's personal reflections.

- A.590-A.596 Undated or partially dated. 7 folders.
- A.590 Addressed to 'Miss Montgomery'.
- A.591 Addressed to 'Mrs Needham'.
- A.592 Addressed to 'Del'. Chiefly from 'Bec'.
- A.593 Other letters to Alicia Adelaide Needham. Chiefly from family.
- A.594 Letters from Alicia Adelaide Needham to father and sisters.
- A.595 Letters to 'Eileen' from 'Bec'.
- A.596 Other correspondents.

Miscellaneous

- A.597 Her mother's Bible, inscribed inside front cover by Alicia Adelaide Needham. With a little loose material intercalated.
- A.598 Press-cuttings, greetings cards.
- A.599 Accounts, receipts, bills and other financial papers.
- A.600 Manuscript notes on financial prospects, personal difficulties etc.
- A.601 Miscellaneous memorabilia.

John W. Montgomery (maternal grandfather)

- A.612 'My dearest Father Our pedigree etc'. Montgomery's letters so labelled by his daughter Alicia Adelaide Needham. Includes photographic negative of gravestone of his wife.
- A.613 Will, dated 1909.
- A.614-A.616 'A delightful holiday'.
J.W. Montgomery contributed occasional articles under this title to the [?Belfast] *Evening Telegraph* giving geographical and topographical descriptions of parts of Ireland. It was suggested these be collected and published in book form.
- A.614 Letter re possible publication; list of chapters.
- A.615, A.616 Drafts of chapters.
- A.615 'The Irish Poor Laws' and 'Round Mourne', paginated 1-9, 30-32.
- A.616 'Lough Sheelin, co. Cavan' and 'Lough Fea, co. Monaghan', paginated 44-51.

Dorothy Mary Moyle Needham (first wife)

Dorothy Mary Moyle (1896-1987) was a fellow researcher in the Cambridge Biochemistry Department. She married Joseph Needham in 1924.

The principal archive of the papers of Dorothy Needham is deposited in the Library of Girton College Cambridge. The papers are catalogued as NCUACS 22/7/90 and NCUACS 37/5/92.

A.617 Typescript draft of tribute to Dorothy Needham by Joseph Needham, written after her death in December 1987.

Lists of publications to ca.1932.

Notification of payment from Beit Memorial Fellowship, 1928.

A.618-A.621 Duplicated typescript and printed material from societies and organisations supported by Dorothy Needham.

A.618 Permanent International Committee of Mothers, 1957.

A.619 National Assembly of Women, 1964.

A.620 British Federation of University Women, 1965, 1972, 1973.

A.621 Miscellaneous.

Lu Gwei-Djen (second wife)

Lu (1904-1991) was a biochemist. Educated at Ginling College, Nanking, she went to Cambridge as a postgraduate to study under Dorothy Needham in 1937. She became a very close friend of the Needhams and was one of those who inspired Joseph Needham to begin his study of Chinese language and civilisation. After the war Lu served with the UNESCO Section of Natural Sciences in Paris and then in 1957 returned to Cambridge where she was to collaborate with Needham on his multi-volume history *Science and Civilisation in China*. Lu married Needham in 1989.

A.622 Obituaries, 1991.

Elizabeth A. Montgomery Wilson (cousin)

Contents of box-file labelled 'South African War Papers of Eliz. Montgomery Wilson R.R.C. Army Nursing Service'.

Wilson (d.1939) was Matron at Cardiff Infirmary when war broke out in South Africa in 1899. She volunteered for service in March 1900 and was accepted for service in June. She took four other nurses from the Cardiff Infirmary and served as Matron of the South African Field Force 'Langman Hospital'. She was released from service in December following the capture of Pretoria by Field Marshal Lord Roberts. She was awarded the South African War Medal in 1901. Wilson volunteered again in 1901 and 1902 to serve in South Africa but her services were not required.

- A.623 Lists of posts held, ca.1878-1924, and service up to South African War.
- Testimonial from Derby Royal Infirmary, April 1897.
- Member of General Council of Royal British Nurses' Association, May 1899.
- A.624 Correspondence, April - August 1900. Includes telegrams from Army Nursing Service Reserve *re* service in South Africa.
- A.625 Correspondence, October - December 1900. Includes letter from Lord Roberts thanking her for her service, 7 October.
- A.626-A.631 Memorabilia from South Africa.
- A.626 Mounted photographs of South African campaign: military units, field hospitals etc.
- A.627 Tin box, 6" x 3½", sent to troops in 'South Africa 1900'. Contains three miniature photographs of Wilson (two in nurse's uniform) and coins of the South African Republic.
- A.628 Orders, July, August 1900.

Photographs

- A.637 Alicia Adelaide Needham. 3 photographs.
Alicia Adelaide Needham with son. 2 photographs.
- A.638 Joseph Needham (father). 2 photographs.
Joseph Needham (father) with son. 1 photograph.
- A.639 Joseph Needham as child. 1 negative, 2 photographs.
- A.640, A.641 Unidentified. 2 folders.

CLUBS, ASSOCIATIONS AND OTHER INTERESTS

- A.642, A.643 Association of Scientific, Technical and Managerial Staffs (ASTMS)
This Trade Union was formed in 1968 by an amalgamation of the Association of Supervisory Staffs, Executives and Technicians and the Association of Scientific Workers (ASW). Needham had been a member of the ASW.
- A.642 Correspondence and papers 1970-1971, 1975. Includes correspondence *re* Cambridge University branch of ASTMS and formation of Cambridge University Trade Union Committee 1970.
- A.643 Printed material.
- A.644 Association of University Teachers
Printed and duplicated typescript material, 1960s.

- A.645-A.647 Cambridge Cyrene Community
- The Cambridge Cyrene Community (formerly the Simon Community) was an organisation formed in 1965 to provide shelter and support for homeless people in Cambridge.
- A.645 Issues of 'Simon Star', national newsletter of Simon Communities, 1967-1968 (not a complete sequence).
- A.646 Newsletters of Cambridge Simon and Cambridge Cyrene Communities, 1969-1974 (not a complete sequence).
- A.647 Miscellaneous circulars, appeals etc. 1969-1975.
- A.648, A.649 Community Settlement
- The Community Settlement was founded to do voluntary community work in the Westminster and Kensington areas of London.
- Annual reports, appeals 1969-1972. 2 folders.
- A.650 National and Local Government Officers Association (NALGO)
- Printed material 1970.
- A.651 Old Oundelian Club
- Needham had been a pupil at Oundle School 1914-1918.
- Order of service for consecration of Oundle School Memorial Chapel, 1923; appeal, 1972; list of members, 1972.
- A.652 Oxford and Cambridge University Club
- Papers *re* future of Club, 1966-1972.

A.653, A.654 Miscellaneous national and international charitable appeals.
1963-1972 and nd. 2 folders.

A.655 Miscellaneous Cambridge charitable appeals
1968-1971.

SOCIAL ENGAGEMENTS AND INVITATIONS

Most of the pre-1950 material relates to events at Cambridge, including menus and programmes from college functions and programmes from theatre visits. The later material includes programmes for theatre visits, brochures for exhibitions, etc.

A.656 1919, 1922.

A.657 1923.

A.658 1924.

A.659 1925.

A.660 1926, 1927.

A.661 1928.

A.662 1929.

A.663 1930.

A.664	1931.
A.665	1932.
A.666	1933.
A.667	1934.
A.668	1935.
A.669	1936.
A.670	1937, 1941, 1950.
A.671	1956-1969.
A.672	1956-1972. <i>Re</i> paintings by Nancy Kuo.
A.673	1970-1972.
A.674	1973.
A.675-A.677	Nd. 3 folders.

FINANCIAL

Contents of Needham's folders. Include some financial information relating to Dorothy Needham.

A.678-A.684 'Old income tax file'. 7 folders.

Includes material *re* income from stocks 1933-1937, maintenance of Needham's mother, 1939-1940, estate of Needham's parents and cousin Elizabeth A.M. Wilson, correspondence with Inland Revenue *re* income tax and surtax 1947-1954, etc.

A.685-A.688 'J.N. Accounts'. 4 folders.

Correspondence and papers, 1942-1950, *re* British Council funding for Needham's work in China. Includes lists of expenses, receipts etc.

A.689-A.692 'Unesco Westminster Foreign Bank'. 4 folders.

Correspondence and papers, 1946-1948, *re* salary and expenses while working for UNESCO, and money retained in French bank account 1949-1959.

A.693 Chequebook stubs, 1946-1959.

MISCELLANEOUS

A.694 Sketch of Needham, made at 'Congress of Exp. Biol.'

Newspaper cutting from *Moscow News*, 1 January 1957, with greetings to Joseph and Dorothy Needham from V.A. Engelhardt.

A.695 Manuscript notes; memorabilia.

Needham spent his whole academic career at Cambridge. He was an undergraduate at Gonville and Caius College 1918-1922 and from 1922 to 1924 held a Benn Levy Studentship for postgraduate research under F.G. Hopkins. He was University Demonstrator in Biochemistry 1928-1933 and Sir William Dunn Reader in Biochemistry 1933-1966. Needham became a Fellow of Gonville and Caius College in 1924, and served as Master 1966-1976.

In addition to his membership of the Department of Biochemistry Needham was influential from the mid-1930s in the establishment of the history and philosophy of science as an accepted academic discipline in Cambridge University. He served on the History of Science Lectures Committee and its successors the History of Science Committee and the History and Philosophy of Science Committee. In recognition of his pioneering work on the history and civilisation of China Needham was appointed a member of the Faculty Board of Oriental Languages (later Oriental Studies) in 1949.

The material is presented as follows:

B.1-B.260	DEPARTMENT OF BIOCHEMISTRY
B.261-B.297	UNIVERSITY GENERAL AND MISCELLANEOUS
B.298-B.368	HISTORY OF SCIENCE COMMITTEE
B.369-B.376	FACULTY BOARD OF ORIENTAL STUDIES
B.377-B.388	GONVILLE AND CAIUS COLLEGE

DEPARTMENT OF BIOCHEMISTRY

B.1-B.41	Funding and administration of research
B.42-B.230	Lectures
B.231-B.234	Requests to visit
B.235-B.260	General and miscellaneous

Funding and administration of research

B.1-B.20	Royal Society
B.21-B.30	Rockefeller Foundation
B.31-B.33	Other grants
B.34-B.41	Drugs, equipment etc

Royal Society

B.1-B.19	Metabolism of the developing egg. Between 1925 and 1943, with a break in 1929 when Needham was in the USA, the Royal Society provided Needham with annual grants for equipment and supplies for research on this subject. The material comprises notifications of the sums awarded, Needham's accounts, invoices and receipts for goods bought with money from the grants, and lists of papers and research carried out for the year of the grant.
B.1	Needham's manuscript list of Royal Society grants 1925-1943.
B.2	1925-1926; 1926-1927.

- B.3 1927-1928.
- B.4 1929-1930.
- B.5 1930-1931.
- B.6 1931-1932. Includes 'List of papers published since the last report'.
- B.7 1932-1933. Includes 'References to transactions, journals, etc in which results have been printed since the date of the last report' and application for an emergency grant.
- B.8 1933-1934. Includes 'Investigations in progress or projected'.
- B.9, B.10 1934-1935. Includes (at B.9) 'List of [published] papers' and list of main research activities. 2 folders.
- B.11 1935-1936. Includes 'List of papers'.
- B.12, B.13 1936-1937. Includes (at B.12) 'List of papers'. 2 folders.
- B.14 1937-1938. Includes 'List of papers'.
- B.15 1938-1939.
- B.16 'The remarkable Bayger correspondence Laying-season of 1939'. Contents of Needham's envelope so inscribed: correspondence *re* supply of specimens of newts from Poland by J.A. Bayger, May 1939.

.../

- /... Needham imported newts from Poland, rather than Germany, on political grounds. However, on receipt of Bayger's claim for over 540 zlotys in expenses (to be set against the Royal Society grant) W.W. Nowinski, a Pole doing research under Needham in Cambridge, suggested the figure was far too high. Bayger wrote to Needham explaining his expenses and defending his integrity.
- B.17 1939-1940.
- B.18 1940-1941.
- B.19 1941-1942; 1942-1943.
- Needham received awards for both these periods but in neither case was able to spend all the grant money and returned the unspent balance to the Royal Society.
- B.20 Notice of award of Royal Society grant to F.G. Hopkins from the Messel Fund, 17 November 1938; 'Report to the Royal Society on the grant made to Sir F.G. Hopkins for the work of Dr J. Needham and Mr C.H. Waddington on chemical aspects of organiser phenomena in amphibia (1938-1939)' by Needham.

Rockefeller Foundation

In 1934 the Rockefeller Foundation expressed its intention to fund work in the areas of embryology and genetics. Needham sought support from the Foundation for a research institute to bring together the various aspects of embryology then being studied in Cambridge. However, concern in Cambridge over the number of medical students entering the university (which included some studying in the biochemistry department) led to the plans for the institute being suspended in October 1936. The correspondence and papers document proposals put forward and negotiations arising.

There is also a little material relating to Needham's attempts to find funding at a more modest scale for his own and his colleagues' embryological research, and correspondence and papers from 1940 relating to the Foundation's concern for the future of science in the event of Nazi victory in Europe.

- B.21-B.30 Correspondence, chiefly with officials of the Rockefeller Foundation, and papers *re* the plans for the institute and grants to Needham and his researchers.
- B.21 1934. Includes 14pp draft letter to W.E. Tisdale, Assistant Director of the Foundation, setting out Needham's thoughts on the possible development of embryology in Cambridge with Rockefeller support. See also E.112.
- B.22 1935 January, February. Includes draft memorandum by D.M. Wrinch, *re* requirements for an institute of embryology in the area of x-ray analysis, and 6pp draft of letter from Needham to Tisdale incorporating points made by Wrinch.
- B.23 1935 March - June. Includes letter to the Secretary General of the Faculties suggesting the vacant Jacksonian Chair of Experimental Philosophy should be filled by a 'crystal physicist', and 4pp typescript 'Concrete memorandum forwarded to Rockefeller Foundation, June 16th 1935'.
- B.24 1935 July - November.
- B.25 1936 January - August. Chiefly *re* support for C.H. Waddington. Also includes 7pp typescript draft of Needham's 'Memorandum to the Vice-Chancellor and the Council of the Senate on the question of the extension of the Biochemical Laboratory'.
- B.26 1936 September - December. Includes final version of Needham's 'Memorandum...' as sent to the Vice-Chancellor, and correspondence and papers *re* possible Rockefeller funding for an extension to the Strangeways Research Laboratory. This was linked to a proposal that Needham and C.H. Waddington's work on embryology might be done at Strangeways.
- B.27 ca.1936. 11pp typescript 'Memorandum on Cambridge work on Organiser Phenomena',
- B.28 1937, 1938. Includes correspondence with F.G. Hopkins *re* attempts to secure funding for research.

B.29 1940. Correspondence *re* funding of science in Europe.

Early in 1940 W. Weaver of the Rockefeller Foundation wrote to American colleagues asking them to suggest areas of science where Europeans were making the sole or significant progress, and to name individuals of key importance. He passed the results on to J.S. Huxley for information who circulated them to Needham and others.

B.30 1941-1942. Chiefly *re* grants to Needham for work on the shape of protein molecules.

Other grants

B.31 Accounts etc for 'Special grant 1934-5' to C.H. Waddington.

B.32 Correspondence *re* unsuccessful applications for funding 1938.

Includes correspondence with the Department of Scientific and Industrial Research, Sir Halley Stewart Trust, Leverhulme Research Fellowships Committee and the Josiah Macy Jr Foundation,

B.33 Draft application for research work on organiser phenomena. *ca.*1939.

Drugs, equipment etc

Correspondence and papers, 1922-1942.

B.34 1922. Chemicals; universal Condenser; micro-dissection apparatus; inositol.

B.35 1923 June, July, October. Rubber; laboratory rats.

B.36 1923 November, December. Rubber; mistletoe.

B.37 1924. Chemicals; pyrex glassware.

- B.38 1925. Micro-camera; colour reproduction.
- B.39 1926-1930, nd. Fish etc from Scottish Marine Biological Association, Millport; chemicals; micro-dissection apparatus; other scientific instruments.
- B.40 Printed sales material for optical equipment, 1920s.
- B.41 1937, 1942. Importation of insects; scientific instruments.

Lectures

The papers in this section were found in Needham's folders. The material was principally used by Needham for updating his lectures on biochemistry to postgraduates.

The folders bore Needham's inscriptions listing the subjects covered by the material in the folders and usually an abbreviation referring to the course for which the material was pertinent. The abbreviations 'CB', 'CP' and 'CPB' refer to courses in comparative biochemistry, 'CE' or similar refers to a course in Chemical Embryology, 'IRA' to biochemical aspects of Integration, Regulation and Adaptation, and 'CE/IRA' to a combined course in the two given in the mid-1960s. These folders were in some cases also numbered. Some of the material was used in more than one course. A number of folders are very heavily inscribed and therefore have themselves also been preserved. Some of the material was also used by Needham in the preparation of his 1955 review article in the *Annual Review of Physiology* 17 (see F.353, F.354) - many folders bear the inscription 'ARP 54/55' or similar.

The material is chiefly bibliographical references, notes on the literature and offprints. Many of the offprints have been annotated by Needham, some extensively, and some offprints have manuscript notes intercalated. The bulk of the material dates from the 1950s and 1960s although there is older material in some of the folders. There are also syllabuses and instructions for practical work.

The catalogue entries give the abbreviation (where possible) and the main titles found on the folders.

B.42-B.116 Comparative Biochemistry

B.117-B.145 Chemical Embryology

.../

/...	B.146-B.174	(Biochemical aspects of) Integration, Regulation and Adaptation
	B.175-B.193	Chemical Embryology/Integration, Regulation and Adaptation
	B.194-B.229	Other folders
	B.230	Crystallography

Comparative Biochemistry

B.42	'CP/Practical etc (old)'. Includes material <i>re</i> teaching comparative biochemistry 1934; correspondence from E.J. Allen, Director of Marine Biological Association Plymouth Laboratory, <i>re</i> supply of specimens, February 1935; timetables for Part II lectures Michaelmas term 1941 and Lent term 1942; list of 'Part II course criticisms'; manuscript notes.
B.43-B.47	'General & introductory CP/1 biochemistry and evolution'.
B.43	'Biochemistry Post-Graduate course' on comparative biochemistry, 6pp typescript, 1 March 1954; manuscript notes on course and students 1957-1960.
B.44	Manuscript and typescript notes.
B.45	'Fifties new discoveries "sensations" ': chiefly press-cuttings, offprints <i>re</i> discovery of living coelacanth.
B.46	Offprints by M. Florkin.
B.47	Offprints by others.
B.48, B.49	'Comp. Biochem. of Vision CP/1'. Offprints of G. Wald. 2 folders.

- B.50-B.52 'Comp. Biochem of Vision Retinene etc CP/1'.
- B.50 Manuscript notes.
- B.51 Offprints by Wald.
- B.52 Offprints by others.
- B.53 'Phosphagens CP/1'. Manuscript notes; offprints.
- B.54 'CP/1 phylogenetic phenomena'. Manuscript notes; offprints.
- B.55, B.56 'CP/1 Offprints'. 2 folders.
- B.57, B.58 'Chem. ecol. CP/1 or 2'.
- B.57 Manuscript notes; offprints.
- B.58 Offprints by G.E. Hutchinson.
- B.59 'Accumulators Mg, Al, As, Sr esp V, Ni CP/2'. Manuscript notes; offprints.
- B.60-B.63 'Oceanography & Limnology CP/2'. Manuscript notes; offprints. 4 folders.
- B.64, B.65 'Kidney excrn papers CP/3'.
- B.64 Manuscript notes; offprints by H.W. Smith.

- B.65 Offprints by others.
- B.66-B.69 'Osmoregulin papers CP/3'.
- B.66 Manuscript and typescript draft ?for lecture on 'int. & ext. medium habita[?]t water-relns', includes one page dated 1944; manuscript graphs, notes.
- B.67 Offprints by J.A. Ramsay.
- B.68 Offprints by V.B. Wigglesworth.
- B.69 Offprints by others.
- B.70 'Osmoregn 1 CP/'. Manuscript notes.
- B.71-B.73 'Osmoregn 2 CP/3'.
- B.71 Manuscript notes and tables.
- B.72 Offprints by J.D. Robertson.
- B.73 Offprints by others.
- B.74-B.76 'Osmoregn 3 & resp[iratio]n'.
- B.74 Manuscript notes.

- B.75 Offprints by J.R. Robinson.
- B.76 Offprints by others.
- B.77-B.79 'Transition water-land CP/3'.
- B.77 Manuscript notes.
- B.78 Offprints by P.F. Scholander.
- B.79 Offprints by others.
- B.80-B.82 'Transition water-land metabolic rate adaptation'. Manuscript notes; offprints. 3 folders.
- B.83 'Animal luminescence CP/'. Manuscript notes; offprints.
- B.84 'Inorg. metab. CP/'. Manuscript notes; offprints.
- B.85, B.86 'Insect waxes & water-loss CP/'.
- B.85 Manuscript notes; offprints.
- B.86 Offprints by V.B. Wigglesworth.
- B.87 'Lipins, sterols & waxes Fats CP/'. Letter from N.W. Pirie *re* evolution and fat composition; manuscript notes; offprints.
- B.88, B.89 'Lectures on sterols and related substances'.

- B.88 Manuscript lecture notes for 'Advanced class'.
- B.89 Manuscript notes on 'Metabolic rate of hydrocarbons'; duplicated typescript formulae and manuscript list of hydrocarbons.
- B.90-B.93 'Nitrogen bases CP/'.
- B.90-B.92 Typescript lecture notes and tables on trimethylamine oxide, choline, betaines and other compounds, paginated 1-102. 3 folders.
- B.93 Manuscript notes; offprints.
- B.94-B.97 'Nitrogen excretion CP/ mem Some notes in CE prot excr. file'.
- B.94 27pp typescript notes + figures and tables (?for slides).
- B.95 Manuscript notes on nitrogen excretion in various classes of animals.
- B.96, B.97 Offprints. 2 folders.
- B.98, B.99 'Nitrogen metabolism enzymes etc CP/'.
- B.98 Manuscript notes.
- B.99 Offprints.
- B.100 'pH reguln & anaerobiosis CP/'. Manuscript notes.
- B.101 'Pigments (other than anthraquinone) (may follow on from sterols etc) CP/'. Manuscript notes; offprints.

- B.102 'Pigments, anthraquinone (for following up quinons and tanning)'. Manuscript notes, offprints.
- B.103 'Pigments. lipochromes carotenoids'. Typescript notes on carotenoids, paginated 12-21, + figures; manuscript notes; offprints.
- B.104 'Respn & Resp. pigments' CP/.
- B.105 'Carbohydrate metabolism CB/'. Manuscript notes; offprint.
- B.106, B.107 'CPB/8 nutrition general digestion'. Manuscript notes and offprints (chiefly by D.A. Waterhouse and R.F. Powing). 2 folders.
- B.108, B.109 'CPB/8 Symbionts in reln to digestive enzymes'. Manuscript notes; offprints. 2 folders.
- B.110-B.112 'CPB/8 Symbionts in relation to synthesis of essential food substances'.
- B.110 Issue of *Research Today* **3** (1946) on 'The chemistry of B vitamins' with manuscript notes and offprints intercalated.
- B.111 Offprints by G. Fraenkel.
- B.112 Offprints by others.
- B.113-B.116 'Comp. Bioch Practical'.
- B.113 Schedule of work for advanced class, 1933 and 1934; correspondence 1928-1934, chiefly *re* specimens and supply of fish etc; printed information *re* aquaria; list of demonstrations for comparative biochemistry; course description for experimental biology; duplicated typescript instruction sheets for biochemistry practical work.

B.114-B.116 Manuscript notes; duplicated typescript instruction sheets. 3 folders.

Chemical Embryology

B.117, B.118 'Chemical embryology O.S. CE/'.

B.117 Syllabuses and schedules of Needham's lectures 1928 (for course titled 'Chemical aspects of growth and differentiation. (Metazoa)'), 1933-1938, 1953, 1956, 1961, 1963 and nd.

B.118 Manuscript notes; Needham's envelope containing 'Pictures I want lantern slides of'; booklet of biological and anatomical natural history models sent to Needham 1934.

B.119 'Absorption (role of membranes yolk structure etc) CE/1'. Manuscript notes; offprints.

B.120 'Egg Chem. Constit. Normal developmt CE/1'. Manuscript notes; offprints.

B.121 'Constit & Cleidocity CE/1'. Letter from M. Lafon, 1948, *re* work on chemical embryology; manuscript notes.

B.122 'Water & pH relations CE/1'. Manuscript notes; offprints; figures.

B.123 'Egg Carb Metab CE/2'. Duplicated typescript lists of dehydrogenases, the glycolysis system, flavoproteins; manuscript notes.

B.124 'Egg Fats, Lipins, Steroids Metab. CE/2'. Manuscript notes; offprints; figures.

B.125 'Egg P, Ca Metab CE/2'. Manuscript notes; offprints.

- B.126 'Carbo. glycogen Claude Bernard onwards CE/2'. Manuscript notes; figures.
- B.127 'Horm - blood-sugar - especially relating to carbo-metab. CE/2'. Manuscript notes; offprint.
- B.128 'Vit CE/2'. Manuscript notes; offprint.
- B.129 'Energetics CE/3'. Manuscript notes.
- B.130 'Egg catabolism Respn Metab. rate CE/3, 4'. Manuscript notes; offprints.
- B.131 'Chem diffn of special tissues CE/4'. Material *re* Ph.D. examination (on the biochemistry of muscle development) 1951; manuscript notes; offprints.
- B.132 'Egg Growth differentiation determination heteranxesis CE/4'. Manuscript notes; figures; offprints, with letters *re* offprints 1955 and 1965.
- B.133 'Egg Prot[ein] Metab Anabolic CE/4'. Manuscript notes; offprints.
- B.134 'Prot. Metab. Anabolic [...] CE/4'. Manuscript notes; offprint.
- B.135 'Prot. Metab. catabolic N-excrn etc CE/4'. Manuscript notes; offprints.
- B.136 'Spiegelman [...] CE/4'. Manuscript and typescript notes on work by S. Spiegelman; offprint by Spiegelman.
- B.137 'Feather formation CE/5'. Manuscript notes 1940s.

- B.138, B.139 'Placenta CE/6'.
- B.138 Letter from A. St G. Huggett, 21 February 1931, with his comments on the proofs of Needham's section on 'Biochemistry of the placental barrier' in *Chemical Embryology*, with copy of the section; correspondence with A.H. Gordon *re* amino-acid levels in the amniotic and allantoic fluids, 1961.
- B.139 Manuscript notes; offprints.
- B.140-B.145 'Nuclear - cytoplasmic relations'.
Needham's folders so inscribed. These folders were also all inscribed 'transferred to CE', and with titles and other notes reproduced in the catalogue entries.
- B.140 'Classical work DNA & RNA invertebrate (holoblastic equal) ech[inoderms]. moll[uscs].' Manuscript notes; offprints.
- B.141 'DNA & RNA amphib unequal holoblastic'. Manuscript notes; offprints.
- B.142 'DNA RNA synθ dg. emb. devel. Chick (classical chem. NPR) (meroblastic)'. Manuscript notes; figures.
- B.143 'NPR mamm. tissues & tiss-cults (relns of other entities to DNA; Davidson et suis)'. Manuscript notes; offprints by J.N. Davidson.
- B.144 'Developmental block [...]'. Manuscript notes; offprints.
- B.145 'Metab. of nucleate and non-nucleate fragments of cells'. Manuscript notes; offprints by J. Brachet.

(Biochemical aspects of) Integration, Regulation and Adaptation

- B.146-B.149 '[...] Metabolic Integration, Regulation & Adaptation in Multicellular organisms standing orders IRA/1'.
- B.146 Needham's manuscript notes of lectures on 'Physico-Chemical Cytology' given by R.A. Peters, dated 1921.
- B.147 Manuscript and typescript summaries, schedules etc for courses 1950-1952. Includes exchange with F.G. Young *re* length of Needham's course.
- B.148 Manuscript and typescript summaries, schedules etc for courses 1953-1957 and nd.
- B.149 'Recent advances in the biochemistry of organiser phenomena in vertebrate embryology', Prague, 1957.

Lists of topics (in English and Czech) and slides.
- B.150 'General & theoretical IRA/1'. Manuscript and typescript notes, some relating to history of study in the area.
- B.151 'Analysis of cell structure and function [...] IRA/1'. Manuscript notes.
- B.152 'Subcellular morphology and biochemistry IRA/1'. Manuscript notes; offprint; duplicated sheets for Part 1B biochemistry course.
- B.153 'Histochem (sensu stricto) IRA/1 or 2'. Manuscript notes.
- B.154 'Claude etc [...] IRA/2'. Manuscript notes on pioneering work of A. Claude.

- B.155 'Micro-manipulation microdissection & microinjection IRA/2'. Manuscript notes; duplicated typescript papers on work of J. Comandon and P. De Fonbrune.
- B.156 'Mitochondria Golgi bodies Cleavage asters IRA/2'. Manuscript notes; offprints.
- B.157 'Nuclear-cytoplasmic relations [...] IRA/2'. Manuscript notes; offprints.
- B.158 'Ultramicrochemical techniques in general Cylinder technique IRA/2'. Manuscript notes; offprint.
- B.159 'Ultramicrorespirometry (mainly protozoa) IRA/2 [and CE/5]'. Manuscript notes; offprint.
- B.160 'Acetabularia biochemical work Brachet et suis Hämmerling epigoni IRA/3'. Manuscript notes; offprint.
- B.161 'Amp prim. org[anise]r biochem. mech. of induction contd IRA/3'. Manuscript notes; offprints.
- B.162-B.164 'Biochem & morphogenesis lects Prim & Sec Organisers IRA/3'.
- B.162 Duplicated typescript list of lectures and Needham's manuscript notes on lectures by C.P. Raven and J. Pasteels at 'Edinburgh Entwicklungsmechanik Symposium March 1951' (see also H.83); manuscript notes (in French) for '3 lectures at Lyon April 1951' (see also H.84); 'Suggested breakdown of 4 lectures on morphogenesis and differentiation...', 21 December 1961.
- B.163 Manuscript notes; offprints; etc.
- B.164 Offprints by Needham.

- B.165 'Enzyme-profiles nucleus & cytoplasm IRA/3'. Manuscript notes; offprint.
- B.166 'Subcellular morphol. & biochem. [...] IRA/3'. Manuscript notes, including notes on lecture by de Duve 5 March 1954.
- B.167-B.169 'Nuclear-cytoplasmic relations'.
Needham's folders so inscribed. These folders were also inscribed 'IRA/4' and with titles reproduced in the catalogue entries and other notes.
- B.167, B.168 'General picture DNA RNA functions [...]'.
B.167 Manuscript notes; duplicated typescript reference lists for lectures on biosynthesis in micro-organisms.
- B.168 Offprints.
- B.169 'Isolation and transplantation [...]'. Manuscript notes; offprints.
- B.170 'Parthenogenesis Einsele-Shaver ribonuclease as anti-mitotic'. Manuscript notes; offprints.
- B.171 'Secondary conductors IRA/5-7'. Manuscript notes; offprint.
- B.172 'Toivonen [...] IRA/5-7'. Manuscript notes.
- B.173 'Anisometric molecules Flow birefringence and anomalous viscosity [...] IRA 5'. Manuscript notes; offprints.
- B.174 'Plant inductors hormones IRA/8'. Manuscript notes; offprints; request from American Society of Plant Physiologists to comment on recommendations for terminology of chemical regulators in plants, 1952.

Chemical Embryology/Integration, Regulation and Adaptation

These folders were found between two markers indicating the 'Beginning' and the 'End of combined CE/IRA 63 65'.

- B.175 'CE/IRA'. Manuscript outline of course October 1965.
- 'Concluding ideas'. Manuscript 'table for conclusion of whole IRA course'.
- B.176 'before Am ϕ prim org[anise]r [...] IRA/2'. Manuscript notes.
- B.177 'Amphib primary organiser RNA proteins fractionation CE/IRA 65'. Manuscript notes, some from 'JEEM conference' April 1957.
- B.178 'Amphib primary organiser RNA proteins and transmission CE/IRA 65'. Manuscript notes; offprints.
- B.179 'Anisometric molecules fibrillar protoplasmic structure [...] IRA/7'. Manuscript notes; offprints.
- B.180 'Anisometric molecules other fibrillar structures [...] IRA/5'. Manuscript notes; offprints.
- B.181 'Dissociability of fundamental processes IRA CE/5'. Manuscript notes; proofs of article by Needham 'Dissociability of fundamental processes', *Biological Reviews* **8** (1933); offprints; figures.
- B.182 'Ech. development double-gradient system [...]'. Manuscript notes.
- B.183 'Hormones Inverts in gen. Crust IRA/10'. Manuscript notes; offprints.
- B.184-B.186 'Insect metamorphosis' and 'Biochem. of scaffolding structures (larval and pupal life)'.

Needham's folders so inscribed. These folders were also inscribed with titles, which are reproduced in the catalogue entries, and other notes.

- B.184 'Biochem & metab. during CE/6'. Manuscript notes; duplicated typescript sheets; offprints.
- B.185 'Hormones reviews and ideas IRA/10 & CE/8'. Manuscript notes; offprints.
- B.186 'Hormones papers IRA/10 & CE/8'. Manuscript notes; offprints.
- B.187 '[...] Lithium story [...]'. Manuscript notes.
- B.188 'Mitosis (birefringence [...]) IRA/7'. Manuscript notes; offprints.
- B.189 'Mitosis mitotic inhibitors [...] IRA/ temporarily omitted'. Manuscript notes; offprints.
- B.190 'Mosaic egg biochem. Intracellular polar lobe inductions'. Manuscript notes; offprint.
- B.191 Mosaic egg morphogen [...] IRA/2'. Manuscript notes; offprints.
- B.192 'Niu papers CE/IRA 65'. Manuscript notes on work by M. C. Niu.
- B.193 'Structure-proteins [...] IRA/5 & CE 4'. manuscript notes; offprint.

Other folders

These folders were found with those listed above but are not marked with a course abbreviation. In many cases, however, the contents relate directly to topics covered in Needham's biochemistry courses.

- B.194 'Acquired tolerance Ontogenetics of antibody forms [...]'. Correspondence and papers *re* Ph.D. examination (on the effects of embryonic environment on post-hatching development of chicks) 1956; offprints.
- B.195 'Alk. phosphatase story from utilisation of Ca of shell in bone-formation'. Manuscript notes; offprints.
- B.196 'Amphib. metamorph. omitted 1956'. Manuscript notes.
- B.197, B.198 'Analogue - molecule specific inhibitns and radiomimetic cpds etc'.
- B.197 Manuscript notes, including notes ?on lectures by R.A. Peters, 16 February 1955 and D.W. Woolley, 2 November 1955.
- B.198 Offprints.
- B.199 'Cancer fundamentals'. Manuscript notes; offprint.
- B.200 'Chondrogenetic iriduction [...]'. Manuscript notes.
- B.201 'CPF succession of energy-sources and reln Aq. Terr.' Manuscript notes.
- B.202 'Fertilisation phenomena and cell cohesion in general [...]'. Manuscript notes; offprints.
- B.203 'Fructose story [...]'. Manuscript notes; offprint.

- B.204 'Gastrular metab'. Manuscript notes.
- B.205 'h & t [head and tail organisers] leading to mesodermal inductor'. Manuscript notes; offprints, chiefly by Y.K. Okada and T. Hama.
- B.206-B.212 'Invert[ebate]s'.
Needham's folders so inscribed. These folders were also inscribed with titles, which are reproduced in the catalogue entries, and other notes.
- B.206, B.207 'Blood Chem. Ammonaemia Aminoacidaemia Ureaemia etc'. Offprints by M. Florkin *et al.* 2 folders.
- B.208-B.212 'Blood circn & coagn [...]'. Manuscript notes; offprints. 5 folders.
- B.213 'Nephic excretion etc and its evolution'. Manuscript notes; offprints.
- B.214, B.215 'Muscle and electric organs insect mitochondria etc'. Offprints. 2 folders.
- B.216 '[...] Non-phosph[orylating] glycolysis story'. Manuscript notes.
- B.217 'Organ disaggregations to component g/layers [...]'. Manuscript notes; offprints.
- B.218 'Plant tissue culture & the Crown-Gall problem'. Manuscript notes; photographs of 'Nétien & collabs Lyon tissue cultures of cambium of carrot', April 1951; offprints.
- B.219 'Porphyrin Hb synθesis in emb'. Manuscript notes; offprints.
- B.220 'Regen [...]'. Manuscript notes.

- B.221 'Serol [...]'. Manuscript notes.
- B.222 'Slime moulds combination and disaggregation in each life-history'. Manuscript notes.
- B.223 'Tartar Weisz etc on Stentor'. Offprints.
- B.224 'Tissue affinities & repulsions (germ layers) Tissue movements Biochem & Metab'. Manuscript notes, including notes on ?lecture by J.K.F. Holtfreter, Oxford 16 April 1940.
- B.225 'Tissue disaggregations [...]'. Manuscript notes; offprints.
- B.226 'Tissue disaggregations [...] & recombinations [...]'. Manuscript notes.
- B.227 'Tissue & cell movements Teratomata'. Manuscript notes; offprint.
- B.228 'Tracheal respiration'. Manuscript notes; offprints.
- B.229 'Vectorial determination and detmn of spatial axes [...]'. Letter from C. Robinow enclosing photographs of micro-organisms in myelin structure, 20 June 1941; manuscript notes; offprint.

Crystallography

- B.230 Typescript 'Note on the proposed content of the new 1st-year course...Elementary Physical and Chemical Crystallography'. Nd.

Requests to visit

B.231 1934-1936.

B.232 1938-1949.

B.233 1954-1963.

B.234 1964-1973.

General and miscellaneous

B.235 Papers *re* Report of the Syndicate on the Medical Courses and Examination of the University, June 1932.

The Report proposed changes to the medical courses offered at Cambridge, one of which involved transferring biochemistry from the Natural Sciences Tripos to a new Medical Sciences Tripos. Needham spoke for the biochemistry department in objecting to this proposal on the grounds that it would split the department and harm biochemistry's status as a pure science.

B.236 Correspondence and papers, 1934, *re* career destinations of graduates of the Cambridge biochemistry department and employment options for biochemists.

B.237-B.251 Research in wartime, 1938-1942

In 1938 the Association of Scientific Workers (ASW) stressed the need for an organisation to utilise effectively science in the country's defence in wartime. On the outbreak of war it again urged the need for the efficient use of scientists. The Cambridge branch of the ASW urged the authorities of university laboratories to draw up schemes for possible wartime research for scientists working in those laboratories and submit them to the government. Needham was involved in drawing up the scheme for workers in the biochemistry laboratory.

.../
/... Found with this material and kept with it are correspondence and papers relating to the Biochemistry Subcommittee of the Advisory Research Council of the Chemical Society and the Biology War Committee.

- B.237 Papers of the Association of Scientific Workers. Includes rough manuscript draft by Needham of resolutions of the Cambridge branch.
- B.238 'Biochemical Laboratory, Cambridge - Work which could be undertaken in time of war', 4pp typescript with manuscript annotation, November 1938.
- B.239 Notice of meeting in Strangeways Laboratory, 19 September 1939, 'To discuss the various [research] problems suggested to decide which shall be immediately attacked [...]', with annotated list of 'Investigations suggested'; correspondence from colleagues *re* war work; manuscript notes ?from meeting.
- B.240-B.243 'Memorandum on present work and suggested problems. Cambridge Biochemical Department.'
- Needham had asked all workers in the laboratory to suggest ways in which their current work could be utilised in the war effort or how otherwise their knowledge and skills might be used. He assembled their replies in the memorandum.
- B.240-B.242 Typescript and manuscript draft. 3 folders.
- This comprises the original or retyped replies of members of the department and other workers in the laboratory.
- B.243 Typescript draft, 8pp with extensive manuscript correction and annotation; 6pp duplicated typescript.
- B.244-B.247 Biochemistry Subcommittee of the Advisory Research Council of the Chemical Society
- In October 1939 Needham met with R.A. Peters and J.H. Quastel to discuss coordination of wartime work in biochemistry on a national scale. It was felt this should be done through a specially constituted subcommittee. The subcommittee was suspended in 1941 as its role had largely been subsumed within that of the Biology War Committee (B.248-B.251).

- B.244 Correspondence with colleagues *re* proposed subcommittee, October - November 1939; manuscript notes; miscellaneous material found therewith.
- B.245 Papers for first meeting of the subcommittee, 24 November 1939. Some papers are annotated by Needham.
- B.246 Correspondence arising from first meeting; agenda and papers for second meeting, 17 January 1940.
- B.247 Correspondence and papers, January 1940 - November 1941.

Includes letter, 17 February 1940, *re* flavouring properties of monosodium glutamate, summarised report of research workers 31 May 1940 and minutes of final meeting, 29 October 1940.
- B.248-B.251 **Biology War Committee**

This was formed in 1941 as the Biological War Committee by representatives from the Department of Scientific and Industrial Research, Medical Research Council and Agricultural Research Council being joined by representatives of learned societies and academics. The committee met to channel information and ideas for research between government and biological scientists and to prepare reports on 'any aspect of the War which is essentially biological or which has biological implications'.
- B.248 Papers of first meeting of committee, 30 October 1941. Includes introductory statement on origin of the committee.
- B.249 Papers of meetings, 4 December 1941 and 5 February 1942.
- B.250 Papers of meetings, 2 April and 18 June 1942.
- B.251 Papers of meeting, 17 September 1942.

- B.252 Correspondence with A.C. Chibnall *re* future of department of biochemistry, 1943-1946.
- Chibnall succeeded F.G. Hopkins in the Sir William Dunn Chair of Biochemistry, Cambridge in 1943 (see C.21).
- Includes note on 'Post-war needs of the Department of Biochemistry' by Chibnall, 10 January 1944 and first draft of Needham's March 1944 letter to Chibnall *re* the post-war organisation of the biochemistry department, Needham's own position within it and his plans for future work (see also C.24).
- B.253 Animal experimentation licence 1942-1947.
- B.254 Exchange with F.G. Young *re* future direction of Needham's work and his existing and coming commitments, September 1949.
- Young succeeded A.C. Chibnall in the Sir William Dunn Chair of Biochemistry, Cambridge following Chibnall's resignation in September 1949.
- B.255 'Hopkins reprint collection'. Contents of Needham's folder so inscribed: correspondence and papers *re* housing F.G. Hopkins's offprint collection in the biochemistry department, 1950.
- B.256 Correspondence, October 1953 - June 1954 *re* visit to Marine Biological Association Plymouth Laboratory.
- Needham visited the Laboratory in June 1954 with two graduate students to initiate a scheme to give young biochemical researchers with a physico-chemical training experience of marine biological work.
- B.257, B.258 Papers *re* First Report to the General Board of the Committee appointed to review the Natural Sciences Tripos, 1961-1962. 2 folders.
- The report of the Committee recommended changes in courses, particularly those offered in Part I. The papers reflect the reactions of the Department of Biochemistry and Faculty Boards of Biology to the report.

- B.259 Duplicated typescript papers 'Notes on the means of entry to the University of Cambridge with the intention to study biochemistry' and 'Notes on the subjects which may be studied at school as preparation for entry to University course in biochemistry', 1963.
- B.260 6pp duplicated typescript draft account of the Department 1914-1963 by F.G. Young, sent to Needham for comment 17 September 1963. With Needham's manuscript corrections.

UNIVERSITY GENERAL AND MISCELLANEOUS

- B.261-B.263 Correspondence and papers *re* car parking, 1932-1934.
- Needham and other members of scientific laboratories requested that more car parking spaces should be provided in the area to the south of Downing Street. In 1934 after representations had been made, a Syndicate on Accommodation for Motor Vehicles was established and it presented its recommendations in May. Needham served on the syndicate.
- B.261 1932, 1933.
- B.262 1934. Papers for meetings of the Syndicate on Accommodation for Motor Vehicles; letter from D. Keilin arising from its recommendations, May.
- B.263 Manuscript notes etc.
- B.264 Note on 'Student's Inter-Faculty Co-ordinating Committee', 3pp typescript, ca.1938; papers *re* memorandum on teamwork by Ph.D. candidates, 1941.
- B.265, B.266 Papers *re* election of Chancellor of Cambridge University 1950. 2 folders.
- On the death of Field Marshal Smuts, two candidates were put forward for the Chancellorship: Lord Tedder and Pandit Nehru, Prime Minister of India. Needham supported Nehru. However, Nehru was not consulted before his nomination and subsequently indicated that he would decline to accept it. The prospect of a contest caused considerable media interest and much of the material is newspaper cuttings.

- B.267-B.271 Papers *re* Report of General Board on the Development of the University 1956-1962.
- The Report initiated debate about the proportion of science and technology courses and students to those of the humanities courses and students within the university. Needham argued for the introduction of a humanities component into science courses and proposed a 'Principles of Science' Tripos.
- B.267 Senate House discussions on the Report 31 January and 1 May 1956.
- Needham's notes on proceedings and 5pp typescript 'remarks' delivered at the second discussion.
- B.268 Needham's manuscript notes on Senate House discussion 5 November 1957; manuscript and typescript drafts of 'The proposed "Principles of Science Tripos" ' by Needham, published in *Cambridge Review*, 16 November 1957, with copy of article.
- B.269 Letter to Needham *re* General Board committee to consider combined arts and science courses, 23 January 1959; 'Report of the General Board on course combining arts and science', 8 June 1960.
- The report recommended the establishment of Principles of Science Tripos.
- B.270 Papers of Department of Biochemistry staff meeting 7 March 1962 to discuss courses in principles of science.
- B.271 Printed background material.
- B.272 Papers for Department of Biochemistry staff meeting to discuss changes to Natural Sciences Tripos, 15 February 1956, annotated by Needham; papers *re* possible extension to the Department funded by the Wellcome Trust, May 1956.
- B.273, B.274 Papers *re* abolition of Latin as an entry requirement for Cambridge University, 1959-1960.
- Needham was opposed to ending knowledge of a classical language as a compulsory entry requirement.

- B.273 Drafts of memoranda by Needham to the Vice-Chancellor setting out his views; manuscript notes.
- B.274 Printed material etc.
- B.275 Manuscript notes on 'Senate House Sociology Discussion 26/1/60'.
- B.276 Papers, March - May 1961, *re* discussion meetings on possible widening of the history course to include more non-European history.
- B.277 Correspondence with H. Lazard *re* Lazard Foundation, 1962-1963.
- B.278 Miscellaneous papers 1962-1964.
- B.279-B.284 'University teaching, readerships etc'. Contents of Needham's folders so inscribed: correspondence and papers *re* reaction to Report to the General Board of the Committee on Teaching, 1964.

The Report, issued on 1 May, recommended the establishment of minimum teaching requirements for Professors and Readers. Needham opposed this and drafted a memorandum for presentation at the discussion of the Report at Senate House on 9 June.
- B.279 Report to the General Board of the Committee on Teaching 1 May 1964, with Needham's manuscript notes intercalated.
- B.280 Drafts of Needham's memorandum setting out his views on the Report, with manuscript notes on the comments of colleagues to whom Needham had sent drafts.
- B.281 Manuscript notes on discussion of Report by Association of University Teachers, 2 June, and manuscript notes and printed reports of discussion at Senate House, 9 June.

- B.282 14pp duplicated typescript 'Summary of views of Colleges on main recommendations affecting them in the report [...]'.
B.283, B.284 Miscellaneous background material: manuscript notes, lists of Professors etc. 2 folders
B.285-B.288 Correspondence and papers *re* reaction to reports to the Council of Senate on the administrative organisation of the University, 1967-1968.
Needham had strong reservations about certain aspects of the reports, which he recorded in a memorandum.
B.285 Needham's annotated copies of Report to the Council of Senate on the administrative organization of the University, 13 October 1967 and of comments of the Faculty Board of Oriental Studies on the Report, 13 November 1967.
B.286 Manuscript and typescript drafts of Needham's memorandum for the Senate House discussion of the Report, 28 November.
Needham was unable to present the memorandum in person and intended it to be given by a colleague. In the event the memorandum was not read and therefore could not be incorporated in the published discussions. However, it was widely circulated and received support.
B.287 Correspondence from colleagues who had received copies of Needham's memorandum; marked copy of published discussion; fly-sheets for *placet* and *non-placet*.
B.288 First report of the Council of Senate on the administrative organisation of the University, 7 June 1968.
This revised the report of 13 October.
Annotated copy; typescript of Needham's remarks during the discussion; correspondence *re* fly-sheet.
B.289 Manuscript notes on 'UCR discussion', 7 May 1968, *re* proposal to close the University Combination Room in the Old Schools building.

- B.290-B.295 Development of west Cambridge.
- From the mid-1960s it became clear that the University would have to expand in order to accommodate the needs of the University's science departments. The 1965 Report to the General Board of the Committee of the Board on the long-term needs of scientific departments concluded redevelopment of city centre sites would be insufficient and recommended the relocation of scientific departments to west Cambridge. The University accepted the recommendation.
- In November 1969, however, land nearer the centre of Cambridge became available when Jesus College decided to sell its rifle range and offered the University the opportunity to buy it. The site was mooted for the new Cavendish laboratory.
- The material relates to the developments in west Cambridge and to associated moves to sell off certain central city sites for redevelopment.
- B.290 Report to the General Board of the Committee of the Board on the long-term needs of scientific departments, 8 December 1965.
- B.291 Opposition to building Turbomachinery Laboratory on Madingley Road, August 1969.
- B.292 Discussion of west Cambridge development in Senate House, 25 November 1969. Includes typescript drafts of Needham's and B.M. Shaffer's memoranda opposing the development.
- B.293 Papers for meeting of Cambridge Colleges' Committee, 23 May 1970.
- The meeting was principally concerned with the possible development of the rifle range site.
- B.294 Further correspondence and papers *re* rifle range site, May 1970.
- B.295 Correspondence and papers *re* Lion's Yard development, June-November 1970.
- The University planned to sell Lion's Yard to the City Council for the construction of a multi-storey carpark. Needham opposed this.

- B.296 Correspondence *re* honorary degrees 1969-1971.
- B.297 Correspondence *re* borrowing periodicals from the university library, January 1972; letter *re* nursery and creche facilities in the university, 1976.

HISTORY OF SCIENCE COMMITTEE

In 1936, at Needham's suggestion, a committee was established, supported by the Faculty Boards of Biology, Physics and Chemistry, to arrange courses of lectures in the history of science. Needham was the first Chairman and Secretary of this History of Science Lectures Committee. The first history of science lectures were delivered in Michaelmas Term 1936. Lecturers included some of the leading scientists of the day - including Barcroft, W.H. Bragg, Eddington, Hopkins and Rutherford - and the collected lectures were published by Cambridge University Press. In early 1939 the Committee was suspended but it was re-formed in May 1942, with Needham again as Chairman (succeeded by H. Butterfield on Needham's departure for China). In 1944, following the presentation of R.S. Whipple's collection of historical scientific instruments and books to the University, it was proposed to create a university museum for the history of science to be followed in due course by a department of the history of science.

The establishment of a History of Science Committee was approved by the University in November 1945 and the reorganised committee began work in March 1947. The Committee continued to arrange lectures as before but also planned for the establishment of teaching posts in the history of science and the creation of the history of science museum. In October 1950 an Assistant Lecturer was appointed, attached to the Faculty of History. In 1951 the half-subject 'History and Philosophy of Science' was introduced into the Natural Sciences Tripos (Part I), a Committee of Management for the History and Philosophy of Science having been established to oversee this. In 1956 the History of Science Committee and the Committee of Management were merged to become the History and Philosophy of Science Committee. Needham served until 1971 (Chairman 1962-1964).

- B.298-B.306 Lectures
- B.307-B.354 Committee papers and correspondence
- B.355, B.356 Writings of Gerrard Winstanley and the Diggers
- B.357-B.368 Comenius Tercentenary

Lectures

B.298-B.306 Manuscript and typescript draft of 'Background to Modern Science. Ten lectures at Cambridge arranged by the History of Science Committee 1936'. 9 folders.

This was the first series of history of science lectures organised by the Committee. The collected lectures were edited by Needham and W. Pagel and published by Cambridge University Press in 1938.

Committee papers and correspondence

Principally committee papers of the History of Science Committee 1947-1955, the Committee of Management for the History and Philosophy of Science 1950-1955, and the History and Philosophy of Science Committee 1956-1971. The material was found in Needham's own folders, arranged chronologically. Also includes a little correspondence relating to the establishment of the History of Science Lectures Committee and the first series of lectures.

B.307 1935-1936, 1938. Correspondence *re* establishment of History of Science Lectures Committee and programme of lectures for 1936-1937 and ?1939. Sent to Needham by W. Pagel, 20 September 1969 and 12 April 1970.

B.308 1944-1947. Includes 'Second Memorandum on the revision of the Natural Sciences Tripos' by J.A. Ratcliffe, 3pp duplicated typescript, 4 November 1946; 'Mr Robinson's syllabus of economics for science students', 2pp duplicated typescript, 2 December 1946.

B.309 1948. Includes correspondence in which Needham expresses disquiet at the direction being taken by History of Science Committee.

B.310 1949-1950 March.

- B.311 1950 May. Meetings of Committee of Management for the History and Philosophy of Science.

At this stage the Committee was divided into two, to consider the introduction of the subject into Parts I and II of the Natural Sciences Tripos separately.
- B.312 1950 June. Preparation of report to the University by Committee of Management for the History and Philosophy of Science.
- B.313 1950 July - December.
- B.314 1951.
- B.315 1952 January - May. Includes draft scripts for first examinations in History and Philosophy of Science.
- B.316 1952 June. 'The teaching in Cambridge of the philosophy of science' by M.M. Braithwaite, 52pp typescript.
- B.317 1952 October - December.
- B.318 1953. Includes correspondence *re* possible use of St Michael's Church, Cambridge for Whipple Museum.
- B.319 1954 January - June.
- B.320 1954 July - November. Includes material *re* establishment of Diploma course in History and Philosophy of Science.
- B.321 1955 May. Includes material *re* establishment of Diploma course.

- B.322 1955 June, July. Includes material *re* establishment of Diploma course.
- B.323 1955 November. Includes material *re* establishment of Diploma course.
- B.324 1956 January - June. Includes correspondence with A. Koslow *re* visit to Cambridge.
- B.325 1956 October, December.
- B.326 1957 March - September.
- B.327 1957 November. Includes correspondence with D.J. Price *re* developments in history of science.
- B.328 1958.
- B.329 1959 January - March.
- B.330 1959 April - July.
- B.331 1959 October, November.
- B.332 1960.
- B.333 1961 February - June. Includes letter and manuscript note *re* talk by Needham to the British Society for the History of Science on the history of science at Cambridge, 13 May.
- B.334 1961 October.

- B.335 1962. At the meeting of 29 May Needham was elected Committee Chairman from October 1962, and it was agreed to begin moves towards a Department of the History and Philosophy of Science.
- B.336 1963.
- B.337 1964 February, March.
- B.338 1964 May - October.
- B.339 1965 January - April. Includes 'Request for the formation of a Department of History and Philosophy of Science', 2pp duplicated typescript.
- B.340 1965 May - November. Includes correspondence with M.M. Davies *re* development of history of science at Cambridge.
- B.341 1966 February, May.
- B.342 1966 October, November.
- B.343 1966 November.
- B.344 1967.
- B.345 1968.
- B.346 1968-1969. Curatorship of Whipple Science Museum.

- B.347 1969. Includes letter from Needham to Lord Annan *re* possible closure of History and Philosophy of Science Department at University College London.
- B.348 1969. Lecturership.
- B.349 1970 February - April. Includes material *re* possible establishment of Wellcome Unit for the History of Medicine at Cambridge.
- B.350 1970 May.
- B.351 1970 July - October. Includes exchange *re* Wellcome Unit.
- B.352 1970. Curatorship and Assistant Lecturership.
- B.353 1971-1972.
- B.354 1973-1977. Colloquia and seminars.

Writings of Gerrard Winstanley and the Diggers

In January 1941 L.D. Hamilton of the Oxford University History Society proposed a book of selected writings of the seventeenth century radical Gerrard Winstanley and others in the Digger movement. The proposal was put to Cambridge University Press through the History of Science Lectures Committee.

- B.355 Correspondence 1941-1942, principally from Hamilton and C. Hill.
- B.356 Typescript summary of the project and lists of Digger writings.

Comenius Tercentenary

Papers relating to the celebration of the 300th anniversary of the visit of the Czech theologian and writer Comenius (Jan Amos Komensky) to England in 1641. The official commemoration was held in the Senate House of Cambridge University, 24 October 1941. A Comenius Tercentenary Committee was established, on which sat Needham (Convenor), Butterfield and Sir William Dampier, all members of the History of Science Lectures Committee. The papers delivered during the commemoration were edited by Needham and subsequently published by Cambridge University Press as *The Teacher of Nations* (working title *Science and Free Peoples*).

- B.357-B.361 Correspondence *re* the organisation of the official commemoration and subsequent publication. The chief correspondent is R.F. Young, the leading British scholar on Comenius.
- B.357 February - May 1941. Includes letter from J. Masaryk asking Young to form a committee to organise a commemoration of Comenius. Young passed a copy of the letter on to Needham.
- Folder also includes poster for talk on 'Comenius as seen by a British scientist' by Needham to Czechoslovak-British Friendship Club, London, 27 May.
- B.358 June - August 1941.
- B.359 September, October 1941.
- B.360 November, December 1941. Includes 'The problem of Central European youth', 8pp typescript sent to Needham and 3pp typescript on post-war reconstruction referring to problems of youth by the painter O. Kokoschka.
- B.361 1942.
- B.362, B.363 Cambridge Commemoration.
- B.362 Publicity booklet; poster; programme in Czech; Needham's manuscript notes on proceedings; manuscript notes of invitees etc.

- B.363 Press-releases; press-cuttings. Also includes issue of *The Spirit of Czechoslovakia*, 30 September 1941, on Comenius.
- B.364-B.367 Typescript drafts of chapters of book. 4 folders.
The chapters were sent to Needham for editing by their authors and bear his sometimes extensive manuscript corrections.
- B.368 Annotated and corrected first proofs.

FACULTY BOARD OF ORIENTAL STUDIES

Needham was made a member of the Faculty of Oriental Languages (later Oriental Studies) in October 1949.

- B.369-B.373 General correspondence, 1947-1969.
- B.369 1947-1949. Includes correspondence with researchers wishing to work on the history of science and technology in the Far East.
- B.370 1951, 1952. Includes letter from Needham *re* vacant Professorship in Chinese Language and History.
- B.371 1953, 1954. Supervision of student.
- B.372 1955-1962.
- B.373 1967-1969. Prospective students.

- B.374-B.376 Papers for Faculty Board of Oriental Studies meetings, 1963-1968.
- Only those papers for meetings which bear Needham's manuscript annotations have been retained.
- There is a complete set of papers of the Faculty Board meetings in Cambridge University Archives.
- B.374 1963, 1964.
- B.375 1965. Includes papers *re* proposed East Asian Centre in Cambridge.
- B.376 1966-1968.

GONVILLE AND CAIUS COLLEGE

Needham was a Fellow of Gonville and Caius College from 1924. He served as Librarian of the College 1959-1960 and President 1959-1966. In 1966 he was appointed Master, a post he held to 1976.

- B.377 Miscellaneous correspondence, 1976-1980.
- B.378-B.388 Governing Body, Ordinary College and General meetings.
- The material covers the period 1976-1980, and is chiefly papers for meetings, some annotated by Needham. There is also a little related correspondence. Subjects raised in this period include the admission of women undergraduates to the college, and the state of the college library.
- B.378 1976.
- B.379 1977 January.
- B.380 1977 April, October.

- B.381 1978 January.
- B.382 1978 April.
- B.383 1978 October.
- B.384 1979 January.
- B.385 1979 April, May, October.
- B.386 1980 January.
- B.387 1980 February - April.
- B.388 1980 April, October.

SECTION C SINO-BRITISH SCIENCE COOPERATION OFFICE C.1-C.166
(SBSCO)

Needham's interest in China dated from contact with Chinese colleagues at Cambridge from the mid 1930s. He taught himself Mandarin Chinese and began to study Chinese science and history. In 1939, responding to appeals for assistance, he and his wife offered to go to China to help in the reconstruction of Chinese science. Meanwhile Needham was active in seeking support for Chinese academics in the UK.

Early in 1942 Needham and E.R. Dodds, Regius Professor of Greek at Oxford, were invited to visit China under the auspices of the British Council. They arrived in the autumn of 1942, Needham travelling via the USA. In China Needham was made Head of the British Scientific Mission and later Scientific Counsellor to H.B.M. Embassy at Chungking (then the 'acting-capital' of China). Under the auspices of the British Council Needham established the Sino-British Science Cooperation Office (SBSCO) and became its first Director. The SBSCO was responsible for assessing the needs of Chinese scientific, technological and medical institutions and researchers, and facilitating the supply

of equipment, medicines, books and journals to China. Needham made several journeys through China, visiting many institutions to assess for himself the needs of Chinese research and teaching centres. He also gave many lectures on a variety of subjects from biochemistry to world politics. He was later joined by his wife Dorothy who was appointed Associate Director of the SBSCO.

In a letter of 22 January 1946 (C.32) to A.C. Chibnall Needham set out the logistical achievements of the SBSCO:

'...with 17 scientists (5 British, 12 Chinese), not all present at one time...we visited 300 laboratories, covering over 25,000 km journeys; we flew in by RAF over the hump [£]60,000 worth some tons of scientific equipment for Chinese scientists; we flew in some 7,000 scientific and technical books worth many millions of Chinese \$, and microfilm and actual copies of 200 leading British scientific journals. We sent 150 original MSS by Chinese authors to the west for publication, and 200 Chinese scientific journals. Exchanges of information were innumerable'.

In addition to his role as Director of the SBSCO, the Chinese Government appointed Needham adviser to the National Resources Commission, the Chinese Airforce Research Bureau and the Chinese Army Medical Administration. He was also warmly received by the Chinese scientific community and elected to a number of academies including the Academia Sinica and Peiping National Academy. Needham left China in February 1946. In October 1947 Chiang Kai-Shek awarded Needham the Order of the Brilliant Star with Cravat in recognition of his work in promoting good relations between Britain and China. It was presented to Needham by the Chinese Ambassador to Britain in July 1949.

Needham wrote regular reports on the organisation and state of science in China for *Nature* and in 1948 edited the book *Science Outpost* which described the work of the Sino-British Science Cooperation Office. Needham's experiences in heading the SBSCO, an experience in scientific cooperation between nations, was crucial to his formulation of plans for wider international science cooperation within the new UNESCO.

The papers include correspondence, manuscript notes and typescript drafts and printed and duplicated papers. Some material is on rice paper and in consequence fragile.

The material is presented as follows:

C.1-C.15

ORIGINS OF THE CHINA MISSION

C.16-C.55	GENERAL CORRESPONDENCE
C.56-C.70	VISITS TO INSTITUTIONS
C.71-C.78	LECTURES
C.79-C.138	REPORTS, PUBLICATIONS AND BROADCASTS
C.139-C.146	ADMINISTRATIVE
C.147-C.166	MISCELLANEOUS MATERIAL

ORIGINS OF THE CHINA MISSION

Correspondence and papers, 1939-1942 *re* British support for Chinese universities and academics, Chinese students in Britain and correspondence *re* Needham's departure for China.

C.1 1939 January - November. Chiefly *re* the Needhams' offer to go to China to assist in the reconstruction of Chinese science.

C.2 Lectures by Chung-Shu Lo, appealing to British universities for assistance for Chinese universities:

'The past and the present of Chinese university education', 4pp duplicated typescript, London, 4 August 1939.

'Some ideas on cultural co-operation', 8pp typescript, Oxford, 15 November 1939.

'A suggestion of cultural co-operation between Cambridge University and Chinese universities', 4pp typescript, Cambridge, 8 December 1939.

'Chinese university education and British universities: a plea for co-operation', 4pp duplicated typescript, Oxford, nd.

C.3 1939 December. The correspondence is chiefly with Lo *re* his lectures and the ideas put forward therein. Includes draft of 'A statement by some teachers in Oxford to those teachers and other men of learning in China...' supporting the call for cooperation.

C.4 1940 January.

Following the Oxford statement an informal Anglo-Chinese Intellectual Co-operation Committee was established in Cambridge. Needham was secretary. In this capacity he drafted a statement on co-operation between British and Chinese universities for Cambridge academics to sign. The material is chiefly correspondence *re* the statement from those asked to sign.

C.5 1940 February. Includes correspondence *re* Universities China Committee and Chinese students in Cambridge.

- C.6 1940 March - December. Includes correspondence *re* possible sabbatical visit to China, and issues of 'Cambridge China Bulletin', 12 and 19 November.
- C.7 1941 March - May. Includes request from Chinese Central News Agency for Needham to issue a statement calling for national unity, with draft of Needham's statement.
- This statement was requested of Needham, in view of the high esteem in which he was held in China, in order to ease tensions between the Communists and the Kuomintang government.
- C.8 1941 June - October.
- C.9 1942 January - February. Includes typescript notes of discussion meeting on the post-war settlement and problems in the Far East, New York, 19 January (Needham was not present); notice of election as Honorary Life member of the Cambridge Chinese Students Society; correspondence *re* China Campaign Committee day school on China, Colchester, Essex, 29 March (Needham was asked to speak on Anglo-Chinese relations).
- C.10 1942 March - June. Includes correspondence with British Council *re* invitation to visit China as Visiting Professor at the Academia Sinica.
- C.11 1942 July. Arrangements for visit to China.
- C.12 1942 August. Arrangements for visit.
- C.13 1942 September. Arrangements for visit.
- C.14 1942 October, and nd. Arrangements for visit.
- C.15 Press-cuttings *re* Needham's visit to China; miscellaneous manuscript notes.

GENERAL CORRESPONDENCE

Correspondence from period of Needham's stay in China, and later correspondence arising from contacts made while in China. The later letters most frequently concern attempts to find research and employment opportunities for Chinese students and academics. There is also 1987 correspondence *re* historical research relating to Needham's time in China.

C.16 1942 November, December. Chiefly *re* visits to colleagues in USA en route to China. See also H.50.

Includes papers *re* meeting on problems of the War organised by the journal *Science and Society*, 28 November 1942. Needham was a member of the panel discussing the utilisation of scientists in wartime.

C.17-C.20 'Excerpts JN's Letters from China'. Contents of Needham's folder so inscribed divided into four for ease of reference: typescript extracts from Needham's letters home February - November 1943.

The first extract is headed 'Impressions of the first thirty-six hours in China asked for by Margaret Mead' but the letters appear to have been originally written to his wife Dorothy. They contain personal news (food, descriptions of hosts etc), information on scientific institutions visited and geographical, anthropological etc impressions of China.

C.17 February, March.

C.18 April - June.

C.19 July - September.

C.20 October, November.

C.21 1943. Telegrams *re* Sir William Dunn Chair of Biochemistry, Cambridge.

The Dunn Professorship of Biochemistry became vacant on the retirement of F.G. Hopkins. Needham was invited to apply in February 1943 but felt his work in China took priority. The Chair went to A.C. Chibnall and the folder includes draft of Needham's telegram of congratulation. See also B.252.

- C.22 1943 April - July. Includes correspondence *re* invitation to Needham to visit South America on a goodwill mission. In his reply declining the invitation, 25 June, Needham sets out his plans for the work in China.
- C.23 1943 September - December.
- C.24 1944 January - March. Includes drafts of letter to Chibnall *re* the post-war organisation of the biochemistry department, his own position within it and his plans for work on the history of Chinese science and technology. See also B.252.
- C.25 1944 April, May.
- C.26 1944 June - August.
- C.27 1944 September - December. Includes press cutting recording the establishment of an office under 'Sir Joseph Needham...to promote scientific and technical contacts' between the UK and China, October, and press release and press cutting *re* Needham's brief return to the UK, December.
- C.28 1945 January - March.
- C.29 1945 April, May. Chiefly correspondence from Lu Gwei-Djen reporting on visit to USA.
- C.30 1945 June - August. Includes Needham's 6pp typescript letter to the British Council, 2 July, setting out his views on the Council's work in Iran and Iraq.
- C.31 1945 September - December. Includes correspondence *re* conservation of Tun Hwang caves.

- C.32 1946 January - March. Includes draft letter announcing the end of Needham's work in China, and letter to Chibnall, 22 January, setting out the achievements of the SBSCO and some of his plans and expected future activities.
- C.33 1946 April. Includes copy of letters from Chinese scientists thanking Needham for his services to Chinese science and material *re* proposed Chinese Institute in London.
- C.34 1946 May. Includes correspondence *re* filling vacancies in SBSCO created by the departures of Needham, his wife and G. Sanders.
- C.35 1946 June, July. Includes requests to Needham to lecture on his experiences in China.
- C.36 1946 August. Chiefly *re* research and employment opportunities in the West.
- C.37 1946 September. Chiefly *re* research and employment opportunities.
- C.38 1946 October. Includes correspondence *re* posts in China.
- C.39 1946 November, December.
- C.40 1947 January, February. Includes correspondence with R. Hartog *re* expedition to Amne Machin mountain range on China-Tibet border, and correspondence with R.A. Silow, Director of the Science Office of the British Council in China.
- C.41 1947 March - September.

- C.42 1947 October - December. Includes correspondence *re* award to Needham of the Order of the Brilliant Star with Cravat of the Republic of China.
- Needham wished to receive the award, presented by the Nationalist government, before the Communists took power in China. He received royal permission to receive the Order on 2 June 1949 and was presented with it on 14 July. See also A.94, C.43, C.47.
- C.43 1948 January - March. Chiefly *re* scholarship applications of T.C. Tsao. Also includes newspaper cutting *re* work of R.A. Silow, and correspondence *re* Order of the Brilliant Star.
- C.44 1948 April - August.
- C.45 1948 September - December. Includes invitation to meeting of Chinese science societies, Nanking, 9-11 October (Needham did not attend but sent a message of goodwill to the meeting) and correspondence *re* Message for the Anniversary of Nanking University by Needham, broadcast on BBC Chinese Service, 11 November.
- C.46 1949 February, March. Includes draft programme and manifesto of Campaign for a World Truce.
- C.47 1949 April - June. Includes typescript account of fall of Nanking to the Communist forces and first impressions of Communist rule, sent to Needham in June, and correspondence *re* Order of Brilliant Star (see C.42 above).
- C.48 1949 July - September.
- C.49 1949 October - December. Includes correspondence *re* lectures at Birmingham University on science in China.
- C.50 1950 January - July. Includes material *re* Needham's remarks at China Welfare Appeal 'Friendship Dinner', New York, 5 May.

- C.51 1950 September - December. Includes report on 'Scientific research and university education' by C.C. Chu, Vice-President of Chinese Academy of Sciences, 29 October.
- C.52 1951.
- C.53 1952-1953.
- C.54 1987. Includes correspondence *re* research on Sir Horace Seymour, UK ambassador to China 1942-1946.
- C.55 Nd.

VISITS TO INSTITUTIONS

In China Needham made a great number of visits to scientific, medical, industrial and educational institutions throughout China. He kept manuscript notes of his visits, in Chinese and in English, recording the history of the institution, the research being done, colleagues he met and the needs of the institution for scientific support from UK. He also reported on his visits to the British Council and published accounts of his travels in a series of articles in *Nature* (see C.79-C.94).

The great majority of Needham's notes are numbered. The sequence runs from 1 to 297 and the index to most of the sequence (nos. 1-220) is in Needham's notebook at C.56.

- C.56 Hardback pocket notebook labelled 'Visits' on spine. Most pages not used. Loose at back is sketch map of West China Union University campus.
- C.57-C.69 Manuscript notes on visits, 1-297.
- Notes kept in a series of envelopes inscribed 'Visits to institutions'.
- The sequence is not complete: not all numbers were used for the sequence (such as 28-36) and some notes were missing from the envelopes, including those listed in C.56 as being 'secret'.

- C.57 1-20.
- C.58 21-50.
- C.59 51-80.
- C.60 81-102.
- C.61 110-130.
- C.62 131-151.
- C.63 153-168. Also Dorothy Needham's notes on visits 153-159.
Needham's original manuscript notes on visit 153, to 'E.M.S.T.S. [Emergency Medical Service Training School]', Kweiyang, are to be found in the collection of papers of Needham held by the Imperial War Museum, London, NCUACS 55/4/95, folder no. 71.
- C.64 169-185.
- C.65 187-210.
- C.66 211-221, 257-260.
- C.67 262-273.
- C.68 274-284.

C.69 285-297.

C.70 Unnumbered manuscript notes on visits to Chinese institutions.

LECTURES

Needham delivered many lectures in connection with his service in China, frequently in association with his visits to various institutions.

The material is manuscript and typescript notes and drafts for lectures, usually with title or subject area given but less often with date, location or audience. The notes are usually in English with occasional Chinese additions but a few are written out in Chinese transcribed into Latin characters.

C.71 List of 'Some of the titles of lectures and addresses which Dr Joseph Needham, FRS, is prepared to give'.

The list includes general lectures on the organisation of science and the sociology and philosophy of science, and more specialised lectures on biochemical and biological subjects and on the history of science.

See also G.57-G.62.

C.72 'GD Washington 15th Nov. 1942 intended for New York branch Tzu-rjan Ko-shioh Hui fênghui (branch)'

'Sunday talk to Xtn [Christian] students' on science and religion, Kunming 13 March 1943; Lanchow 6 September 1943 and Shaown 28 May 1944.

'Hoppy & Cambridge Biochemistry at [?T'anqo] Sci Club', March 1943.

Typescript report on lecture on Science and Society, West China Union University, Hwa Ta, 4 May 1943.

'International science co-operation in war and peace', Annual Conference of Chinese Scientific Societies, Beipei, Szechuan, July 1943. 13pp typescript.

- C.73 'Talk to Government officials @ Lanchow - Kansu Prov. Gov.', 17 November 1943.
- Lecture to 'Lanchow Rotary Club' on the work of the SBSCO, 18 November 1943.
- 'Science and agriculture in China and the West', Agricultural Association of China, Chungking, 22 February 1944.
- 9pp typescript and manuscript draft; printed copy (in Chinese).
- 'Science and democracy', Hsienrjêngmiao, May 1944 and Kioayang Science Institute, August 1944.
- C.74 'Science and Industry', Yunnan Industrial Federation Club, 7 October 1944.
- 'Abstract of a lecture on Science and civilisation in China given before the Science Society of China, Chekiang University, Meitan, October 1944'.
- Report to Executive Committee of British Council, UK, 12 December 1944.
- Work of SBSCO, Universities China Committee, UK, 13 December 1944.
- Science and Britain's war effort, May 1945.
- 'Talk to Baochi Federation CIC' on industrialisation of China, 6 October 1945.
- C.75 Notes for lectures on work of SBSCO and position of science in China.
- C.76 Notes for lectures on biochemical and biological subjects.
- C.77 Notes for lectures on international science and politics.
- C.78 Miscellaneous lecture notes.

REPORTS, PUBLICATIONS AND BROADCASTS

Includes Needham's reports to the British Council on his three years in China, detailed accounts of travels within China for the British Council and for *Nature*, and other publications arising from his work, including material relating to his book *Science Outpost* in which he described the work of the SBSCO.

- C.79 'Report on a journey in the North-West, occupying Aug., Sept., Oct., Nov. 1943', 19pp typescript with extensive manuscript additions and corrections + 1p addendum.
- C.80 'Science and technology in the North-West of China', 17pp typescript.
Nature **153** (1944), 238-241.
- C.81 'Report of a journey in the South East of China, occupying April, May & June 1944', 25pp typescript with manuscript additions and corrections.
- C.82 'Science in Kweichow and Kuangsi', 10pp typescript.
Nature **156** (1945), 496-499.

'Journeys in South-East China', account taken from Needham's report to the British Council, published in *Geographical Journal* **106** (1945), 83-84.
- C.83 'Science and technology in China's far South-East', 8pp typescript.
Nature **157** (1946), 175-177.
- C.84 'Report on a journey in the Southwest of China, occupying August, September and October, 1944', 24pp typescript with manuscript additions and corrections + addendum.
- C.85 'Science in South-West China', 31pp typescript
Nature **152** (1943), 9-10, 36-37.

- C.86 'Science in western Szechuan', 22pp typescript.
Nature **152** (1943), 343-345, 372-374.
- C.87 'Chungking mining and industrial exhibition', 11pp typescript.
Nature **153** (1944), 672-675.
- C.88 'Report of a journey in the north of China occupying September and October 1945', 29pp typescript with extensive manuscript additions and corrections; letter *re* report, 13 March 1946.
- C.89, C.90 'Report of the first year's working of the Sino-British Science Cooperation Bureau'.
- C.89 30pp typescript.
- C.90 Proof copy with manuscript corrections.
- C.91, C.92 'Report of second and third years' working of the Sino-British Science Co-operation Bureau'.
- C.91 47pp duplicated typescript.
- C.92 Proof copy with manuscript corrections.
- C.93, C.94 'Lists referred to in the reports of the Sino-British Science Co-operation Bureau'. 2 folders.

- C.95 Memoranda on future British Council policy in China.
- A memorandum was sent by P.M. Roxby, head of the British Council mission in China, to the British Council in November 1945. Needham added a set of complementary recommendations in a second memorandum.
- 'Final version' of Needham's memorandum, 11pp typescript with extensive manuscript additions; Roxby's comments on Needham's memorandum, annotated by Needham; correspondence *re* the memoranda.
- C.96 'Observations on the London-appointed staff members of the Scientific Office in Chungking' by Needham, 17 November 1945.
- 5pp typescript and manuscript draft; 6pp typescript + addenda; related correspondence.
- C.97-C.101 'Final memorandum to the British Council' by Needham, 14 April 1946.
- The memorandum enclosed documents relating to the SBSCO. These included the second and third years' report which may be found at C.91, C.92 above.
- C.97 Memorandum, 2pp typescript.
- C.98 Correspondence exchanged between Roxby and Needham on the conduct of British Council affairs in China, January - February 1946.
- C.99 Early drafts of Needham's letters to Roxby in this exchange.
- C.100 'Report to his Excellency President and Generalissimo Chiang Kai-Shek on the position and prospects of science and technology in China' by Needham, 56pp typescript final draft with manuscript corrections and additions, Chungking, Winter 1945.
- This report arose from a conversation between the Generalissimo and Needham on the state of science in China.
- C.101 Circulation list of copies of report to Chiang Kai-Shek; correspondence *re* report.

- C.102 *Chinese Science*, Pilot Press, London, 1944.
- This short book gave an account of the state of Chinese science, profusely illustrated by photographs taken by Needham.
- Correspondence; publicity material.
- C.103 'Sino-British Scientific and Technical Cooperation', *Washington Scientist* 1 (1945), 30.
- Reprint only.
- C.104-C.136 *Science Outpost*, ed. with D.M.M. Needham, Pilot Press, London, 1946.
- Science Outpost* gave an account of the history and work of the SBSCO. It brought together articles and reports, extracts from letters and from Dorothy Needham's diary and poems by Rewi Alley and others.
- Many of the pieces which Needham included in the book are to be found elsewhere in this section.
- C.104-C.111 'Science Outpost papers'. Contents of Needham's folder so inscribed divided into eight for ease of reference.
- C.104, C.105 Correspondence with publishers, British Council and others 1946-1949. 2 folders.
- C.106 Contract with publishers; publicity material.
- C.107 Statements by Needham on his work for the SBSCO:
- 'Scientific & Technical Co-operation in China', two slightly different 3pp typescripts; 'Sino-British Scientific & Technical Co-operation', 3pp typescript;
- C.108 Talks by Needham: 'Scientific cooperation and Atomic energy', 3pp typescript for radio broadcast, 25 December 1945; 'Postscript [on impressions of China in wartime]', 10pp typescript.

- C.109-C.111 Miscellaneous typescript and duplicated typescript papers on Chinese science, principally biochemistry and chemistry, and related subjects. 3 folders.
- C.112-C.114 'Acta Brevia Sinensia file copy'. Contents of Needham's folder so inscribed divided into three for ease of reference: duplicated typescript 'Scientific and technological notes from China', 1943-1945.
- These notes were prepared by the Natural Science Society of China and distributed by the British Council through the SBSCO. They give accounts of work in progress in Chinese research institutions.
- C.115-C.118 'Material -/- [not] used in Sci Outpost'. Contents of Needham's folder so inscribed divided into four for ease of reference.
- C.115 Typescript narratives by Rewi Alley.
- C.116 Extracts from Needham's diary; accounts of activities of the National Academy of Peiping and the Academia Sinica.
- C.117 'Definitive illustrations for Science Outpost numbered captioned and listed'.
- C.118 Miscellaneous material.
- C.119-C.126 Typescript and manuscript draft of *Science Outpost* with extensive manuscript additions and corrections. 8 folders.
- C.127 Typescript and manuscript lists of illustrations.
- C.128 Typescript and manuscript indexes.
- C.129-C.135 Corrected proof copy of *Science Outpost*. 7 folders.

- C.136 Miscellaneous manuscript notes etc *re Science Outpost*; letter of appreciation, February 1949.
- C.137 BBC radio broadcasts:
- 'Observation Post', broadcast various times 10-14 October 1947. This included a short interview with Needham on Chinese science.
- Duplicated typescript transcript.
- 'Sunday Discussion' on 'How far can an Eastern University usefully draw upon Western Culture?', broadcast by Far Eastern Service 16 October 1949. Needham and Sir John Sargent were the speakers.
- Correspondence with the BBC; Needham's manuscript notes; duplicated typescript transcript.
- C.138 'Journal of the North-West Tour', *The Times Literary Supplement*, 10 September 1993.
- This was an extract from Needham's unpublished journal of his tour to this area of China in the autumn of 1943. See above C.79, C.80.

ADMINISTRATIVE

- C.139, C.140 'Master copy [of the] filing hand list'. 2 folders.
- Typescript and manuscript list for SBSCO filing system. The classes of document provided for by the listing are: Reports, Office [papers], Correspondence (General), Visits, Information and exchanges, Printed matter: books, Printed matter: periodicals and microfilms, Scientific supplies [and] transport of all supplies, Vehicles, Enterprises, Films & radio, Music, Medicine, and International contacts.
- C.141 'Tentative classification of Chinese universities as to standards' by Needham, 2pp typescript, 12 January 1946; list of 'Nominations for Professorships', 2pp typescript, February 1946; 'Scheme of organisation of science in China', 3pp typescript, nd; 'List of Diplomatic officials of the British Embassy, 2pp typescript, nd.

- C.142 Lists of orders of scientific supplies for Chinese universities and of 'missing orders', sent to Dorothy Needham 15 March 1946.
- C.143 'List of drugs for China', 2pp typescript and 'List of medical supplies taken to China by Dr Sanders', 2pp typescript.
- C.144-C.146 Miscellaneous administrative correspondence and papers.
- C.144 Correspondence and papers *re* travel, 1944-1946.
- C.145 Correspondence *re* theft of clothes from Peking hotel, March 1946.
- C.146 Correspondence *re* supply of scientific and medical equipment, April - June 1946.

MISCELLANEOUS MATERIAL

- C.147-C.149 Membership of Chinese learned societies:
- C.147 Correspondent Member, National Academy of Peiping, 19 January 1943.
Correspondent Member, Chemical Institute and Zoological and Botanical Institute, Academia Sinica, 1 March 1943.
Honourable Member, Chinese Chemical Society, Pehpie Chapter, 15 June 1943.
- C.148 Honorary Member, Science Society of China, July 1943.
Honorary Member, Chinese National Farmers' Association, 29 October 1944.
Corresponding Research Fellow, Institute of Zoology, Academia Sinica, 24 May 1945.
Honorary Member, Natural Science Society of China, 28 February 1946.

- C.149 Other Chinese societies.
- C.150 Appointment as Advisor to Chinese Air Force Research Bureau.
- C.151 Manuscript notes by Needham on itineraries, travel arrangements etc.
- C.152 Brochure of UNESCO exhibition 'L'effort de Guerre fourni par la Chine dans le domaine de la science et le travail de l'Office de Cooperation Scientifique de Sino-Britannique', with photographs of the exhibition display.
- C.153 Papers by R.A. Silow: 'The scientific activities of the British Council in China', *Science and Technology in China* **1** (1948); 'Mission to China', *Empire Cotton Growing Review* **27** (1950).
- C.154-C.156 Printed material: pamphlets, articles, journals etc. 3 folders.
- C.157-C.159 Press cuttings.
- C.157 Chinese language. Folder also includes printed notices of surrender of Italy 1943 and the Japanese surrender.
- C.158 English language.
- C.159 Russian language. The cuttings are of the Red Army victory parade in Moscow.
- C.160 Miscellaneous typescripts. Includes papers on Chinese cooperatives by Rewi Alley.

Memorabilia

- C.161 Social functions and contacts.
- C.162 Prints, drawings and paintings.
- C.163 Unidentified Chinese language material.
- C.164 Photographs.
Group photograph of Chengtu Committee for aiding Sino-British Science Cooperation, with key. Needham is featured.

'Miaotaidze photos for Δ [Dorothy Needham]'. Photographs of Taoist temple at Miaotaidze, identified on verso.

Group photograph of members of Chinese learned society. Needham is featured (twelfth from the right, second row from bottom).
- C.165 SBSCO stationery.
- C.166 Miscellaneous memorabilia. Includes 8pp typescript 'Tibetan Folk Songs, tr [into French and German] Yü Tao-Chuen'.

SECTION D

UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANISATION (UNESCO)

D.1-D.365

In October 1942 the Conference of Allied Ministers of Education (CAME) was formed to discuss the post-war educational needs of Allied countries, focusing in particular on those under Axis occupation. Various committees were created under the auspices of CAME and by 1944 the Conference had developed into a far-reaching organisation whose remit covered almost all aspects of the cultural reconstruction of occupied Europe. It was felt that after the war the example of this body, which was showing the possibilities of international cooperation in cultural and educational matters, should not be forgotten but brought under the auspices of the United Nations. Accordingly in March 1944 plans were advanced for the establishment of a United Nations Organisation for Educational and Cultural

Reconstruction. In April 1944 the US State Department accepted the desirability of a 'United Nations Educational and Cultural Organisation' and later that year the UK government also gave its support to the creation of such a body. CAME began drafting plans for its transformation into UNECO and published its draft proposals.

Needham was in China during this period with the Sino-British Science Cooperation Office (see section C). He believed that scientific cooperation should come within the remit of the post-war United Nations and in July 1944 he prepared a 'Memorandum on an international science co-operation service' (D.2). This was circulated by the British Council. In December 1944 Needham sent out a second memorandum to the UK parliamentary and scientific committee on 'Measures for the organisation of international co-operation in science in the post-war period' (D.6). Needham may have been the first to use the abbreviation 'UNESCO', in a manuscript note of February 1945, and his third memorandum (D.12-D.14) on 'The place of science and international scientific co-operation in post-war world organisation', April 1945, publicly advocated the inclusion of the word 'Scientific' in the title of the organisation being planned. In the same month the drafting organisation for the United Nations Organisation for Educational and Cultural Cooperation rejected the inclusion of the word 'Scientific' but renewed pressure, in part through the wide distribution of Needham's third memorandum, and support, particularly from J.G. Crowther and US colleagues, succeeded in keeping the issue open.

In November 1945 the United Nations Educational and Cultural Conference held in London to draft the constitution of the new body agreed to include the word 'Scientific' in its title and to give it responsibilities in international scientific cooperation. A Preparatory Committee was formed and the first session of the UNESCO General Conference met in Paris in November 1946 to establish the Organisation formally. J.S. Huxley was elected its first Director General and Needham was appointed Director of the Natural Sciences Section. He served until April 1948.

Needham gave an account of the work of UNESCO in his Robert Boyle lecture on Science and International Relations, 1 June 1948 (see G.70, G.71).

The material is presented as follows:

D.1-D.39 EARLY HISTORY OF UNESCO

D.40-D.200 UNESCO GENERAL

D.201-D.316

NATURAL SCIENCES SECTION

D.317-D.339

UNITED NATIONS RESEARCH LABORATORIES

D.340-D.358

BRITISH COMMITTEE FOR CO-OPERATION
WITH UNESCO IN THE NATURAL SCIENCES

D.359-D.365

FOOD AND AGRICULTURE ORGANIZATION OF
THE UNITED NATIONS

EARLY HISTORY OF UNESCO

Most of this material (D.1-D.32) was found in three of Needham's folders inscribed 'CAME UNECO and the origins of UNESCO', with further descriptions of the contents thereon. These descriptions are reproduced in the catalogue entries.

- D.1-D.11 'Dr Joseph Needham's Archives pt. 1 From the T.V. Sung conversations of Dec 1943 to my return to Chungking in April 1945 after the Washington negotiations. Memo I Chungking July 1944 Memo II London Dec. 1944'. Contents of folder so inscribed divided into eleven for ease of reference.
- D.1 Background material. Includes 'First statement of the conception of an international science cooperation service, in a letter from Dr Joseph Needham, FRS (Director of the Sino-British Science Cooperation Office) to H.E. Sung Tze-Wen (T.V. Soong), Minister of Foreign Affairs, Chungking', 29 December 1943; and 'Suggestions for the development of the Conference of Allied Ministers of Education into the United Nations Organization for Educational and Cultural Reconstruction', annotated 'J.G.C[rowth] 12.4.44', with comments and amendments arising.
- D.2 'Memorandum on an international science co-operation service' by Needham, Chungking, July 1944. This was the first of Needham's three memoranda.

Manuscript notes; 19pp typescript and 9pp duplicated typescript drafts; 15pp duplicated typescript.
- D.3 Correspondence *re* distribution of the memorandum. Includes list of recipients sent to J.G. Crowther, 25 July 1944.
- D.4 Correspondence from those receiving copies of the memorandum, including comments thereon, August - December 1944.
- D.5 'A Memorandum on the activities and future plans of international scientific organizations. 1919-1944', 48pp typescript, annotated by Needham 'WB Cannon & RM Field Undated but I think Oct 1944'.

.../

- /... Pages from *Nature*, 25 November 1944, featuring Needham's memorandum published as 'An international science cooperation service', and editorial comment 'Dissemination of scientific information' focusing on Needham's article; brief correspondence *re* re-publication of the article.
- Needham had not intended the memorandum for publication; it was sent to *Nature* for their information only.
- D.6 'Memorandum addressed to the parliamentary and scientific committee (December 1944). Measures for the organisation of international co-operation in science in the post-war period', London, December 1944. This was the second of Needham's memoranda.
- 4pp and 5pp typescript drafts; 5pp duplicated typescript.
- D.7 Correspondence and papers, December 1944 - January 1945.
- D.8 Correspondence and papers, February 1945. Includes list of 'Activities suggested for UNECO' by G.N. Kefauver, the US delegate to CAME, and manuscript notes and typescript comments thereon by Needham.
- One of Needham's notes records the three requirements he felt were needed 'To make UNECO work'. These were the addition of the word 'Scientific' in the title, a reference to applied (as well as pure) science in the preamble and a good scientific director. Needham uses the abbreviation UNESCO, perhaps the first occasion on which it was used.
- In February - March 1945 Needham visited the United States, during which visit he discussed his plans for future international cooperation in science with American colleagues.
- D.9 Correspondence and papers, March 1945.
- D.10 'The place of science in a United Nations Educational and Cultural Organisation', March 1945. This was a preliminary version of Needham's third memorandum and was not widely circulated.
- Manuscript and typescript draft with extensive correction; letter *re* distribution of memorandum, 16 March.

- D.11 Correspondence and papers, April - May 1945. Includes papers of CAME relating to establishment of United Nations Organisation for Educational and Cultural Reconstruction. At the 10 April meeting of the Drafting Committee drawing up the constitution of the body J.G. Crowther attempted, unsuccessfully, to insert 'Scientific' into the title.
- D.12-D.24 'Dr Joseph Needham's Archives pt. 2 From April 1945 to end December 1945. Memo III Chungking April 1945'. Contents of folder so inscribed divided into thirteen for ease of reference.
- D.12-D.14 'The place of science and international scientific co-operation in post-war world organisation', Chungking, 28 April 1945. This was the third of Needham's three memoranda.
- D.12 Typescript draft with extensive manuscript corrections and additions.
- D.13 46pp typescript 'Master-copy 9 for mimeographing in CK' retained in original folder.
- D.14 31pp duplicated typescript + appendices and index.
- D.15 Miscellaneous manuscript and typescript notes, including lists of those to receive a copy of third memorandum.
- D.16 Correspondence and papers, May 1945, chiefly *re* attempt to persuade CAME to widen the scope and include the word 'Scientific' in the title of UNECO, at their meeting of 16 May.
- D.17 Correspondence *re* distribution of third memorandum, May - July 1945. Includes letters from recipients.

Distribution of the memorandum in the UK was chiefly through J.G. Crowther
- D.18 Papers, chiefly *re* meetings of CAME, June - August 1945. Includes '1st proof' of CAME's 'Draft proposals for an Educational and Cultural Organisation of the United Nations', 9 July.

- D.19 Correspondence from recipients of third memorandum, including comments thereon, August 1945.
- D.20 Correspondence from recipients of third memorandum, including comments thereon, September 1945.
- The memorandum was considered at a meeting of the Science Commission of CAME on 11 September. They recommended that it be put before CAME.
- D.21 Correspondence and papers, October 1945, chiefly comments on third memorandum.
- D.22 Correspondence and papers, November 1945, chiefly *re* United Nations Educational and Cultural Conference.
- The Conference, meeting in London, signed the constitution establishing UNESCO on 16 November.
- D.23 'CAME photos'. Contents of Needham's envelope so inscribed: photographs of members of CAME, identified on verso. Probably taken during the Educational and Cultural Conference.
- D.24 Correspondence and papers, December 1945.
- D.25-D.32 'Dr Joseph Needham's Archives From Jan. 1946 - Vol. III'. Contents of folder so inscribed divided into eight for ease of reference.
- D.25 Correspondence and papers, January - April 1946. Includes telegram sent to Needham in Chungking *re* his appointment as Director of Natural Sciences of UNESCO.
- D.26 Correspondence, May - November 1946.

- D.27 Correspondence and manuscript notes, February - April 1947. Chiefly *re* Needham's intended resignation at the end of the year, and UNESCO appointments policy.
- D.28 Correspondence, May - June 1947. Includes Needham's letters to Dorothy Needham explaining the situation and current developments at UNESCO.
- D.29 Correspondence, August - September 1947. Chiefly *re* extension of Needham's appointment into 1948.
- D.30 Correspondence and papers, October 1947 - January 1948. Chiefly *re* administrative problems within UNESCO.
- D.31 Correspondence and papers, February - March 1948. Chiefly *re* administrative problems. Includes 'Personal statement of Joseph Needham, FRS to the members of the Advisory Committee on the organisation and administration of UNESCO', 9pp typescript + annexes, 7 February.
- D.32 Correspondence and papers, April - May 1948. *Re* Needham's departure from UNESCO.
- D.33-D.37 'Unesco Historical'. Contents of Needham's folder so inscribed divided into five for ease of reference.
- D.33 Third memorandum, 'The place of science and international scientific co-operation in post-war world organisation', Chungking, 28 April 1945.

42pp duplicated typescript. The document has been reproduced on poor quality Chinese paper and probably was intended for distribution by Needham himself within China.
- D.34 Master-copies of letters sent covering the final version of third memorandum; miscellaneous manuscript notes including lists of recipients; typescript drafts of list of contents of third memorandum with extensive manuscript correction.

- D.35 Copy of the constitution of UNESCO as agreed in London, 16 November 1945, 16pp duplicated typescript.
- D.36 'Archives of UNESCO. Deposition of Papers relative to the Conference of Allied Ministers of Education and the inclusion of Pure and Applied Science in the projected United Nations Organisation for Education and Culture' by Needham, 3pp duplicated typescript, 27 January 1947; correspondence *re* research on the origins of UNESCO, 1947-1949.
- D.37 Miscellaneous printed material.
- D.38 Correspondence *re* research on origins of UNESCO, 1966-1977. Includes correspondence arising from *New Statesman* article 'The "S" in Unesco' by Nigel Calder, and correspondence with D. Mylonas (see D.39).
- D.39 'La Conference des Ministres Allies de l'Education (Londres 1942-1945) de la cooperation educative dans l'Europe en guerre a la creation d'une organisation internationale', by D. Mylonas, Ph.D. thesis for University of Geneva. Sent to Needham 16 October 1972 (see D.38).

Retained in original binding.

UNESCO GENERAL

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|-------------|--|
| D.40-D.111 | General Conference |
| D.112-D.137 | Executive |
| D.138-D.160 | Correspondence |
| D.161-D.176 | Scientific and Cultural History of Mankind |
| D.177-D.186 | Publicity and information literature |
| D.187-D.200 | Miscellaneous |

General Conference

The General Conference was the chief forum and governing body of UNESCO. At its annual meetings the Executive of UNESCO was elected by the delegates.

- D.40-D.42 First General Conference, Paris, 19 November - 10 December 1946.
- D.40 'Guide de la première Conférence générale et du mois de l'U.N.E.S.C.O.'
(programme and information booklet).
- D.41 'Rules of Procedure for the General Conference'; 'Liste des documents'.
- D.42 Miscellaneous papers for the General Conference.
- D.43-D.54 Second Session of the General Conference, Mexico City, November 1947.
- D.43, D.44 'Memorandum on the Grants-in-aid allocated by UNESCO to international
scientific organisations in 1947'. Contents of Needham's folder so labelled.
2 folders
- D.45, D.46 Other general conference papers, principally concerning matters of scientific
interest. 2 folders.
- D.47, D.48 Papers for Working Party L: Natural Sciences. 2 folders.
- D.49 Press releases.
- D.50-D.54 'Unesco 2nd General Conf. Mexico City misc papers'. Contents of
Needham's envelope so inscribed divided into five for ease of reference:
miscellaneous memorabilia from the conference and Mexico City, including
press-cuttings from Mexican newspapers. At D.50 is cutting from *Mexico
City Herald*, 19 November, profiling Needham.

- D.55-D.97 Third Session of the General Conference, Beirut, 17 November - 11 December 1948.
- Needham attended the conference in a dual official capacity - as Honorary Scientific Adviser to UNESCO and as a member of the UK delegation. Needham also acted as observer for the World Federation of Scientific Workers (see K.330). At the conference he delivered a lecture on 'The unity of science: Asia's indispensable contribution'.
- Needham travelled home via Turkey where he visited colleagues in universities in Ankara and Istanbul.
- D.55 Correspondence and papers *re* travel arrangements.
- D.56 Conference pass; 'Guide et Calendrier du mois de l'UNESCO', extensively annotated by Needham.
- D.57-D.64 General conference papers. Duplicated typescript, with some manuscript notes by Needham. 8 folders.
- Material includes budget estimates (at D.59) and report of the Director General for 1948 (at D.64).
- D.65-D.67 'The unity of science: Asia's indispensable contribution'.
- Versions of this lecture were published in *Asian Horizon*, (in French) in *Archives Internationales d'Histoire des Sciences*, April 1949, and (in Arabic) in the Arabic edition of the *Listener*, 19 July 1950. It also formed the basis of two broadcasts for the BBC radio Third Programme (see G.122) and a lecture to the Royal Central Asian Society (see G.74)
- D.65 Typescript draft, with manuscript corrections and typescript additions.
- D.66 29pp typescript (in French).
- D.67 Copy of Arabic version; correspondence *re* publication.

- D.68-D.84 Papers of Conference General Committee and Commissions.
- The material is principally duplicated typescript papers. They have been arranged following the reference system adopted for the conference.
- D.68, D.69 Information. 2 folders.
- D.70 General Committee of the Conference.
- Committee on Constitution and Procedure.
- D.71-D.78 Programme and Budget Commission.
- The bulk of this material is papers for subcommissions of the Programme and Budget Commission.
- D.71 General commission papers.
- D.72 Reconstruction subcommission.
- D.73 Communication and Education subcommissions.
- D.74 Cultural Questions subcommission.
- Needham was rapporteur for a Joint Meeting with the Natural Sciences subcommission on the Scientific and Cultural History of Mankind Project. The folder includes Needham's manuscript notes taken at the meeting.
- D.75-D.77 Natural Sciences subcommission.
- The subcommission held two meetings on 23 November and a third joint meeting with the Cultural Questions subcommission on 26 November (see D.74 above). Needham was rapporteur at the meetings. Includes Needham's manuscript notes and typescript reports on meetings. 3 folders.
- D.78 Social Sciences and Exchange of Persons subcommissions.

- D.79-D.82 Official and External Relations Commission. 4 folders.
- D.83, D.84 Administrative Commission. 2 folders.
- D.85-D.88 UK delegation papers.
- Duplicated typescript memoranda and papers for meetings of the delegation during and following the conference. 4 folders.
- Some of the papers relate to matters concerning a particular Commission, others to general subjects. At D.88 is the draft UK delegation report to the Minister of Education, with Needham's comments thereon.
- D.89 Press-releases.
- D.90-D.92 Issues of the conference 'Journal' for 17 November - 11 December. A complete sequence. 3 folders.
- D.93 Exchange of letters between Joseph and Dorothy Needham, November 1948. Joseph Needham's letter gives a full account of proceedings up to 27 November.
- D.94 Post conference correspondence *re* account of proceedings.
- After the conference Needham wrote accounts of its proceedings for a number of journals. He felt that it received insufficient coverage. Includes 9pp typescript draft of article for the *New Statesman* 'UNESCO in Phoenicia' (not published).
- D.95 Correspondence *re* post conference visits to Ankara and Istanbul; manuscript notes from visits; 7pp typescript 'Notes on a scientific visit to Turkey', 28 December.
- D.96, D.97 Miscellaneous memorabilia. 2 folders.

- D.98-D.105 Fourth Session of the General Conference, Paris, 19 September - 1 October 1949.
- D.98, D.99 General conference papers. 2 folders.
- D.100, D.101 Programme and Budget Commission. 2 folders.
- D.102, D.103 Official and External Relations Commission. 2 folders.
- D.104 Administrative Commission.
- D.105 Conference 'Journal' for 28 September; report of the UK delegation to the Minister for Education, Cmnd. 7863, January 1950.
- D.106 Fifth Session of the General Conference, Florence, 22 May - 17 June 1950
Report of the UK delegation to the Minister for Education, Cmnd. 8066, October 1950.
- D.107-D.111 Sixth Session of the General Conference, Paris, 18 June - 11 July 1951.
- D.107, D.108 General conference papers. 2 folders.
- D.109, D.110 Programme and Budget Commission. 2 folders.
- D.111 Official and External Relations Commission; report of the UK delegation to the Minister for Education, Cmnd. 8439, January 1952.

Executive Board

Duplicated typescript papers for information and meetings of the Executive Board of UNESCO and its committees, 1947-1950.

- D.112 Executive Board second session, April 1947.
- D.113-D.115 Executive Board sixth session, January - February 1948. 3 folders.
- D.116 Executive Board seventh session, April 1948.
- D.117 Programme Committee fourth session; Finance Committee Sixth Session, April 1948.
- D.118-D.121 Executive Board eighth session, June - July 1948. 4 folders.
- D.122, D.123 Finance Committee eighth session, June - July 1948. 2 folders.
- D.124 Nominations Committee third session, July 1948.
- D.125 Committee on Relationships with International Non-governmental Organisations third session, July 1948.
- D.126, D.127 Executive Board fourteenth session, January - February 1949. 2 folders.
- D.128 Committee for External Relations first session, February 1949.
- D.129 Executive Board fifteenth session, April 1949.

- D.130 Committee for External Relations second session, May 1949; Executive Board sixteenth session, June 1949.
- D.131, D.132 Executive Board seventeenth session, September - October 1949. 2 folders.
- D.133-D.136 Executive Board nineteenth session, January - February 1950. 4 folders.
At D.136 is exchange between Needham and J.S. Huxley on the Board paper dealing with relations with international non-governmental organisations.
- D.137 Executive Board twentieth and twenty-third sessions, March, August 1950.

Correspondence

Miscellaneous correspondence *re* general UNESCO business found in Needham's folders.

- D.138-D.149 'Unesco current corresp.'. Contents of Needham's bulky folder so inscribed divided into twelve for ease of reference: miscellaneous correspondence March 1948 - March 1949.
At D.148 and D.149 are contents of folders found within the bulky folder.
- D.138 1948 March.
- D.139 1948 April. Includes invitations to speak at International Congress on Population and World Resources in Relation to the Family, Cheltenham, 23-27 August and to attend Society for Visiting Scientists Symposium on Science at the UNESCO General Conference in Mexico; reports on Natural Sciences section meetings, 15, 24 and 30 April; personal letters from Lu Gwei-Djen reporting on situation within UNESCO.
- D.140 1948 May. Includes invitation to speak at Progressive League meeting on UNESCO, Frensham Heights School, Farnham, Surrey, 15 August and to the Cambridge Philosophical Society, 3 June; reports on Natural Sciences section meetings 21 and 28 May; personal letters from Lu.

- D.141 1948 June. Includes correspondence *re* Working Parties for Royal Society Scientific Information Conference, 21 June - 2 July (see J.209-J.218); personal letters from Lu.
- D.142 1948 July. Includes letter to *The Times* (marked 'Not for publication') *re* 'Records of research', arising from a proposal of J.D. Bernal for the rationalisation of scientific publications; letter to Sir John Maud *re* UK policy towards and problems within UNESCO.
- D.143 1948 August. Includes correspondence and papers *re* Progressive League meeting and International Congress on Population and World Resources; invitation to participate in BBC Overseas Service radio discussion on 'Science across the Frontiers' during British Association meeting in September.
- D.144 1948 September. Includes 'Activity Report' of UNESCO East Asia Field Scientific Cooperation Office, 1947-1948 which pays tribute to Needham's work; request for list of Chinese scientists who could be invited to Seventh Pacific Science congress, New Zealand, February 1949, with Needham's reply; incomplete typescript notes of 'Science across the Frontiers' BBC radio broadcast, with Needham's jottings; letter to Sir Stafford Cripps, Chancellor of the Exchequer, *re* the Director-Generalship of UNESCO.
- D.145 1948 October, November.
- D.146 1948 December.
- D.147 1949 January, March. Includes correspondence *re* informal meeting to discuss the East African Groundnut and Sorghum schemes, 20 January; letters to Sir John Maud *re* personnel situation in UNESCO.
- D.148 'Lebanon Exhibn'. Contents of Needham's folder so inscribed: correspondence and papers *re* transport to the UNESCO General Conference in Beirut of the Atomic Scientists' Association travelling Atomic Energy Exhibition, April - November 1948.

- D.149 'after 2 years in UNESCO'. Contents of Needham's folder so inscribed: manuscript notes *re* problems and tensions within UNESCO.
- D.150-D.158 Contents of Needham's folder divided into nine for ease of reference: miscellaneous correspondence and papers *re* UNESCO business, 1948-1955.
- D.150 1948.
- D.151 1949 January, February. Includes invitation to speak at discussion meeting of Society for Visiting Scientists, 15 February (accepted); and Needham's typescript account of House of Lords debate on UNESCO.
- D.152 1949 March. Includes exchange with Sir Stafford Cripps *re* Truman Program aid to undeveloped regions.
- D.153 1949 April - July. Includes invitation to speak on UNESCO at British Association meeting in September.
- D.154 1949 September - December. Includes information *re* project for an international museum of civilisation, which Needham supported.
- D.155 1950 January - June. Includes correspondence *re* UNESCO 'Statement on Race'; Activity Report of UNESCO East Asia Science Cooperation Office, March - December 1949.
- D.156 1950 July - October. Includes papers *re* UNESCO 'Statement on Race', July; paper by A. Leveille on 'An international museum of civilisation'.
- D.157 1951. Includes correspondence *re* revision of 'Statement on Race'.
- D.158 1952-55, nd.

- D.159 'China Mission'. Contents of Needham's folder so inscribed: correspondence *re* possible establishment of Field Science Cooperation Office in mainland China, September 1949 - October 1950.

The inspiration for the Field Science Cooperation Office was Needham's work with the Sino-British Science Cooperation Office during the Second World War. The political situation in China in the period covered by this material presented considerable difficulties in establishing a field office there.

- D.160 'ACTH'. Contents of Needham's folder so inscribed: correspondence and papers *re* patenting of drug ACTH, 1950.

There was discussion as to whether an international body might be established to hold patents in new drugs to prevent one company or country acquiring a monopoly.

Scientific and Cultural History of Mankind

From the outset UNESCO had among its tasks the study of worldwide cultural and scientific history. A committee was established, with Needham as a member, to formulate proposals. These were submitted to the UNESCO General Conference at Beirut in 1948. The project was approved and a drafting 'Committee of Experts' established to prepare the plan for the project. Needham was a member. It met to draw up a report, 12-17 December 1949.

At the fifth session of the General Conference in Florence 1950, an International Commission was set up to prepare and oversee the project. Needham was a Corresponding Member of this Commission.

- D.161 1948. Includes 'Notes on the scientific and cultural history of mankind' by J.S. Huxley, May; papers *re* approval of project at the General Conference.

- D.162 1949 August. 'Rapport sur l'histoire scientifique et culturelle de l'humanité' by M.O. de Almeida, 35pp duplicated typescript.

- D.163 1949 December (1). Papers from meeting of drafting committee. Includes Needham's manuscript notes on proceedings and typescript plan of the project taken from Needham's notes, with manuscript annotation by Huxley.

- D.164 1949 December (2). Correspondence arising.

- D.165 1950 January. Correspondence and papers *re* report of the Committee of Experts. Includes draft, Needham's and Huxley's comments and copy of final report.
- D.166, D.167 1950 January - March. Papers *re* UK response to report of the Committee of Experts. 2 folders.
- The report was considered at the meeting on 12 January 1950 of the National Co-operating Body for Philosophy and Humanistic Studies of the UK National Commission for UNESCO. It established, jointly with the British Committee on Cooperation with UNESCO in the Natural Sciences, a Special Committee on the Unesco Project for a Scientific and Cultural History of Mankind to prepare the UK response to the report of the Committee of Experts. It met on 13 March (see D.349).
- D.166 Meeting of the Co-operating Body, 12 January.
- D.167 Meeting of the Special Committee, 13 March.
- D.168 1950 February - May. Includes 'the final form of the "Report on the project for a scientific and cultural history of mankind" as it is presented to the 5th session of the Unesco General Conference', sent to Needham 24 May.
- D.169 1950 July - September. Correspondence and papers *re* membership of the International Commission.
- A small committee was established, with Needham as a member, to consider nominations for the Commission. It met on 14 October.
- D.170 1950 October - December. Correspondence and papers *re* meeting of the committee to consider the membership of the International Commission, and first meeting of Commission.
- D.171 1951 January - April. Includes report from first meeting of the Commission, and invitation to Needham to become a Corresponding Member of the Commission (accepted).
- D.172 1951 May - November. Includes first annual report of the Chairman of the Commission.
- D.173 1952 January, February. Principally Commission papers.

- D.174 1952 March - October. Commission papers. Includes News Bulletins I and II on the progress of the project.
- D.175 1953-1955. Chiefly *re* visit to Cambridge by Professor L. Petech to discuss Needham's work on the history of science in China for use in the project.
- D.176 1962, 1963. Chiefly *re* publication of the first volume of the Scientific and Cultural History of Mankind; *Prehistory and the Beginnings of Civilisation* by J. Hawkes and L. Woolley.

Information and publicity literature

D.177-D.180 Press-releases and news-sheets

D.181-D.186 Printed material

Press-releases and news-sheets

- D.177 UNESCO Newsletter no. 47, December 1947; press-releases 1949-1952 (not a complete sequence) and nd.
- D.178 'UNESCO World Review', nos. 1, 4 and 6, 1949.
- D.179 'News from UNESCO' bulletins, May 1949.
- D.180 'National Commissions Newsletter', nos. 6-8, 1949.

Printed material

- D.181 Act of establishment of UNESCO, 1945; Constitution, 1945; 'UNESCO Its purpose and its philosophy' by J.S. Huxley, 1946.
- D.182 'La France et l'U.N.E.S.C.O.', 1946; brochure of 'Exposition scientifique internationale', 1946.
- D.183 ' "The defenses of peace" Documents relating to UNESCO', 1946; 'Introduction to Unesco', 1947.
- D.184 Report of Director General for 1947; programme of activities for 1948.
- D.185 Articles *re* UNESCO. Includes 'Science in UNESCO' by B.J. Bok, *Scientific Monthly* **63** (1946); United Nations Educational, Scientific and Cultural Organization', *Science and Culture* **12** (1946-47); and typescript extracts from articles about UNESCO sent to the editor of *Nature* by Needham, 1951.
- D.186 Miscellaneous printed material and press-cuttings.

Miscellaneous

- D.187, D.188 Lists of UNESCO documents, February 1947 - February 1948. 2 folders.
- D.189-D.197 Miscellaneous UNESCO papers, 1947-1954.
- D.189, D.190 1947. 2 folders.
- Includes at D.190 September 1947 issue of 'Mercury', UNESCO staff newsletter, annotated 'Lu Gwei-Djen' and recording her arrival at UNESCO in Paris to advise on establishment of Far East Field Science Cooperation Office.

D.191-D.193	1948. 3 folders.
D.194, D.195	1949. 2 folders.
D.196	1950, 1951.
D.197	1953, 1954.
D.198	Lists of names and addresses of experts. Includes 78pp typescript list of contacts in subjects from 'Agricultural chemistry' to 'Zoology'.
D.199	Duplicated typescript sheets on aspects of evolution. Nd. In French.
D.200	Correspondence and papers <i>re</i> expenses, 1947-1948.

NATURAL SCIENCES SECTION

D.201-D.237	General papers
D.238-D.257	Committees
D.258-D.267	International Institute for the Hylean Amazon
D.268, D.269	International Institute for Arid Zones
D.270-D.300	Support for international science
D.301-D.316	National Research Council Committee on UNESCO

General papers

Preparatory Commission Natural Science Committee

D.201-D.204 Duplicated typescript memoranda and papers for the Preparatory Commission Natural Science Committee, 1946. 4 folders.

The Preparatory Commission Natural Sciences Committee drew up the functions and role of the Natural Sciences Section.

D.205-D.209 'Sci & Unesco'. Contents of Needham's folder so inscribed divided into five for ease of reference: material *re* Preparatory Commission booklet 'Science and UNESCO' defining the 'Tasks and Functions of the Secretariat's Division of Natural Sciences'.

The booklet was drafted by Needham.

D.205-D.207 Typescript rough draft. 3 folders.

D.208 Proof copy with typescript additions.

D.209 Copy of booklet.

Natural Sciences Section

D.210 'Bibliography of Official Documents of Natural Sciences Section' covering May 1946 - April 1948.

D.211 'Natural Sciences Section Filing Handlist, 17 November 1947. Annotated by Needham.

D.212 'Natural Sciences Section Filing Handlist, 19 February 1948. Annotated by Needham.

- D.213-D.228 Duplicated typescript memoranda and papers, November 1946 - September 1951. 16 folders.
- The great bulk of these papers form a consecutively numbered sequence of general Natural Science Section papers. This arrangement is followed in the organisation of the material, which is not necessarily in a strict chronological sequence.
- D.229-D.231 Natural Sciences 'Occasional Papers'.
- D.229 No. 1 'Scientific research and scientific institutes in India'; no. 3 'Contemporary development of the mathematical and physical sciences in Mexico'; no. 4 'The development of science in Brazil in recent years'.
- D.230 No. 5 'Government science in South Africa'; no. 6 'L'activitie scientifique dans les Pays-Bas'; no. 7 'La mission du Conseil National des Recherches de Tchecoslovaquie' and 'Chemical science in Czechoslovakia'.
- D.231 No. 8 'The conditions of science in Egypt'; no. 10 'Les recherches biologiques en Hongrie 1946-47'; no. 11 'Institute for the Science of Science [Poland]'; no. 16 'Organization of scientific research in France'.
- D.232-D.237 'FSCO booklet'. Contents of Needham's folder so inscribed divided into six for ease of reference: correspondence and papers *re* editing by Needham of 'Science Liaison', a booklet drafted by Lu Gwei-Djen describing the work of the Field Science Cooperation Offices of UNESCO.
- D.232 Contract with UNESCO to edit the booklet; correspondence with Lu and C.H. Dobinson; etc.
- D.233 Draft preface by Needham, 2pp typescript; list of captions; text for cover of booklet; manuscript notes.
- D.234 Typescript draft by Lu, 24pp + list of FSCOs.
- D.235 Typescript drafts of appendices.

D.236 Proof copy.

D.237 Published copy of booklet.

Committees and conferences

Duplicated typescript papers for committees and other bodies of the Section of Natural Sciences, and *re* conferences supported by the Section, not circulated as general Section papers.

D.238-D.242 Permanent Council for the Coordination of
International Congresses of Medical Sciences

D.243, D.244 Committee for Conservation and Utilisation of
Resources

D.245-D.248 Committee on the Popularisation of Science and its
Social Implications

D.249, D.250 Committee on Scientific Abstracting

D.251 Interim Coordinating Committee on Medical and
Biological Abstracting

D.252, D.253 International Conference on High Altitude Research
Stations

D.254 Latin American Conference of Scientific Experts

D.255 Group Discussions on the Social Implications of
Science

D.256, D.257 Committee for Engineering Sciences

- D.238-D.242 Permanent Council for the Coordination of International Congresses of Medical Sciences. 1947-1950. 5 folders.
- The Council was formed by the Medical Sciences Subsection in collaboration with the World Health Organisation. An organising committee was formed and first met in April 1948. The Council held its inaugural assembly in April 1949.
- D.243, D.244 Committee for Conservation and Utilisation of Resources. 1948. 2 folders.
- At D.244 is the final report by J.G. Crowther. March 1948.
- D.245-D.248 Committee on the Popularisation of Science and its Social Implications. 1948-1949. 4 folders.
- Needham chaired this Committee in 1948.
- D.249, D.250 Committee on Scientific Abstracting. 1948-1950. 2 folders.
- D.251 Interim Coordinating Committee on Medical and Biological Abstracting. 1948, 1950.
- D.252, D.253 International Conference on High Altitude Research Stations. 1948. 2 folders.
- D.254 Latin American Conference of Scientific Experts. 1948.
- D.255 Group Discussions on the Social Implications of Science. 1949.
- D.256, D.257 Committee for Engineering Sciences. 1949-1950. 2 folders.

International Institute for the Hylean Amazon (IIHA)

At the first session of the UNESCO General Conference in 1946 plans were laid for the establishment of a research institute to study the zoological, botanical, geological, anthropological, social and other aspects of the Amazon basin region. The Institute was formally established in May 1948 with the setting up of an interim commission. E.J.H. Corner was the Executive Secretary.

D.258 'Note on the Proposed International Institute of Hylea', 10 December 1946; 'Report on the Conference for the Establishment of the International Institute of the Hylean Amazon, held at Iquitos, Peru, on the 30th April - 10th May, 1948'.

D.259-D.261 Duplicated typescript papers of Natural Sciences Section dealing with the Institute, 1948. Chiefly papers from the establishing conference and interim commission. 3 folders.

D.262-D.267 'IIHA'. Contents of Needham's folder so inscribed divided into six for ease of reference: duplicated typescript papers of interim commission; brief correspondence. At D.266 is draft programme of the Institute as prepared by the interim commission.

International Institute of the Arid Zone (IIAZ)

The establishment of the IIAZ was proposed at the third session of the General Conference in 1948. After consideration of the proposals during 1949, an interim commission was established in 1950 and the IIAZ began work in 1951.

D.268 Papers on the proposed IIAZ, 1949.

D.269 Report of first meeting of IIAZ advisory committee, April 1951; offprint from *Nature*, 5 January 1952, describing the work of the Institute.

Support for international science

One of the reasons that Needham tried to introduce the 'S' into UNESCO was to support existing structures of international scientific cooperation, such as the international scientific unions and their umbrella body, the International Council of Scientific Unions (ICSU).

The material relates to Natural Sciences Section relations with individual international science bodies, including proposals to form new international unions affiliated to ICSU. At D.300 is a little general material on UNESCO relations with non-governmental international scientific organisations.

- D.270-D.279 International Council of Scientific Unions.
Chiefly duplicated typescript papers.
- D.270-D.272 ICSU executive committee papers, 1947. 3 folders.
- D.273-D.277 ICSU Monthly Bulletins 1-32, September 1947 - May 1951. Not a complete sequence. 5 folders.
- D.278 Correspondence *re* questionnaire on international science cooperation for peace, circulated by ICSU's Committee on Science and its Social Relations, 1948.
- D.279 'Reports from the International Council of Scientific Unions and its constituent organizations on their activities for which UNESCO allocated grants-in-aid in 1949'.
- D.280 International Association of Microbiologists.
Papers 1949, 1951.

International Committee for Bird Protection.
Memorandum from J.S. Huxley, 1949.

International committee on anatomical nomenclature.
Letter *re* possible formation of international committee, 1950.

- D.281 International Council for the Exploration of the Sea.
Papers, 1946, 1949.
- D.282 International Federation of Culture Collections.
Annual reports for 1947 and 1948.
- D.283 International Hydrographic Bureau.
Statutes; report of activities 1947.
- D.284 International Mathematical Union.
Correspondence and papers *re* proposed International Union, 1947-1948.
- International Meteorological Organisation.
Letter only, 1949.
- International Organisation for Standardisation.
Information, 1949.
- D.285, D.286 International Union of Biochemistry.
Correspondence and papers *re* discussions on formation of proposed International Union at the first International Congress of Biochemistry, Cambridge, 19-25 August 1949.
- D.285 Papers for meeting on 21 August of international committee of the Congress. Needham was a UNESCO observer at the meeting, at which the proposals for the Union were discussed.
- D.286 Correspondence arising with F. Dickens, Joint Honorary Secretary of the Congress, September - November 1949.

- D.287 International Union of Biological Sciences.
Miscellaneous correspondence, 1948.
- D.288 International Union of Geology and Palaeontology.
Papers *re* discussions on formation of proposed International Union at the 18th International Geological Congress, London, August 1948. Needham was a UNESCO observer at meetings at which this proposal was discussed.
Material includes Needham's 7pp typescript report.
- D.289-D.295 International Union of Nutritional Sciences (IUNS).
Principally duplicated typescript papers of the Provisional Committee for forming an International Union of Nutritional Sciences, 1948-1949, and of the IUNS itself, 1949-1960. It is likely that many of the later papers are those of Lu Gwei-Djen who served as UNESCO representative on the IUNS Committee.
- D.289 1948. Chiefly *re* meeting of Provisional Committee, London, 10-12 June. Needham was an unofficial UNESCO observer.
- D.290 1949. Chiefly *re* application for membership of ICSU.
- D.291 1950. Chiefly *re* application for affiliation with ICSU.
- D.292 1951. Affiliation.
- D.293 1952.
- D.294 1954.
- D.295 1957, 1960.

- D.296-D.298 International Union for the Protection of Nature.
- Papers for Conference for the Establishment of the International Union for the Protection of Nature, Fontainebleau, France, 30 September - 7 October 1948. 3 folders.
- D.299 International Union of the Philosophy of Science.
- Letter only 1948.
- International Union of Pure and Applied Chemistry.
- Papers 1949, 1950.
- D.300 General papers *re* UNESCO relations with non-governmental international scientific bodies, 1950-1952.

National Research Council Committee on UNESCO

The US National Research Council established the Committee on UNESCO, under the auspices of its Division of International Relations, in April 1947. It liaised with the Natural Sciences Section of UNESCO. Needham received memoranda and papers from its Chairman, B.J. Bok.

- D.301, D.302 Papers of Committee meetings, January 1948 - June 1949. 2 folders.
- D.303-D.313 Memoranda and other papers circulated to Committee members by the Chairman, April 1948 - July 1950. 11 folders. Not a complete sequence.
- These memoranda report on developments within the Natural Sciences Section.
- D.314-D.316 'Science in UNESCO' bulletin nos. 7 - 13, 1948 - 1950. 3 folders.
- The bulletins were issued by the Committee to inform the American public of the work of the Natural Sciences Section.

UNITED NATIONS RESEARCH LABORATORIES

The question of the establishment and administration of international research laboratories came under the auspices of the United Nations Economic and Social Council rather than UNESCO, as it was felt to have implications beyond the scientific or cultural spheres. The material includes papers of the Economic and Social Council and of the Committee of Scientific Experts on International Research Laboratories. This Committee, on which Needham served, met in August 1949 to consider the feasibility of setting up UN-run research institutes, independent of national governments.

- D.317-D.322 'International scientific research institutes (UN cttee) notes and correspondence'. Contents of Needham's folder so inscribed divided into six for ease of reference. 1945-1952.
- D.317 Offprints of articles *re* international research institutes, 1945, 1948; correspondence 1948, chiefly *re* UNESCO interest.
- D.318 Correspondence and papers, March - July 1949, chiefly *re* meeting of Committee of Experts, Paris, August.

Needham accepted an invitation to join the Committee.
- D.319 Papers, August, *re* Committee of Experts meeting. Includes Needham's manuscript notes and draft report of the meeting.
- D.320 Correspondence and papers, September - December 1949.
- D.321 Correspondence and papers, 1950. Includes material *re* possible international meteorological centre.
- D.322 Papers *re* establishment of international computation centre, 1952.
- D.323, D.324 Background papers of Economic and Social Council *re* international research laboratories, 1946. Includes at D.323 draft resolution submitted by French delegation calling for the establishment of such laboratories. 2 folders.

- D.325-D.329 'Report of the Secretary General on Establishing United Nations Research Laboratories', 23 January 1948. Annotated by Needham. 5 folders.
- D.330, D.331 Papers for meetings of Economic and Social Council 1948 at which the Report was discussed. 2 folders.
- D.332 UN report on *The Question of Establishing United Nations Research Laboratories* (New York, December 1948), annotated by Needham.
- D.333-D.336 Papers for meetings of Committee of Scientific Experts on International Research Laboratories, Paris, August 1949. 4 folders.
- D.337, D.338 Report of the Committee of Experts, May 1950. 2 folders.
The report supported the establishment of international research institutes.
- D.339 'Second report by the Secretary-General on the question of establishing United Nations Research Laboratories', June 1950.

BRITISH COMMITTEE FOR CO-OPERATION WITH UNESCO IN THE NATURAL SCIENCES

Needham was appointed a Royal Society representative on the British Committee for Co-operation with UNESCO in the Natural Sciences in May 1947. He served to 1952.

The committee was one of a number of co-operating bodies which formed the UK National Commission for UNESCO. The material includes papers for meetings of the Committee, general papers of the UK National Commission for UNESCO and papers circulated to all the national co-operating bodies. There is also correspondence *re* issues raised at meetings.

- D.340 1947. Correspondence *re* invitation to join the Committee; UK representation at the UNESCO General Conference.

- D.341 1948 (1). Committee meeting, 19 May.
- D.342 1948 (2). Chiefly correspondence *re* reform of UNESCO.
- D.343 1948 (3). Committee meeting, 19 October.
- D.344 1948 (4).
- D.345 1949 (1). Letter *re* meeting of Co-operating Bodies, 22 February; Committee meeting, 24 May.
- D.346 1949 (2).
- D.347 1949 (3). Includes correspondence *re* UNESCO programme and budget for 1950.
- D.348 1950 (1). Committee meeting, 8 March.
- D.349 1950 (2). Meeting and report of special committee on the UNESCO Project for a Scientific and Cultural History of Mankind, 13 March. See D.166, D.167 above.
- D.350 1950 (3). Report of the United Kingdom to UNESCO for 1949.
- D.351 1950 (4). Committee meeting, 23 October.
- D.352 1951 (1). Meeting of National Commission, 4 April.
- D.353 1951 (2). Committee meeting, 25 April.

- D.354 1951 (3). Report of the United Kingdom to UNESCO for 1950.
- D.355 1951 (4). Committee meeting, 16 November.
- D.356 1952.
- D.357, D.358 Miscellaneous material found with preceding British Committee papers.
- D.357 Duplicated typescript information sheets on geology, pharmacy and chemistry in USA, 1949.
- D.358 British Commonwealth Scientific Office (North America) report on 'The European branches of the Battelle Memorial Institute', December 1953.

Annual Report of the United Kingdom Scientific Research Organization in Germany, 8 April 1954.

FOOD AND AGRICULTURE ORGANISATION OF THE UNITED NATIONS

- D.359-D.365 Press-releases and other literature *re* work of the FAO, June - November 1949, sent to Needham for information. 7 folders.

SECTION E UNDERGRADUATE AND RESEARCH WORK E.1-E.193

- E.1-E.68 NOTEBOOKS
- E.1-E.34 Undergraduate
- E.35-E.68 Research
- E.69-E.193 NOTES AND DRAFTS

E.69-E.89 Undergraduate

E.90-E.193 Research

NOTEBOOKS

The sequence of notebooks presented here covers the period 1916-1943, a span encompassing Needham's undergraduate studies and his most important biochemical research. His research notebooks are particularly striking for the high quality of information they present. In recording experimental work the entries often have annotations on why results of particular experiments were not as expected, what might have gone wrong and how this might be remedied.

Many of the notebooks used for research hold additional material clipped or pinned to pages or intercalated loose. This material is integral to the notebooks and has been retained in its original order.

Undergraduate

The first four of these notebooks were initially used at Oundle School for science notes.

- E.1 Hardback notebook inscribed on first page 'Records of experiments in Mechanics & Physics. Grafton House Oundle School [this crossed out and replaced with 'King's College London University] 1916 - 1917 - 1918 Volume 1'. Used for notes on experiments numbered 1-23 (with index to experiments 1-19 loose at back of notebook) paginated 1-45, sketches of equipment, physics subjects for 1st M.B. syllabus and notes on 'Heat' paginated 64-68.

The experiments 20-23 are checked with a King's College stamp.

- E.2 Hardback notebook labelled on spine 'Physics (1)' and on first page 'Volume II Part I Mechanics Notebook. Statics & dynamics. Practical & theoretical [...] Oundle School Xmas Term 1917'. Used for notes on mechanics paginated 1-50 and notes on 'Physics, Heat optics, electricity Part II' paginated 1-80.

- E.3 Hardback notebook labelled on spine 'Inorganic chemistry (1)' and inscribed on second page 'Chemistry Volume I Christmas 1917'. Used for notes for School Certificate syllabus (and 'Little-Go Syllabus'). Paginated 1-111 with list of contents at front. A little loose material at back.

.../

- /... Pasted onto first page is press-cutting 'Our chemists' victories' detailing successes of British chemistry during the First World War with a note by Needham on one of those mentioned in the piece 'Sir Henry Jackson was my Professor of Chemistry at King's College Summer Term 1918'.
- E.4 Hardback notebook labelled on spine 'Inorganic analysis' and on first page '[...] Little-Go Examination March 1918 Vergil, Aeneid VIII, Xenophon, Anabasis V, St Luke's Gospel'. Used for translations from the Greek (some pages at the front of the book are missing), and for 'Mr Heycock's Notes on Analysis [Quantitative] May Term 1919'. Loose at back are notes for 'Examination for Organic Body in 1st M.B. Cam. syllabus'.
- E.5 Hardback notebook labelled on spine 'Botany' and on first page '[...] King's College London'. Used for notes 1918. Paginated 1-208 with index at back.
- E.6 Hardback notebook labelled on spine 'Inorganic chemistry (2)' and on second page 'Descriptive chemistry [...] Mr Heycock's Lectures 1918-1919'. Used for notes and diagrams. A little loose material at back.
- E.7 Hardback notebook labelled on spine 'Anatomy (1)' and on first page 'Human anatomy [...] Caius College Cambridge October 1918 King's College, London July 1919'. Used for notes and anatomical diagrams to 1920, with list of lecturers at front (including A. Macalister whose obituary from *The Times* is pasted inside back cover).
- E.8 Softback pocket notebook used for notes and anatomical diagrams on 'Origins and insertions of muscles' 1918-1920.
- E.9 Hardback notebook labelled on spine 'Osteology'. Used from October 1918 for notes and anatomical diagrams.
- E.10 Hardback notebook labelled on spine 'General physiology (1)'. Used from 16 January 1919 for notes on lectures, with list of lecturers on first page (J.N. Langley, F.G. Hopkins, H. Hartridge, L. Marshall and H.H. Anderson).

- E.11 Hardback notebook labelled on spine 'General physiology (2)'. Used from 16 May 1919 for notes on lectures, with list of lecturers on first page (F.H.A. Marshall, J.N. Langley, L.E. Shore, Hartridge, R.A. Peters, A. DaSouza and H.K. Anderson).
- E.12 Hardback notebook labelled on spine 'General physiology (3)'. Used for notes on lectures, with list of lecturers on first page (J. Barcroft, R.A Peters, J.V. Bock, D.R. Hooker and E.C. Schneider).
- E.13 Hardback notebook labelled on spine 'Experimental physiol'. Used from 16 January 1919 to Lent Term 1920 for notes on class experiments under J.N. Langley and H. Hartridge.
- E.14 Hardback notebook labelled on spine 'Histology' (the label is in poor repair) and on first page '[...] 19.1.18 (should be 1919)'. Used for notes on lectures by E. Schäfer.
- E.15 Hardback looseleaf binder inscribed on spine 'Tripos Chemistry'. Used from Easter Term 1919 for notes on lectures on physical chemistry by Heycock, 'Gravimetric work' and 'Volumetric analysis'. At front are duplicated typescript question papers for chemistry dating from October 1919 to May 1920.
- E.16 Hardback notebook labelled on spine 'Biol. Chemistry (1)' (the label is in poor repair). Used for notes on lectures 1919-1920, with list of lecturers on front cover and at front (Hopkins, S.W. Cole, T.S. Hele, O. Rosenheim, DaSouza and Peters). A little loose intercalated material.
- E.17 Hardback notebook labelled on spine 'Biological Chemistry [2]' (the label is in poor repair). Used for notes on lectures, with list of lecturers on front cover (Hopkins, Hele, Peters, G. Lusk, A. Woodman).
- E.18 Hardback notebook labelled on spine 'Morphology (1)' and on first page 'Morphology and Embryology Dr Duckworth 1919-20'. Used for notes on lectures.

- E.19 Hardback notebook labelled on spine 'Morphology (2)' and on first page 'Morphology and Embryology Dr Duckworth 1919-20'. Used for notes on lectures. Most pages not used.
- E.20 Hardback notebook labelled on spine 'Anatomy (2)' (label in poor repair) and on second page 'Human anatomy [...] February 1920'. Used for notes on lectures, with list of lecturers at front (Reid, Pennell and Appleton).
- E.21 Hardback notebook labelled on spine 'Colloids (1)' and on front cover 'The biology, chemistry and physics of the colloid state [...] 11.v.20'. Used for notes from May 1920 and notes on W.B. Hardy's lectures on general colloidal theory May Term 1921. A little loose material at front.
- E.22 Hardback notebook labelled on spine 'Colloids (2)'. Used for notes on lectures on surface chemistry by A.S. Rideal and T. Lowry.
- E.23 Hardback notebook labelled on spine 'Neurology' and on second page 'Nerve and muscle'. Used from 11 October 1920 for notes on lectures by E.D. Adrian and R.S. Lillie.
- E.24 Hardback notebook labelled on spine 'Histology (2)'. Used from Michaelmas Term 1920 for notes on lectures by W.B. Hardy. Loose at front is 'Summary of histological methods 1922'.
- E.25 Hardback notebook labelled on spine 'Biophysics'. Used from Michaelmas Term 1920 for notes on lectures, with list of lecturers on front cover (T.R. Parsons and D.D. Van Slyke, Lowry, J.J.R. Mcleod and L.J. Henderson).
- E.26 Contents of Needham's hardback looseleaf binder: duplicated typescript worksheets, manuscript notes on 'Practical Biochemistry Part two Nat. Sci. Trip. 1920'.
- E.27 Hardback looseleaf binder labelled on front 'Notes on dispensing [and] bacteriology'. Used from May Term 1921.

- E.28 Hardback notebook labelled on spine 'Cytology'. Used for notes on lectures by J. Gray and R.A. Peters. A little loose material at front and back, including notice of Cambridge Philosophical Society meeting 7 March [?1921].
- E.29 Hardback notebook inscribed on spine 'Special senses'. Used for notes on lectures by H. Hartridge. Nd but probably for Part II.
- E.30 Hardback notebook labelled on spine 'Parasitology' and on first page '[...] Professor Nuttall Long Vac Term 1921'. Used for notes on lectures.
- E.31 Hardback notebook labelled on spine 'Pathology' and on first page '[...] Prof Sir G. Sims Woodhead Long Vac Term 1921'. Used for notes on lectures. Some pages from front of the notebook are missing.
- E.32 Hardback notebook labelled on spine 'Pharmacology' and on first page '[...] Prof Bradbury Dr Inchley Dr Dixon Long Vac Term 1921'. Used for notes on lectures. Some pages from front of notebook are missing.
- E.33 Softback notebook inscribed on front 'Typical reactions' and on second page 'Typical organic reactions [...] Caius'. Used for notes on hydrocarbons etc. Nd.
- E.34 Hardback binder used for duplicated manuscript chemistry notes pasted onto the pages. Nd.

Research

- E.35 Softback notebook inscribed on front 'Traduccion DE Inglesia [...] 1914 [...]' (crossed out). Used from the front for lists of photographs from childhood family holidays, sketches and 'Catalogue of Books', and at back from 1 November - 6 December 1921 for notes on experiments.
- Intercalated material includes letters from E. Prideaux, 26 March 1923 and O. Rosenheim, 25 March 1924, and 2pp typescript draft of 'The excretion of creatine' by Needham and T.J. McCarthy, *Proc. of the XIth International Physiological Congress, 23-27 July 1923*, 175-176.

- E.36 Foolsap hardback letterbook used for notes on work on inositol, various dates 1922-1925. Printed pagination. A little loose intercalated material.
- E.37 Contents of Needham's hardback folder labelled 'Reprints etc' on front cover: manuscript notes and references including 'Pathological chemistry 1922'.

The folder has not been retained.
- E.38 Softback exercise book used for notes on micro-injection experiments 30 October 1924 - 14 February 1925, and work at Roscoff, Brittany 12 - 30 June 1925 (paginated 1-25).
- E.39 Hardback exercise book used for notes on work at Roscoff 30 June - 21 July 1925 (paginated 26-60), and micro-injection work October - December [1925]. Back cover missing.
- E.40 Hardback notebook labelled on spine 'Psychopathology' and on second page '[...] Fulbourne asylum: Xmas term 1924'. Used for notes on various mental conditions and illnesses.
- E.41 Hardback 'Reporter's notebook' inscribed on front cover 'Joseph and Dorothy Needham Pacific Grove, Cal. 1929'. Used for notes on experiments June - November 1929.
- E.42 Softback exercise book inscribed on first page 'Phosphagens of blowflies'. Used from the front for notes on experiments 1-45 10 December 1931 - 17 March 1933, and from the back for work at Lister Institute.

Intercalated material includes correspondence from M. Robertson of the Lister Institute, 1931-1932.
- E.43 Large format hardback notebook, used from July 1930 chiefly for notes on experiments on eggs 1-107 .

- E.44 Large format hardback notebook, used October 1930 for notes on experiments and from April 1931 for notes on experiments on eggs 108-355. A little intercalated material.
- E.45 Large format hardback notebook, used from front for notes on experiments on eggs 356-590 and from back for notes on experiments 1-41. A little intercalated material.
- E.46 Large format hardback notebook labelled on front 'Snailery I 1-134'. Used from the front for notes on work with snails November 1933 - February 1934, paginated 1-134, and from the back for notes on experiments on eggs 591-621 and unnumbered.
- Much intercalated material includes letters from H. Carday, November and R.A. Millikan, December 1933, graphs, calculations etc.
- E.47 Large format hardback notebook inscribed on front cover 'Snail Metab II Needham Baldwin' and on back cover 'Carbohydrate Metabolism of chick embryo [...] Needham, Nowinski, Cook, Dixon'. Used from the front for notes on work with snails February - August 1934 (that from February to March paginated 135-190) and from the back for notes on experiments on chick embryos 1-97, June 1935 - February 1936.
- Much intercalated material including correspondence November 1934 - December 1935, graphs, notes, and complete index to carbohydrate experiments 1-222.
- E.48 Large format hardback notebook inscribed on front cover 'Carbohydrate metabolism of chick embryo. N, N, C, D'. Used for notes on experiments on chick embryos 98-175, February - July 1936. Much intercalated material.
- E.49 Large format hardback notebook used from the front for notes on chick experiments 177-270, 6 October 1936 - 30 June 1937, and at the back for notes October 1936, October 1937. Not all in Needham's hand.
- Much intercalated material including letters from G. Weiler, with results of analyses July 1936, and H.O.L. Fischer, April and May 1937.
- E.50 Large format hardback notebook used for notes on chick experiments 271-279, July 1937, and later notes 1939. Not all in Needham's hand. Most pages not used. Much intercalated material including reprints, graphs etc.

- E.51 Hardback notebook inscribed on first page 'Evocator experiments. April 1934 V. [sic] Nowinsky, C.H. Waddington, Joseph Needham, Dorothy Needham'. Used for notes 16 April - 8 August 1934. Inside front cover is note of the allocation of research work as decided at 'meeting 14th Jan 1935'. Most pages not used. A little intercalated material.
- E.52 Large format hardback notebook inscribed on first page 'Dr J. Brachet Urée, acide urique etc'. Used by Brachet for notes (in French) ca. October 1934 - February 1935. Paginated 1-178. Most pages not used.
- E.53 Memo Book inscribed on front cover 'Präparateur-Buch'. Used for notes (not in Needham's hand) 1934-1935. Most pages not used.
- E.54 Hardback notebook inscribed on second page 'Extraktionsversuch I'. Used for notes (in German, not in Needham's hand) ca. 1934. A little intercalated material.
- E.55 Hardback notebook inscribed on front cover '[...] The Chemistry of Organizer J. Needham and W.W. Nowinski Organizer and other'. Used for notes (in German, not in Needham's hand) on cephalin ca. 1935. Most pages not used.
- Intercalated material includes correspondence, February - April 1935.
- E.56 Contents of Needham's loose-leaf binder used for notes on work on chick embryos (in German and English), annotated by Needham, 9 June - 11 November 1936.
- The original folder has not been retained.
- E.57-E.60 Contents of Needham's box inscribed '[E.J.] Boell notebooks 1,2 & 3' and 'Diver notebooks 1,2,3'.
- E.57 Hardback notebook inscribed on front cover '1'. Used for notes, not all in Needham's hand, ca. 1937 - May 1938. Paginated 1-75.
- Much intercalated material including correspondence from G.S. Adair, nd.

- E.58 Hardback notebook inscribed on front cover '2'. Used for notes, not all in Needham's hand, 15 February - 24 June 1938. Paginated 1-161. A little intercalated material.
- E.59 Hardback notebook inscribed on front cover '3'. Used for notes, not all in Needham's hand 25 June - 12 July 1938. Paginated 1-55, most pages not used or paginated. A little intercalated material.
- E.60 Loose manuscript notes, graphs, calculations, found with the notebooks.
- E.61 Hardback notebook inscribed on front cover 'Aerobic glycolysis'. Used for notes 18 October 1938 - 20 March 1939. A little intercalated material.
- E.62 Hardback notebook used for miscellaneous notes and calculations ca.October 1938 - April 1939. Not in Needham's hand. A little intercalated material.
- E.63-E.68 Sequence of six notebooks, continuously paginated 1-295, used for work on 'Protein particle shape by anomalous viscosity and flow birefringence in relation to embryonic structures & adult tissues esp muscles' (inscription inside notebook 1).
- E.63 '1'. Paginated 1-81. Used for notes on techniques, scope of work, and on experiments 1-67c, March - May 1940. A little intercalated material.
- E.64 '2'. Paginated 82-155. Used for continuing notes on experiments 68-76d, May 1940, and later work January 1941 - 5 February 1942. Not all in Needham's hand. A little intercalated material.
- E.65 '3'. Paginated 156-194. Used for notes on experiments 7 February - 21 March 1942. A little intercalated material.
- E.66 '4'. Paginated 195-234. Used for notes 23 March - 11 May 1942. Most pages not used. A little intercalated material.

- E.67 '5'. Paginated 235-248 (most pages missing). Used for notes 11 May - 11 June 1942. Intercalated material includes correspondence with R.A. Kekwick *re* electrophoresis run on globulin fractions of amphibian embryos, June - July 1942.
- E.68 '6'. Paginated 249-295. Used for notes 13 June 1942 - 27 January 1943. Not in Needham's hand. A little intercalated material.

NOTES AND DRAFTS

Undergraduate

- E.69-E.72 'Practical [later crossed out] Organic Chemistry'. Contents of Needham's file so inscribed divided into four for ease of reference.
- E.69 Manuscript lecture notes on 'Practical organic chemistry [...] King's College [...] Summer term 1918'; manuscript notes on 'Professor Pope's Demonstrations 1919'.
- E.70-E.72 Manuscript notes on 'Theoretical Organic Chemistry'. 3 folders.

The notes record the preparation, properties and composition of various organic chemicals. They are arranged by an alphabetical classification system with an index at the front (at E.70).
- E.73 Manuscript chemistry notes, September 1918.
- E.74-E.81 Contents of Needham's folder divided into eight for ease of reference: manuscript lecture notes, notes on the literature etc, various dates 1918-1922.

The material has been retained in the order in which it was found.
- E.74 Includes notes on 'Goulstonian lecture 1921', 'Nutrition 1919 (Graham Lusk)', 'The hydrogen ion W. Mansfield Clark', 'The chemical dynamics of muscle F.G. Hopkins 3 March 1921', 'The Prof on muscular story February 1922' and 'Symposium on muscle 23.2.22'.

- E.75 Includes notes on 'Enzyme action'.
- E.76 Includes notes on 'Chemical protective mechanisms Read before the GCNSC [Gonville and Caius Natural Sciences Club] 1918'.
- E.77 Incomplete unbound printed 'Plan of what must necessarily be a very short course of study' given by G. Sims Woodhead, Cambridge University Pathology Department, Long Vacation 1921.

The remainder of the plan is at E.81.
- E.78 Notes on 'Oxidations and reductions in the animal body'.
- E.79 Notes on 'The glutathione system', 'The Bach-Chodat Perox. system', 'Light and protoplasm', 'Milk biochemistry' and 'The physiology of water'.
- E.80 Notes on 'Respiratory function of blood', 'The ductless glands' and 'Cathcart 1918 "The phys of protein metabolism" '.
- E.81 Includes notes on 'The coagulation of blood' and 'The nucleic acids Walter Jones 1920'.
- E.82-E.84 Contents of Needham's folder divided into three for ease of reference: manuscript notes on organic chemistry, latest bibliographical reference 1919.
- E.85 ?Undergraduate essays on 'The utilisation of atmospheric nitrogen' and 'The geographical distribution of plants'. Manuscript.
- E.86, E.87 ?Undergraduate essay on 'Blood as a tissue'. 49pp manuscript, with first page of earlier draft. 2 folders.

Needham delivered a talk on this subject in ca.1921. See G.1.

E.88 Manuscript notes on 'Visit to Research Hospital, Babraham Road', 13 February 1921; Needham's manuscript notes on 'F.G.H's paper at Phys. Society's Meeting May 21st 1921'.

E.89 Duplicated typescript bacteriology experiment sheets, Long Vacation 1921.

Research

E.90-E.94 Typescript drafts of chapters of Needham's Ph.D. thesis, with extensive manuscript corrections. 5 folders.

E.90 Preface 'A general survey of the cyclose problem'; 'A General historical survey'.

E.91 'The general descriptive biochemistry of the cyclose group'.

E.92 Work on i-Inositol.

E.93 'Further experiments'.

E.94 'Conclusions, bibliography and plans for further investigations'.

E.95-E.98 'References to intermediary metabolism N.T.J.N.'. Contents of Needham's folder so labelled divided into four for ease of reference: manuscript notes on the literature, some pages numbered, latest bibliographical reference 1924. At E.98 is an incomplete index to the notes.

E.99-E.101 Contents of Needham's folder divided into three for ease of reference: manuscript notes on the literature, some pages numbered, latest bibliographical reference 1924. Possibly continuation of preceding.

- E.102-E.107 'Inositol'. Contents of Needham's boxfile so inscribed divided into six for ease of reference: miscellaneous manuscript notes ca.1924-1941. Includes historical notes and bibliographical references.
- E.108-E.116 'Egg (Chem. Embr.)'. Contents of Needham's boxfile so inscribed divided into nine for ease of reference: miscellaneous notes etc, 1927-1946.
- E.108 1927. Includes manuscript drafts of 'Le metabolisme des hydrates de carbone chez l'embryon du Poulet (*Gallus gallus*)', 3pp and 'Le metabolisme des hydrates de carbone chez l'embryon de Grenouille (*Rana temporaria*)', 4pp. Both published in *Comptes Rendus des séances de la Société de Biologie* **97** (1927).
- E.109 1928. Includes incomplete manuscript 'Summary of results to Jan 1928, egg yolk proteins'.
- E.110 1931. Includes 11pp typescript of 'The historical and contemporary inter-relationship of the physical and biological sciences. Review of a discussion which took place at the Second International Congress of the History of Science, 1931'. Records remarks by Needham made in the discussion.
- E.111 1932, 1933. Includes sets of manuscript notes for 1932 and 1933 relating to meetings of the Theoretical Biology Club. See also J.243-J.246 and M.96-M.100.

Notes for 1932 record contributions of J.H. Woodger, C.H. Waddington, D.M. Wrinch and J.D. Bernal; those for 1933 Woodger, Wrinch, Wadham, M. Black, Bernal and B.P. Wiesner.
- E.112 1934-1950. Miscellaneous material *re* development of Department of Biochemistry. Includes draft of 'Memorandum on the position of embryology in England and in Cambridge' sent to Rockefeller Foundation (see also B.21) and manuscript material found therewith.
- E.113 1935, 1936. Includes correspondence from Chas. Hearson & Co. Ltd *re* humidity in incubators. The company had supplied Needham with humatagraphs.

- E.114 1937, 1938, 1946. Includes manuscript notes from discussion meeting of Theoretical Biology Club 1937 (those named include Woodger, L.L. Whyte, Waddington, Bernfeld, B.P. Wiesner, W.F. Floyd and Bernal), and 4pp typescript 'An account of the negotiations regarding financial aid for technical assistance, etc for studies on the borderline between biochemistry and embryology', 1938.
- E.115, E.116 Manuscript and typescript notes, nd.
- E.115 Notes in envelope and folder inscribed 'Experiments'.
- E.116 Miscellaneous notes.
- E.117 'Fat desaturation results'. Contents of Needham's envelope so inscribed: letter from J.B. Leathes, 14 March 1929; manuscript and typescript notes.
- E.118, E.119 'P-metab I'. Contents of Needham's envelope so inscribed divided into two for ease of reference: correspondence, manuscript notes, calculations etc., ca.1929-1930.
- E.120, E.121 Miscellaneous notes, 1920s. 2 folders.
- E.122, E.123 'Chemical Heterauxesis papers'. Contents of Needham's boxfile so labelled divided into two for ease of reference.
- E.122 Correspondence, chiefly from C.J. Lamb 1932, 1933.
The first letter is annotated 'Correspondence about Heterogony (Lamb)'.
- E.123 Manuscript notes, calculations, graphs etc.
- E.124-E.127 'Nitrogen catabolism (& comparative)'. Contents of Needham's folder so inscribed divided into four for ease of reference.
- E.124-E.126 'Notes Uric acid formation Uricase Arginase, Activators Allantoinase Urea etc.' Contents of envelope found within folder divided into three for ease of reference: chiefly bibliographical references.

- E.127 Correspondence 1932, 1933, including letters from W.R. Fearon, *re* work on uric acid; manuscript notes.
- E.128, E.129 'Fluoride & Iodoacetate on E, B, & Ysac'. Contents of Needham's envelope so inscribed divided into two for ease of reference: graphs and notes on effect of fluoride etc on the chick embryo, blastoderm and yolksac, *ca.* 1932.
- E.130 Correspondence 1933-1938, principally with N.G. Heatley.
- E.131, E.132 Press-cuttings and other publicity material *re* Needham's work on organiser. 2 folders

The material chiefly relates to the meeting of British Association for the Advancement of Science, Blackpool, 9-16 September 1936 at which Needham spoke on his work on organiser. However, it also includes some earlier reports of his work.
- E.133-E.135 Manuscript and typescript notes, tables graphs etc, *ca.* 1933-1939. 3 folders.
- E.136 Mounted photographs for figures for publications.
- E.137 Loose photographs.
- E.138, E.139 Offprints and miscellaneous printed material (chiefly in Polish) 2 folders.

The Polish language material may relate to Needham's visit to Poland in 1937. See also M.209-M.214.
- E.140-E.143 'Organiser Steroids, cancer problem Notes'. Contents of Needham's boxfile so labelled divided into four for ease of reference.
- E.140 Correspondence 1936-1940. Includes letter from W.E.C. Dickson requesting Needham's comments on a section of his book dealing with cancer, with copy of the section annotated by Needham.
- E.141-E.143 Manuscript and typescript notes, principally bibliographical references, *ca.* 1933-1940. 3 folders.

- E.144-E.149 'Organiser Miscellaneous notes'. Contents of Needham's boxfile so labelled divided into six for ease of reference.
- E.144 Correspondence, 1933-1935 and nd, with manuscript and typescript notes found attached. Includes letter *re* preparation of glycogen and *re* sterols sent to Needham for work on evocator.
- E.145-E.148 Manuscript notes, principally bibliographical references, *ca.* 1933-1935. 4 folders.
- E.149 Photographs.
- E.150-E.152 'Uric acid formation in birds R.K. Brown miss'. Contents of Needham's envelope so inscribed divided into three for ease of reference.
- E.150 Letter from Brown with report 'Uric acid production in the embryo chick. Biochemical Laboratory, Cambridge, Jan. 13 - Mar. 16, 1933' and graph of results.
- E.151, E.152 Index cards with Brown's original data.
- E.153 'Ultra micro Kjeldahl'. Contents of Needham's envelope so inscribed: manuscript notes, calculations etc, *ca.* 1937, *re* 'An ultramicro'Kjeldahl technique', with E.J. Boell, *Biochemical Journal* **33** (1939), 149-152. See also F.235.
- E.154-E.158 'Diver work'. Contents of Needham's folder so inscribed divided into five for ease of reference: material *re* papers in series 'Morphogenesis and metabolism: studies with the cartesian diver ultramicro-manometer', *Proc. Roy. Soc. Lond. B*, October 1939. See also F.238-F.249.
- E.154 Correspondence, 1937-1938; 2pp typescript and manuscript draft 'Application of the Cartesian Diver ultramicromanometer to the measurement of the anaerobic glycolysis of the regions of the amphibian gastrula'.

- E.155-E.158 Manuscript notes, graphs, calculations, photographs etc. 4 folders.
- E.159 Miscellaneous notes, 1937-1938.
- E.160-E.172 'Protein particle shape Notes etc'. Contents of Needham's boxfile so inscribed divided into thirteen for ease of reference.
- E.160 'Needham & Robinson Notes Lab notes etc'. Contents of folder so inscribed: material *re* 'La forme moléculaire des substances protéiques de l'oeuf', with J.R. Robinson, *Comptes Rendus des séances de la société de Biologie* **126** (1937).

Includes 'Notes on work in progress' by Robinson, 26 May 1937; 4pp typescript draft of article by Needham and Robinson; manuscript notes.
- E.161 Correspondence 1938-1942. Includes correspondence *re* work on myosin, supply of chemicals and apparatus, techniques, and memo from J.F. Danielli on 'denatures protein' prepared at Needham's request, 28 July 1942.
- E.162, E.163 'Polarising microscope & multiweight balance'. Contents of Needham's envelope so inscribed divided into two for ease of reference: correspondence and brochures *re* supply of apparatus, 1941.
- E.164 Needham's manuscript notes on 'J.F. Danielli's lectures on colloids etc. May Term 1941' and 'Darlington's talk at the Waddery', nd.
- E.165 Needham's manuscript notes for talk to 'Tea Club April 28th 1942'.
- E.166 Manuscript notes and graphs 1942.
- E.167 Needham's manuscript 'Index to notebooks and files' dealing with protein work.

The items are listed in the index by number, and some are located in folders E.168, E.178, E.179-E.181, E.182, E.186, E.187.
- E.168-E.172 Miscellaneous manuscript notes, bibliographical references etc. 5 folders.

- E.173-E.175 'Heidermanns et al'. Contents of Needham's folder so inscribed divided into three for ease of reference: offprints by C. Heidermanns and others, 1933-1939, annotated by Needham.
- E.176 'Protein viscosity notes'. Contents of Needham's folder: letter from J.Z. Young *re* viscosity of axoplasm proteins, 9 May 1940; manuscript notes.
- E.177 'Liver and kidney structure proteins'. Contents of Needham's folder: manuscript notes, *ca.* 1941.
- E.178 'Calculations and notes'. Contents of Needham's folder so inscribed: correspondence *re* visit to Lancaster, 1941, manuscript notes etc. *ca.* 1941.
- E.179-E.181 'APP & myosin'. Contents of Needham's folder so inscribed divided into three for ease of reference: manuscript notes and graphs, *ca.* 1941-1942.
- E.182, E.183 'Salts & temp & myosin'. Contents of Needham's folders so inscribed divided into two for ease of reference: manuscript notes and graphs, *ca.* 1941-1942.
- E.184, E.185 'Mucoprotein story'. Contents of Needham's folder so inscribed divided into two for ease of reference.
- E.184 Correspondence from D. McClean and J.H. Humphrey, 1941-1942.
- E.185 Offprints by D. McClean.
- E.186, E.187 Contents of Needham's folder divided into two for ease of reference: manuscript notes and graphs, *ca.* 1942.
- E.188 'Am ϕ emb story'. Contents of Needham's folder so inscribed: letter to A. Kleinzeller *re* work on amphibian eggs, 7 April 1942; manuscript notes.

- E.189 Needham's manuscript notes on talk by G. Wald on 'Visual pigments', 2 March 1964.
- E.190, E.191 Miscellaneous manuscript notes, bibliographical references etc. Nd. 2 folders.
- E.192 Miscellaneous typescript and duplicated typescript notes. Nd.
- E.193 Manuscript tables of bibliographical references. Large format.

SECTION F PUBLICATIONS

F.1-F.450

F.1-F.379

DRAFTS

F.380-F.400

TRANSLATIONS

F.401-F.449

EDITORIAL CORRESPONDENCE

F.450

OFFPRINTS

DRAFTS

A chronological sequence of material relating to Needham's publications, or to the probable intention to publish. Many papers are co-authored. Collaborators include his wife Dorothy Needham, E. Baldwin, E.J. Boell, J. Brachet, W.W. Nowinski and J. Yudkin. Dorothy Needham is also represented by a number of drafts of which she is sole author.

The material presented here includes not only Needham's biochemical publications but also drafts of a religious, political or philosophical nature.

Further publications material may be found in sections C, E and G.

- F.1 'Muscle tonus'.
20pp typescript + references. Latest bibliographical reference 1921.
- F.2-F.5 'Muscular tone'.
?Longer version of preceding. Latest bibliographical reference 1921. Note found therewith reads 'A masterly treatment of a most difficult subject [...] Tunnicliffe G.C.N.S.C. [Gonville and Caius Natural Science Club] 31.1.23'.
- F.2, F.3 68pp manuscript draft. 2 folders.
- F.4, F.5 Typescript and manuscript draft. 2 folders.
- F.6 'The evolution of the functions of blood', *Science Progress*, April 1923.
9pp typescript + references; letter from editor.
- F.7, F.8 'Studies on inositol I. A method of quantitative estimation', *Biochemical Journal* **17** (1923), 422.
- F.7 Manuscript draft.
- F.8 13pp typescript draft with manuscript corrections + figure; letter from editor suggesting amendments.

- F.9 'A note on the estimation of the carbon-content of solutions', *Biochemical Journal* **17** (1923), 431-434.
5pp typescript draft with manuscript corrections; 4pp proof with manuscript corrections.
- F.10 'Inositol and insulin', with W. Smith and L.B. Winter, *Journal of Physiology*, (1923).
1p typescript.
- F.11 'Studies on inositol II. The synthesis of inositol in the animal body', *Biochemical Journal* **18** (1924), 891-904.
30pp typescript with manuscript corrections + references; letter from editor.
- F.12 'Studies on inositol III. The metabolic behaviour of inositol in the developing avian egg', *Biochemical Journal* **18** (1924).
19pp typescript with manuscript corrections + references and tables; letter from editor.
- F.13 'The metabolism of the developing egg', *Science Progress*, July 1924.
Correspondence from editors only.
- F.14 'The oxidation-potential of the cell-interior (a preliminary report)'. ca.1924.
16pp typescript with manuscript corrections + list of references.
- F.15 'The hydrogen ion concentration and oxidation-reduction potential of the cell-interior', with D.M.M. Needham, *Proceedings of the Physiological Society/Journal of Physiology* **59** (1925).
2pp typescript.

- F.16 'The hydrogen cell concentration and the oxidation-reduction potential of the cell-interior: a micro-injection study', with D.M.M. Needham, *Proceedings of the Royal Society of London B* **98** (1925), 259-286.

Slightly differently titled typescript draft with extensive manuscript corrections.
- F.17 'Les effets de la fécondation sur la concentration en ions hydrogène et le potentiel d'oxydation-réduction dans les oeufs marins, étudiés par la méthode de micro-injection', with D.M.M. Needham, *Comptes Rendus des séances de la Société de Biologie* **93**, 18 July 1925, 503-505.

6pp manuscript draft; typescript abstract from *L'Année Biologique*.
- F.18-F.22 'The metabolism of the developing egg', *Physiological Reviews* **5** (1925).
- F.18-F.21 102pp typescript + tables and list of references. 4 folders.
- F.22 Correspondence from editor.
- F.23, F.24 *Science, Religion and Reality*. ed J. Needham, Sheldon Press, London, 1925. Needham contributed an article 'Mechanistic biology and the religious consciousness'. See also G.3.
- F.23 Incomplete typescript and manuscript draft of Needham's contribution.
- F.24 Correspondence with W.R. Inge, a contributor to the book, chiefly *re* vitalism; correspondence arising 1925-1927 and 1951; royalty account for fourth edition and American edition, 1931.
- F.25 'A note on recovery from severe polyuria nephritis in the rat', submitted to *British Journal of Experimental Pathology* 1925.

3pp typescript + figures; correspondence with editor *re* publication.

- F.26 'The hydrogen-ion concentration and the oxidation-reduction potential of the cell-interior before and after fertilisation and cleavage; a micro-injection study on marine eggs', with D.M.M. Needham, *Proceedings of the Royal Society of London B* **99** (1926), 175-199.
- Typescript draft with extensive manuscript and typescript corrections and annotations.
- F.27 'Further micro-injection studies on the oxidation-reduction potential of the cell-interior', with D.M.M. Needham, *Proceedings of the Royal Society of London B* **99** (1926), 383-397.
- Manuscript and typescript draft.
- F.27A 'Observations sur le PH intérieur de la cellule', with D.M.M. Needham, *Comptes Rendus des séances de la Société de Biologie* **94**, 27 March 1926, 833.
- 7pp manuscript draft (in French); 4pp typescript draft (in English).
- F.28 'The sources of energy in ontogenesis', *Proceedings of the Physiological Society/Journal of Physiology* **66** (1926).
- ?Incomplete 2pp typescript draft.
- F.29-F.32 'The oxidation-reduction potential of protoplasm: a review', with D.M.M. Needham, *Protoplasma* **1** (1926), 255-294.
- F.29-F.31 75pp typescript and manuscript draft. 3 folders.
- F.32 Figures; correspondence from editor.
- F.33 'The limitations of optick glasses; some observations on science and religion', *Hibbert Journal*, April 1926.
- Correspondence with editor, L.P. Jacks; correspondence arising 1926-1927. See also G.5.

- F.34 'S.T. Coleridge as a philosophical biologist', *Science Progress*, April 1926.
17pp typescript with manuscript corrections.
- F.35 'The energy-sources in ontogenesis I. The urea content of the developing avian egg', *British Journal of Experimental Biology* **3** (1926), 189.
Incomplete typescript draft.
- F.36, F.37 'The energy-sources in ontogenesis II. The uric acid content and the general protein metabolism of the developing avian egg', *British Journal of Experimental Biology* **4** (1926), 114.
39pp typescript with manuscript corrections + manuscript tables. 2 folders.
- F.38 'The energy-sources in ontogenesis III. The ammonia content of the developing avian egg and the theory of recapitulation', *British Journal of Experimental Biology* **4** (1926), 145.
Typescript and manuscript draft.
- F.39 'The energy-sources in ontogenesis IV. The relation between absorption and combustion of fat in the developing avian egg', *British Journal of Experimental Biology* **4** (1926), 258.
Typescript and manuscript draft with manuscript corrections + list of references; letter from editor.
- F.40, F.41 'The energy-sources in ontogenesis V. The carbohydrate metabolism of the developing avian egg', *British Journal of Experimental Biology* **4** (1926).
28pp typescript with manuscript corrections and annotations. 2 folders.
- F.42, F.43 'The energy-sources in ontogenesis VI. The relation between combustion, constitution, and concentration in the developing avian egg', *British Journal of Experimental Biology*, ca.1926.
Typescript and manuscript draft. 2 folders.

- F.44 'Lucretius redivivus, or, the hope of a chemical psychology', *Psyche* (1927).
14pp typescript with manuscript corrections; brief correspondence.
- F.45 'On ovomucoid', *Biochemical Journal* **21** (1927), 733-738.
6pp typescript draft + tables.
- F.46 'The developmental efficiency of the avian embryo', *British Journal of Experimental Biology* (1927).
Manuscript and typescript draft.
- F.47 'Quelques aspects de la chimie embryonnaire des Selachiens', with D.M.M. Needham, *Comptes Rendus des séances de la Société de Biologie* (1927).
4pp typescript with manuscript corrections.
- F.48 'The free carbohydrate of the developing chick', *Quarterly Journal of Experimental Physiology* **18** (1927).
?Incomplete 2pp typescript draft.
- F.49-F.56 *Man a Machine*, Psyche Miniatures, Kegan Paul, London, 1927.

This was written as a response to a draft by E. Rignano entitled 'Man Not a Machine'.

Following publication of *Man a Machine* Rignano initiated a friendly correspondence with Needham and invited him to write an article for the journal *Scientia*. He was also asked to check a translation of an article by Rignano submitted for the Psyche Miniatures series. Rignano died in February 1930 and Needham was asked to write an obituary of Rignano for *Nature* and an appreciation of his work for *Scientia*.

See also M.85.
- F.49-F.52 Typescript draft with manuscript corrections. 4 folders.
- F.53 Proof with manuscript corrections and typescript additions.

- F.54 Correspondence with publisher and editor of *Pysche*; photographs for plates.
- F.55 Review from *Quarterly Review of Biology* 4 (1929); correspondence arising.
- F.56 Correspondence from Rignano 1927-1928, from editor of *Pysche* re article by Rignano 1929-1930, and from editor of *Scientia* 1930; 8pp typescript draft 'L'Idealisme d'un philosophe positiviste (Eugenio Rignano)'; proof of Needham's obituary of Rignano for *Nature*.
- F.57 'The relations between free and combined carbohydrate in the metabolism of the embryo', submitted to *Biochemical Journal* 1927 but not published.

Typescript draft with extensive manuscript corrections and annotations; letter from editor explaining why the article could not be published.
- F.58 'The concept of the organism in biology', *Journal of Philosophical Studies* (1927).

Correspondence from editor.
- F.59 'Recent developments in the philosophy of biology', *Quarterly Review of Biology* 3 (1928), 77-91.

Correspondence, chiefly from editor; offprint with underscoring and marginal emphasis by Needham.
- F.60 'Towards a quantitative embryology', review of *Les bases physiologiques de la fécondation et de la parthénogenèse* by A. Dalcq, *Science Progress*, ?July 1928.

9pp typescript draft; correspondence re review.
- F.61 'Protein metabolism and organic evolution', *Science Progress* 23, January 1929, 633-648.

Typescript and manuscript draft.

- F.62 *Materialism and religion*, Ernest Benn, London, 1929.

Written for Benn's 'Affirmation' series at the request of P. Dearmer.

Correspondence from Dearmer and publishers, 1927-1931; letter arising, 7 January 1930.
- F.63 'Hermaphroditism in dendraster', with A.R. Moore, *Science*, 11 October 1929, 357.

1p typescript; proof; letter from editors.
- F.64 'Scyllitol in Selachian ontogeny', *Biochemical Journal* **23** (1929), 319-323.

10pp typescript draft.
- F.65 Review of *Biological Principles. A critical study* by J.H. Woodger (Kegan Paul, London, 1929).

6pp typescript draft.
- F.66 'The chemical changes during the metamorphosis of insects' by D.M.M. Needham, *Biological Reviews* **4** (1929), 307.

37pp typescript with manuscript corrections.
- F.67-F.81 *The sceptical biologist. Ten essays*, Chatto and Windus, London, 1929 and W. W. Norton & Co., New York, 1930.

This was a collection of ten essays by Needham, some previously published.
- F.67 Typescript draft of first essay 'The sceptical biologist', with extensive manuscript corrections and additions.
- F.68-F.76 303pp typescript draft of book + title page, acknowledgements. 9 folders.
- F.68 Prefatory material.

- F.69 'The sceptical biologist'.
- F.70 'The limitations of optick glasses'.
- F.71 'Organicism in biology'.
- F.72 'The hunting of the phoenix'.
- F.73 'Lucretius redivivus'.
- F.74 'S.T. Coleridge as a philosophical biologist'.
'Julien de la Mettrie'.
- F.75 'William Harvey and the Witches'.
'Anaxagora, or, science and purpose'.
- F.76 'Materialism and religion'.
Bibliography.
- F.77 'A biochemist orders a wreath for Sir Thomas Browne', 11pp typescript draft
by Needham found with preceding material.
- F.78 Correspondence from Chatto & Windus, 1929-1933.
- F.79 Correspondence from W.W. Norton and Co., 1928-1930.
- F.80 Agreements with publishers, royalty statements.

- F.81 Correspondence arising, 1929-1936 and nd; press-cuttings.
- F.82 Review of *Embryology and Evolution* by G.R. de Beer, *Cambridge Review*, January 1930.
1p typescript draft.
- F.83 'Nitrogen-excretion in Selachian ontogeny', with D.M.M. Needham, *British Journal of Experimental Biology* **7** (1930), 7-18.
20pp typescript draft.
- F.84 'A note on Selachian yolk-proteins', *Biochemical Journal* (1930).
9pp typescript draft with manuscript corrections.
- F.85 'On the penetration of marine organisms into fresh-water', *Biologisches Zentralblatt* (1930), 1-6.
11pp typescript + references; letter from publishers.
- F.86-F.88 'On phosphorus metabolism in embryonic life I. Invertebrate eggs', with D.M.M. Needham, *Journal of Experimental Biology* **7** (1930), 317-348.
51pp typescript draft with manuscript corrections + list of contents, tables etc. 3 folders.
- F.89 'Conversation in a Brake-van', *Cambridge Review*, 16 May 1930, 409-410.
7pp typescript with manuscript corrections.
- F.90 'La synthèse de nucléines par les oeufs en voie de développement', with D.M.M. Needham, *Comptes Rendus des séances de la Société de Biologie* **104** (1930), 671.
5pp typescript draft with manuscript corrections.

- F.91, F.92 'The biochemical aspect of the recapitulation theory', *Biological Reviews & Biological Proceedings of the Cambridge Philosophical Society* **5** (1930), 142-158.
- F.91 32pp typescript draft + summary and references; letter from editor.
- F.92 Corrected proof copy.
- F.93 'On incubation-time and gestation-time', *Science Progress*, October 1930
16pp typescript draft + references; letter from editors.
- F.94 'Thoughts on the problem of biological organisation', ca. 1930.
15pp typescript + references; proof; manuscript notes.
- F.95 'Concerto for Organism and Orchestra'. Review of *The Interpretation of Development and Heredity* by E.S. Russell (Oxford, 1936).
3pp typescript with manuscript corrections.
- 'Biology and Publicism'. Review of *Principles of Animal Biology* by L.T. Hogben, (London, 1930).
5pp typescript with manuscript corrections.
- F.96, F.97 'Religion and the scientific mind', *Criterion*, January 1931.
- F.96 Uncorrected proof.
- F.97 Correspondence with T.S. Eliot, editor, 1930; letter arising.

- F.98-F.110 *Chemical Embryology*, 3 vols., Cambridge University Press, 1931.
- This book was in preparation for several years and its appearance eagerly anticipated by many. A number of publishers expressed an interest in the book but Needham offered it to Cambridge University Press who agreed to publish it if Needham would contribute to the costs.
- In 1934 chapters on the historical development of embryology were published as a separate volume *A History of Embryology*. See F.160. This was extensively revised in 1947 and, for a US edition, in 1958.
- F.98 'Statement of the aim of the book *Physicochemical Embryology*', 3pp manuscript draft, 1929; correspondence from publishers and others 1926-1929.
- F.99 Correspondence *re* financing of book, 1929-1931.
- Cambridge University Press sought a contribution of £500 from Needham towards the book. He applied unsuccessfully to a number of trusts and foundations but in the event found the sum required himself. He also made a sizeable contribution towards the cost of excess corrections.
- F.100, F.101 List of and correspondence from colleagues commenting on drafts of *Chemical Embryology*, 1930-1931. 2 folders.
- Needham widely circulated drafts of sections of the book for comments and criticisms.
- F.102 Proof of Prolegomena and first 38 pages, extensively annotated by ?J.H. Woodger with comments of criticism and approbation.
- F.103, F.104 Publicity material. 2 folders.
- F.105 Correspondence with reviewers, including letters of appreciation and congratulation from colleagues asked to review the book, 1932-1933.
- F.106 Reviews.
- Includes copy of 'Embryology: exact or inexact?', *Discovery*, May 1932, 157-160, Needham's reply to a review by E.W. MacBride.

- F.107, F.108 Letters of appreciation and congratulation. 2 folders.
- F.109 Correspondence with publishers *re* printing and sales of *Chemical Embryology*; correspondence *re* possible reprint 1960, 1962.
- F.110 Royalty statements etc.
- F.111 'The relations between yolk and white in the hen's egg I. Introduction', with A.J.M. Smith, *Journal of Experimental Biology* **8** (1931), 286-292.

14pp typescript with manuscript correction + references; letter from editor, written on verso of Needham's original covering letter.
- F.112 'The relations between yolk and white in the hen's egg IV The formation of lactic acid and alcohol by the yolk', with M. Stephenson and D.M.M. Needham, *Journal of Experimental Biology* **8** (1931), 319-329.

17pp typescript with manuscript corrections + list of contents, references, figures.
- F.113 'The relations between yolk and white in the hen's egg V. The osmotic properties of the isolated vitelline membrane', *Journal of Experimental Biology* **8** (1931), 330-344.

15pp typescript + summary, references, figures.
- F.114 'Excretion of Uric acid', *Nature* **128** (1931), 152-153.

This was a published exchange with V.B. Wigglesworth.

2pp typescript draft with manuscript correction; 2pp typescript draft of Wigglesworth's paper.
- F.115, F.116 *The great amphibium*, SCM Press, London, 1931.

Needham was first invited to write a book dealing with the relationship between biology and religion by the Student Christian Movement in 1927.

- F.115 Correspondence with SCM Press, 1927-1935; agreement; royalty accounts etc.
- F.116 Correspondence arising 1931-1933.
- F.117 'Religion in a scientific age', *The Nineteenth Century*, November 1931.
Proof copy; correspondence from assistant editor; correspondence arising.
- F.118 'The inadequacy of scientific deism', *Journal of Philosophical Studies* (1931).
Letter from editor only.
- F.119 'Biology today and tomorrow', ca.1931.
Corrected proof stamped '24 Sep. 1931'.
- F.120 'Evolution', *Encyclopaedia of the Social Sciences* (New York, ca.1931).
Correspondence with editor 1930-1931.
- F.121 'Cambridge cytology', review of *A Textbook of Experimental Cytology* by J. Gray (Cambridge 1931).
3pp typescript with manuscript corrections.
- F.122 'Recent advances in chemical embryology', *Annual Review of Biochemistry* **1** (1932), 507-526.
24pp typescript and manuscript draft + list of references; correspondence from editor.

- F.123, F.124 'A comparative study of the phosphagens, with some remarks on the origin of vertebrates', with D.M.M. Needham, E. Baldwin and J. Yudkin, *Proceedings of the Royal Society of London B* **110** (1932), 260-294.
53pp typescript draft with manuscript corrections + figures; referee's report; letters re figures. 2 folders.
- F.125 'Phosphagen and protozoa', with D.M.M. Needham, M. Robertson and E. Baldwin, *Journal of Experimental Biology* **9** (1932), 332-335.
7pp typescript draft + table and references; brief correspondence from editor and manuscript notes found therewith.
- F.126 'La répartition du phosphagène parmi les animaux inférieurs', with D.M.M. Needham, E. Baldwin and J. Yudkin, *Comptes Rendus des séances de la Société de Biologie* **109** (1932), 606.
4pp typescript draft.
- F.127 'La respiration des membranes du poussin', *Comptes Rendus des séances de la Société de Biologie* **109** (1932), 611.
Incomplete 1p typescript draft.
- F.128 'La physiologie de la membrane vitelline de l'oeuf de Poule', with A.J.M. Smith, J. Shepherd, M. Stephenson and D.M.M. Needham, *Comptes Rendus des séances de la Société de Biologie* **109** (1932), 688.
4pp typescript.
- F.129, F.130 'The energy sources in ontogenesis VII. The respiratory quotient of developing crustacean embryos', *Journal of Experimental Biology* **10** (1932), 1-9.
16pp typescript draft + references, figures.
- F.130 Material found with preceding: 'Rejected pages'; correspondence; figures; manuscript notes.

- F.131 'A manometric analysis of the metabolism in avian ontogenesis. I. - The normal respiratory quotient of the blastoderm, embryo and yolk-sac during the first week of development', *Proceedings of the Royal Society of London B* (1932).

27pp typescript draft with manuscript corrections; manuscript notes and graphs found therewith.
- F.132, F.133 'A manometric analysis of the metabolism in avian ontogenesis. II. - The effects of fluoride, iodo-acetate, and other reagents on the respiratory metabolism of the blastoderm, embryo and yolk-sac', *Proceedings of the Royal Society of London B* (1932).
- F.132 39pp typescript draft with manuscript corrections.
- F.133 Figures.
- F.134, F.135 'On the true metabolic rate of the chick embryo and the respiration of its membranes', *Proceedings of the Royal Society of London B* **110** (1932).
- F.134 Typescript draft with typescript and manuscript corrections.
- F.135 References, figures.
- F.136 'On phosphorus metabolism in embryonic life II. The role of phosphagen in the development of *Sepia*', with D.M.M. Needham, J. Yudkin and E. Baldwin, *Journal of Experimental Biology* **7** (1932).

Slightly differently titled 10pp typescript draft + tables, references, figures etc.
- F.137, F.138 'On phosphorus metabolism in embryonic life III. Phosphagen in avian development' by D.M.M. Needham and E. Baldwin, *Journal of Experimental Biology* **7** (1932).
- F.137 Typescript and typescript draft + summary and references

- F.138 Figures.
- F.139 'Biochemical evidence regarding the origin of vertebrates', with D.M.M. Needham, *Science Progress* **26** (1932).

22pp typescript + references and table; letter from editor.
- F.140 'Heterogony and the chemical ground-plan of animal growth', *Nature* **130** (1932), 845.

Letter from *Nature*, returning figures; correspondence arising from paper.
- F.141-F.143 'Les aspects chimiques de l'heterogonie embryonnaire', *Bull. Soc. Philomath. Paris* **115** (1932).
- F.141, F.142 43pp typescript with extensive manuscript corrections. 2 folders.
- F.143 Figures; correspondence *re* paper.
- F.144 Book review of Aldous Huxley's *Brave New World*, *Scrutiny* **1** (1932).

Correspondence *re* journal and Needham's review; request to reprint review, 1973.
- F.145, F.146 'Notes on the way', *Time and Tide*, September 1932.

This was a series of four articles by Needham published between 3 and 24 September.
- F.145 Copies of the articles from *Tide and Tide* and of correspondence arising published in the journal.
- F.146 Brief correspondence with editor; 11pp draft for fourth article paginated [33]-43, annotated 'Rolf abandoned'.
- F.147 Book review of C.E.M. Joad, *Philosophical aspects of modern science* (Allen & Unwin, 1932) and F.R. Tennant, *Philosophy of the sciences* (Cambridge, 1932), possibly for *Cambridge Review*.

4pp typescript with manuscript corrections.

- F.148 'Laudian Marxism', *Criterion*, ?September 1932.
Correspondence with T.S. Eliot, editor, March - April 1932. Eliot initially expressed reservations about the piece.
- F.149-F.151 'A manometric analysis of the metabolism in avian ontogenesis. III. - The respiratory quotient of the yolk-sac and allantois during the last two weeks of development', *Proceedings of the Royal Society of London B* **113** (1933), 429-459.
- F.149, F.150 Typescript draft with manuscript corrections. 2 folders.
- F.151 Letter; copy of part of referee's report, ?with draft of Needham's reply (on filter paper); miscellaneous typescript pages of earlier draft; tables and figures.
- F.152 'Bemerkungen zu der Arbeit von O. Riesser und A. Hansen "Chemisch-analytische Untersuchungen an Muskeln von marinen Avertebraten" ', with D.M.M. Needham, E. Baldwin and J. Yudkin, *Hoppe-Seyler's Zeitschrift für physiologische Chemie* **222** (1933), 63-64.
4pp typescript; brief correspondence found therewith.
- F.153 'Beobachtungen über die physikalisch-chemische Natur des Organisators', with C.H. Waddington and D.M.M. Needham, *Die Naturwissenschaften* **21** (1933), 771-772.
8pp typescript draft with manuscript corrections + references; later 3pp typescript and manuscript draft; 2pp typescript English translation.

- F.154, F.155 'Recent advances in chemical embryology', *Annual Review of Biochemistry* **2** (1933).
- F.154 19pp typescript draft with extensive manuscript correction and annotation.
- F.155 References; correspondence with editor.
- F.156-F.159 'Chemical heterogony and the ground-plan of animal growth', *Biological Reviews* (1933).
- F.156 34pp typescript draft.
- F.157 List of contents; list of figures; figures.
- F.158 Corrected proof copy.
- F.159 Manuscript calculations and graphs for the paper.
- F.160 *A History of Embryology*, Cambridge University Press, 1934.

Chapters on the historical development of embryology from *Chemical Embryology* (see F.98-F.110) were published separately as *A History of Embryology*.

Statements of account 1938-1941; correspondence *re* and draft of jacket copy for new US edition 1958.
- F.161-F.163 'Problems of nitrogen catabolism in invertebrates. I. The snail (*Helix pomatia*)', with E. Baldwin, *Biochemical Journal* **28** (1934), 1372-1392.
- F.161, F.162 Manuscript and typescript draft with extensive manuscript corrections and annotations. 2 folders.
- F.163 43pp typescript draft + figures.

- F.164 'Morphology and Biochemistry', *Nature* **134**, 25 August 1934, 275-276.
4pp typescript draft with manuscript corrections; proof copy.
- F.165 'Sketch of the scientific work of Sir William Hardy', *The Caian* **42** (1934).
Brief correspondence; duplicated typescript list of Hardy's published papers; offprint.
- F.166-F.171 *Cellular Respiration* by N.U. Meldrum, Methuen, London, 1934.
This book was published posthumously after Meldrum's death in 1933. Needham and D.E. Green prepared the book for publication and wrote a short memoir of Meldrum for the volume.
See also M.58, M.59.
- F.166-F.170 Typescript draft with manuscript corrections. 5 folders.
- F.171 Correspondence from publishers.
- F.172 Letter to *Cambridge Review*, November 1934.
This was written in response to an article 'Official Philosophy' by M. Oakeshott, *Cambridge Review*, 16 November, critical of dialectical materialism.
2pp manuscript draft; copy of Oakeshott's article.
- F.173 'Problems of nitrogen catabolism in invertebrates. II. Correlation between uricotelic metabolism and habitat in the phylum Mollusca', *Biochemical Journal* **29** (1935).
21pp typescript with manuscript corrections + tables, figure, summary etc; brief correspondence from colleagues; manuscript pages marked 'Rejected'.
- F.174 'Recent advances in chemical embryology', *Annual Review of Biochemistry* **4** (1935)
24pp typescript with manuscript correction + references.

- F.175 'Étude du Métabolisme de l'oeuf de Grenouille (*Rana fusca*) au cours du développement. 4. La teneur en glycogène de l'oeuf de la segmentation à l'éclosion', with J. Brachet, *Archives de Biologie* **46** (1935), 821-835.

14pp typescript + references.
- F.176-F.184 *Christianity and the social revolution*, ed. J. Lewis, K. Polanyi and D.K. Kitchin, Gollancz, London, 1935.

Needham was a member of the ad hoc 'editorial board' and contributed an article 'Laud, the Levellers and the Virtuosi'.

The material at F.176-F.182 is the contents of Needham's envelope inscribed 'Archives of "Christianity and the social revolution" Correspondence about Xty & Comm book'. The material was lent to Irene Grant and returned to Needham in 1969.
- F.176-F.179 Correspondence and papers *re* preparation of the book, 1933-1935.

Material includes correspondence *re* and plans of the contents of the book (frequently revised), correspondence *re* appropriate authors and quality of contributions
- F.176 1933.
- F.177 1934 January - June.
- F.178 1934 September - December.
- F.179 1935.
- F.180 Undated plans, notes etc.
- F.181 Press-cuttings of reviews.
- F.182 Correspondence arising 1935-1937, 1949; correspondence 1969 *re* 'Christianity and the social revolution' material.

- F.183 'Laud, the Levellers and the Virtuosi'.
Typescript draft; proof; manuscript plan.
- F.184 Further correspondence arising 1935 and nd; programme of discussion meetings on 'Christianity and the Social Revolution', St Clement's Centre, London, February - March 1936.
- F.185-F.188 'Science, religion and socialism'.
A note on the front page of the draft at F.187 notes that this was 'in its original form a contribution to "Christianity and the social revolution" '. Only the second part was used, as the basis for 'Laud, the Levellers and the Virtuosi'.
- F.185, F.186 'First draft'. 51pp typescript with manuscript corrections + references. 2 folders.
- F.187 Typescript and manuscript draft with extensive corrections and additions.
- F.188 Pages from other drafts of 'Science, religion and socialism'.
- F.189 Letter to *Nature*, 1 February 1936.
Needham attacked an anonymous article [written by E.W. McBride] published in *Nature* on 11 January which had advocated compulsory sterilisation of sections of the population.
1p typescript and manuscript draft; letters arising.
- F.190 'Ivan Pavlov', obituary in *Daily Worker*, 29 February 1936.
Copy of obituary; tributes to Pavlov in *Daily Worker* for 28 February.
- F.191 Correspondence *re* papers in series 'Studies on the nature of the amphibian organization centre', published in *Proceedings of the Royal Society of London B* **120** 1936-1937.

- F.192 'Studies on the nature of the amphibian organization centre III - The activation of the evocator', with C.H. Waddington and J. Brachet, *Proceedings of the Royal Society of London B* **120** (1936), 173-198.
37pp typescript draft with manuscript corrections + references and figure.
- F.193 'Studies on the nature of the amphibian organization centre IV - Further experiments on the chemistry of the evocator', with C.H. Waddington, W.W. Nowinski, R. Lemberg and A. Cohen, *Proceedings of the Royal Society of London B* **120** (1936), 198-207.
16pp typescript with manuscript corrections + plates for figures.
- F.194 'Evocation, individuation, and competence, in amphibian organiser action', with C.H. Waddington, *Proc. Koninklijke Akademie van Wetenschappen te Amsterdam* **39** (1936), 887-890.
Proof copy.
- F.195 'Biochemistry and causal morphology in amphibian regeneration', *Science Progress*, October 1936.
Brief correspondence only.
- F.196-F.198 'The common ground', *Spectator*, 30 October 1936.
This was the fifth in a series of articles on Christianity and Communism. The articles and correspondence arising were subsequently published as a short book by Blackwell's of Oxford in 1937.
- F.196 Typescript and manuscript rough draft under the title 'The two faces of Christianity' (see F.323).
- F.197 Copies of the published articles in the series.
- F.198 Correspondence *re* publication; correspondence arising; press-cuttings.

- F.199 'The Left in Poland', *Time and Tide*, ca.1936..

3pp typescript draft; manuscript notes; letter accepting it for publication in *Time and Tide*, 16 October 1936.

Letter from T.S. Eliot as editor of the *Criterion*, returning article submitted by Needham for publication, 4 November 1936 (the article itself was not found with the letter).
- F.200 'Co-enzymes in muscle metabolism', by D.M.M. Needham, latest bibliographical reference 1936.

7pp manuscript + references.
- F.201 'Studies on the nature of the amphibian organization centre VI - Inductions by the evocator-glycogen complex in intact embryos and in ectoderm removed from the individuation-field', with N.G. Heatley and C.H. Waddington, *Proceedings of the Royal Society of London B* **122** (1937), 403-412.

21pp typescript; brief correspondence from N.G. Heatley; manuscript notes.
- F.202-F.215 Papers on the 'Intermediary carbohydrate metabolism in embryonic life' I-VIII.

These were prepared for the *Biochemical Journal* as individual papers but parts II-IV and V-VII were consolidated prior to publication.
- F.202 'Intermediary carbohydrate metabolism in embryonic life I. General aspects of anaerobic glucolysis', with W.W. Nowinski, *Biochemical Journal* **31** (1937), 1165-1184.

51pp typescript and manuscript draft.
- F.203 'Intermediary carbohydrate metabolism in embryonic life II. Formation and removal of pyruvic acid', with W.W. Nowinski and R.P. Cook.

21pp typescript and manuscript draft.

- F.204 'Intermediary carbohydrate metabolism in embryonic life III. The Pasteur effect and the Meyerhoff cycle', with W.W. Nowinski and K. Dixon.
12pp manuscript draft.
- F.205 'Intermediary carbohydrate metabolism in embryonic life IV. The distribution of acid-soluble phosphorus', with W.W. Nowinski.
17pp manuscript and typescript draft.
- F.206 'Intermediary carbohydrate metabolism in embryonic life V. The Phosphorylation cycles', with H. Lehmann.
34pp typescript draft with manuscript corrections.
- F.207 'Intermediary carbohydrate metabolism in embryonic life VI. Glucolysis without phosphorylation', with H. Lehmann.
32pp typescript and manuscript draft.
- F.208 'Intermediary carbohydrate metabolism in embryonic life VII. Experiments on the nature of non-phosphorylating glucolysis', with H. Lehmann.
28pp typescript and manuscript draft.
- F.209, F.210 'Intermediary carbohydrate metabolism in embryonic life VIII. Glyceraldehyde and glucolysis', with H. Lehmann, *Biochemical Journal* **31** (1937).
- F.209 29pp typescript draft with manuscript corrections + figures.
- F.210 31pp typescript; 1p manuscript notes.
- F.211, F.212 'Intermediary carbohydrate metabolism in embryonic life' Parts II-IV, *Biochemical Journal* **31** (1937).
52pp typescript with manuscript corrections + figures etc. 2 folders.

- F.213-F.215 'Intermediary carbohydrate metabolism in embryonic life' Parts V-VII, *Biochemical Journal* **31** (1937).
85pp typescript with manuscript corrections + figures. 3 folders.
- F.216 'Science and Mankind', *Manufacturing Chemist* **8** (1937), 385.
The journal *Manufacturing Chemist* ran a 'symposium' of a series of short articles in which eminent scientists and others contributed opinions on this topic.
Brief correspondence from editor; manuscript notes; copies of the articles in the 'symposium'.
- F.217-F.219 *Perspectives in biochemistry...Essays presented to Sir F.G. Hopkins*, ed. Needham and D.E. Green, Cambridge University Press, 1937.
Needham also contributed an article to the volume, 'Chemical aspects of morphogenetic fields'.
- F.217 19pp typescript draft + figures of Needham's contribution.
- F.218 'Oxidation & Fermentation' by A. von Szent-Györgyi, 12pp typescript with extensive manuscript corrections by Needham; typescript list of contents and index etc.
- F.219 Correspondence *re* second edition, 1938, and possible sequel volume, 1941.
- F.220 'On phosphorus metabolism in embryonic life IV. The Parnas reaction in the chick embryo from the open neural fold stage', with H. Lehmann. Latest bibliographical reference 1937. Submitted to *Journal of Experimental Biology*.
16pp typescript draft with manuscript corrections.
- F.221-F.223 'Des aspects chimique de la détermination morphogène'. Latest bibliographical reference 1937.
89pp typescript. 3 folders.

- F.224-F.228 'Aspects nouveaux de la chimie et de la biologie de la croissance organisée', *Folia Morphologia* **8** (1938), 1-79.

This was originally delivered as a lecture at a number of Polish universities in May 1937.
- F.224-F.226 91pp typescript and manuscript draft with manuscript corrections. 3 folders.
- F.227 Bibliography, figures etc.
- F.228 Corrected proof copy.
- F.229-F.231 'The action of glyceraldehyde on carbohydrate breakdown', with H. Lehmann, *Enzymologia* **5** (1938), 95-99.
- F.229, F.230 Typescript and manuscript 'Original first draft'. 2 folders.
- F.231 9pp typescript draft with manuscript corrections; letter from colleague sent the paper for comments.
- F.232 'Metabolic properties of the regions of the amphibian gastrula', *Proceedings of the Society for Experimental Biology and Medicine* **39** (1938), 287-290

6pp typescript + references.
- F.233 'Genetics in the USSR' by ' "Helix" and "Helianthus" ', *Modern Quarterly*, ca.1938.

Although the authorship is anonymous the draft has corrections in Needham's hand.

Typescript with manuscript corrections; proof copy.

- F.234 Book reviews:

Bio-Politics by Morley Roberts (London, 1938) and *An Interpretation of Biology* by H. Collier (London, 1938).

3pp typescript.

Heredity and Politics by J.B.S. Haldane (London, 1938).

2pp typescript.
- F.235 'An ultramicro-Kjeldahl technique', with E.J. Boell, *Biochemical Journal* **33** (1939), 149-152.

11pp typescript draft with manuscript corrections + figures. See also E.153.
- F.236, F.237 'Developmental physiology', *Annual Review of Physiology* **1** (1939).
- F.236 31pp typescript draft with manuscript corrections.
- F.237 Correspondence with editor.
- F.238-F.249 'Morphogenesis and metabolism: studies with the cartesian diver ultramicro-manometer' papers I-V, 1939.

The papers were originally submitted to the Royal Society for publication in *Proceedings B* in November 1938. They were returned for revision and published the following year. See also E.154-E.158.
- F.238 'Morphogenesis and metabolism: studies with the cartesian diver ultramicro-manometer I. Aerobic glycolysis of the regions of amphibian gastrula', with V. Rogers and E.J. Boell, *Proceedings of the Royal Society of London B* (1939).

51pp typescript draft + tables.

- F.239 'Morphogenesis and metabolism: studies with the cartesian diver ultramicro-manometer II. Effect of dinitro-*o*-cresol on the aerobic glycolysis of the regions of the amphibian gastrula', with E.J. Boell, *Proceedings of the Royal Society of London B* (1939).
12pp typescript draft + tables.
- F.240, F.241 'Morphogenesis and metabolism: studies with the cartesian diver ultramicro-manometer III. Respiratory rate of the regions of the amphibian gastrula', with E.J. Boell, *Proceedings of the Royal Society of London B* (1939).
13pp typescript draft with manuscript corrections + tables, summary, references. November 1938.
- F.241 Revised draft 18pp typescript + tables.
- F.242 'Morphogenesis and metabolism: studies with the cartesian diver ultramicro-manometer IV. Respiratory quotient of the regions of the amphibian gastrula', with E.J. Boell and H. Koch, *Proceedings of the Royal Society of London B* (1939).
22pp typescript + tables.
- F.243, F.244 'Morphogenesis and metabolism: studies with the cartesian diver ultramicro-manometer V. Aerobic glycolysis measurements on the regions of the amphibian gastrula', with V. Rogers and Shih-Chang Shen, *Proceedings of the Royal Society of London B* (1939).
14pp typescript and manuscript draft with extensive manuscript corrections.
- F.244 12pp typescript draft.
- F.245 Typescript summaries ?of original papers; correspondence *re* papers.
- F.246, F.247 'Figures Metabolism & Morphogenesis'. Contents of Needham's folder so inscribed divided into two for ease of reference.

- F.248, F.249 Rejected pages of draft; manuscript notes and graphs etc. 2 folders.
- F.250-F.258 'The Levellers and the English revolution', Gollancz, London, 1939.

This work was originally submitted to the journal *Fact*. It was felt to be too long for a journal article and Needham then offered it to Gollancz. The book was published under the name 'Henry Holorenschaw', although Needham wrote a Foreword for the book under his own name. It was first drafted under the title 'Voices from the English revolution', which title was later used by Needham for a book review for *Cambridge Review* (see F.256).
- F.250-F.252 Typescript rough draft, with extensive manuscript corrections and additions. 3 folders.
- F.253-F.255 135pp typescript with manuscript corrections for printers. 3 folders.
- F.256 Correspondence with Gollancz, *Fact* and others 1938; correspondence *re* reprinting the essay 1958 and 1975; 'Voices from the English revolution', book review for *Cambridge Review* by 'Henry Holorenschaw'.
- F.257, F.258 Miscellaneous background material, that at F.257 from Needham's envelope inscribed 'Notes on Levellers'. 2 folders.
- F.259 'The naturalness of the spiritual world (in its original form an introduction for a new edition of Henry Drummond's "Natural Law in the Spiritual World")', written at sea, 6 September 1939.

16pp typescript.
- F.260 'A propos de la glycolyse des tissus embryonnaires', with H. Lehmann and W.W. Nowinski, *Comptes rendus des séances de la Société de biologie* **133**, 6 January 1940, 6-7.

3pp typescript with manuscript corrections; calculations and graphs found therewith.

- F.261 'A note on the biochemistry of embryonic determination in echinoderms', with D.M.M. Needham, *Journal of Experimental Biology* **17** (1940), 147-152.
9pp typescript draft + references, tables.
- F.262 'Terminology of relative growth-rates', with I.M. Lerner, *Nature* **146**, 9 November 1940, 618.
2pp typescript drafts; letter from Lerner; manuscript notes.
- F.263 'Myosin birefringence and adenylypyrophosphate', with Shih-Chang Shen, D.M.M. Needham and A.S.C. Lawrence, *Nature* **147**, 21 June 1941, 766.
5pp typescript 'first draft'; 7pp typescript later draft.
- F.264 'Terminology for relative growth-rates', with J.S. Huxley and I.M. Lerner, *Nature* **148**, 23 August 1941, 225.
Correspondence with Lerner and Huxley.
- F.265-F.267 *The Nazi Attack on International Science*, Watts & Co., London, 1941.
This was the second part of Needham's Schiff lecture delivered in the US in 1940 (see G.64-G.67). It was republished in Needham's book of collected essays *History is on our side* (see F.328 below).
- F.265 49pp typescript draft with extensive manuscript corrections.
- F.266 Proof copy with manuscript corrections.
- F.267 Correspondence re publication 1940-1942, 1946.
- F.268-F.273 *Science in Soviet Russia*, ed. Needham and J.S. Davies, Watts & Co., London, 1942.
Needham also contributed an article 'Biological Research in the Soviet Union, based on papers of this title for *Nature* and the *Cambridge Review*.

- F.268 'Biological Research in the Soviet Union', *Nature*, 27 September 1941 and *Cambridge Review*, 22 November 1941.

7pp typescript with manuscript corrections of draft for *Cambridge Review*; copies of articles as published.
- F.269 Correspondence with authors and publishers *re Science in Soviet Russia*, September 1941 - March 1942; memorandum of agreement.
- F.270 Typescript and manuscript drafts of chapters by Needham and A. Walton.
- F.271 Proof copy with manuscript corrections.
- F.272 Miscellaneous manuscript notes, including ?lecture notes on science in Soviet Union.
- F.273 Printed background material.
- F.274 'Is muscle contraction essentially an enzyme-substrate combination?', with A. Kleinzeller, M. Miall, M. Dainty, D.M.M. Needham and A.S.C. Lawrence, *Nature* **150**, 11 July 1942, 46.

8pp typescript draft with extensive manuscript corrections and additions; 9pp typescript + references.
- F.275-F.301 *Biochemistry and morphogenesis*, Cambridge University Press, 1942.

Needham initially intended this to form a fourth volume to his earlier work *Chemical Embryology* (see F.98-F.110 above). War broke out as the book was being brought to the press and Needham sent much material relating to it to Yale University for safety. He intended that it should be published in the USA should circumstances prevent its publication in the UK.
- F.275-F.277 Typescript and manuscript draft with manuscript corrections and annotations. 3 boxes.

- F.278 Galley proofs, with extensive manuscript correction and annotation. 1 box.
- F.279 Correspondence with Cambridge University Press and American colleagues *re* publication of the book; statements of account 1946, 1948; etc.
- F.280 Correspondence from colleagues arising from book.

Includes letter *re* deposit of material relating to the book with Yale University Library.
- F.281 Reviews.
- F.282 Manuscript and typescript notes *re* preparation of book. Includes draft lists of illustrations.
- F.283 '[Chemical] Formulae for "Biochemistry & Morphogenesis" '. Contents of Needham's folder so inscribed.
- F.284-F.293 Background material: manuscript notes; bibliographical references; off-prints etc. 10 folders.
- F.294 'Pictures from galley proof of B&M'. Contents of Needham's envelope so inscribed.
- F.295 Letters from O. Mangold, enclosing envelope of photographs and negatives for illustrations.
- F.296 Miscellaneous material for figures: hand-drawn and printed drawings; graphs; photographs etc. 1 box.
- F.297 'Biochemistry and Morphogenesis Modifications, Additions and Deletions since the preparation of the Micro-Film'.

- F.298 Reprint of *Biochemistry and Morphogenesis* 1950.
Correspondence; corrections; press notice; statements of account 1950-1953.
- F.299-F.301 Reprint of *Biochemistry and Morphogenesis* 1965.
- F.299 Typescript and manuscript draft of 'Author's Foreword'.
- F.300 Correspondence with publishers; list of corrections.
- F.301 Manuscript notes.
- F.302-F.305 'Evolution and thermodynamics: a paradox with social significance', *Science and Society* 6 (1942), 352-375.
- F.302 33pp typescript + references.
- F.303 Correspondence *re* organisation in biology and the interpretation of the Second Law of Thermodynamics, 1941.

In preparing the article Needham sought advice on the Second Law and its possible relationship to the concept of the organiser in biology. Correspondents include A.S. Eddington, E.A. Guggenheim and M. Polanyi.
- F.304 Correspondence with the editor and correspondence arising from the article, 1942-1944. Includes 15pp typescript of reply to Needham's article by A.J. Lotka, sent to him for comment.
- F.305 Miscellaneous background material found with preceding items.

- F.306 'Matter, form, evolution and us', ca.1942.
- This article was originally published as part of a series for the magazine *World Review*. The articles in the series were subsequently republished in a book *This Changing World* (ed. J.R.M. Brumwell, London, 1944). In 1945 Needham gave a BBC radio broadcast with this title (see G.117).
- 15pp typescript draft for *This Changing World*, with manuscript corrections and annotations correspondence re publication in *World Review* and *This Changing World*.
- F.307-F.318 *Time the refreshing river. Essays and Addresses 1932-1942*, Allen & Unwin, London, 1943.
- The original title of this was 'Metamorphoses of Scepticism', the title of the first essay.
- This book and *History is on our side* (see F.323-F.333 below) were compiled together by Needham and his original intention may have been one book of collected essays like his two earlier collections *The sceptical biologist* and *The Great Amphibium*. Subsequently the material was divided between two books, *Time the refreshing river* being the more scientific and *History is on our side* the more popular book. He had begun work on them before he went to China in 1942. Some background material for both books was kept together.
- F.307-F.309 Drafts of essays.
- F.307 'Metamorphoses of scepticism'.
- 28pp typescript.
- F.308 'The biological basis of sociology'.
- 24pp typescript + references.
- F.309 'Thoughts of a young scientist on the testament of an old one'.
- 29pp typescript.
- F.310-F.312 Correspondence and papers.

- F.310 Correspondence with typist and publishers 1938-1947. Includes letter from Allen & Unwin, 6 January 1938, inviting Needham to consider preparing a new book of collected essays.
- F.311 Correspondence arising 1943-1958 and nd.
- F.312 Miscellaneous background material including plans of the book and agreement with Allen & Unwin.
- F.313-F.318 Contents of Needham's envelopes of material relating to *Time the refreshing river* and *History is on our side*.

The envelopes bore inscriptions of the contents thereon. These are reproduced in the catalogue entries.
- F.313 'Correspondence with A&U on TRR and HooS'. Includes plan of proposed division of material between the two books. There is only one letter from Allen & Unwin.
- F.314 'Notes for Refreshing River essays'.
- F.315, F.316 'General Notes etc for TRR & HooS'. 2 folders.
- F.317 'Notes for TRR + HooS'.
- F.318 'General notes - additional to TRR in final typescript (chez Unwin) and galley proof stage'.
- F.319 Review of *Levels of Integration in Biological and Social Systems*, ed. R. Redfield (Lancaster, Pa, 1942).

This was reviewed for *Science & Society* 7 (1943), 189-192, and the review was then reproduced in *Selected Reviews of Current Literature* (published by the International Cultural Service of China) 1 (1945).

2pp typescript on rice paper. Paginated 41-42.

- F.320 Correspondence *re* papers on the molecular basis of morphology, 1943.
- Following hostile comments by referees for the Royal Society, Needham and collaborators withdrew the papers and after minor amendments submitted them instead to the *Journal of General Physiology* where they were published as papers I - III of 'Studies on the anomalous viscosity and flow-birefringence of protein solutions', *Journal of General Physiology* **27** (1944).
- F.321 'The Chinese contribution to scientific humanism', *Free World*, ca.1944
- 14pp typescript and manuscript draft; request for article from J.G. Crowther, 1 June 1944.
- F.322 'Science and society'. No evidence of publication. September 1944.
- 40pp typescript with manuscript corrections.
- F.323-F.333 *History is on our side, A contribution to political religion and scientific faith*, Allen & Unwin, London, 1946.
- This book was prepared and written in conjunction with *Time the refreshing river*. The original title of *History is on our side* was 'Beyond the Railheads; a contribution to political religion and scientific faith' but this was altered as the publishers felt a more arresting title was required.
- See F.307-F.318 above for further material relating to this book.
- F.323-F.329 312pp typescript draft.
- F.323 'Collectivism and Christian thought'.
- 'The two faces of Christianity'.
- F.324 'Father Aldous' Treatise on Politique Power'.
- 'Religion and politics'.
- F.325 'Cambridge summer'.

- F.326 'University democracy; a letter to an American friend'.
'Pavlov and Lenin'.
- F.327 'The gist of evolution'.
- F.328 'The Nazi attack on international science' (see also F.265-F.267 and G.64-G.67).
- F.329 'The liquidation of form and matter'.
'Aspects of the world mind in time and space' (see also F.332).
- F.330, F.331 Galley proof with extensive corrections. 2 folders.
- F.332 'Aspects of the world mind in time and space'.
Early rough draft, 10pp typescript with manuscript corrections.
- F.333 Correspondence with publishers 1942-1945, and correspondence arising 1947-1950; press review of book.
- F.334 'On science and social change', in 'Essays on Social Organisation', ed. C.C. Lienau, *Science & Society*, 1946.
Needham's contribution was initially titled 'Correlations and contradictions at the social level'.
Correspondence, *re* Needham's article and progress of volume, 1944-1946.
- F.335 Letter to *The Times* by Needham, supplementary to *The Times* obituary of Sir Frederick Gowland Hopkins, 19 May 1947.
2pp typescript of Needham's Letter; correspondence with *The Times*.

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- /... Folder also includes requests to write on Hopkins for *Nature* and 'Masters of Medicine' series (declined) and brief correspondence from 1928 re entry on Hopkins for *Encyclopaedia Britannica*.
- F.336 'Sir Frederick Gowland Hopkins O.M. P.R.S.', with D.M.M. Needham, *British Medical Bulletin* 5 (1948), 299-301.

8pp typescript 'Corrected copy' with manuscript corrections; correspondence with *British Medical Bulletin*.
- F.337-F.347 *Hopkins and Biochemistry, 1861-1947*, ed. Needham and E. Baldwin, W. Heffer & Sons, London, 1949.

Joseph and Dorothy Needham contributed a chapter 'Sir Frederick Gowland Hopkins' personal influence and characteristics'.

Copies of the book were distributed to those attending the First International Congress of Biochemistry (see H.63-H.69).
- F.337-F.340 Typescript drafts of chapters of the book, with manuscript corrections by Needham. 4 folders.
- F.341 Correspondence with publishers 1948-1956. Includes statements of account.
- F.342, F.343 Correspondence with co-editor, contributors and colleagues.
- F.342 1948, 1949 January - May.
- F.343 1949 June - 1953.
- F.344 Publicity material; reviews.
- F.345 Miscellaneous notes and background material. Includes copy of Hungarian journal *Orvosi Hetilap*, 25 September 1935 with article by Hopkins on 'The spirit of modern biochemistry' at pp.1046-1048.

- F.354 Correspondence with editors; manuscript notes; offprint of article with extensive manuscript annotation by Needham.
- F.355 Contribution to memorial volume for C. Bialaszewicz, Polish Academy of Sciences, 1956.

Needham's contribution is in the form of a 6pp typescript letter on the influence and importance of the work of Bialaszewicz.
- F.356, F.357 'The optick artists of Chiangsu - an aspect of early Chinese industrialisation' with G. D. Lu, in *Studies in the Social History of China and South East Asia*, eds. N. Tarling and J. Ch'en (Cambridge University Press, 1967).

This volume was a festschrift for V. Purcell, a sinologist who died in Cambridge in January 1965. The idea for the festschrift arose at the memorial meeting on 8 March.

The material also includes obituaries of Purcell including Needham's supplement to *The Times* obituary published on 12 January.
- F.356 Obituaries and tributes; correspondence *re* memorial meeting and Needham's manuscript notes thereon.
- F.357 Correspondence and papers *re* publication.
- F.358 *Haldane and Modern Biology*, ed. K.R. Dronamraju (Baltimore, 1968).

Exchange *re* Needham's contribution to the book, 1967.
- F.359, F.360 'The understanding of China'.

Seven articles on the People's Republic of China for Mainichi Newspapers, Japan, 1970.
- F.359 Typescript drafts with manuscript corrections and additions:

'Mandate and Mandarinate', 3pp; 'Confucianism reborn', 3pp; 'The non-acquisitive society', 3pp; 'China's example to Asia', 3pp; 'China and the West', 2pp; 'China, Russia and Eastern Europe', 4pp; 'Special features of Chinese Communism', 3pp.

- F.360 Correspondence with publishers.
- F.361, F.362 'J.D. Bernal - a personal recollection', *Cambridge Review*, 19 November 1971; reprinted in *Marxism Today*, March 1972.
- F.361 Manuscript and typescript draft; manuscript notes; request for article for *Cambridge Review*; letters of appreciation.
- F.362 Obituaries etc; manuscript note of meeting to discuss Bernal's life and work, London, 7 December 1971; material from 70th birthday tribute and concert for Bernal, 18 May 1971 (Needham was unable to be present but sent words of appreciation).
- F.363 'Memories of Julian Huxley', *Nature*, 6 March 1975.
8pp typescript draft; brief correspondence.
- F.364-F.373 'History and Human Values: a Chinese perspective for world science and technology'.
Needham presented this paper at a conference of the Canadian Society for Asian Studies on Development and Human Values, Montreal, May 1975.
It was published in the *Centennial Review* and subsequently in *The radicalisation of science. Ideology of/in the natural sciences*, eds. S.P.R. and H. Rose, (London, 1976).
Ideology of/in the natural sciences was originally intended as a single book but was subsequently divided into two shorter volumes, *The political economy of science* and *The radicalisation of science*.
- F.364 Correspondence re publication, chiefly with the *Centennial Review*.
- F.365 Correspondence with the editors, 1975-1976.
- F.366-F.372 Draft chapters for *Ideology of/in the natural sciences* sent to Needham for comment. 7 folders.

F.373 Correspondence arising, 1977, including draft of reply to criticisms of the books in *Radical Science Journal*; reviews.

F.374 'China, Europe and Scientism', *Undercurrents* **17** (1976).

This was an excerpt from a longer article by Needham 'History and Human Values: a Chinese perspective for world science and technology', in *The radicalisation of science*, eds. S.P.R. and H. Rose. See F.364-F.373.

Correspondence with C. Hutton-Squire, editor of *Undercurrents* and S.P.R. Rose, 1975-1976.

F.375 'Light from the Orient', *New Zealand Environment* **20** (Autumn 1978), 8-11.

Letters from editor 1978; copy of journal with Needham's article; copy of volume 21 with letters appreciative of the article.

Undated

F.376 'L'activité de l'arginase pendant le développement de l'embryon de Poulet', with J.Brachet.

3pp manuscript.

F.377, F.378 Typescript draft on work on equilibrium in the egg.

F.377 'I. Osmotic equilibrium in intact eggs'.

9pp.

F.378 'Part II. Osmotic relations of separated yolks'.

12pp with manuscript corrections.

'III - Gaseous exchanges of the infertile egg'.

6pp with manuscript corrections.

.../

/... 'IV - Summary'.

2pp with manuscript corrections.

F.379 'Atoms and animals'.
14pp typescript with manuscript corrections.

TRANSLATIONS

F.380-F.385 *Adventures before Birth* by J. Rostand, trans. J. Needham, Gollancz, London, 1936.

F.380-F.383 'Definitive copy' of translation, 117pp typescript + table and figures. 4 folders.

F.384 Correspondence from Rostand, publishers, and colleagues asked to comment on the book.

F.385 Photographs; press reviews; manuscript notes etc.

F.386-F.389 Polish translations

F.386 'Lodz', 'Zaglenbie' and 'Bakunin', poems by W. Broniewski, trans. Needham and 'L.L.'

Manuscript and typescript drafts of translation; correspondence from author (in French and Polish) and journal *New Writing*, 1936-1937.

F.387, F.388 'Othello and the Mangold-Wurzels: Literacy in the USSR' by A. Stawar, trans. Needham and 'L.L.'

F.387 Manuscript draft of translation.

- F.388 22pp typescript of translation with manuscript corrections; correspondence from F.R. Leavis, co-editor of *Scrutiny*, re publication, 1937.
- F.389 'An English interpretation of Piotr Plaskin, Telegrafista' by J. Tuwim, trans. Needham and W.W. Nowinski.

Manuscript and typescript drafts of translated version, ca.1936.
- F.390-F.393 'Chinese rhythms', trans. Wong Man.

Sent to Needham for possible publication in Britain, 18 October 1946.

The material is manuscript poems (in Chinese), interleaved with typescript translations and notes on the authors. 4 folders.
- F.394-F.400 *Green Thraldom* by Tang Pei-Sung, trans. Needham, Allen & Unwin, London, 1949.

Tang Pei-Sung was Professor of Physiology and Director of the Physiology Laboratory at the National Tsing-Hua University. Needham met Tang during his time in China with the Sino-British Science Cooperation Office.
- F.394-F.397 151pp typescript draft with manuscript corrections and annotations. 4 folders.
- F.398 Figures.
- F.399 Proof copy with manuscript corrections.
- F.400 Correspondence with author and publishers; review; etc.

EDITORIAL CORRESPONDENCE

Acta Biotheoretica

1935-1937, 1968

F.401-F.403 Correspondence and papers from the Prof. Dr. Jan van der Hoeven Foundation re the new journal. 3 folders.

F.404 Invitation to contribute to volume in honour of C.J. van der Klauw, 1968 (declined).

Actualités Scientifiques et Industrielles

1937-1941

These were series of monographs published by the French firm Hermann & Cie. Needham was asked to write a monograph in the logic and methodology series of Actualités Scientifiques and acted as director for the series of monographs on causal and chemical embryology.

F.405 Invitation to Needham to contribute to logic and methodology series, 11 October 1937; information on Actualités Scientifiques et Industrielles.

F.406-F.408 Correspondence from Hermann & Cie, and colleagues replying to Needham's invitations to write for the series.

F.406 1937.

F.407 1938.

F.408 1939-1941. Includes Needham's manuscript notes on contributors.

Annual Review of Biochemistry

1930, 1934, 1935, 1973

F.409 Correspondence. Includes letter 1930 re establishment of *Annual Review* and invitation 1973 to Needham to contribute an autobiographical piece for the 1975 issue (declined).

Biochemical Journal 1925, 1930

F.410 Correspondence.

Biological Abstracts 1926-1930

F.411 Abstracts of publications by Needham.

Biological Reviews 1938-1948

Needham served on the Editorial Board from 1938.

F.412 Invitation to serve; associate editorship; refereeing.

Cambridge University Press 1939-1942

F.413 Miscellaneous statements of account.

Comparative Biochemistry and Physiology 1959, 1988

F.414 3pp typescript Foreword for the new journal; correspondence, including exchange *re* reprinting the Foreword in the 40th anniversary volume.

Encyclopaedia Britannica 1929, 1945

F.415 Correspondence.

Enzymologia 1939, 1959

Needham was a 'collaborator' of the journal from its inception to 1959.

F.416 Correspondence.

Eugenics Reviews 1929, 1930

F.417 Book reviews.

Fact 1937-1939

Fact was a Marxist journal edited by Raymond Postgate. Needham became a contributing editor in June 1937 but the journal ceased publication in 1939.

Correspondence with editor *re* contents of issues and editorial policy; plans for issues of *Fact*.

F.418 1937 June - September.

F.419 1937 October - November.

F.420 1937 December.

F.421 1938 January - March.

F.422 1938 April - June.

F.423 1938 September - November.

F.424 1939.

Fundamenta scientiae 1978

F.425 Papers *re* discontinuation of publication.

Growth 1936, 1937

Needham was a Corresponding Editor from the inception of the journal in 1937.

F.426 Correspondence *re* launch of journal.

William Heinemann (Medical Books) Ltd 1937, 1939

F.427 Request for monograph; refereeing.

Interdisciplinary Science Reviews 1975

F.428 Refereeing.

Journal of Anatomy 1939

F.429 *Re* paper by G.A. Schmidt.

'Journal of Chemical Embryology' 1935

F.430 Letter *re* possibility of starting such a journal.

Leonardo 1967

This international journal for artists was launched in 1967. Needham had suggested the name for the journal and became an Honorary Editorial Adviser.

F.431 Invitation to serve as Honorary Editorial Adviser.

- Methuen & Co. Ltd 1927, 1929, 1930
- F.432 Correspondence, including 1930 exchange *re* possible contribution to Methuen series of monographs edited by G.R. de Beer.
- Nature* various dates 1927 - 1974
- F.433 Refereeing 1927, 1933, 1951; request for contribution on China, 1974.
- New Adelphi* 1927, 1930
- F.434 Possible contributions from Needham.
- Philosophy of Science* 1937, 1948, 1950
- Needham was a member of the Advisory Board from 1937.
- F.435 Membership of Board; articles for journal.
- Protoplasma* 1926-1936
- Both Joseph and Dorothy Needham were members of the editorial committee of this journal from its establishment in 1926. They prepared abstracts of books and papers by others for the journal and contributed a paper for the first issue 'The oxidation reduction potential of protoplasm: a review' (see F.29-F.32).
- F.436 Correspondence 1926.
- F.437 Prospectus for *Protoplasma*. Needham drafted the English language version of the prospectus.
- F.438 Correspondence 1927, 1928, 1933, 1936.

F.439 Abstracts for *Protoplasma*.

Race 1973

Needham joined the Advisory Editorial Board in 1973.

F.440 Correspondence *re* membership of Editorial Board.

Royal Society 1950

F.441 Refereeing.

Science & Society 1936-1937, 1966-1969

Science & Society was an American Marxist journal launched in 1936. Needham agreed to serve as a foreign corresponding editor.

F.442 Correspondence *re* launch of journal and *re* articles and reviews.

Weidenfeld & Nicholson

F.443 Invitations to contribute to History of Civilisation project.

Miscellaneous shorter publications correspondence.

The material is chiefly requests for books, articles or reviews

F.444 1923-1932.

F.445 1934-1945.

F.446 1946-1957.

F.447 1958-1967.

F.448 1968-1970.

F.449 1971-1982.

OFFPRINTS

F.450 Offprints of papers by Needham. Not a complete set. 1 box.

SECTION G

LECTURES AND BROADCASTS

G.1-G.123

G.1-G.116

LECTURES

G.1-G.99

Drafts

G.100-G.111

Invitations to lecture

G.112-G.116

Lectures by others

G.117-G.123

BROADCASTS

LECTURES

Drafts

- G.1 'Blood as a tissue with special reference to the evolution of its functions'.
Manuscript notes for talk, ca.1921. See also E.86, E.87.
- G.2 'The Cycloses', Biochemical Tea Club, Cambridge, 3 December 1923.
This talk was based on research for Needham's thesis. See E.90-E.94.
List of Tea Club meetings for Michaelmas Term only. Not otherwise documented.

'The rH of the Amoeba' with Dorothy Needham, Zoological Tea Party, Cambridge, 13 May 1925.
List of meetings for Easter Term only. Not otherwise documented.
- G.3 'Mechanistic biology and the religious consciousness', Student Christian Movement Medical and Science branch, Cambridge, 2 December 1925.
Adapted version of Needham's paper in *Science, Religion and Reality*. See F.23, F.24.
Programme of lectures for Michaelmas Term; typescript draft and pages of earlier draft, with extensive manuscript corrections.
- G.4 Letter from C.F.A. Pantin *re* arrangements for talk to the Marine Biological Association, Plymouth, 7 January 1926.
- G.5 'The changed relations of science and religion (1860-1926)'.
Adapted version of 'The limitations of optick glasses; some observations on science and religion' ca.1926. See F.33.
Typescript draft with extensive manuscript corrections.

- G.6 'Protein metabolism and organic evolution', Zoological Tea Party, 14 November 1928.
- List of meetings for Michaelmas Term only. Not otherwise documented.
- 'The nature of living things', All Saints' Church, Cambridge, 6 March [?1929].
- Poster only. Not otherwise documented.
- G.7, G.8 'Philosophy and biochemistry'.
- Possibly related to article 'Recent developments in the philosophy of biology', ca.1928. See F.59.
- G.7 50pp manuscript.
- G.8 15pp typescript with manuscript corrections.
- G.9 Brief correspondence *re* arrangements for possible lecture on science and religion to Fellowship of Marriage, Cambridge, 10 February 1930.
- 'Religion and the scientific worker', British Institute of Philosophical Studies, London, 25 February 1930.
- Correspondence *re* arrangements. The lecture was initially titled 'The scientific worker and the concept of God'.
- G.10 'Religion and the scientific worker', Fellowship of Youth conference, Oxford, 21 April 1930.
- Brief correspondence *re* arrangements; programme; information about the Fellowship of Youth.
- 'Religion and the scientific mind', Neo-Platonist Society, Christ's College Cambridge, 17 May 1930.
- Invitation only. The letter is annotated 'Read Criterion paper'.

- G.11 'The point of view of a scientific worker', Coventry Cathedral Lectures for Men, 5 October 1930.
- Needham gave the first in this series of three lectures and suggested B.H. Streeter and R.G. Collingwood as the other two lecturers.
- Correspondence *re* arrangements and arising; brief manuscript notes for lecture.
- G.12 Lecture to Chemical and Physical Society, University College London, 10 February 1931.
- Brief correspondence only.
- G.13 'The position of religion in a scientific age', Hereford, 30 March 1931.
- Correspondence *re* arrangements; programme of lectures arranged by Hereford Committee for the Promotion of Lectures on Religious Problems.
- 'Religion in a scientific age', Nashe Society, St John's College Cambridge, 27 April 1931.
- Brief correspondence *re* arrangements.
- G.14 'Biology Today and Tomorrow', Morley College for Working Men and Women, London, 1931.
- Typescript draft of lecture; letter *re* publication of Needham's lecture.
- G.15 'Certains Aspects Chimiques des membranes de l'Oeuf de Poule'.
- Includes reference to work by Needham *ca.*1931.
- 34pp manuscript.
- G.16 'The metabolism of the membranes in the hen's egg', Gonville & Caius Natural Sciences Club, Cambridge, 18 January 1932.
- Brief correspondence *re* arrangements.

- G.17 Discussion on Aldous Huxley's book *Brave New World*, Workers' Educational Association Summer School, Cheshunt College, Cambridge, 1 August 1932.
- Correspondence *re* arrangements.
- Lecture to Workers' Educational Association Cambridge Branch, 3 November 1932.
- Letter of thanks only.
- G.18 'Biochemical aspects of organic evolution', Royal Dublin Society, 24 November 1932.
- Correspondence *re* arrangements; newspaper cuttings.
- G.19 'Aspects of the thought and action of the seventeenth century', Girton College Cambridge, 1 December 1932.
- Brief correspondence *re* arrangements; plan for talk.
- G.20 'Biochemistry and embryology', Hillcroft College, Surbiton, Surrey, 8 November 1933.
- Letter *re* arrangements; manuscript outline of lecture.
- G.21 'Morphology in Biochemistry', Trinity College Natural Sciences Society, Cambridge, 6 February 1935.
- List of meetings for Lent Term only.
- 'Problems of Chemical Embryology', Institute of Pathology and Research, St Mary's Hospital, London, 20 June 1935.
- Correspondence *re* arrangements; programme of lectures.
- 'Science and propaganda' and 'The scientist as a social unit with special reference to biology', Old Crofters' Reunion, Fircroft College, Birmingham, 20 and 21 April 1935.
- Correspondence with A. Moyle *re* arrangements; programme; Needham's manuscript lecture notes.

- G.22-G.41 'Order and Life', Terry Lectures, Yale University, 1935.
- Although the Terry Lectures were intended to assimilate 'truths of science and philosophy into the structure of a broadened and purified religion', Needham's three lectures were highly scientific in character. The lectures were published in the US by Yale University Press and in Britain by Cambridge University Press, and republished as a paperback by Yale in 1968.
- G.22 Manuscript notes for lectures.
- G.23-G.28 'First draft typescript (incomplete)'. Contents of Needham's envelope so inscribed divided into six for ease of reference.
- G.29-G.33 'Typescript used by Press Complete'. Contents of Needham's envelope so inscribed divided into five for ease of reference.
- G.33A 11pp typescript 'Comments on: JN Order & Life' by J.H. Woodger.
- G.34, G.35 Correspondence *re* publication 1934-1936. 2 folders.
- G.36 Publicity material.
- G.37 Correspondence arising from publication of the book, 1935-1937.
- G.38 Reviews of *Order and Life*.
- G.39 Royalty statements.
- G.40 Correspondence *re* reprinting *Order and Life*, 1939, 1940.

- G.41 Papers *re* paperback edition 1967: correspondence; manuscript draft of 'Foreword' for new edition; publicity material.
- G.42 'Science, religion and economics in seventeenth century England', Conway Discussion Circle, Conway Hall, London, 15 October 1935.

Correspondence *re* arrangements.
- G.43, G.44 'Chemical aspects of morphogenetic determination', Oliver-Sharpey Lectures, Royal College of Physicians, London, 24 and 26 March 1936.

This lecture, together with that delivered at the Royal Society of Medicine (see G.45 below), was published as 'New advances in the chemistry and biology of organised growth', *Proceedings of the Royal Society of Medicine* **29** (1936), 31-80.
- G.43 Typescript draft of published paper.
- G.44 Correspondence *re* arrangements; Royal College of Physicians calendar of meetings, 1936.
- G.45 'Chemical aspects of normal and pathological growth', Pathological Section, Royal Society of Medicine, London, 23 June 1936.

This lecture, together with that delivered at the Royal College of Physicians, was published as 'New advances in the chemistry and biology of organised growth' (see G.43, G.44 above).

Correspondence *re* arrangements and publication.
- G.46 Talk to Medical and Science branch, Student Christian Movement.

Letter of thanks only, 14 October 1936.

'Biology and Politics', Marx Memorial Library, London, 1 December 1936.

Brief correspondence *re* arrangements; programme of Sunday lectures.

- G.47 'Should our rulers be biologists?', British Institute of Philosophy, London, 16 March 1937.

Correspondence *re* arrangements etc.
- G.48-G.53 'Integrative levels; a revaluation of the idea of Progress', Herbert Spencer lecture, Oxford, 27 May 1937.

This lecture attracted great attention. It was subsequently published by the Clarendon Press.
- G.48, G.49 50pp typescript with manuscript corrections + references. 2 folders.
- G.50 Proof copy; press reviews.
- G.51 Correspondence *re* invitation and arrangements for lecture, and correspondence arising 1937-1951.
- G.52, G.53 Manuscript and typescript notes. 2 folders.
- G.54 Lecture to Netherlands Biochemical Society, 11 December 1937.

Brief correspondence *re* arrangements.

Lecture to Imperial College Chemical Society, London, 1 March 1938.

Letter of thanks only.

'Tea Club paper 3/5/38' on metabolism of gastrula.

Manuscript notes.
- G.55 'Soviet Science and the North Pole explorations', Left Book Club, Hull branch, 27 May 1938.

Correspondence *re* arrangements; manuscript notes on the Soviet arctic expedition and on Soviet science generally; publicity material for lecture; background information.

- G.56 'Genes, Organisers and Pathology', Institute of Pathology and Research, St Mary's Hospital, London, 30 May [?1939].
Programme of lectures only.
- G.57-G.62 Manuscript and typescript rough notes for lectures. ca.1930s, but some also given to audiences in China between 1942 and 1946. See C.71.
- G.57 'Biology and Marxism'.
'Can sci save civilisation?'
'Xty and Pacificism'.
- G.58 'Distortions of science for economic-social ends'. Includes references, cuttings etc found therewith.
- G.59 'Heredity & social problems'.
'The place of the biologist in human society'.
'Political Freedom & Xty'.
- G.60 'Problems of soc scientist'.
'Rationalism, science & socialism Past, present & future'.
'The role of college & scientific societies in the West in devel. of sci.'.
'Sci & England's bourgeois revoln'.
- G.61 'Science and language and literary style'.
'The self-criticism of biological science'.
'University organisation reform'.
'Why we are what we are'.

- G.62 'Rise and Fall of Western Science', manuscript notes for lecture including notes from ?earlier lecture on 'Science and socialism', 9 August 1937.
- G.63 'The socialisation of philosophy', Comte Memorial Lecture, English Positivist Committee, Ethical Church, London, 26 May 1940.

Manuscript notes; correspondence *re* arrangements.
- G.64-G.67 'The position of science in Europe today', Jacob H. Schiff Foundation Lecture, Cornell University, 10 October 1940.

This lecture was divided into two parts. The first dealt with science in the democracies, the second with the position in Nazi Germany and occupied Europe. This second part was subsequently published as *The Nazi Attack on International Science* (see F.265-F.267) and also as a chapter in Needham's book *History is on our side* (see F.328).
- G.64 'I The democratic countries'.

24pp typescript with manuscript corrections.
- G.65 'II The Nazi attack on international science'.

29pp typescript with manuscript corrections.
- G.66, G.67 Notice of lecture; manuscript and typescript notes for lecture. 2 folders.
- G.68 'The ideas of socialism; where did they come from?', Central Labour Hall, 26 January 1941.

Manuscript and typescript notes.

Lecture at Student Movement House, London, *ca.* February 1942.

Letter of thanks only.

- G.69 'Biological Science in the U.S.S.R.', Marx Memorial Library, London, 1 February 1942.

Correspondence *re* arrangements; manuscript notes for contribution.
- G.70, G.71 'Science and international relations', fifteenth Robert Boyle Lecture, Oxford University Junior Scientific Club, 1 June 1948.

This lecture was subsequently published by Blackwell's.
- G.70 Typescript and manuscript rough draft; corrected proof.
- G.71 Correspondence *re* arrangements and publication of the lecture, 1948-1950; press notices.
- G.72, G.73 'Science and Civilization in China and the West', Charles Beard lectures, Ruskin College, Oxford, 19 January - 9 March 1949.

The Charles Beard lectures were a series of eight lectures given at Ruskin College on some aspect of the history, or social and philosophical implications of science, sponsored by the Rationalist Press Association. Needham was invited to give the first set of lectures in 1948 but declined owing to his UNESCO commitments. They were instead delivered by J.D. Bernal and Needham gave the second series of lectures.
- G.72 Manuscript notes for Needham's lectures.
- G.73 Correspondence *re* arrangements, 1947-1949.
- G.74 'Central Asia and the History of Science and Technology', Royal Central Asian Society, London, 9 February 1949.

This lecture was based on Needham's earlier UNESCO month lecture in Beirut on 'The unity of science: Asia's indispensable contribution'. See D.65-D.67.

15pp duplicated typescript of Needham's Beirut lecture, with manuscript alterations for the Royal Central Asian Society; correspondence *re* arrangements.

- G.75 'Characteristics of Chinese society', Oxford University Karl Marx History Society, 13 May 1949.
- Correspondence *re* arrangements.
- 'Science in the World Today', Teachers' Training Course, Bottisham Village College, Cambridgeshire, 29 September and 1 October 1949.
- Brief correspondence *re* arrangements; programme; Needham's manuscript notes for lecture.
- G.76, G.77 'Human Law and the Laws of Nature in China and the West', L.T. Hobhouse Memorial Trust Lecture, Bedford College, London, 23 May 1950.
- The lecture was subsequently published by Oxford University Press.
- G.76 51pp typescript draft + references.
- G.77 Correspondence *re* arrangements and publication of lecture; poster; summary of lecture; report of lecture in *Nature*.
- G.78 'Science and the Undeveloped Regions', Association of Scientific Workers Festival of Britain Lecture, London, 15 May 1951.
- Brief correspondence *re* arrangements.
- 'Inductor mechanisms in embryonic development', Bristol University, 27 February 1953.
- Letter *re* arrangements only.
- G.79 'New light on physico-chemical aspects of morphogenesis', University College London, 28 February, 7 and 14 March 1955.
- Correspondence *re* arrangements; poster.

- G.80-G.94 'The Life and Work of Sir Frederick Gowland Hopkins', lecture in commemoration of the centenary of the birth of Hopkins, Cambridge, 20 November 1961.
- The lecture was subsequently published in *Notes and Records of the Royal Society* **17** (1962) and in *Perspectives in Biology and Medicine* **6** (1962).
- Included here is material found with the lecture relating to other events celebrating Hopkins's centenary at which Needham participated: the unveiling of a plaque to Hopkins at Kildare House, London, headquarters of the Margarine Information Bureau, 20 June, at which Needham gave an address; a Tea Club meeting at the Cambridge University Biochemical Laboratory, 11 October; and a Symposium on Biochemistry and Nutrition held at the Royal Society, 26 October 1961 at which Needham gave the opening address.
- There is also material *re* the deposit of Hopkins's manuscript papers in Cambridge University Library and an article on Hopkins by Needham published in *The Times*, 22 May 1963.
- G.80-G.82 Typescript and manuscript draft of centenary lecture, paginated 1-63 + references and list of illustrations. 3 folders.
- G.83 Photographs for illustrations.
- G.84, G.85 75pp typescript as submitted for publication in *Notes and Records* and *Perspectives in Biology and Medicine*. 2 folders.
- G.86 Notice and manuscript notes for lecture.
- G.87 Correspondence *re* text of lecture and published article, 1961, 1963.
- Includes exchange with Sir Francis Walshe, 1963, *re* his disagreement with Hopkins over the role of a carbohydrate diet in beri beri.
- G.88 Correspondence *re* publication of lecture 1957, 1960-1962.
- G.89 Correspondence and papers *re* Hopkins plaque at Kildare House, 20 June 1961. Includes 3pp typescript of Needham's address.

- G.90 Papers *re* Biochemical Laboratory Tea Club meeting, 11 October 1961. Includes 3pp typescript of Needham's address.
- G.91, G.92 Royal Society Seminar on Biochemistry and Nutrition, 26 October 1961.
- G.91 12pp typescript draft of Needham's opening address.
- G.92 Correspondence and papers *re* arrangements; manuscript notes on proceedings; offprint of report of meeting from *Nature*.
- G.93 Correspondence, 1961-1962, *re* establishment of Hopkins archive at Cambridge University Library. Includes correspondence with those contributing material to the archive.
- G.94 Correspondence *re* and corrected proof copy of Needham's article on Hopkins in *The Times*, 22 May 1963.
- G.95 'The nature of Chinese society; a technical interpretation', after-dinner talk, Darwin College Cambridge, 31 October 1973.
- Exchange *re* arrangements.
- Lecture to Faculty of Oriental Studies, Cambridge, 28 November 1973.
- Annotated invitation only. Not otherwise documented.
- Lecture to Perse School Chemistry Society, Cambridge, November 1973.
- Letter *re* arrangements; letter of thanks.
- G.96 'The nature of Chinese Society: a technical interpretation', University of Hong Kong, 30 April 1974.
- Copy of lecture in the 'University of Hong Kong Gazette', 15 May.

G.97 'Science and ethics: a Chinese perspective', C.H. Waddington Memorial lecture, University of Edinburgh, 12 May 1976.

Correspondence *re* arrangements; manuscript notes; poster; etc.

G.98 'Zur Bedeutung Chinas für die Zukunft des Westens', Deutsche China-Gesellschaft, Köln, [?late 1976].

Correspondence *re* German translation, February - March 1977.

G.99 'The relations between biology and religion'. Series of three lectures. Nd.

Manuscript and typescript notes for lectures.

Invitations

Invitations to lecture declined or for which there is no evidence of acceptance. During the 1960s and early 1970s Needham declined many invitations to lecture in the USA as an expression of his disapproval of US policy in Vietnam.

G.100 1927-1929.

G.101 1930-1932.

G.102 1933-1936.

G.103 1942-1947.

G.104 1948-1949.

G.105 1949.

- G.106 1951-1955.
- G.107 1957, 1962-1965.
- G.108 1966-1969.
- G.109 1970-1972.
- G.110 1973.
- G.111 1974, nd.

Lectures by others

- G.112 Needham's manuscript notes on lectures by others.

'Lionel Elvin @ S.L. 5/2/37 Hist of T.U. & Lab. Movt.'

'Postan on Sci. & Industry before 1500'. ca.1938.

'Evolution and ethics', J.M. Smith Waddington Memorial Lecture, 20 February 1976.
- G.113-G.116 'Frank Chambers Duplicate notes for History of Taste'. Contents of Needham's envelope so inscribed divided into four for ease of reference: duplicated manuscript notes, probably for lecture course.

BROADCASTS

Broadcasts on the work of the Sino-British Science Cooperation Office are at C.137.

G.117 'Recent advances in medical science', broadcast from Glasgow, 19 August 1923.

4pp typescript; newspaper cutting; letter *re* possible broadcast of the talk on the BBC London station.

G.118 'Biochemistry: what it is and what it does. VI. The developing egg', BBC radio broadcast, 6 June 1930.

10pp typescript annotated 'E Midl'd'; letter arising from broadcast.

G.119 Correspondence, October 1932, *re* possible broadcast in BBC radio series 'God and the World through Christian eyes'.

Needham was approached to give a talk on 'Man and Materialism'. In his reply Needham said he was willing to do so but that he would wish to talk on 'dialectical materialism', rather than materialism in the religious sense.

G.120 'Science, capitalism and fascism', broadcast in Science and Politics series for BBC radio Indian Empire service, 23 June 1942.

10pp typescript; manuscript notes; correspondence from E. Blair (George Orwell), Talks Assistant, Indian Section; etc.

G.121 'Matter, Form, Evolution and Us', BBC radio broadcast 8-12 January 1945.

An article with this title was published in the magazine *World Review* and subsequently republished in *This Changing World* (ed. J.R.M. Brumwell, London, 1944). See F.306.

Letter *re* possible publication of Needham's broadcast.

G.122 'The unity of science: Asia's indispensable contribution', two broadcasts for BBC radio Third Programme, October 1949.

These broadcasts were based on Needham's UNESCO month lecture delivered at the Third session of the UNESCO General Conference, Beirut, 17 November - 11 December 1948. See D.65-D.67.

Correspondence with producer; 6pp typescript transcript of 'Part I Science and Medicine', 17 October; 9pp duplicated typescript script of 'Part II Technology'.

G.123 Letter from Anglia Television *re* planned television series 'What does Cambridge Think?', 8 July 1959.

SECTION H

VISITS AND CONFERENCES

H.1-H.130

Not all of Needham's travel and attendance at conferences is documented in this section. Needham made other visits in connection with his work for the Sino-British Science Cooperation Office (see section C) and UNESCO (see section D). There is also material relating to lectures delivered abroad in section G (Lectures and broadcasts).

The presentation is chronological as far as possible. Material relating to either invitations declined or for which there is no evidence of acceptance is placed at the end of the sequence for each year. From the late 1950s Needham declined many invitations, being very busy with his work on *Science and Civilisation in China*. Needham also refused to visit the USA during the period of American involvement in Vietnam as an expression of his disapproval of US government policy.

The section includes not only scientific visits and conferences but also religious and political meetings attended by Needham.

1920

- H.1 British Medical Association 88th Annual Meeting, Cambridge, 24 June - 3 July.
- Annotated conference handbook with Needham's manuscript notes on proceedings intercalated at front.

1922

- H.1A Visit to Freiburg-im-Breisgau, Germany, July.
- Needham visited Germany with his mother to attend the Oberammergau Passion Play. On the advice of F.G. Hopkins he visited the laboratory of F. Knoop. See also A.80, A.133.
- Needham's manuscript note of German professors for possible visits, with Hopkins' views on them; letters from Hopkins and Knoop; travel documents.

1925

- H.2 Visit to French marine biological station, Roscoff.
- Manuscript list of items needed on visit; exchange *re* apparatus unaccounted for.

Invitation for 1926

- H.3 Meeting of French Société de Biologie and affiliated societies, Paris, 20-22 May. Needham was asked to participate in a discussion on 21 May.

1927

- H.4 Student Christian Movement Second (1927) General Conference, Swanwick, Derbyshire, 22-28 July. Needham spoke on 'Science and religion'.
- Correspondence *re* arrangements; draft programme; invitation to speak at 1928 conference.

1929

H.5, H.6 Visit to USA, July, August.

Needham spent the summer of 1929 at the Hopkins Marine Station, Pacific Grove, California. He also visited colleagues at a number of other research centres including the University of California at Berkeley, the University of Rochester, the University of Chicago, Johns Hopkins University, Cornell University, the Buffalo City Hospital and the Marine Biological Laboratory, Woods Hole. See also E.41.

H.5 Correspondence *re* visits to colleagues in the US.

H.6 Printed material.

Invitations for 1929 and 1930

H.7 Student Christian Movement First (1929) General Conference, Swanwick, Derbyshire, 11-17 July. Needham was asked to speak on science and religion.

British Medical Association Centenary Meeting, London, 26-29 July. Needham was asked to give a paper on teratology to the section of Comparative Medicine.

1930

H.8 Meeting of School Masters and College Tutors and Lecturers ('Dons and Beaks Conference'), Queen's College Oxford, 3-6 January 1930. Needham gave a paper on 'The attitude of the scientific worker to religion'.

Programme; letters of thanks.

1931

H.9 Second International Congress on the History of Science and Technology, London, 29 June - 3 July. Needham served on the Congress council.

Brief correspondence *re* arrangements, 1930-1931.

H.10 Student Christian Movement First (1931) General Conference, Swanwick, Derbyshire, 10-16 July. Needham gave four papers on science and religion.

Correspondence *re* arrangements; annotated programme.

1933

H.11 Third International Congress for Experimental Cytology, Cambridge, 21-26 August. Needham presented a paper 'Physico-chemical experiments on the amphibian organiser' (with C.H. Waddington and D.M.M. Needham)

Letter *re* arrangements, 29 May 1933; 2pp typescript summary inscribed 'Cytol Cong'; annotated congress handbook.

1934

H.12 British Empire Cancer Campaign Third Biennial Informal Conference, London, 12-13 December. Needham was a member of the discussion meeting on the effect of chemical compounds of known constitution upon tissue behaviour and growth.

Correspondence *re* arrangements; annotated programme.

1935

H.13 Visit to USA, March.

Needham visited a number of research institutions in the US.

29pp typescript of Needham's lecture on 'Limiting factors in the advancement of science as observed in the history of embryology', Beaumont Medical Club, 21 March; notice of Needham's lecture on 'Morphology and biochemistry', University of Pennsylvania, 23 March; letter *re* lecture at Oberlin College, Ohio.

H.14-H.17 Fifteenth International Physiological Congress, Moscow and Leningrad, 8-18 August. Needham presented a paper on 'Chemical aspects of organiser phenomena'.

H.14 Correspondence *re* arrangements.

H.15 4pp typescript of Needham's contribution.

H.16 Memorabilia. Includes 'Seeing Soviet Russia', brochure for travel in the USSR 1935, and photograph (with key) of staff of Biochemical Laboratory, Military Medical Academy, Leningrad.

H.17 Miscellaneous manuscript notes and addresses.

Invitation for 1935

H.18 Twelfth International Congress of Zoology, Lisbon, 14-25 September.

1936

H.19-H.22 World Congress of Faiths, London, 3-18 July.

Needham led the debate following the paper on 'Science and religion' by J.S. Haldane (read by his daughter Naomi Mitchison following Haldane's death shortly before the Congress opened).

Following the 1936 Congress the World Congress of Faiths was established as a permanent organisation.

H.19 Correspondence *re* arrangements and arising; programme of Congress.

H.20 Papers delivered at Congress, including that of Haldane, annotated by Needham.

- H.21 Needham's manuscript notes on proceedings and 5pp draft of his contribution; newspaper cuttings of reports on the Congress.
- H.22 Circular letters of the World Congress of Faiths for 1941 and 1942.
- H.23-H.26 British Medical Association 104th Annual Meeting, Oxford, 21-25 July.

Needham was Vice President of the Section on Physiology and Biochemistry. He spoke to the Section on 'Substances promoting normal and abnormal growth' and his contribution was published in the *British Medical Journal*, 10 October 1936. Responding to comments thereon a further paper by Needham, 'Substances promoting cell growth', was published in the *British Medical Journal*, 31 October 1936.
- H.23 Correspondence *re* arrangements and publication of Needham's contribution, 1935-1936.
- H.24 Manuscript notes on discussion; order of speakers; miscellaneous material.
- H.25 Needham's manuscript 'Address Refs & Notes'.
- H.26 Proof of Needham's contribution; 7pp typescript of 'Substances promoting cell growth'.
- H.27, H.28 Second Conference on the Social Sciences, Westfield College, London, 25-27 September. Needham and S. Zuckerman discussed 'Biology and the social sciences' in the first session of the conference.
- H.27 Programme; Needham's manuscript notes on proceedings; letter *re* publication of proceedings.
- H.28 Abstracts.

- H.29 'Cambridge Cancer Conference my room 3/12/36'.
Needham's manuscript notes so inscribed. Those present included B. Holmes, C.H. Waddington, Salzburg, Friedmann, W. Brock and A. Pirie.

1937

- H.30, H.31 Modern Churchmen's Conference, Cambridge, 31 August - 4 September. Needham spoke on 'Christianity and Communism' in a debate on Communism and Fascism. The debate received widespread press coverage.
- H.30 16pp typescript of Needham's contribution.
- H.31 Needham's manuscript notes on proceedings; newspaper cuttings on the debate.
- H.32-H.34 First Réunion Internationale de Physique, Chimie et Biologie 'Congrès du Palais de la Découverte', Paris, 30 September - 9 October. Needham spoke on 'La morphogenèse et le métabolisme des hydrates de carbon'.
- H.32 Invitation; bound summaries of papers.
- H.33 Incomplete typescript draft of Needham's contribution.
- H.34 Loose summaries of papers; Needham's manuscript notes on proceedings.

Invitations for 1937 and 1939

- H.35 Association of Surgeons Annual Meeting, Liverpool, 29 April - 1 May 1937.

Modern Quarterly discussion meeting on the English Revolution 1640-1660, 25-26 March.

1938

H.36 Sixteenth International Physiological Congress, Zürich, 14-19 August. Needham spoke on 'Metabolism and morphogenesis in amphibian development'.

5pp typescript of Needham's contribution.

1939

H.37 Conference on Growth and Differentiation, North Truro, Massachusetts, 7-11 August. Needham spoke on chemical aspects of organiser phenomena.

Needham's manuscript notes on proceedings; report on the conference from *Nature*.

H.38

Seventh International Congress of Genetics, Edinburgh, 23-30 August.

Correspondence *re* participation of Soviet delegates.

1940

H.39 Egg Symposium of the Food Group's Nutrition Panel, April. Needham spoke on 'The biological position of birds' eggs'.

2pp typescript synopsis of Needham's contribution.

H.40-H.45

Visit to USA, June - November.

Needham visited the US to fulfil a longstanding commitment at the University of California at Berkeley and to attend the Second Conference on Differentiation and Growth in Maine. With the backing of the Ministry of Information he also toured the US delivering lectures on the position of science in Europe, with particular emphasis on the damage to scholarship caused by the Nazis. In this connection he gave the Schiff Lecture at Cornell (see G.64-G.67).

Needham wrote a full account of the visit for the Ministry of Information (H.42) and a short article on 'Recent experiences of war-time America' for *Nature* (H.43). He thereafter provided the Ministry with intelligence about scientific conferences in the USA for 1941.

- H.40 Second Conference on Differentiation and Growth, Salsbury Cove, Maine, June.

 Needham's manuscript notes on proceedings.
- H.41 Correspondence *re* extension of tour, August - October 1940.
- H.42 6pp typescript draft and 7pp typescript revised report on visit.
- H.43 3pp typescript draft of article for *Nature* (entitled 'Experiences of an English biologist in war-time America'); manuscript notes.
- H.44, H.45 Correspondence arising from visit to the US, 1940-1941.
- H.44 1940 November - January 1941. Includes correspondence with S. Zuckerman and Lord Melchett *re* meeting to discuss establishing better liaison with US science.
- H.45 1941 February - July. Chiefly *re* conferences in US during 1941.

Arrangements for 1940

- H.46 Letters *re* arrangements for Congresses. Both were cancelled following the outbreak of war.

 Sixth International Congress of Experimental Cytology, Stockholm, 25 July - 1 August.

 Twelfth Congress of Pure and Applied Sciences, USA.

1941

H.47 Marx House Symposium on Engels, London, 16-17 August. Needham attended the session on Engels' 'Dialectics of Nature' and spoke on 'The philosophy of Whitehead in relation to Dialectical Materialism'.

Programmes; manuscript notes; letter of thanks; report on symposium.

Invitation for 1941

H.48 Convention on the Foundations of Peace, Cambridge, 24-31 August.

1942

H.49 Pharmaceutical Society meeting, London, 8 January.

Invitation; Needham's manuscript notes on lecture by A. St George Huggett.

H.50 Visit to USA, December.

Needham visited the US on his way to China. See also C.16.

Notices of Needham's lectures on 'An experimental approach to the relations between molecular and morphological form' at George Washington University, 7 December, and Rockefeller Institute for Medical Research, 18 December; Needham's manuscript notes on seminar at Mount Sinai Hospital, New York, 17 December.

1945

H.51-H.56 220th Anniversary of the Academy of Sciences of the USSR, Moscow and Leningrad, 15-28 June.

Needham travelled to Moscow from China and returned to China via India.

H.51 Annotated programmes for scientific meetings and sight-seeing.

- H.52 Manuscript notes for 'Speeches @ Moscow June 1945'; notes, invitations etc.
- H.53 *Moscow News* 16 and 20 June 1945; newspaper cuttings of reports on events of the Anniversary, July.
- H.54 Memorabilia: annotated theatre and concert programmes, postcards, etc.
- H.55 Manuscript notes for 'Speech on USSR Congress July 1945'; items from return travel to China, including newspaper cuttings on Needham's visit to India.
- H.56 Newspaper reports from *Moscow News*, August 1948, praising work of Lysenko and other Soviet plant-scientists. Found with preceding material.

Invitations for 1946

- H.57 Symposium of Society for the Study of Growth, Brown University, Providence, Rhode Island, 27-30 August.
- Conference on the Chemistry and Physiology of Growth, Princeton University, 27-30 September.

1947

- H.58-H.61 Sixth International Congress of Experimental Cytology, Stockholm, July.
- Abstracts, some annotated by Needham, and manuscript notes. 4 folders.

Invitation for 1948

- H.62 Personalist Group Conference on Personalism and the Communist Challenge, Folkestone, October.

1949

- H.63-H.69 First International Congress of Biochemistry, Cambridge, 19-25 August.
- Needham was a member of the Congress Committee and Chairman-Convenor of the Publications Subcommittee, responsible for the scientific editing of the proceedings.
- See also D.285, D.286.
- H.63 Papers of meetings of the Congress and Executive Committees, 1948-1949. Not a complete set.
- H.64-H.67 Correspondence *re* arrangements 1948-1950.
- H.64 1948.
- In the course of arrangements for the Congress there was some anxiety lest it be seen to be competing with the eighth meeting of the French Société de Chimie Biologique held in Paris in 1948. To avert this cordial relations were established between the two events and this is reflected in the correspondence.
- H.65 1949 January - July.
- H.66 1949 August - December. Includes minutes of meeting of Publications Subcommittee, 25 August.
- H.67 1950.
- H.68 Printed and duplicated papers for the Congress, including provisional programme.
- H.69 Papers *re* meeting of the French Société de Chimie Biologique.

1950

H.70-H.81

Visit to USA, March - May.

Needham visited the US as the Charles M. and Martha Hitchcock Visiting Professor at the University of California, Berkeley, giving eight lectures on 'The development of Scientific Thought on Chinese Civilisation'. The invitation had originally been extended in 1945. Needham returned to the UK via Johns Hopkins University Institute of the History of Medicine where he gave the three Noguchi lectures on 'Some aspects of Chinese Science'.

He received many invitations from colleagues at other research institutions in the US, including one from his former colleague in the Cambridge Biochemistry Department, W.W. Nowinski, at the University of Texas, Galveston. Shortly before departure, however, Dorothy Needham fell seriously ill and therefore his trip was not extended. Needham did make a number of visits to research centres as scientific liaison work for UNESCO and for the UK Scientific Mission.

H.70

General correspondence *re* visit to USA, 1949-1950. Includes correspondence with Cambridge University, A. King of the Scientific Secretariat of the Cabinet Office and UNESCO *re* arrangements and correspondence arising.

H.71-H.73

Hitchcock Professorship and other invitations at Berkeley, 29 March - 19 April.

H.71

Correspondence 1945, 1948.

H.72

Correspondence 1949, 1950.

H.73

Typescript synopsis of lectures; poster; etc.

H.74

Noguchi lectures, 26-28 April.

Correspondence *re* arrangements; programme; typescript synopsis of lectures.

- H.75, H.76 Other invitations:
- H.75 Includes University of Texas, Galveston, and Scripps Institution of Oceanography.
- H.76 Includes Hopkins Marine Station, Stanford University and University of Colorado.
- H.77 Transcript of Needham's talk to Inusco Inc., the American Committee in Aid of Chinese Industrial Cooperatives, New York, 5 May, with covering letter.
- H.78 Letters to Needham reporting on his wife's condition; miscellaneous correspondence and social invitations, 1950.
- H.79 Needham's reports on visit to USA for UNESCO, and to Department of Scientific and Industrial Research on visit to Stanford Research Institute, Palo Alto, California with correspondence arising. Also manuscript notes on visit.
- H.80, H.81 Miscellaneous material.
- H.80 Newspaper cuttings, addresses etc.
- H.81 Memorabilia.

Invitation for 1950

- H.82 Invitation to Conference on 'Structure de la Matière Vivante', Rome, November.

1951

- H.83 Visit to Edinburgh, March.
- Needham visited Edinburgh University to meet the Belgian biochemists J. Pasteels and C.P. Raven who were each giving three lectures in the Department of Animal Genetics.
- H.84 Visit to Lyons University, 9-15 April.
- Needham was invited to Lyons under the auspices of the British Council's Foreign Universities Interchange Scheme. He gave three lectures on 'La Biochimie et les phénomènes de l'Induction embryonnaire' and two on the history of science in the Far East. See also B.162.
- Correspondence *re* arrangements and correspondence arising; poster for biochemistry lectures; miscellaneous material.
- H.85-H.94 First Congress of Polish Science, Warsaw, 29 June - 2 July.
- Needham may also have visited Wroclaw during the visit.
- H.85 Manuscript notes for 'General scientific lecture Wroclaw', latest date 1948; travel documentation etc.
- H.86-H.88 Typescript copies of presentations with manuscript corrections (in English). 3 folders.
- H.89-H.92 Printed reports of sections of the Congress (in Polish). 4 folders.
- H.93 *Zycie Nauki* ('Life of Science') **6** (1951), nos 5-6.
- H.94 *Science in New Poland* by J. Dembowski (London, 1952). Booklet recording the Congress and achievements of Polish science.

1952

H.95 Seventh Rencontre Internationale de Genève on Man before Science, Geneva, 3-13 September.

Correspondence *re* arrangements; programme etc.

1953

H.96-H.99 Symposium 'Journées Scientifiques de la Volaille et de l'Oeuf', Lyons, 16-18 December.

Needham spoke on 'Thoughts on the biochemistry of the developing hen's egg', published in *Annales de la Nutrition et de l'Alimentation* **8** (1954).

H.96 Correspondence *re* arrangements and publication of Needham's contribution.

H.97 Programme; Needham's manuscript notes; press-cutting; etc.

H.98 16pp typescript + references of Needham's contribution as submitted for publication.

H.99 Printed memorabilia of Lyons.

Invitations for 1953 and 1954

H.100 Comité Belge d'Histoire des Sciences weekend meeting on the history of medicine, University of Brussels, 14-15 November 1953.

Thirteenth Growth Symposium, Hanover, New Hampshire, 23-26 June 1954.

1954

H.101 Journal of Embryology and Experimental Morphology Scientific Meeting, London, 9-12 January.

Annotated programme; Needham's manuscript notes on proceedings.

H.102 Hungarian Physiological Society Twentieth Conference, Budapest, June and July. Needham spoke on 'Recent advances in the biochemical aspects of experimental morphology'.

Needham's manuscript notes; 1p typescript summary of Needham's contribution.

Invitation for 1956

H.103 Eleventh Rencontre Internationale de Genève on Tradition and Innovation, 5-15 September.

1957

H.104 International Embryological Conference, Cambridge 10-15 April.

Lists of participants, demonstrations and films; annotated programme.

Invitations for 1957 and 1958

H.105 International Symposium on the History of Eastern and Western Cultural Contact, Tokyo, 28 October - 2 November 1957.

International Symposium on the History of Physical and Mathematical Sciences, Pisa, Italy, 16-18 June 1958.

Invitations for 1959 and 1960

- H.106 Haffkine Institute Diamond Jubilee, Bombay, 10-13 January 1959.
- World Federation of Scientific Workers Symposium on Science in the Development of the Economy and Welfare of Mankind, Warsaw, 24-28 September 1959.
- Biologische Gesellschaft in der DDR, Darwin Centenary, Jena, 20-23 October 1959.
- International Symposium on Maturation and Ageing of Red Blood Cells, Berlin, 17-21 November 1960.

Invitations for 1961

- H.107 Conference on Scientific and Engineering Education, Massachusetts Institute of Technology, 3-10 April.
- Colloquium on Biological conditions essential for the Freedom of Man, Leiden, 5-7 April.
- Rencontre Internationale de Royaumont on Les Critères et les Idéaux du Progrès Sociale, Paris, 17-20 May.
- Committee for the Study of Mankind Conference on Nationalism and Mankind, Villa Serbelloni, Lake Como, Switzerland, 17-23 September.

Invitations for 1962

- H.108 Conference on Economic Co-operation and Partnership, Salzburg and Vienna, 1-7 July.
- Alpbach European Forum on Asia and the Western World, Alpbach, Austria, 18 August - 5 September.

Invitations for 1963 and 1964

- H.109 Seventh Czechoslovak Morphological Meeting, Olomouc, 24-29 June 1963.
- Deutsche Akademie der Wissenschaften zu Berlin Sinological Conference, Berlin, September 1963.
- Rencontre Internationale de Genève on 'Tomorrow?', 2-11 September 1964.

Invitations for 1965

- H.110 Centre International d'Épistémologie Génétique Informal Symposium, University of Geneva, 28 June - 2 July.
- Colloquium on Science and Synthesis commemorating the anniversaries of the deaths of Einstein and Teilhard de Chardin, Paris, 13-15 December.

Invitations for 1966

- H.111 American Historical Association Asian Conference, San Francisco, January
- China Conference, University of Chicago, 8-12 February.
- H.112 Research Management Trust Conference on the Brain Drain, London, 10 March.
- Royal Microscopical Society Conference on The Role of the Microscope in Scientific Investigation, 18-22 July.
- Société de Chimie Biologique Conference on Biochemical aspects of phylogenesis, Montpellier, 27-29 October.

Invitation for 1967

- H.113 European Space Research Organisation symposium in honour of P. Auger, Paris, 28 November.

Invitations for 1968

- H.114 Cultural Congress, Havana, Cuba, 4-11 January.
- Conference on Contemporary China, University of Guelph, Ontario, 18-20 April.
- Wenner-Gren Foundation on the Nature and Function of Anthropological Traditions, New York, April.
- Symposium on Readings on Asian Topics, Scandinavian Institute of Asian Studies, Copenhagen, 16-18 September.
- International Congress of Economic History, Bloomington, Indiana, September.
- Symposium on Boerhaave and his time, Celebration of tercentenary of birth of Herman Boerhaave, University of Leiden, 15-16 November.

Invitations for 1969

- H.115 Accademia Nazionale dei Lincei Colloquium on Oriente e Occidente nel Medio Evo: Scienza e Filosofia, Rome, 9-13 April.
- British Society for the History of Science summer meeting, Cambridge, 8-9 July.
- Conference on Psychobiology of Development, American Museum of Natural History, New York, November 1969.

Invitations for 1970, 1971 and 1972

- H.116 American Association for the Advancement of Science meetings, 26-31 December 1970. Needham was asked to participate in a panel on Approaches to the Understanding of Technology.

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/... Conference on comparative historical sociology of science, Cumberland Lodge, Windsor Park, 28-30 June 1971.

Lent Study group meeting on Can Man Survive?, Norwich, 1972.

Invitations for 1973

H.117 Center for the Study of Democratic Institutions Symposium on the future role of science and technology in development, Santa Barbara, California, 12-16 February.

UNESCO ceremony marking the 500th anniversary of the birth of Copernicus, 19 February.

World Council of Churches North American-European Ecumenical Conference on the Technological Future of the Industrialised Nations and the Quality of Life, Pont-à-Mousson, France, 27 May - 2 June.

H.118 International Conference on Personal Freedom in an Era of Social Engineering, Rockefeller Foundation Study and Conference Center, Bellagio, Italy, 22-28 August.

Ninth Quinquennial International Congress of Anthropological and Ethnographic Sciences, Chicago, 28 August - 8 September.

Cambridge Union Society debate on This House approves of Mao Tse Tung's China, 29 October. Needham was asked to propose the motion but declined.

Consultation meeting on technological and scientific change, St George's House, Windsor Castle, 14-16 December.

Invitations for 1974

H.119 Workshop on the Creative Process in Science and Medicine, Schloss Kronberg, West Germany, 17-18 May.

250th Anniversary of the Academy of Sciences of the USSR, Moscow and Leningrad, May.

1976

H.120 Conference on New Perspectives in the Life Sciences: 1750-1850, Churchill College Cambridge, 19-21 March.

Annotated revised programme.

1977

H.121 Faraday Lecture on 'Complexity, Self-Organisation and Biological Information' by M. Eigen, Cambridge, 24 February.

Notice; manuscript notes.

H.122-H.125 European Committee for Research and Development colloquium on Science Crisis in European Societies, Brussels, 31 May - 2 June.

H.122 Correspondence *re* arrangements, programme, list of participants.

H.123-H.125 Papers sent to Needham for information. 3 folders.

H.126 Fifteenth International Congress of the History of Science, Edinburgh, 10-19 August.

Needham introduced the symposium on Science and Human Values.

Report on proceedings, including account of Needham's contribution, from 'Newsletter on Science, Technology & Human Values', October 1977 at pp.22-23.

Invitations for 1977, 1978 and 1981

H.127 Consultation meeting on 'good' growth, St George's House, Windsor Castle, 27-29 May 1977.

Ockenden Venture Conference on Hope for Mankind, Ockenden, Surrey, 22-31 August 1977.

Institut de la Vie Symposium on the Relevance of Models in Pattern Formation and Morphogenesis, Brussels, 18 May 1978.

Colloquium on Time and Societies, Paris, March 1981.

1980

H.128 Interfaith Congress on the Human Crisis, St Albans, Hertfordshire, 24-26 May.

Needham spoke on Chinese religion.

Correspondence *re* arrangements; manuscript notes; programme.

1984

H.129 Meeting celebrating the Fiftieth Anniversary of the Pepsin X-Ray Photograph, 13 April.

Annotated programme.

Nd

H.130 Manuscript list of possible participants at conference of embryologists, ?pre-Second World War.

SECTION J SOCIETIES AND ORGANISATIONS
J.1-J.260

DES SCIENCES

ACADÉMIE INTERNATIONALE DE PHILOSOPHIE DES SCIENCES	J.8-J.12
ASSOCIATION OF BRITISH SCIENCE WRITERS	J.13
BIOCHEMICAL SOCIETY	J.14
BRITISH ACADEMY	J.15-J.21
BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE	J.22, J.23
BRITISH RHEOLOGISTS' CLUB	J.24
BRITISH SOCIETY FOR SOCIAL RESPONSIBILITY IN SCIENCE	J.25-J.41
BRITISH SOCIETY FOR THE HISTORY OF SCIENCE	J.42-J.45
CAMBRIDGE PHILOSOPHICAL SOCIETY	J.46
COMMISSION ON THE UNIVERSITY OF CEYLON	J.47-J.112
COMMITTEE AGAINST MALNUTRITION	J.113-J.116
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GINLING COLLEGE, NANKING	J.127-J.134
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INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS (ICSU)	J.140, J.141
INTERNATIONAL INSTITUTE OF EMBRYOLOGY (later the INTERNATIONAL SOCIETY OF DEVELOPMENTAL BIOLOGISTS)	J.142-J.145
INTERNATIONAL UNION OF BIOLOGICAL SCIENCES	J.146
INTERNATIONAL UNION OF THE HISTORY AND PHILOSOPHY OF SCIENCE	J.147-J.179
LOUIS RAPKINE MEMORIAL FUND APPEAL/LOUIS RAPKINE ASSOCIATION	J.180-J.194
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NATIONAL ACADEMY OF SCIENCES	J.205
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SOCIETY FOR THE PROTECTION OF SCIENCE AND LEARNING	J.236-J.240
SOCIETY FOR THE STUDY OF DEVELOPMENT AND GROWTH	J.241
SOCIETY FOR VISITING SCIENTISTS	J.242
THEORETICAL BIOLOGY CLUB	J.243-J.246
THIRD WORLD ACADEMY OF SCIENCES	J.247
WORLD ACADEMY OF ART AND SCIENCE	J.248-J.259
WORLD ORGANISATION OF GENERAL SYSTEMS AND CYBERNETICS	J.260

ACADÉMIE INTERNATIONALE D'HISTOIRE DES SCIENCES
1947-1974

Needham was a Membre Effectif of the Académie for the period covered by the papers. The material is chiefly papers *re* elections to membership.

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| J.1 | 1947-1955. |
| J.2 | 1956-1958. |
| J.3 | 1959-1960. |
| J.4 | 1961-1962 |
| J.5 | 1963-1965. |
| J.6 | 1966-1969. |
| J.7 | 1971-1974. Includes invitation to join editorial committee of relaunched <i>Archives Internationales d'Histoire des Sciences</i> , 1973. |

ACADÉMIE INTERNATIONALE DE PHILOSOPHIE DES SCIENCES
1949-1967, 1973

Needham was elected a Membre Titulaire in 1950. The material is chiefly *re* symposia and conferences organised under the auspices of the Académie and elections to the Académie.

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| J.8 | 1949-1950, 1954. |
| J.9 | 1956-1959. |

J.10 1960. Includes material *re* changes to the constitution of the Académie.

J.11 1961-1962.

J.12 1963-1967, 1973.

ASSOCIATION OF BRITISH SCIENCE WRITERS

1950

J.13 Invitation to Academic Membership.

BIOCHEMICAL SOCIETY
1936

1924-

J.14 Notices of scientific meetings, some annotated by Needham.

BRITISH ACADEMY
1982

1971-

Needham was elected to the British Academy in 1971. He served on Committees Four (Oriental and African Studies) and Twelve (Social and Political Studies).

J.15 Correspondence 1971-1972. Chiefly correspondence *re* proposal for joint committee with the Royal Society on the history and philosophy of science.

J.16 Correspondence 1973-1974. Chiefly *re* ISIS Cumulative Bibliography project.

J.17

Correspondence 1976, 1979.

Cambridge Society for Social Responsibility in Science (CSSRS) established
in October 1969.

.../

/... The material is correspondence and papers relating to the BSSRS 1969-1973 and 1979 and CSSRS 1969. There is also printed and duplicated literature on the subject of social responsibility in science collected by Needham from the 1930s to the 1970s and found therewith.

J.25-J.31 British Society for Social Responsibility in Science

J.32-J.35 Cambridge Society for Social Responsibility in Science

J.36-J.41 Miscellaneous

British Society for Social Responsibility in Science

J.25 1969. Invitation to become a founder member; papers of inaugural meeting, Royal Society, 19 April.

J.26 1970. Includes correspondence *re* proposed working group on academic freedom.

J.27 1971-1973. Includes papers for 1971 AGM; papers *re* 'radicalisation' of the Society.

J.28 1979. Papers *re* tenth anniversary meeting, London School of Economics, 23 November 1979. Needham spoke on radical science in the 1930s.

Invitation; programme; Needham's manuscript notes for his contribution, including his views on social responsibility of scientists and broader issues of science and society.

J.29-J.31 Issues of BSSRS news-sheet nos 1-16, April 1969 - May 1972 (lacks nos 3 and 11). This was superseded in 1972 by the journal *Science for People*. 3 folders.

Cambridge Society for Social Responsibility in Science

- J.32 1969. Material *re* establishment of society.
- J.33 Issues of CSSRS bulletin nos 1-7, October 1969 - October 1970.
- J.34, J.35 Issues of 'Science or Society?' (formerly CSSRS bulletin) nos 1-6, 1971-
January 1972. 2 folders.

Miscellaneous

Printed and duplicated typescript literature 1930s-1970s, some annotated by Needham.

- J.36 1930s. Includes League of Science pamphlets 'Agricultural Centres for the
Unemployed', 'Crude v. Scientific Socialism' and 'Principles of Scientific
Meliorism'.
- J.37 1940s. Includes typescript copy of speech at 'Opening of Free German
Institute, London, July 17th, 42' by the painter O. Kokoschka.
- J.38 1950s. Includes material from American Society for Social Responsibility in
Science.
- J.39 1960s.
- J.40, J.41 1970s. Chiefly *re* genetic experimentation. 2 folders.

***BRITISH SOCIETY FOR THE HISTORY OF SCIENCE
1947-1962***

Needham served on the Council of the Society 1950-1952.

J.42 General correspondence 1950-1952, 1955.

J.43-J.45 Papers for meetings of Council and AGMs 1947-1962. 3 folders.

***CAMBRIDGE PHILOSOPHICAL SOCIETY
1980, nd***

1930, 1978-

Needham was elected a Fellow of the Cambridge Philosophical Society in 1922.

J.46 Papers and correspondence. Includes undated papers *re* the future of the Society's library.

***COMMISSION ON THE UNIVERSITY OF CEYLON
1960***

1957-

The University of Ceylon was established in 1942. In 1957 the Ceylon Government decided to appoint a University Commission to report on the working of the University and make recommendations for improvements and developments in line with wider changes in the education system and in tune with Ceylon's national culture and aspirations. In September Needham was invited to chair the Commission and, having secured leave of absence from Cambridge University, agreed. The other members were L.J. de S. Seneviratne (local commissioner) and G.C. Chatterji (from India). A.T.M. Silva was the secretary. The Commission began work in February 1958 and continued to take evidence up to Needham's departure in May. For part of the trip Needham was accompanied by his wife Dorothy Needham.

After spending over two months in Ceylon visiting over 20 higher educational establishments, taking evidence from 129 interested parties in 72 hearings and studying 242 written representations, Needham and Chatterji felt they

were able to reach final conclusions and frame recommendations about university policy. It was proposed the commission should meet at Jaipur (India) in August 1958 for final discussions.

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However, Seneviratne refused to attend the meeting and the Ceylon authorities refused permission for Silva to attend either. Instead it was proposed Needham and Chatterji should return to Ceylon. Unwilling to spend any further time when they had enough information to formulate conclusions Needham and Chatterji declined. Chatterji and Needham met again in Cambridge in December 1958 and by January 1959 they completed the report. Seneviratne received copies of the chapters of the report as they were drafted by the secretary but sent no emendations. It was believed that he was unhappy that the report did not recommend the establishment of a Buddhist Faculty but only a Department of Buddhist Studies under the Faculty of Arts, and that it recommended a campus be established at Jaffna. Seneviratne's refusal to cooperate delayed the release of the report.

In June 1959 Needham wrote to the Governor General proposing to release the report and this was agreed to. Seneviratne then asked for a month to study the report and sent his 'observations' on the report in August. Needham and Chatterji were unwilling to sign the report without seeing Seneviratne's observations but in October the report was released. The delay in the publication of the report caused much comment in Ceylon and the matter became an issue in national politics.

During Needham's visit to Ceylon the country was experiencing communal disturbances which culminated in the declaration of a state of emergency in June 1958. The issues which led to the delay in publication of the report were directly related to the inter-communal hostility and hence the recommendations of the report assumed a wider political significance in Ceylon.

The bulk of the material, including correspondence *re* the visit and the preparation and release of the report, submissions received and Needham's notes and drafts, was found in Needham's own inscribed folders.

- J.47, J.48 'CUC Personal'. Contents of Needham's folder so inscribed divided into two for ease of reference. Correspondence and papers *re* appointment and visit.
- J.47 August - November 1957. Principally *re* invitation to chair the Commission.
- J.48 January - May 1958.
- J.49-J.51 'Ceylon Depot file. Papers not taken'. Contents of Needham's folder so inscribed divided into three for ease of reference. Correspondence and papers.
- J.49 November, December 1957. Includes copy of terms of reference of the commission.

- J.50 January, February 1958.
- J.51 Miscellaneous. Includes extracts from *The Life and Letters of Lord Macaulay* (relating to his attitude to languages and education in India).

There is also a little earlier material possibly *re* planned visit of Needham to North Vietnam.
- J.52, J.53 'CUC general correspondence'. Contents of Needham's folder so inscribed divided into two for ease of reference.
- J.52 January, February 1958. Includes contract as chairman of commission and material *re* prize-giving at Jaffna College.

Needham had been invited as guest of honour at the ceremony on 8 March and had initially accepted. He later withdrew pleading pressure of commitments but some Tamils suspected that he was been prevented from attending by the Ceylon Government.
- J.53 March, April 1958. Includes manuscript notes on itinerary for 17 March - 17 May.
- J.54-J.56 'Ceylon commission. Letters received while in China May, June, July, August and at Jaipur August'. Contents of Needham's folder so inscribed divided into three for ease of reference. The correspondence is chiefly *re* the drafting of the report and the principal correspondent is Silva.
- J.54 May 1958.
- J.55 June, July 1958. Includes correspondence with Chatterji *re* disagreements with Seneviratne.
- J.56 August, September 1958. Includes correspondence *re* finalisation of report and recommendations.
- J.57 Hardback pocket notebook inscribed on front cover 'University Commission Ceylon Notes on visits Chairman'. Used 23 February - 4 May 1958. The places visited are numbered 1-22. Some loose intercalated notes.

- J.58-J.60 Series of three hardback notebooks inscribed on front cover 'University Commission Ceylon Chairman's Notes'. Used for notes on hearings and meetings of the commission 1958.
- J.58 '1'. Used 21 March - 17 April. Paginated 1-76.
- J.59 '2'. Used from 18 April.
- J.60 '3'.
- J.61 'CUC Visits (see also green notebooks)'. Contents of Needham's folder so inscribed: correspondence *re* visits to Director of Fisheries and Director Ceylon Institute for Scientific and Industrial Research; Jaffna colleges; Tea Research Institute; Hydraulic Research Station of Irrigation Department; Rubber Research Institute and Coconut Research Institute, March and April 1958.
- J.62-J.65 'CUC ideas & suggestions Documents'. Contents of Needham's folder so inscribed divided into four for ease of reference: correspondence and papers.
- J.62 December 1957 - ca.March 1958. Includes manuscript notes by Needham.
- J.63 April 1958. Drafts and memos by Needham and Chatterji. Includes Needham's typescript notes on 'the Pirivena problem', 'the Ayurvedic medicine problem' and 'Proposed procedure for discussion of the recommendations for the report', 27 April.
- J.64 May 1958. Includes manuscript notes by Needham and 'Prise de position' by Needham and Chatterji.

- J.65 Background material including lists of periodicals taken by University of Ceylon.
- J.66 'Ceylon Univ. Comm. Background file (copy)'. Contents of Needham's folder so inscribed: typescript background information on higher education in Ceylon and on university organisation (received from other universities worldwide).
- J.67 Draft and copies of duplicated typescript questionnaires sent out by the commission before taking evidence.
- J.68-J.78 'CUC Record of evidence'. Contents of Needham's folder so labelled divided into eleven for ease of reference: typescript record of evidence given before the Commission 21 March - 13 May 1958. 549 pages.
- J.79-J.83 'CUC duplicate representations'. Contents of Needham's folder so inscribed divided into five for ease of reference: duplicate copies of some of the written memoranda sent in response to the commission's questionnaire.
- J.84-J.86 'CUC agenda suggestions'. Contents of Needham's folder so inscribed divided into three for ease of reference: papers on drafting of recommendations and report.
- J.84 'Tentative formulation of some of the most important problems to be discussed by the University Education Policy Commission in the light of all evidence available'.

Typescript and manuscript 'Second draft'; 22pp typescript 'Original ...' (with extensive manuscript annotation).
- J.85 Typescript draft resolutions.
- J.86 Manuscript notes.

- J.87-J.95 'Ceylon Univ. Comm. Letters etc after returning home'. Contents of Needham's folder so inscribed divided into nine for ease of reference: correspondence and papers *re* preparation of report and difficulties therewith.
- The chief correspondents are Silva and Chatterji.
- The material also refers to the communal violence against which background the report was to be issued.
- J.87 1958 July - September.
- J.88 1958 October.
- J.89 1958 November, December.
- J.90 1959 January - March. Includes draft and re-draft of official letter to Silva setting out Needham and Chatterji's replies to Seneviratne's perceived objections.
- J.91 1959 April, May.
- J.92 1959 June. Includes typed extracts from Ceylon newspapers commenting on the delays in publication of the report and letter from Needham to the Governor General, Sir Oliver Goonetilleke, setting out reasons for the delay and outlining his proposed course of action.
- J.93 1959 July, August.
- J.94 1959 September, October.
- J.95 1959 November - 1960. Includes correspondence arising from publication of the report.

- J.96-J.102 Typescript draft of the report. 7 folders.
- J.103 Published report.
- J.104-J.106 Newspaper cuttings on work of the commission and the state of higher education in Ceylon, 1957-1959. 3 folders.
- J.107-J.112 'Ceylon Non-official'. Contents of Needham's folder so inscribed divided into four for ease of reference: miscellaneous correspondence and papers, including material *re* other engagements in Ceylon
- J.107 Correspondence *re* lectures given or proposed while in Ceylon:

 'The biochemistry of muscle contraction' (D.M.M. Needham) and 'The origins and nature of modern science with relation to China and the West' (J. Needham), Ceylon Association for the Advancement of Science, University of Ceylon, 12 and 13 March 1958 respectively.

 'Science and religion in Chinese civilisation', discussion meeting, April.

 'Buddhism and science in Chinese civilisation', Young Men's Buddhist Association, Colombo.

 English Literary Circle, Government Training College, Maharagama, ?May.
- J.108 Miscellaneous correspondence, September 1957 - June 1958.
- J.109 Needham's manuscript notes on language, food etc.
- J.110 Memorabilia. Includes profile of Needham in Ceylon *Daily News*.
- J.111 'Ceylon'. Contents of Needham's folder so inscribed: expenses claims, etc.
- J.112 Printed material: university calendars; Hansards for parliamentary proceedings; background information.

**COMMITTEE AGAINST MALNUTRITION
1937**

1933-

The Committee against Malnutrition was established in 1933 to give 'people throughout the country the opportunity of centralising their information and co-ordinating all efforts to one end - the securing of adequate nourishment for every man, woman and child'. Both Joseph and Dorothy Needham were involved with the work of the Committee in the 1930s. Joseph Needham addressed a public meeting organised by the Committee at Conway Hall, London, on 16 May 1935 and Dorothy Needham reviewed *Food, Health and Income* by Sir John Boyd Orr for the *Cambridge Review*, 10 June 1936.

- J.113 Miscellaneous correspondence, 1933-1937. Includes letter from F. Le Gros Clark *re* Needham's talk.
- J.114 Manuscript and typescript notes for Needham's talk.
- J.115 Manuscript and typescript drafts and printed copy of Dorothy Needham's book review.
- J.116 Miscellaneous background material: chiefly typescript papers by L.J. Harris.

**COMMITTEE ON SCIENCE AND ITS SOCIAL RELATIONS
1938, 1948, 1974**

The Committee on Science and its Social Relations was established by the International Council of Scientific Unions (ICSU) in 1937.

- J.117 1938. Letter from *Nature*, enclosing proof of leading article on 'Social relations of science' asking for Needham's views on the opinions expressed therein. The article was published in a special supplement, together with the views of a number of scientists (including Needham). The folder also includes a copy of the supplement of *Nature*.
- J.118-J.120 1948. Papers *re* role and programme of the Committee. 3 folders.

J.121 1974. Letter from R.M. MacLeod enquiring about the whereabouts of early papers of the Committee.

**CONSEIL SCIENTIFIQUE DE PERFECTIONNEMENT DE
1959**

**L'INSTITUT D'ÉTUDE DE DÉVELOPPEMENT ECONOMIQUE
ET SOCIAL, PARIS**

Needham was a Corresponding Member.

J.122 Papers re activities of the Conseil 1959.

COUNCIL FOR SCIENCE AND SOCIETY

1975

J.123 Request for advice on project on 'Third World' development.

**EMBRYOLOGISTS' CLUB
1948-1951**

1934,

Most of the material presented here relates to the Embryologists' Club established at a meeting at King's College London in February 1948 (of which Needham was a member). However, there is also a notice of a meeting of an Embryologists' Club at Strangeways Laboratory Cambridge on 16 February 1934.

J.124 Miscellaneous material, including annotated notice for meeting at Strangeways Laboratory, and minutes of inaugural meeting of later Club and rules of the Club.

***EUROPEAN DEVELOPMENTAL BIOLOGY ORGANISATION
1984, 1987***

J.125

Draft statutes; circulars for congresses 1984 and 1987.

FONDATION FRANQUI

1948

Needham was a member of the juries to award the Francqui Prizes for 1948.

J.126 Correspondence and papers *re* award.

GINLING COLLEGE, NANKING

1938-1941

Ginling College was a Chinese Christian women's college of which Lu Gwei-Djen was a member. In the 1930s the city was captured by the Japanese and many staff and students of the College fled to Shanghai and Chengtu.

Material from Ginling College in wartime China 1938, 1939 and 1941, with a little general and miscellaneous material found therewith.

J.127-J.131 Duplicated typescript news-sheets *re* Ginling College and alumni 1938, 1939. 5 folders.

J.132 Duplicated typescript Ginling College newsletter May 1941; printed material *re* the College.

J.133 Duplicated typescript lectures by W.W. Yu 'China's relations with the Soviet Union' and 'China's prospects of winning the war', December 1939.

J.134 Other background material.

INSTITUTE OF BIOLOGY
1952

1950-

Needham joined the Institute of Biology shortly after its establishment in 1950. He served as a member of the Conferences Committee.

J.135

Correspondence and papers.

INSTITUTE OF CONTEMPORARY ARTS
1953

1950-

In July 1951 the Institute of Contemporary Arts held an exhibition organised by R. Hamilton on 'Aspects of Growth and Form; the development of natural shapes and structures'. Needham was a member of the advisory committee and wrote an article for the book accompanying the exhibition ('Biochemical aspects of form and growth', *Aspects of Form* ed. L.L. Whyte, London, 1951).

- J.136 Correspondence *re* service on the committee and Needham's contribution to the exhibition volume, 1950-1953.
- J.137 Papers for meetings of the exhibition committee, 1950-1951.
- J.138 13pp typescript of Needham's contribution + list of illustrations.
- J.139 Manuscript notes; printed material *re* the exhibition.

INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS (ICSU)
1960, 1975

Papers and correspondence *re* membership of ICSU of the People's Republic of China and the Republic of China (Taiwan).

- J.140 1960. *Re* admission of Taiwan. Includes drafts of Needham's letter to Sir Rudolph Peters, President of ICSU, arguing that Taiwan should not be admitted.
- J.141 1975. *Re* re-admission of the People's Republic of China.

***INTERNATIONAL INSTITUTE OF EMBRYOLOGY (later the
1949-1988***

INTERNATIONAL SOCIETY OF DEVELOPMENTAL BIOLOGISTS)

Needham was nominated as a member of the International Institute of Embryology (IIE) in 1949. In 1968 the IIE was renamed the International Society of Developmental Biologists. Needham was an emeritus member of the International Society.

J.142 1949, 1952, 1957. Includes papers for meeting of Executive Committee of the International Union of Biological Sciences, London, 4-5 March 1952 at which Needham was a representative for IIE.

J.143-J.145 Printed material (newsletters, membership list etc) for International Society of Developmental Biologists, 1977-1988. 3 folders.

***INTERNATIONAL UNION OF BIOLOGICAL SCIENCES
1953***

1950-

Needham served as an Honorary President of the Botanical Section for the period covered by these papers.

J.146 Miscellaneous papers.

***INTERNATIONAL UNION OF THE HISTORY AND PHILOSOPHY
1948-1976***

OF SCIENCE

Needham was appointed to the Documentation Commission of the Division of the History of Science (DHS) in 1961. He was a member of the Council (later Bureau) of the DHS, 1969-1977, serving as President 1972-1974 and Past-President 1975-1977. He also served as President of the Union 1972-1975.

The material was found in Needham's folders in rough chronological order. It comprises principally papers for meetings of the Bureau of the DHS, joint meetings of the Bureaux of the two Divisions and of meetings of the Council, 1972-1974.

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The material is presented as follows:

J.147-J.177 Division of History of Science

J.178 History of Astronomy

J.179 History of Mathematics

Division of History of Science

J.147 Correspondence and papers, 1948-1949. Material 1949 *re* 1950 International Congress on the History of Science.

J.148 Correspondence and papers, 1953, 1955.

J.149 Correspondence and papers, 1960-1963. Includes exchanges *re* Needham's appointment to Documentation Commission and correspondence *re* possibility of holding the 1965 International Congress on the History of Science in China.

J.150 Papers of DHS, 1968. Sent to Needham on his election to the Bureau.

J.151 Correspondence and papers, 1969.

J.152 Correspondence and papers, 1970. Chiefly *re* meeting of Council of DHS, Paris, 23 June.

J.153 Correspondence and papers, June - September 1971. Includes correspondence *re* Needham's election as President DHS.

J.154 Correspondence, October - December 1971. Chiefly *re* appointment of
Treasurer and Secretary-General of DHS.

- J.155, J.156 Annotated papers of meeting of Paris, February 1972. 2 folders.
- J.157 Correspondence and papers, February - August 1972. Includes papers from first meeting of the DHS Science Policy Studies Commission, 9-15 July.
- J.158 Correspondence, September, October 1972. Includes material *re* representation on ICSU.
- J.159 Correspondence, September 1972 - February 1973.
- J.160 Annotated papers of meeting of Council of DHS, Cambridge, 11 December 1972.
- J.161 Correspondence, January, February 1973. Chiefly *re* application to the Ford Foundation for funds to support the DHS's work on Science Policy Studies.
- J.162 Correspondence and papers, March - May 1973. Chiefly *re* application to Ford Foundation.
- J.163 Annotated papers of meeting of Bureau of DHS, London, 19 May 1973.
- J.164 Annotated papers of meeting of joint Bureaux, London, 19 May 1973.
- J.165 Annotated papers of meeting of Bureau of DHS, Torun, Poland, 9 September 1973.
- J.166 Correspondence, September, October 1973, March 1974.
- J.167 Correspondence *re* arrangements for and annotated papers of meeting of Bureau of DHS, Paris, 28 March 1974.

- J.168 Correspondence, May, June 1973. Chiefly *re* role of the election committee.
- J.169 Minutes of meetings of Bureau of DHS and joint Bureaux, London, 1 June 1974.
- J.170-J.175 14th International Congress of the History of Science and General Assembly of the DHS, Tokyo, 19-27 August 1974.
- J.170 Correspondence *re* organisation and arrangements for Congress and General Assembly; Congress bulletins nos. 1-3.
- J.171 Correspondence *re* possible participation of colleagues from People's Republic of China.
- J.172 2pp typescript draft with manuscript corrections of Needham's opening address as President of the DHS; annotated papers for meetings of the Council of DHS, 19 and 23 August.
- J.173-J.175 Annotated papers for meetings of the General Assembly, 20 and 24 August. 3 folders.
- J.176 Correspondence, September 1974 - April 1976.
- J.177 Papers of meeting of Council of DHS, Paris, 31 January 1975.

History of Astronomy

In 1971 Needham joined a joint DHS/International Union of Astronomy Committee to plan and supervise a history of astronomy.

- J.178 Correspondence and papers *re* initiation and progress of the project, 1971-1974.

History of Mathematics

- J.179 Papers 1972-1975, chiefly *re* launch and support of journal *Historia Mathematica*.

LOUIS RAPKINE MEMORIAL FUND APPEAL /LOUIS RAPKINE 1949-1957, 1968

ASSOCIATION

The Louis Rapkine Memorial Fund was established in France in 1949 in memory of the biochemist Louis Rapkine (1904-1948). Although a Canadian citizen he was a leading figure in French biochemistry between the wars and returned to France after the war to head a laboratory of cell chemistry established for him. However, he died shortly thereafter.

As a memorial to Rapkine committees were established in France and the UK and each launched an appeal. That in France raised funds for young British scientists, in particular biologists and biochemists, to visit France in connection with research, while that in the UK sought funds to support French students wishing to visit Britain. The British committee also hoped to establish an occasional lecture by a young French scientist.

In the event the French appeal was successful in raising funds to establish short scholarships for British researchers to visit France but the British appeal did not raise enough to provide equivalent scholarships for French researchers. In May 1956 the Louis Rapkine Association was formed as an informal association of former holders of Rapkine scholarships and partly in response to this the British committee decided to establish a Rapkine Medal and Lecture and in 1957 the Institute of Biology agreed to host the lecture. The British committee was then wound up.

The Needhams were close friends and colleagues of Rapkine. They had met Rapkine at the Marine Biological Station in Roscoff in 1925. In addition to biochemical interests in common, Rapkine's socialism exerted a lasting political influence. The Needhams helped establish the Fund and served on the British committee.

- J.180-J.182 Memorial meeting for Louis Rapkine, Society for Visiting Scientists, London, 9 March 1949. Needham spoke on Rapkine's scientific work and personal impressions.
- J.180 Correspondence *re* arrangements, January - March. Includes annotated list of Rapkine's scientific publications, sent to Needham for information for his talk on Rapkine.

- J.181 8pp typescript of Needham's talk; account of meeting from *Nature* **163** (1949).
- J.182 18pp duplicated typescript report of the meeting.
- J.183 Correspondence, April - August 1949. Includes correspondence *re* establishment of French appeal.
- J.184 25pp duplicated typescript 'Compte-rendu de la Réunion à la Mémoire de Louis Rapkine', French Association of Scientific Workers, Paris, 13 December 1949.
- J.185 Correspondence, 1950. Includes material *re* possible launch of appeal in Britain.
- J.186 Papers of first meeting of Memorial Fund Committee, London, 17 October 1950.
- J.187 Papers of second meeting of Memorial Fund Committee, London, 15 February 1951. Includes drafts and final text of appeal brochure.
- J.188 Correspondence, 1951-1952.
- J.189 Correspondence, 1954. Chiefly *re* possible Louis Rapkine Club.
- J.190 Correspondence, May - June 1956. Chiefly *re* establishment of Rapkine Medal and Lecture. Also includes brochure for Louis Rapkine Association.
- J.191 Correspondence, July - November 1956. *Re* establishment of Rapkine Lecture.

- J.192 Correspondence, 1957.
- J.193 Papers and correspondence *re* meeting of Louis Rapkine Association, Ciba Foundation, London, 10 June 1968. R. Varin spoke on 'Louis Rapkine - l'Homme, l'Ami'.
- J.194 Background information. Includes extensively annotated proof of *Nature* obituary of Rapkine by J.G. Crowther and copy of *Europe* 57 (September 1950) containing account of Rapkine by L. Prennant (in French).

**MARINE BIOLOGICAL ASSOCIATION OF THE UNITED KINGDOM
1939**

- J.195 Letter *re* membership.

**MARX MEMORIAL LIBRARY AND WORKERS' SCHOOL 1936,
1969-1976**

The Marx Memorial Library and Workers' School was founded in 1933. It was based at Marx House, London, as a Marxist educational establishment. Needham lectured at the Library in the 1930s (see G.46) and participated in a symposium on Engels organised by it in 1941 (see H.47).

In the 1970s Needham served on the Advisory Council of the Library.

- J.196 Papers for AGM 1936; letter requesting advice on August summer school, 3 March 1936.
- J.197 Duplicated typescript proceedings of Marx House Faculty of Science Symposium on Marxism and Science, August 1939.
- J.198-J.203 Quarterly Bulletins of the Marx Memorial Library, nos. 51-78 (July-September 1969 - April-June 1976). 6 folders.

J.204 Fortieth Anniversary Programme, 1973; minutes of Advisory Council meeting
11 December 1976.

NATIONAL ACADEMY OF SCIENCES
1986

1978,

Needham was elected a Foreign Associate of the US National Academy of
Sciences in 1978.

J.205 Papers from Committee on Human Rights.

NUTRITION SOCIETY

1957

J.206 Exchange *re* resignation.

PHYSIOLOGICAL SOCIETY
1927, 1934

1919-

J.207 Papers for meetings of the Society in the Cambridge Physiological
Laboratory 1919-1927, most annotated by Needham; letter *re* reading to and
publication by the Society of paper by R. May, 1934.

ROYAL SOCIETY

1934-1973

Needham was elected a Fellow of the Royal Society in 1941.

J.208-J.218	Meetings
J.219-J.221	British National Committee for Biology
J.222	British National Committee for the History of Science
J.223	Newton Letters Committee
J.224	Elections

Meetings

J.208	Programme for Conversazione, 9 May 1934. Includes exhibit by Joseph and Dorothy Needham and C.H. Waddington on 'The nature of the active principle of the amphibian organisation centre'.
J.209-J.218	Scientific Information Conference, 21 June - 2 July 1948. This was held to examine possibilities for 'improvement in existing methods of collection, indexing and distribution of scientific literature, and for the extension of existing abstracting services'. Needham attended as UNESCO delegate. See also D.141.
J.209	Programme; agenda for plenary sessions.
J.210-J.216	Conference papers. 7 folders.
J.217	Final published report, extensively annotated by Needham.

- J.218 Material arising: Royal Society memorandum on synopses for abstracts, April 1949; brief for British delegates to UNESCO Conference on Scientific Abstracting, 20-25 June 1949.

British National Committee for Biology

Needham served on this committee from 1 January 1952 to 31 December 1957.

- J.219 Minutes of meeting, 14 February 1949, and papers found therewith.

This meeting discussed the case for an international union for biochemistry.

Appointment of Needham to committee, 15 December 1951.

- J.220 Papers for meetings of committee, 1954, 1955.

- J.221 Papers for meetings of committee, 1956, 1957.

British National Committee for the History of Science

- J.222 Miscellaneous correspondence, 1960-1973.

Newton Letters Committee

Needham was appointed to serve from 1 January 1972.

- J.223 Papers of meeting, 2 February 1972.

Elections

J.224 1956-1957.

**ROYAL SOCIETY OF MEDICINE
1942**

1941,

J.225 Letter *re* membership terms for Fellowship for French colleague, December 1941; annotated abstracts for discussion meeting, London, 4 March 1942.

**SCIENCE OF SCIENCE FOUNDATION
1966-1970**

This was set up in 1965 by M. Goldsmith to further "the examination of the phenomenon of "science" by the methods of science itself".

J.226 Newsletters and other printed material *re* the Foundation; invitation to join (declined), August 1970.

J.227 Printed material on 'science of science'.

**SCIENCE POLICY FOUNDATION
1986**

1977,

Needham was made an Honorary Fellow of this Foundation in 1977.

J.228 Correspondence *re* Honorary Fellowship, 1977; correspondence and papers *re* statement for UK submission to UN Conference on Science and Technology, and *re* book to commemorate the centenary of Einstein's birth, 1977; notice of EGM 1986.

SOCIÉTÉ EUROPÉENNE DE CULTURE
1971

1953-

This was founded in 1951.

J.229-J.231 Papers, chiefly *re* General Assemblies and other business. 3 folders.

SOCIETY FOR EXPERIMENTAL BIOLOGY
1941

1925-

Needham served on the Council of the Society for three years from December 1931.

The material is correspondence *re* arrangements and programmes (some annotated) for Society meetings. At a number of these meetings Needham gave short papers on his work in progress.

J.232 1925-1929.

J.233 1930, 1931. Includes invitation to serve on Council.

J.234 1932, 1933. Includes Needham's manuscript notes on proceedings of symposium on Tissue culture in relation to growth and differentiation, Oxford, 15-16 April 1932.

J.235 1934, 1935, 1941.

SOCIETY FOR THE PROTECTION OF SCIENCE AND LEARNING
1939-1950, 1960

J.236-J.239 Correspondence *re* locating and securing visas for Polish colleagues (including Needham's research collaborator W.W. Nowinski) to travel from

Lithuania or Soviet-occupied territory to the UK or France following the fall of Poland.

/... For further material relating to assistance to refugees from Nazism see K.70-K.73. .../

J.236 1939 September-December.

J.237 1940 January.

J.238 1940 February, March.

J.239 1940 April, May; 1941 April-June.

J.240 Reports 1938-1950; circular letter *re* changes to Society's constitution, March 1960.

***SOCIETY FOR THE STUDY OF DEVELOPMENT AND GROWTH
1943, 1948, 1956***

Needham was a Foreign Member of this American Society.

J.241 Correspondence and papers *re* membership.

***SOCIETY FOR VISITING SCIENTISTS
1948-1964***

J.242 Letter from Needham to Lord Rothschild *re* support for comparative biochemistry within agricultural research, and correspondence arising, February-March 1950; miscellaneous papers 1948-1964.

THEORETICAL BIOLOGY CLUB
1949, nd

1930-

The Theoretical Biology Club was an informal group of biologists and biochemists founded by J.H. Woodger to discuss problems in theoretical biology. In addition to Woodger, regular attenders at Club meetings included both Joseph and Dorothy Needham, C.H. Waddington, B.P. Wiesner and D.M. Wrinch.

See also Needham's manuscript notes of Theoretical Biology Club meetings 1932 and 1933 at E.111 and 1937 at E.114, and correspondence with J.H. Woodger at M.97-M.100

- J.243 Correspondence 1930-1936 and nd. Includes correspondence *re* meeting of the Club, 30-31 December 1932.
- J.244 Needham's manuscript notes 1934 and 1936; list of those attending or to be invited to meetings.
- J.245 Abstracts for meeting 12-14 April [?1937]; notice of meeting, 11 July 1949.
- J.246 'Cell life and the steady state' by R.L. Worrall, 3pp typescript with manuscript corrections, possibly presented or discussed at meeting of the Club; miscellaneous manuscript notes, bibliographical references, etc found with preceding.

THIRD WORLD ACADEMY OF SCIENCES

1986

- J.247 Invitation (declined) to become advisor on molecular biology and/or biochemistry.

**WORLD ACADEMY OF ART AND SCIENCE
1986**

1959-

Following the 1956 International Conference on Science and Human Welfare a Preparatory Commission, chaired by H. Boyko, was established to found a World Academy of Arts and Sciences. It was launched in Jerusalem in December 1960 with the issue of a 'Manifesto' and was intended to act as 'a "World University" of experts on subjects of the highest scientific and ethical importance'. Needham was a founding Charter Member and later a Fellow of the Academy but was not an active member.

Correspondence and papers *re* Academy activities.

- | | |
|-------|---|
| J.248 | 1959. |
| J.249 | 1960. Launch of the Academy. |
| J.250 | 1961. Chiefly <i>re</i> book <i>Science and the Future of Mankind</i> (The Hague, 1961) edited by Boyko, setting out the aims of the Academy. |
| J.251 | 1962. |
| J.252 | 1963 (1). |
| J.253 | 1963 (2). Papers of Second Plenary Meeting of the Academy, Stockholm, 29 July - 3 August. |
| J.254 | 1964. |
| J.255 | 1965. Chiefly <i>re</i> Symposium on Highly Saline and Seawater Irrigation. |
| J.256 | 1969-1973. |

J.257 1980-1988.

J.258, J.259 Newsletters 1978, 1979 and news-sheets 1984-1988. Not complete sequences. 2 folders.

***WORLD ORGANISATION OF GENERAL SYSTEMS
1970***

AND CYBERNETICS

J.260 Letter re participation of People's Republic of China.

**SECTION K POLITICS K.1 -
K.354**

K.1-K.123 PRE-WAR AND WARTIME BRITISH POLITICS

K.124-K.153 POST-WAR BRITISH POLITICS

K.154-K.296 INTERNATIONAL POLITICS

K.297-K.343 CIVIL LIBERTIES AND ACADEMIC FREEDOM

K.344-K.354 ENVIRONMENT

PRE-WAR AND WARTIME BRITISH POLITICS

K.1-K.21	Cambridge Labour politics
K.22-K.69	Cambridge Scientists' Anti-War Group
K.70-K.73	Refugees from Germany
K.74-K.107	Spanish Civil War
K.108-K.123	Second World War

Cambridge Labour politics

K.1-K.14 Labour Party

In the 1930s the borough and the University of Cambridge each sent a member to parliament. The Needhams were members of the University Labour Party. Joseph Needham served on the Executive Committee of the Party in the early 1930s and Dorothy Needham was a member of the Executive of the Cambridge Trades Council and Labour Party and stood for the Town Council on two occasions.

K.1, K.2 1931 General Election.

The University Labour Party did not field a candidate for the university seat instead supporting A. Wood, the (unsuccessful) Labour Party candidate for the borough of Cambridge.

K.1 Manuscript notes for Needham's address in support of A. Wood; Labour manifestos; correspondence; manuscript notes on election results.

K.2 Press-cuttings, including letter from Needham to the *New Statesman and Nation*, 31 October 1931, commenting on the results of the election.

K.3 University Labour Party papers, 1932. Includes papers *re* Party policy on tertiary education, sent to Needham for comment 24 September.

- K.4 1934 Parliamentary by-election.

Manifesto for A. Wood; manuscript note on Cambridge election results; letter [?from candidate for borough council elections] thanking Needham for his help, found with by-election material.
- K.5-K.7 1935 General Election.

The Labour Party fielded candidates for both university (H.L. Elvin) and borough (A. Wood) seats.
- K.5 Notes and correspondence *re* attempt to persuade E.M. Forster to stand as a candidate for the university seat; manifestos of university candidates; etc.
- K.6 Article by Needham 'Labour Party Policy and the Coming Elections', *Cambridge Review* 1 November 1935, with correspondence arising in *Cambridge Review*; election literature of A. Wood and Mrs C.D. Rackham (Labour candidate for Saffron Walden and a Cambridge councillor).
- K.7 'A quantitative analysis of the political situation' by Needham. Article on the election results of 1935, submitted to the *New Statesman and Nation* but not accepted for publication; letter thanking Needham for speaking at election rally ?in Ipswich.
- K.8 1935 Cambridge Town Council elections.

Dorothy Needham stood (unsuccessfully) as Labour candidate for Castle ward in 1935 and 1936 (see K.9, K.10 below).

Labour election literature; newspaper cutting of results.
- K.9, K.10 1936 Cambridge Town Council elections.
- K.9 Manuscript notes for Dorothy Needham's campaign speeches.
- K.10 Election literature and other material.

- K.11 University Labour Party papers 1936; page of *Cambridge Review* 21 February 1936, with letter from Needham (Chairman) and J.J. Overton (Secretary) on Cambridge Labour Party call for boycott of Berlin Olympics; 'University Labour Broadsheet' nos 4 (Easter 1939) and 5 (January 1940).
- K.12 Cambridge Trades Council and Labour Party papers 1936-1937. Includes papers *re* election of Executive Committee 1936 and 1937. Dorothy Needham was among those elected.
- K.13 Programme, newspaper cutting and letter *re* demonstration against the Means Test, 8 November 1936; letter from K. Pickthorn, Conservative MP for Cambridge University *re* Public Order Bill, 17 November 1936.
- K.14 'The future of rent control', 7pp typescript draft with manuscript annotations, ca.1938; manuscript notes and background literature *re* rent control.
- K.15-K.19 Socialist League
- The Socialist League was a left-wing group affiliated to the Labour Party. In May 1937, following the League's 'Unity Manifesto' with the Communist and Independent Labour parties the League was expelled by the Labour Party and dissolved. Needham was chairman of the Cambridge branch 1933-1937.
- The material is chiefly duplicated typescript or printed papers *re* League activities.
- K.15 1933, 1934. Includes invitation to Needham to serve as Chairman of the Cambridge branch, 1933.
- K.16 1935. Includes appeal to Cambridge branch members from chairman and secretary to 'demonstrate your socialist convictions'.
- K.17 1935-1936. Correspondence and papers *re* finances and meetings of the Cambridge branch of the League.
- K.18 1937 January. Launch of Unity Manifesto.

- K.19 1937 May, June and nd. Includes material *re* winding up the Socialist League.
- K.20 Cambridge University Socialist Society/Club

Programme for Lent Term 1932; cutting from *Daily Herald*, 15 October 1935 *re* meeting on Italian aggression chaired by Needham; issues of 'Bulletin' 1940-1942 (not a complete sequence).
- K.21 Other socialist material

Includes papers of the Society for Socialist Inquiry and Propaganda

Cambridge Scientists Anti-War Group

From 1932 a number of Cambridge research workers began to meet informally to discuss the international situation. By the end of 1934 this group numbered some eighty scientists. At the same time a Cambridge Anti-War Council had been established and the scientists' group gave this their support.

In July 1935 members of the group participated in the distribution of copies of an anti-war paper at the Duxford Air Display. The papers were confiscated by the police and distributors and sellers arrested. The National Council for Civil Liberties took legal action against the police, the plaintiff being W.A. Wooster of the scientists' group. The case was decided in their favour.

In 1937 the group began to organise itself formally as the Cambridge Scientists Anti-War Group to campaign on air raid precautions, producing a book *The Protection of the Public from Aerial Attack* (Gollancz, 1937), strongly critical of the defensive measures suggested by the Home Office. Joseph Needham was a member of the editorial committee. Following this the group began to plan a book on the distortion of teaching and research in science caused by preparations for war, for which Needham was to write the general introduction and introduce the chapter on distortions in biology. This was interrupted by the outbreak of hostilities in 1939.

The Cambridge Scientists Anti-War Group reconvened in December 1948 to plan a book 'Science, War and Peace'. The Group was divided into five sections examining different problems in this area. Dorothy Needham was convenor of the section on 'Questions of international cooperation in science and ways of combating secrecy' and chaired the editorial board. The book, though drafted, was not published.

- K.22 Duplicated typescript statements setting out the history of the Group and present activities, ca.1949; two typescript pages of transcript of recollections of Cambridge anti-war activities by W.A. Wooster; etc.
- K.23 Material *re* violent demonstration against anti-war marchers laying a wreath at the War Memorial, 11 November 1933.
- K.24 Protests against the Incitement to Disaffection Bill, 1934.

Needham was a signatory of letters to the *News Chronicle* and *Cambridge Review* protesting against this Bill, which would hinder efforts to dissuade fellow-scientists from undertaking military-related research.
- K.25-K.27 Duxford air display, July 1935.
- K.25 Copy of anti-war newspaper 'Air Display Special'; correspondence and papers *re* legal action against the police.
- K.26 Softback pocket notebook used by Needham for notes on court proceedings, December 1935.
- K.27 Newspaper cuttings *re* the case.
- K.28 Opposition to unconditional acceptance of money given to the University of Cambridge by Sir John Siddeley for aeronautical research, October 1935.

It was feared the money might be spent on military research.

Fly-sheets; typescript draft of fly-sheets urging a vote of 'non-placet'.
- K.29 Letters from Conservative MPs for Cambridge replying to letters from the Needhams *re* re-armament, 9 March 1936.

4pp duplicated typescript of 'opinions expressed in a series of discussions [in the Scientists' Anti-War Group] during May Term 1936'.

- K.30-K.33 *The Protection of the Public from Aerial Attack*, Gollancz, London, 1937.
- K.30 Proof copy.
- K.31 Press reviews of the book; newspaper reports on air raid precautions; notice of meeting at House of Commons presenting the findings of the Group, 2 March 1937.
- K.32 7pp duplicated typescript copy of petition delivered to Cambridge Town Council urging non-collaboration with Home Office air raid defence measures, 1937.
- K.33 Printed and duplicated typescript material *re* air raid defence.
- K.34-K.39 'The Distortion of Science for Politico-Economic Ends', ca.1937-1939.
- K.34 Manuscript and typescript plans for book; list of contributors.
- K.35-K.38 Annotated typescript drafts of chapters.
- K.35 'Biology and Sociology'.
' "Struggle for existence" distortion'.
'Biological Laws and Human Societies'.
- K.36 'Distortions in physics'.
'Physics in Germany'.
- K.37 'Mathematics in Germany'.
'Russian Physics'.

- K.38 'English Physics'.
'A.R.P.'
- K.39 Miscellaneous typescript and manuscript notes.
- K.40-K.46 1930s printed and duplicated typescript anti-war literature and background material.
- K.40 Cambridge Anti-War Council material.
- K.41, K.42 The arms industry. 2 folders.
- K.43, K.44 British re-armament. 2 folders.
- K.45 Conscription.
- K.46 Miscellaneous.
- K.47-K.51 Conference on Secrecy in Science, St John's College Cambridge, 19-20 November 1949.
- K.47 Programme; list of subjects to be covered; Needham's manuscript notes on proceedings.
- K.48 Correspondence *re* arrangements and issues of secrecy in science 1949-1950.
- K.49-K.51 Annotated typescript and manuscript drafts of contributions.

It was planned that this material would be incorporated into the book 'Science, War and Peace' (see K.59 below).

- K.49 'Secrecy in science' by J.G. Crowther.
- K.50 'Secrecy in French science' by Magat; 'Information constituting state secrets [in the USSR]'.

K.51 'Secrecy in science in the USA'.

K.52 Letter to the Prime Minister asking him to condemn the US development of the Hydrogen Bomb, 1950; newspaper cuttings of press coverage; etc.

Poster for meeting on 'What can scientists do for World Peace', King's College Cambridge, 17-18 February 1951.

'Suggestions for activities by scientists' anti-war groups', 1p duplicated typescript.
- K.53-K.69 'Science, War and Peace', ca.1949-1952.
- K.53 Correspondence with contributors and others; miscellaneous editorial material, including accounts and expenses.
- K.54-K.67 Annotated typescript and manuscript drafts, with comments thereon.
- K.54 'Introduction'.
- K.55 'Chapter I Myths about war. The attitude of the public towards war'; comments only on chapter two on atomic warfare (no draft).
- K.56, K.57 'Chapter III Atomic energy control'. 2 folders.
- K.58 Manuscript synopsis only of chapter four on biological warfare (no draft).

- K.59 'Chapter V Secrecy in science'. See K.49-K.51 above.
- K.60 'The militarisation of science Chapter 6'.
- K.61, K.62 'Chapter VII International cooperation in science'. 2 folders.
- K.63-K.65 'Chapter VII [sic] Food and Agriculture'. 3 folders.
- K.66 'Chapter 9 World power resources'.
- K.67 'Conclusions' or 'Political considerations'.
- K.68 Synopses of the book.
- K.69 Correspondence with possible publishers 1951-1952.

Refugees from Nazi Germany

See also J.236-J.239, K.206.

- K.70, K.71 Relief Committee for the Victims of German Fascism.
- K.70 'Report of Conference at Essex Hall May 27th, 1933'.

Public meeting to raise money for the victims of German fascism, Cambridge, 3 November 1933. Needham chaired the meeting.

Programme; manuscript draft of Needham's introduction; poster; etc.

K.71	Correspondence and papers <i>re</i> telegram of protest to German Minister of the Interior about the conduct of the Reichstag fire trial.	
K.72, K.73	Individual refugees	
K.72	Brock, W.	1933-1934
	Citron, M.U.	1938-1939
K.73	Gross, F.	1936
	Lissmann, H.W.	1936

Spanish Civil War

From 1936 Needham was much involved in British support for the Republican cause in the Spanish Civil War, principally as treasurer of the Cornford-Maclaurin Fund which raised money for the International Brigade and humanitarian causes.

K.74	Correspondence and notes <i>re</i> distribution of pro-Republican leaflets in Cambridge, September - November 1936; letter from Kingsley Martin, editor of the <i>New Statesman</i> , rejecting article sent by Needham on the Spanish Civil War; letter 5 October 1936, enclosing newspaper cuttings on (Roman Catholic) sermons supportive of the Nationalist cause and requesting assistance in countering pro-Nationalist propaganda.	
K.75-K.94	Cornford-Maclaurin Memorial Committee. In memory of J. Cornford and G.C. Maclaurin, Cambridge men killed fighting with the International Brigade in Spain in late 1936, a fund was established to raise money for the Republican cause. It was launched in February 1937 in the <i>New Statesman</i> , <i>Daily Herald</i> and <i>News Chronicle</i> . Contributors could earmark their money for the International Brigade, International Brigade dependents, medical aid or food aid. Needham was a Labour Party representative on the Memorial Committee and treasurer of the fund. .../	
/...	The fund's initial target of £1500 was reached and a new target of £2000 set. In October 1937 a branch of Voluntary Industrial Aid was established to raise money for a motor cycle ambulance for Spain.	

- K.75 Obituaries of Cornford and Maclaurin; drafts for appeal for fund and printed fund-raising leaflets; letter from Professor F.M. Cornford, father; list of trade union contacts.
- K.76 Press coverage of fund; obituary and reminiscences of G.L. Birch, a third Cambridge man killed with the International Brigade in December 1936.
- K.77 Correspondence and papers *re* fund-raising activities.
- K.78-K.85 Letters covering donations to the fund and lists of donors. 8 folders.
Unindexed.
- K.86-K.94 Payments from fund.
- K.86 International Brigade.

This was the chief beneficiary of money from the fund. Cheques were sent to Harry Pollitt of the Communist Party of Great Britain.

Letters and receipts 1937.
- K.87 International Brigade Dependants and Wounded Aid Committee.

Plea for assistance, March 1937; receipt; circular letters 1937-1938.
- K.88 Spanish Medical Aid Committee.

Receipts 1937; Needham's manuscript notes on meeting, 19 February 1938; bulletins.

- K.89 Youth Foodship Committee.
- News-sheets of Cambridge League of Youth and correspondence *re* collections for second foodship; correspondence *re* third foodship. January - April 1937.
- K.90 Dean of Canterbury's Foodship Fund.
- Letter of thanks and receipt, 27 April 1937.
- K.91, K.92 Voluntary Industrial Aid.
- K.91 Appeal for funds for motor cycle ambulance, October 1937; correspondence and papers *re* construction, insurance etc of ambulance 1938-1939.
- K.92 General Voluntary Industrial Aid material *re* Spain and Germany, 1938.
- K.93 Hardback accounts book used for record of donations to the fund.
- K.94 Cheques paid out; chequebook stubs; accounts; etc.
- K.95 Invitation, 12 March 1937, to serve on Christian delegation to visit Spain and join a committee to support the Republican cause in Christian circles (declined).
- K.96 Assistance to Basque refugee children.
- A number of children were found shelter in the Vicarage at Pampisford. The Needhams were involved in seeking support for them.
- 2pp manuscript note by Dorothy Needham on the children's situation; manuscript notes by Joseph and Dorothy Needham on the situation in Spain.

- K.97, K.98 Material *re* British government policy on non-intervention.
- Despite direct support for the rebels by the German and Italian governments, the British government refused to intervene itself and seemed to many to be hindering attempts to support the Republic. In January 1939 Needham supported a deputation to the Prime Minister protesting against Italian intervention and the possible granting of 'belligerent rights' to Franco.
- K.97 Includes letter to Needham from R.L. Tufnell, MP for Cambridge, supporting the British government 15 April 1937; correspondence and papers *re* conference organised by the Spain Emergency Committee and deputation to the Prime Minister arising, 7 January 1939.
- K.98 Duplicated typescript material distributed by the Spain Emergency Committee (annotated by Needham) and the Parliamentary Committee for Spain, ca. January 1939.
- K.99 National Joint Committee for Spanish Relief.
- Publicity leaflets; bulletins 2-19, 1937-1939. Not a complete sequence.
- K.100-K.107 Miscellaneous printed material.
- K.100-K.103 Chiefly booklets and leaflets produced in support of the Republican government.
- K.100 'La République Espagnole au Service de la Culture'; 'Spain Illustrated', no.2; 'Euzko Deya'.
- K.101 'Spain at War'; 'Stop the Fascist Invasion of Spain'; 'Why are they fighting in Spain?'; 'The Hawick Scheme'; postcard produced in support of Republican cause from 'photographic copy of postcard authorised by the rulers of Nationalist Spain'.
- K.102 Communist Party of Great Britain literature: 'Spain'; 'The Decisive Hour'; 'Save Spain from Fascism'; 'Spain and the British Labour Movement'; 'The Spanish People are fighting Fascism Not Religion'.

- K.103 'Durango! Guernica! Almeira!'; 'British and American views on Spain'; 'Italian intervention in Spain'; 'France and the Spanish frontier'; 'Report of a group of Anglican and Free Churchmen who visited Spain'; Statement 'To all Members of the A.E.U. [Amalgamated Engineering Union]'; special issue of *The Socialist*, September 1936.
- K.104 'Resolutions [...] of the World Conference on the Bombardment of Open Towns and the Restoration of Peace'; 'The bombardment of Open Towns' (pro-Nationalist leaflet); 'Memorandum on attacks upon British ships trading to Spain'; 'British Shipping to Spain The facts'; 'Peace and Democracy'.
- K.105 'Spain and the Vatican'; editorial and 'Extracts and comments', *Blackfriars* 17 (September 1936).
- K.106, K.107 Newspaper and other press cuttings.
- K.106 From the *Daily Worker*.
- K.107 Other papers.

Second World War

This material is principally *re* the political reaction of the Left to the outbreak of war, support for the USSR following the German invasion of the Soviet Union in 1941 and subsequent political developments in Left-wing politics during the war.

- K.108 Open Letter following Munich settlement, September 1938.
- The letter, signed by many eminent Cambridge academics, called on the British government to return to the principle of collective security. It was published in the *News Chronicle* and reported in the *Manchester Guardian* and sent to the MPs for Cambridge.
- Report from the *Guardian*; drafts of letter and lists of signatories; letters from Cambridge MPs R.L. Tufnell and Sir John Withers.

- K.109-K.111 Papers *re* the attitude of the Left to the outbreak of war.
- The Nazi-Soviet Pact of August 1939 had suggested to many within the Communist Party of Great Britain and others on the Left, as well as Pacifists, that they should oppose the war and press for a peace settlement.
- K.109 Needham's manuscript notes on meetings of Left-wing academics discussing their position *re* the war, ?1939, 1940.
- K.110 Communist Party and pacifist literature; agenda for AGM of Russia Today Society, 9 March 1940 with report of Management Committee on attitude to the war.
- K.111 Newspaper cuttings, principally from *Daily Worker* opposing the war following the Soviet invasion of eastern Poland, October 1939.
- K.112 Other printed material *re* outbreak and conduct of the war.
- Includes statements on the war from Indian nationalists, official government material and 'The Issue. A statement of the British view', 1940.
- K.113 Spiral-bound pocket notebook used for Needham's notes on the internment of refugees from Nazi Germany and other civil rights issues during wartime.
- K.114-K.116 Cambridge politics 1940-1941.
- K.114 Flysheets and letter *re* 1940 parliamentary by-election for Cambridge University. A.V. Hill stood as an independent Conservative candidate, opposed by J.A. Ryle.
- K.115 Correspondence *re* comments in issue of *Cambridge Review*, 6 June 1941.
- The last issue of *Cambridge Review* to be edited by C. Smyth included comments critical of the pre-war attitude of Needham (not identified by name but a passage of his cited) and others towards British rearmament. Needham complained to the editor and to H.F. Stewart, chairman of the *Review*.

- K.116 The People's Convention.
- This was formed in late 1940 by Socialists, Communists, Trades Unionists and others to represent those who, it was argued, were suffering at the expense of the rich. Eastern Counties and Cambridge branches were formed.
- Papers 1940-1941, chiefly *re* meeting of Eastern Counties People's Convention, Cambridge, 25 May 1941.
- K.117 Papers from Mass Observation.
- 'Report on education in the Armed Forces', 30pp typescript, May 1941; correspondence and bulletin, October 1941 *re* 'ideas on progress'.
- K.118-K.122 Anglo-Soviet Friendship.
- The German attack on the USSR in June 1941 aroused support for the Soviet Union throughout Britain. Needham was chairman of the Cambridge Anglo-Soviet Friendship Committee and a member of the Anglo-Soviet Public Relations Association and National Conference for British-Soviet Unity. He also spoke at functions of other Anglo-Soviet friendship groups.
- K.118, K.119 Cambridge Anglo-Soviet Friendship Committee
- K.118 Agendas and manuscript notes of meetings etc.
- K.119 Miscellaneous papers and correspondence, including material *re* Anglo-Soviet Friendship Week, 7-14 September.
- Folder also includes Needham's response to an editorial in *Cambridge Review*, 25 October 1941, critical of an 'open telegram' sent by the Cambridge Anglo-Soviet Friendship Committee to the Prime Minister.
- K.120 Anglo-Soviet Public Relations Association.
- Correspondence 1941-1942; Needham's manuscript notes on meeting 6 February 1942.
- National Conference for British-Soviet Unity.
- Papers *re* Conference and provisional National Committee, 1942.

- K.121 Invitations to speak or write to further Anglo-Soviet friendship:

 'Science in the Soviet Union', Ipswich, 6 December 1941.

 Speakers' Panel, Anglo-Soviet Youth Friendship Alliance, December 1941.

 The work of the Cambridge Anglo-Soviet Friendship Committee, Huntingdon, 19 January 1942, and further lectures.

 National Peace Council Conference on Anglo-Soviet relations, London, April 1942.

 'The development of the Anglo-Soviet Friendship movement' for East Midlands Anglo-Soviet Newsletter, July 1942.

 'Science in the USSR', Southend-on-Sea Anglo-Soviet Week, 31 August 1942.
- K.122 Other material *re* Anglo-Soviet friendship activities, information etc.
- K.123 Miscellaneous wartime material 1940-1942 and nd. Includes correspondence from *Nature re* internment of refugee scientists, May 1940 and Needham's manuscript notes on speech by H. Laski on aims of the peace (on front cover of booklet on 'Labour Peace Aims' by C.R. Attlee)

POST-WAR BRITISH POLITICS

K.124, K.125	Cambridge politics
K.126-K.133	National politics
K.134-K.153	Peace and nuclear disarmament

Cambridge politics

- K.124 Cambridge Labour Party and socialist literature, various dates 1956-1973 and nd.

K.125 Election literature 1955, 1966; other political literature 1956 (chiefly *re* Suez crisis), 1970, 1972.

National politics

This material principally concerns left-wing groups with which Needham was associated or invited to support.

K.126 1949-1957. Includes statement of fundamental principles and leaflet of the Progressive League, sent to Needham for comment July 1949.

K.127 1959-1961. Papers *re* establishment and activities of London New Left Review Club (formerly the Universities and Left Review Club).

K.128 1962-1964. Material 1962 is *re* anti-fascist and anti-racist protest. Includes newspaper cutting of 'appeal against fascist provocation' of which Needham was a signatory.

K.129 1964-1967. Includes material *re* British Institute for Marxist Studies, and Tawney Society including manuscript notes on talk to Society by J.C. Kendrew on his experiences during visit to China.

K.130 1968-1969.

K.131 1970-1971. Includes correspondence *re* meetings of the Tawney Society.

K.132 1973, nd.

K.133 Miscellaneous duplicated typescript literature *re* Marxist theory.

Peace and nuclear disarmament

An alphabetical sequence of peace and associated organisations. See also the Cambridge Scientists Anti-War Group (K.22-K.69).

Authors' World Peace Appeal

Needham was a signatory of the Appeal.

K.134 Bulletins and other literature, ca.1950-1955.

J.D. Bernal Peace Library

K.135 Literature 1970-1976.

British Peace Committee

K.136 Literature 1951, 1960, 1961.

Campaign for Nuclear Disarmament (CND)

K.137, K.138 General CND literature 1950s-1970s. 2 folders.

K.139 Cambridge CND literature, including bulletins, 1958-1967.

K.140 CND Scientists Group, 1960-1963. Includes duplicated typescript text of 'Scientists' protest' against nuclear weapons to be published as an advertisement in the *New Scientist*.

Cambridge Council for the Abolition of Nuclear Weapons

K.141

Literature, 1950s.

Cambridge Peace Front

K.142 Literature, 1955.

Committee of the World Congress of the Defenders of Peace

K.143 Literature *re* Second World Peace Congress, 13-19 November 1950.

National Peace Council

K.144 Appeal for assistance, 18 January 1952 and leaflet *re* work of Council.

Science for Peace

This organisation was launched at a national conference in 1952. Joseph and Dorothy Needham were both founder members.

K.145 Papers *re* organisation of national conference and establishment of Science for Peace, 1951-1952.

K.146, K.147 Science for Peace literature.

K.146 1952, 1953.

K.147 1955-1961, nd.

Scientists' Protest Fund

The Fund was launched to pay for advertisements in the national press urging nuclear disarmament. Joseph and Dorothy Needham were both signatories of an advertisement in the *New Scientist* and *Guardian* in 1964.

K.148

Literature, 1964-1966.

West German militarisation

K.149 East German literature 1957.

World Council of Peace

K.150 Literature 1953-1955 and 1968. Chiefly *re* meeting of World Assembly for Peace, Helsinki, 22-29 June 1955.

Other organisations and campaigns

K.151-K.153 Miscellaneous literature 1951-1987. 3 folders.

INTERNATIONAL POLITICS

K.154-K.171	International organisations
K.172-K.222	China
K.223-K.232	Korean War
K.233-K.249	Vietnam
K.250-K.296	Other countries

International organisations

K.154-K.160	Amnesty International
K.161	League of Nations Union
K.162	Minority Rights Group
K.163, K.164	Bertrand Russell Peace Foundation
K.165-K.168	United Nations Association
K.169-K.171	World Government

Amnesty International

Needham joined Amnesty International in 1967.

Chiefly printed or duplicated typescript literature.

K.154	1967. Membership material.
K.155	1968.
K.156	1969, 1970.
K.157	1971-1973.
K.158	1974, 1976. 1974 material includes letter to <i>The Times</i> re human rights in Brazil (Needham was a co-signatory), and material re Prisoner of Conscience Week and Human Rights Day.

K.159, K.160 Amnesty International Cambridge City Group.

K.159 1969. *Re* Public Meeting, 26 November 1969. Needham chaired the meeting at which the chief speaker was the South African lawyer and ex-prisoner A.L. ('Albie') Sachs.

K.160 1971-1973. Chiefly *re* prisoners 'adopted' by the Cambridge Group.

League of Nations Union

K.161 Publicity material 1941.

Minority Rights Group

Needham became a sponsor of the Group in 1970.

K.162 Correspondence *re* sponsorship; pleas addressed to Needham as sponsor 1974, 1978.

Bertrand Russell Peace Foundation

Appeals for support, information etc.

K.163 1964, 1967, 1970-1972. Includes material *re* Vietnam and Cambodia.

K.164 1973-1976.

United Nations Association

Needham served as a Vice-President of the Eastern Regional Council in the late 1940s and early 1950s and was again elected in 1971. He was also a member of the Cambridge branch.

K.165

1948, 1949.

- K.166 1955, 1965-1966. General Council meeting and AGM, Cambridge, 1-3 July 1955; symposium on China, 16 February 1966.
- K.167 1969-1971. Includes invitation to speak at meeting on Science and Society 1969 (declined), and nomination and election as Vice President.
- K.168 1972-1973.

World Government

Miscellaneous literature from organisations supporting world government.

- K.169 Emergency World Council. 1975, 1976.
- K.170 World Constitution and Parliament Association. 1982-1987.
- K.171 Other organisations 1962, 1967, 1978.

China

After the establishment of the People's Republic in 1949 Needham was keen to strengthen links between the Peking government and the UK. He was a leading figure in the Britain-China Friendship Association (BCFA), serving as President, and its successor organisation formed in 1965, the Society for Anglo-Chinese Understanding (SACU), of which he was Chairman.

Most of the material relates to international incidents in which the BCFA or SACU took the Chinese part. There is also extensive printed background material *re* the People's Republic at K.237 and K.271-K.273.

- K.172 Miscellaneous literature 1940s and 1950s.

- K.173-K.183 **Border dispute with India 1961-1964**
- Material found in Needham's folder inscribed 'S.I. border'.
- The border dispute between India and China led to armed conflict in 1962. After a few weeks the Indian troops were driven back by the Chinese who then declared a cease-fire and withdrew their forces.
- The BCFA met to discuss the situation on 3 November 1962, and passed a resolution supporting China and on 14 December Needham wrote a letter to *The Times* (not published), in support of the Chinese position.
- K.173 Papers *re* meeting of the BCFA, 3 November 1962.
- Duplicated typescript background information, some annotated; manuscript notes; duplicated typescript draft and text of resolution, with statement issued on 23 November; correspondence arising.
- K.174 Letter to *The Times* and correspondence arising.
- K.175 Manuscript notes on public meeting organised by the BCFA, Conway Hall, London, 19 November and discussion, 6 December 1962; minutes of BCFA AGM, 27 April 1963, including resolution on the Sino-Indian border dispute.
- K.176 Exchange with Anglia Television, November 1962, *re* political discussion programme.
- Invitation to speak on China to the Cecil Society, Cambridge, 3 March 1963 (accepted).
- K.177-K.183 Background information on border dispute.
- K.177-K.179 Press-releases from London embassy of P.R. China, 1961-1964. 3 folders.
- K.180 Pages from bulletins of Chinese Hsinhua News Agency, 1962.
- K.181 Newspaper cuttings.

K.182, K.183 Other material. 2 folders.

K.184-K.195 **Ideological dispute with the USSR 1962-1964**

Material found in Needham's folder inscribed 'S.S. Dispute'.

The ideological split between the USSR and China threatened to divide the political far Left in Britain, including the BCFA. Needham felt that the Chinese case was not being properly presented and asked the publishers Allen & Unwin if a book could be produced to set out the Chinese case. This project failed when the Chinese pamphlets presenting their case were reprinted in the UK. However, Needham wrote letters to *The Times* (not published) and the *New Statesman* (published August 1963) urging a deeper analysis of the Sino-Soviet dispute.

At its meeting on 26 October 1963 the BCFA National Committee adopted a neutral attitude towards the dispute. Needham thought it important at least to put forward the Chinese point of view, and proposed a booklet outlining the positions of both sides. Others wished to see the Association backing China. An attempt by the Cambridge branch to align the BCFA with the Chinese position was defeated at the Association's 1964 AGM.

K.184 Correspondence with Allen & Unwin and others *re* possible book, June - August 1963.

K.185 Drafts of letter to *The Times*, July 1963; copy of letter published in *New Statesman*, with correspondence arising.

K.186 'Kina og bomben', article in *Frit Danmark* 6 (September 1963), with Needham's comments on the Sino-Soviet dispute (in Danish).

K.187 Correspondence *re* Needham's plan for BCFA booklet on the dispute and attitude of BCFA National Committee, October 1963 - February 1964.

K.188 Minutes of BCFA National Committee meeting, London, 26 October 1963, with copy of policy statement on the dispute agreed at the meeting; correspondence arising.

K.189 Manuscript notes on Cambridge branch BCFA meeting, 27 November 1963.

- K.190 'Note on the Sino-Soviet Dispute', 2pp duplicated typescript draft summary of Needham's address to Cambridge Pugwash Group, 15 January 1964.
- Invitations to speak on Chinese nuclear weapons and disarmament policies, Cavendish Laboratory discussion group, Cambridge, January 1964, and on modern China, Student Christian Movement study group, Cambridge, February 1964.
- K.191 Correspondence *re* and papers for BCFA National Committee meeting, London, 22 February 1964; manuscript notes on plan for possible booklet on dispute and letter arising.
- K.192 Correspondence and papers *re* meeting of Cambridge branch of BCFA, 23 March 1964.
- The meeting drafted a resolution supportive of China for the BCFA AGM.
- K.193, K.194 Fourteenth BCFA AGM, London, 9 May 1964.
- K.193 Correspondence preceding; typescript and manuscript draft for Needham's address as BCFA President.
- K.194 Annotated agenda and motions; annual report; brief correspondence arising; miscellaneous material.
- K.195 Printed background material.
- K.196-K.198 **The Cultural Revolution 1965-1969**
- Material found in Needham's envelope inscribed 'Cultural revolution'.
- K.196 'Comments on the Cultural Revolution and some foreign press reports For friends in Britain and Holland', 20pp typescript '...written December '66'.

K.197 Needham's manuscript notes on the Cultural Revolution, probably for lecture; manuscript notes on lecture by M. Bernal, ?King's College Cambridge, 4 December 1969.

K.198 Newspaper cuttings and other printed material *re* Cultural Revolution.

K.199-K.205 **British detainees in China 1968-1972**

In 1968 and 1969 the Chinese seized a number of Westerners working in China and held them incommunicado. This was in part a response to the actions of the Hong Kong authorities who had arrested a number of Chinese Communists in connection with civil disorder.

The Society for Anglo-Chinese Understanding (SACU) received many appeals from friends and relatives of those held in China. Needham argued that the British held in China should be regarded on a par with the Chinese detained in Hong Kong, although some members of SACU wanted a public condemnation of the Chinese government's actions.

K.199 General correspondence *re* SACU approach to the problem, April 1968 - January 1969.

K.200 Drafts of letter to *The Times* by Needham and Joan Robinson, November 1968.

K.201 Papers of emergency meeting of Council of Management, 10 December 1968, including editorial statement to be published in 'SACU News'.

Letter *re* and Needham's manuscript notes on SACU meeting, 18 January 1969.

K.202, K.203 Correspondence with friends and relatives of detained Britons, April 1968 - October 1969. 2 folders.

K.204 Newspaper cuttings on detained Britons, 1968-1972.

- K.205 Other background information, including SACU newsletter no. 7 'Hong Kong and the Rule of Law'.
- K.206-K.210 Miscellaneous printed and duplicated typescript material 1960s.
- K.206 1960-1964.
- K.207 1965. Includes material from Republic of China (Taiwan).
- K.208 1966, 1967.
- K.209 1968.
- K.210 1969. Includes press-releases of SACU celebrating the 20th anniversary of the establishment of the People's Republic.
- K.211 Correspondence *re* lease on SACU head-quarters, 1972-1974.

Brief correspondence *re* SACU Cambridge branch meetings and exhibition of Chinese pictures and posters, November 1973.
- K.212-K.216 Miscellaneous printed and duplicated typescript material 1970s.
- K.212 1970, 1971. Includes newsletters *re* establishment of Chinese studies group.
- K.213 1972.
- K.214 1973, 1974 (1).

- K.215 1974 (2).
- K.216 1975, 1976 and nd.
- K.217-K.219 'Letter from China Anna Louise Strong'. Contents of Needham's envelope so inscribed divided into three for ease of reference: copies of 'Letter from China' nos. 7-70 (not a complete sequence).
- Strong was an American writer living in the People's Republic of China . From 1962 to her death in 1970 she wrote a 'Letter from China', usually monthly, strongly supportive of the Chinese government. This was circulated to friends and colleagues outside China.
- K.220-K.222 'Newspaper cuttings concerned with China'. Contents of Needham's envelope so inscribed, 1958-1972. 3 folders.

Korean War

Needham was a member of an International Scientific Commission invited by the governments of the People's Republic of China and North Korea to investigate the facts concerning the alleged use of bacteriological warfare in Korea and north east China by US forces. It took evidence in the summer of 1952 and reported its findings in September. The Commission concluded that the US military had used bacteriological weapons.

The findings and methodology of the Commission were much criticised and in response to the criticism Needham produced duplicated typescript copies of some of the main documents relating to the controversies for wider circulation.

The great bulk of Needham's papers relating to the work of the International Scientific Commission were deposited by him in the Department of Documents, Imperial War Museum in 1992. This collection has been catalogued as NCUACS 55/4/95.

The material presented here includes many duplicates of the papers deposited with the Imperial War Museum by Needham.

- K.223 Pre-Commission material: 16pp typescript copy of 'Peacetime implications of biological warfare' by G.W. Merck, *Chemical and Engineering News* **24** (1946); duplicated typescript 'Notes on alleged Bacterial Warfare in Korea', 27 April 1952; notice of public meeting 'Is America using Germ Warfare?', Cambridge, 9 June 1952.
- K.224 *Report of the International Scientific Commission for the Investigation of the Facts concerning Bacterial Warfare in Korea and China*, Peking, 1952.
- K.225 Summary of report, with list of appendices.
- K.226 6pp duplicated typescript 'Statement by Dr Joseph Needham' issued at Press Conference, London, 26 September 1952, and copy of extract from Hansard, 24 October 1952 giving the reaction of A. Nutting MP, Joint Under-Secretary of State for Foreign Affairs, to the Commission's report.
- K.227 Needham's replies to letters in connection with the Commission, October, November 1952, including duplicated typescript copy of correspondence with officers of United Nations Association Eastern Regional Council *re* Needham's use of title 'Vice-President of UNA Eastern Region' in letters to *The Times*.
- K.228 Notices of lectures by Needham: 'Bacterial warfare. An attempt to discover the facts', Cambridge, 25 November and 'Germ Warfare in China and Korea', 18 December 1952 .
- K.229 Duplicated typescript copies of correspondence with J.B. White MP regarding the Commission's findings, December 1952 - March 1953.
- K.230 Copies of letters to the *New Statesman re* the Commission, November 1953; copy of telegram of Commission members to Mme Nehru, President of the UN General Assembly, 8 November 1953; 3pp typescript draft of review of Commission report for *Nature* by F.G. Gregory and N.W. Pirie.

K.231 Issue of *China Monthly Review*, January 1957, reporting on trial of J.W. Powell, his wife S.C. Powell and J. Schuman for sedition; copy of circular letter by Needham appealing for support for the Powells and Schuman, May 1957.

The defendants were editors of *China Monthly Review* and had published the charges of the International Commission against the US.

K.232 'Bacterial warfare: was it employed or wasn't it?' by J. van Ginneken, sent to Needham December 1976; 'Japan's Germ Warfare: the US cover-up of a war crime' by J.W. Powell, *Bulletin of the Committee of Concerned Asian Scientists* 12 (1980).

Vietnam War

General

Chiefly printed and duplicated typescript material.

K.233 1964, 1965.

K.234 1966.

K.235 1967 January - February, May. Appeal in *The Times* of which Needham was a sponsor and co-signatory *re* allowing representatives of the Viet Cong to speak in Britain.

K.236 1967 February - December.

K.237 1968, 1969.

K.238 1970-1972.

K.239 1973, 1976, nd.

British Council (later Campaign) for Peace in Vietnam

The British Council for Peace in Vietnam was formed in 1964. In 1969 the Council merged with the National Vietnam Campaign Committee to form the British Campaign for Peace in Vietnam.

In 1976, following the defeat of the Saigon government and the unification of Vietnam, the Campaign was replaced by the Britain-Vietnam Association, of which Needham was a sponsor.

K.240-K.243 Duplicated typescript papers of meetings, appeals and reports, leaflets. 1964-1976. 4 folders.

Medical Aid for Vietnam

Medical Aid for Vietnam was established in 1965. Joseph and Dorothy Needham were both sponsors.

K.244-K.248 Duplicated typescript appeals, reports etc. 1967-1974. 5 folders.

Indochina Solidarity Conference

This was held 2-3 December 1972. After the Conference proper, the Indochina Solidarity Conference continued in being as a standing organisation.

K.249 Appeal for support, programme, report etc. 1972-1973.

Other countries

The bulk of the material relates to human rights abuses and political reform and is miscellaneous printed and duplicated typescript literature - reports, appeals, leaflets etc.

K.250-K.252	Bangladesh
K.253	Brazil
K.254	Ceylon
K.255-K.257	Greece
K.258-K.260	Indonesia
K.261-K.263	Poland
K.264-K.269	South Africa
K.270	South Korea
K.271-K.274	Soviet Union
K.275	Spain
K.276-K.286	United States
K.287-K.292	Miscellaneous
K.293-K.296	Development issues

Bangladesh

Action Bangladesh was formed in April 1971 in response to the war and natural disasters in East Pakistan (later Bangladesh). Needham responded to an appeal for sponsors of an advertisement in *The Times*.

K.250-K.252 Duplicated typescript literature 1971-1972. 3 folders.

Brazil

K.253 Material *re* human rights abuses, 1972.

Ceylon

The Ceylon Committee was formed in September 1971 in response to human rights violations by the government. Needham was approached as a possible sponsor of the Committee.

K.254 Material *re* human rights abuses; issues 2 and 3 of the 'Bulletin' of the Ceylon Committee. 1971, 1972.

Greece

The material chiefly dates from the period 1968 (following the military coup in Greece) to 1973.

Includes material *re* the Greek Relief Fund, League for Democracy in Greece and Campaign for the Release of all Political Prisoners in Greece and individual appeals for human rights.

K.255 1952, 1963, 1966.

K.256 1968-1970. Includes material *re* Free Greek Week, May 1970.

K.257 1971-1973.

Indonesia

Needham was a sponsor of both the British Indonesia Committee, founded in 1970, and of TAPOL, the British Campaign for the Release of Indonesian Political Prisoners, founded in 1973.

K.258 1966, 1970. Material 1970 *re* establishment of British Indonesia Committee.

K.259 1971-1972.

K.260 1973-1976.

Poland

Needham had visited Poland before the war and corresponded with a number of Polish colleagues. He also helped translate a number of Polish literary works into English for publication in the UK and had an interest in the pre-war politics of Poland.

K.261 Correspondence and papers *re* anti-semitism in Polish universities, January - March 1938. Includes draft of letter to the *Manchester Guardian* ?by Needham (writing under the name 'Polophilus').

K.262 'The mass extermination of Jews in German occupied Poland', Polish Ministry of Foreign Affairs booklet ca.1943; typescript reports from Polish press agencies 1943: 'The war on Polish books' and '104 Polish scientists die due to Nazi atrocity'.

K.263 Printed literature 1956, 1966.

Includes press-releases of the Expellee Press Agency (campaigning for the right of Germans uprooted from Poland after the Second World War to return home), 1966.

South Africa

Needham joined the Anti-Apartheid Movement in 1970.

The material is chiefly duplicated typescript literature from the 1970s. There is also earlier material from the 1950s and 1960s relating to anti-apartheid activities and opposition to the Rhodesian regime.

- K.264 1957, 1959. *Re* introduction of apartheid into higher education.
- K.265 1964-1966.
- K.266 1967-1969. Includes material *re* International Defence and Aid Fund.
- K.267 1970, 1971.
- K.268 1972.
- K.269 1973, 1974, nd.

South Korea

- K.270 1973, 1975. Chiefly *re* kidnapping of opposition politician Kim Dae-jung in Tokyo by South Korean government agents.

Soviet Union

- K.271 1968. *Re* advertisement 'Statement on Soviet Jewry' in *The Times* 22 January. Needham was a signatory.

- K.272, K.273 Universities' Committee for Soviet Jewry 1969-1975.
- K.272 1969, 1970.
- K.273 1972-1975.
- K.274 Material chiefly *re* misuse of psychiatry against dissidents and rights of scientists, 1971-1977.

Spain

See also material *re* British support for the Republican cause in the Spanish Civil War (K.74-K.107).

- K.275 Printed literature 1962-1974.

United States

The papers chiefly relate to specific cases affecting civil liberties in the US during the early 1950s, at the height of Senator McCarthy's 'witch-hunt' of suspected Communists, and to academic freedom in the same period.

- K.276-K.278 Correspondence and papers *re* attempt to dismiss staff of the University of California for refusing to sign oath of loyalty, 1950-1952. 3 folders.
- K.279 American Association of Scientific Workers newsletters 1950, 1954-1956. Not a complete sequence.
- K.280 Literature *re* academic freedom in the USA 1953.

- K.281 Veterans of the Abraham Lincoln Brigade, 1953-1955.
- The organisation Veterans of the Abraham Lincoln Brigade comprised Americans of the International Brigade who had fought in Spain for the republican cause. After the defeat of the republic in 1939 members of the organisation campaigned against US links with Franco's government and sought support for international 'anti-fascist' opposition. Several members of the Veterans were imprisoned for sedition in the 1950s.
- Material chiefly *re* the case of Steve Nelson, a Communist member of the Veterans, released in 1955 by a ruling of the Supreme Court.
- K.282 *New World Review*, 1953.
- Mailings of this publication were regularly held up by the US Post Office for inspection.
- K.283-K.286 Other cases.
- K.283 1952-1954.
- K.284 1955-1959. Includes draft letter to *The Times* June 1955 (not published) *re* civil liberties, of which Needham was a co-signatory, and material *re* case of the atomic scientist M. Sobell 1956.
- K.285, K.286 Press-cuttings on US civil liberties and 'McCarthyism'. 2 folders.

Miscellaneous

- K.287 Africa 1953-1974.
- K.288 Asia 1939, 1965-1975.
- K.289 Europe 1955-1975.

K.290 Latin America 1963, 1970, 1974.

K.291, K.292 Middle East 1955-1974. 2 folders.

K.291 1955-1968.

K.292 1969-1974.

Development issues

K.293-K.295 Miscellaneous duplicated typescript and printed material *re* development issues in the 'Third World', 1952-1977. 3 folders.

K.296 Chiefly literature *re* Liberation (formerly the Movement for Colonial Freedom), 1971-1972.

CIVIL LIBERTIES AND ACADEMIC FREEDOM

K.297-K.301	Association of Scientific Workers
K.302-K.305	Homosexual Law Reform Society
K.306-K.317	National Council for Civil Liberties
K.318-K.321	Permanent Commission on Academic Freedom
K.322	Release
K.323	Socialists in Higher Education
K.324, K.325	Society for Freedom in Science
K.326	Voluntary Euthanasia Society
K.327-K.335	World Federation of Scientific Workers
K.336-K.343	Miscellaneous

Association of Scientific Workers

K.297 'ISIS exchange (utilization of scientists in war)'. Contents of Needham's envelope so inscribed: correspondence *re* British government utilization of scientists in the war effort 1941-1942.

M.F. Ashley Montagu had claimed that the British authorities were making inadequate use of scientists as war-time advisors. G. Sarton, editor of *Isis* wrote to Ashley Montagu seeking substantiation of this claim and Ashley Montagu cited statements of the Association of Scientific Workers. W.A. Wooster, the Secretary of the Association argued that the Association had been misrepresented by Ashley Montagu, but agreed that the Association felt the government was not making best use of scientists. The bulk of the material concerns the reply by the Association to be published in *Isis*.

- K.298 Invitation to chair meeting calling for the creation of a Central Scientific and Technical Board, London 4 September 1942 (declined).
- Invitation to open Association Fifth Annual Science Exhibition, Oxford, 17 September 1948 (declined).
- K.299, K.300 'Wooster WFSW [World Federation of Scientific Workers] & ASciW'. Contents of Needham's envelope so inscribed divided into two for ease of reference: miscellaneous papers *re* secrecy laws in France, international control of atomic energy, etc. 1949-1950.
- Further material relating to the World Federation of Scientific Workers is at K.327-K.335 below.
- K.301 Miscellaneous papers *re* Association, 1949, 1951.

Homosexual Law Reform Society

The material is chiefly *re* the work of the Homosexual Law Reform Society campaigning to legalise homosexual acts between consenting adults. The Needhams were members of the Society's Honorary Committee.

There is also material relating to the Albany Trust which supported the Society's campaign. Joseph and Dorothy Needham were both Patrons.

- K.302 1958, 1959. Includes draft bill for reform of the law.
- K.303 1964, 1965. Includes information *re* introduction of private members' bills into both Houses of Parliament.
- K.304 1966, 1967. Includes information *re* introduction of private member's bill into the House of Commons.
- K.305 1970, 1971 and nd.

National Council for Civil Liberties (NCCL)

Chiefly printed and duplicated typescript material *re* NCCL campaigns and meetings.

K.306 1935-1939.

K.307 1948, 1951.

K.308-K.310 1951-1952. Correspondence and papers *re* treatment of Britons travelling to the Second World Youth Festival in East Berlin, August 1951.

Those travelling claimed that various means were used to obstruct their passage to East Berlin, and that in Austria assaults had been committed by US soldiers. As the government refused to investigate the matter the NCCL organised a public inquiry to investigate the alleged obstructions and the claim that British diplomatic service had failed to protect and assist the travellers.

Needham was among those conducting the inquiry, which upheld the claims.

K.308 Correspondence *re* establishment of NCCL inquiry, 1951; Needham's manuscript notes on proceedings of public hearings, 30 November and 1 December 1951, and annotated typescript synopses of written submissions and Foreign Office replies to representations made.

K.309 49pp typescript transcript of evidence presented to inquiry and other material, sent to Needham, 25 January 1952.

K.310 Correspondence and papers, February - May 1952; copy of NCCL report.

K.311 1954. Correspondence and papers *re* refusal of political asylum to J.H. Cort.

Cort was a US citizen who, under American anti-communist legislation, was threatened with imprisonment if he returned to the US. Despite a campaign by academics and others he was refused permission to remain in the UK. Cort was given asylum in Czechoslovakia.

- K.312 1955, 1957.
- K.313 1963-1965.
- K.314 1966-1969.
- K.315 1970-1972. Includes literature of the Council for Academic Freedom and Democracy.
- K.316 1970-1973. Correspondence and papers *re* Cambridge Liaison Group of the NCCL.
- K.317 1974, 1976. Papers 1974 *re* imprisonment of peace campaigner Pat Arrowsmith for offences under the Incitement to Disaffection Act.

Provisional Committee on Academic Freedom

On 21 October 1934 a meeting was held at University of London Club to consider a response to threats to academic freedom of speech. This was prompted firstly by the dismissal of H.D. Dickinson from the University of Auckland, New Zealand, for anti-war and pro-Communist speeches, and secondly by the criticism of Harold Laski for speeches he gave in Moscow. The meeting established a Provisional Committee on Academic Freedom. The Provisional Committee organised a Conference on Academic Freedom, Oxford, 14-15 August 1935.

- K.318 Papers of meeting, 21 October 1934.
- K.319-K.321 Papers found in Needham's folder inscribed 'Perm. [*sic*] Comm on Acad. Freedom'.
- K.319 Published *Report of the Conference on Academic Freedom, Oxford, August 1935*.

K.320 Papers of meeting of Committee, London, 26 October 1935.

K.321 Papers of meetings with French Comité de Vigilance des Intellectuels Anti-fascistes, 1935, 1936.

Release

Release was established to help young people charged with drugs offences, particularly by offering them legal support.

K.322 Papers 1971, 1972.

Socialists in Higher Education

K.323 Papers, chiefly *re* disturbances at the London School of Economics, 1969.

Society for Freedom in Science

This was founded by J.R. Baker in 1941, chiefly to counter the threat he believed was posed to 'pure' science by central planning. Needham joined the Society in 1942. See also K.336.

K.324 Correspondence from Baker, June - July 1942; duplicated typescript papers 1942.

K.325 Literature *re* the Society, 1944, 1946.

Voluntary Euthanasia Society

K.326 Papers *re* Society's booklet 'A plea for voluntary euthanasia', 1970.

World Federation of Scientific Workers

Material found in Needham's folder inscribed 'WFS_W'.

The Federation was established in 1946 to bring together organisations representing scientific workers throughout the world and to encourage the establishment of such organisations in countries where they did not exist.

See also material *re* the Association of Scientific Workers (K.297-K.301).

- K.327 Brochure on the World Federation, ca.1947.
- K.328, K.329 1st General Assembly, Castle Dobris, Czechoslovakia, 21-25 September 1948.
- Papers of Assembly, including draft report, 37pp typescript. 2 folders.
- K.330 Third Session of the UNESCO General Conference, Beirut, 17 November - 11 December 1948.
- In addition to his participation as Honorary Scientific Adviser to UNESCO and as a member of the UK delegation (see D.55-D.97), Needham acted as World Federation observer at the conference.
- Correspondence; 1p typescript report by Needham.
- K.331 Correspondence and papers, 1949, 1950.
- K.332 Miscellaneous World Federation papers, 1951-1953.
- K.333 Other material found in Needham's folder, 1948-1952: correspondence *re* ratification of the re-election of J.D. Bernal to the Council of the British Association for the Advancement of Science, 1949; copy of *Labour Monthly* (April 1950) on 'Atomic Weapons: What to do?' with article by the Needhams.
- K.334 Miscellaneous World Federation papers, 1955, 1965.

- K.335 'After thirty years: World Federation of Scientific Workers revisited', *Federation of American Scientists Public Interest Report 29* (November 1976).

Miscellaneous

- K.336 'Freedom in Science'. Contents of Needham's envelope so inscribed: includes printed material *re* A.V. Hill's attack on Soviet science, 1940; circulars from Committee on Science and Freedom, 1956 and 1957. See also K.324, K.325.

- K.337 Memorial to the Prime Minister *re* German Prisoners of War, 1946.

- K.338 Correspondence and papers, 1952. Includes material *re* reaction to US ban on travel by Linus Pauling, and the No Conscription Council.

In connection with the Pauling case Needham wrote a letter to *The Times* but there is no evidence of publication.

- K.339 Correspondence and papers *re* National Rosenberg Defence Committee, 1952-1954.

This committee was established to campaign against the execution in the USA of Julius and Ethel Rosenberg for espionage.

- K.340 Memorial [?to Parliament] of the National Campaign for the Abolition of Capital Punishment 1962.

- K.341 Papers from Equal Rights, 1968.

This body campaigned for legislation against racial discrimination.

- K.342 Papers of Society of Friends of Dacca University, 1971-1972.

- K.343 Other campaigns and appeals.

K.354

Cambridge city centre Market Square, 1969.

Includes Needham's letter to *The Times*, 10 October, critical of council plans for the Square.

Magdalene Bridge, 1970, 1971.

SECTION L

SCIENCE, SOCIETY AND RELIGION

L.1-L.40

L.1-L.31

RELIGION

L.32-L.39

SCIENCE AND SOCIETY

L.40

NOTES ON THE LITERATURE

RELIGION

Needham's scientific outlook in general and his biological and biochemical work in particular, was intertwined with his religious faith and his political beliefs. This is particularly evident in Needham's four collections of articles and essays *The sceptical biologist* (1929), *The Great Amphibium* (1931), *Time the refreshing river* (1943) and *History is on our side* (1946). See section F.

The material presented here documents Needham's specifically religious concerns. It includes documentation of various religious (and humanist) organisations including the Oldham Group and the Teilhard Centre for the Future of Man. There is religious and philosophical literature such as tracts, sermons and offprints. Much of this material is concerned with the relationship between science and religion.

L.1-L.17 Organisations, centres and churches

L.18-L.31 Tracts, sermons and articles

Organisations, centres and churches

In chronological order of Needham's involvement.

L.1 The Archbishop's Advisory Board for Preventive & Rescue Work (later the Church of England Advisory Board for Moral Welfare Work).

Correspondence *re* draft of 'The place of sex in life', 1928; reply to questionnaire on 'the change in the trend of sexual morality during the last twenty years...', 1933.

L.2-L.8 The Oldham Group.

This informal group of theologians, scientists and other scholars was formed by Rev. J.H. Oldham in 1930 to consider the place of Christianity in the modern world. It paralleled a group formed on the continent by Oldham. The group operated by the circulation of duplicated typescript discussion papers and the material includes these papers and correspondence *re* meetings for discussions.

L.2 1930. Formation of the group and possible first meeting in March 1931.

- L.3 1931. First meetings, London, 2-4 March.
- L.4 1932 (1). Meeting, London, 4-5 April.
- L.5, L.6 1932 (2). Meeting, 1-3 October, Hayward's Heath, Sussex. This meeting was on the subject of Christianity and Communism.
- L.5 Correspondence *re* arrangements; papers by H.G. Wood and J. Macmurray.
- L.6 Papers by E. Brunner; Needham's manuscript notes on discussions.
- L.7 Correspondence 1935-1937; paper by P. Tillich on Christianity and Marxism, 1935, with manuscript comments attached.
- L.8 'Communism and Christianity', 3pp typescript notes by H. Lilje, annotated by Needham; Needham's manuscript notes of meetings of the Group, principally discussing the relationship between Christianity and Communism.
- L.9, L.10 The Catholic Crusade and Order of the Church Militant.
- These were High Church Anglican Socialist movements, the Catholic Crusade being one of the movements incorporated into the Order of the Church Militant. The Rev. Conrad Noel, the 'Red Vicar' of Thaxted was a leading member and wrote extensively on the common cause of Christianity and Communism. Needham was a friend of Noel and contributed to the book which Noel had inspired.
- L.9 Catholic Crusade pamphlets by Noel, ca.1930: 'The law and the prophets', 'The sacraments', 'Render unto Caesar', 'The kernel of Christ's teaching' and 'The Christian religion: dope or dynamite?'
- L.10 Order of the Church Militant literature, 1930s.

- L.11 Council on the Christian Faith and the Common Life.

Draft of handbook sent to Needham for comment, 13 March 1939, with manuscript annotation by Needham.
- L.12 Thaxted Church.

Newsletters from Rev. J. Putterill, Vicar of Thaxted, 1964-1971 (not a complete sequence); newspaper cutting from *Essex Chronicle*, 17 November 1967, of reminiscence of demonstration against Rev. Conrad Noel, May 1921, with letter from Needham to the editor complaining about the story.
- L.13-L.15 Pierre Teilhard Association and Teilhard Centre for the Future of Mankind.

Needham was President of the Centre.
- L.13 Miscellaneous correspondence 1966, 1974, 1975.
- L.14 Teilhard Centre Eighth Annual Conference on Self and Society, London, 18 October 1975.

Needham spoke on 'Light from East Asia on the dilemmas of Science and Society'.

Correspondence; programme; summaries of papers by others with Needham's manuscript notes thereon; Needham's manuscript notes for his own contribution.
- L.15 Miscellaneous correspondence and papers 1976-1978.
- L.16 Archbishop's Commission on Christian Doctrine.

Request to Needham to prepare a memorandum on Chinese religion, March 1973 (declined).

General Synod Board for Social Responsibility.

Request for advice on recent developments in genetic manipulation, March 1977.

- L.17 Other groups:

 Society of Social Clergy and Ministers 1955.

 Parish of Holy Trinity with St Philip, Dalston, London 1967.

 Christian Socialist Movement 1972.

Tracts, sermons and articles

Miscellaneous printed, duplicated typescript etc material by others. In chronological order. Some items are annotated.

- L.18 1881-1925.
- L.19 1930-1931.
- L.20 1932-1935.
- L.21 1936. Papers of the Universal Christian Council for Life and Work.
- L.22 1937-1945.
- L.23 1956, 1958.
- L.24 1963-1968.
- L.25 1972.
- L.26 1972-1973.

- L.27 1976.
- L.28, L.29 ca.1977. Drafts by J. Garrison. 2 folders.
- L.30 1978-1980.
- L.31 Nd.

SCIENCE AND SOCIETY

Principally sets of offprints and other printed and duplicated literature, some unpublished, relating to social biology, eugenics and social planning assembled by Needham and kept in box-files with the subject titles inscribed thereon.

The provenance and subject matter of the material is diverse; the authors include scientists, theologians and social scientists, and the relationship of a paper to the issue on which Needham felt it bore may appear tangential.

At L.37-L.39 is similar material not found in Needham's box-files.

- L.32 'Eugenics Racialism'
- L.33-L.35 'Social biology'
- L.36 'Social planning'
- L.37-L.39 Miscellaneous

'Eugenics Racialism'

1920s-1960s (chiefly 1930s and 1940s). Includes papers by J.S. Huxley.

- L.32 1 box.

'Social biology'

Material found in Needham's box-files arranged roughly alphabetically by author. 1910s-1960s (chiefly 1940s and 1950s).

L.33 A-G. 1 box.

L.34 H-P. 1 box.

L.35 Q-Z. 1 box.

'Social planning'

1930s-1950s.

L.36 1 box.

Miscellaneous

L.37 1975.

L.38 1978.

L.39 Nd.

NOTES ON THE LITERATURE

L.40 Needham's card index of notes on works of theological or general scientific interest.

SECTION M

CORRESPONDENCE

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M.1-M.113

GENERAL CORRESPONDENCE

Correspondence with individuals. In alphabetical order with an indication of information of particular biographical, historical or scientific interest.

M.114-M.203

SHORTER CORRESPONDENCE

In chronological order.

M.204-M.220

CORRESPONDENCE ARRANGED BY COUNTRY

Needham kept as separate sequences correspondence and papers relating to China, Poland and the Soviet Union.

M.204-M.208 China

M.209-M.214 Poland

M.215-M.220 Soviet Union

M.221-M.237

CORRESPONDENCE WITH BRITISH AND
INTERNATIONAL ORIENTALISTS

M.238-M.244

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- M.31 1938 (2) - 1939.
- M.32 1940-1942.
- M.33 1962-1963, 1968.
- M.34 **Huxley, J.S.** various dates 1924-1960
Includes 19pp. duplicated typescript memorandum by Huxley on 'Evolutionary humanism'. The memorandum is undated but begins 'Since leaving Unesco at the end of 1948...'
- M.35, M.36 **Keppel, J.** 1978-1979
Correspondence and papers from Keppel *re* his work on 'an open systems paradigm alternative to the closed systems, reductionist paradigm derived Newtonian physics'. 2 folders.
- M.37 **Kleinzeller, A.** 1941-1942
Kleinzeller was a Czech refugee researching with H.A. Krebs at Sheffield. He approached Needham in May 1941 about the possibility of continuing his research with him at Cambridge.
- M.38 **Koch, H.** 1937-1938
Koch was based at the Institute of Zoology, Louvain.
- M.39-M-48 **Lattimore, O.** 1971-1976
Lattimore was Professor of Chinese Studies, Leeds University, 1963-1970.
Photocopies of Lattimore's letters only. Needham was not the recipient of the original letters.

.../

- /... The letters provide very detailed accounts of travels overseas, especially to Mongolia.
- M.39 1971 (1).
- M.40 1971 (2).
- M.41 1972.
- M.42 1973.
- M.43 1974 (1).
- M.44 1974 (2).
- M.45 1974 (3).
- M.46 1975.
- M.47 1976.
- M.48 Memoir of Lattimore's wife, Eleanor Holgate Lattimore 1895-1970.
- M.49 **Lehmann, H.** 1936, 1942
Lehmann was a Jewish refugee from Germany who came to work with Needham in Cambridge. He was subsequently Professor of Clinical Biochemistry, Cambridge University 1967-1977.

- M.58 Letters to Meldrum, 1932-1933; letters to Needham arising from Meldrum's death; draft biographical note signed by Needham and David Green.
- M.59 Miscellaneous notes and drafts ?by Meldrum.
- M.60 **Meyer, A.D.** 1928-1930
- M.61 **Meyerhof, O.** 1931
- M.62 **Morgan, C.L.** 1925
- M.63 **Muller, H.J.** 1936, 1939
1939 letter relates to Seventh International Congress of Genetics held at Edinburgh, August 1939. Enclosure is Muller's draft reply to question posed by Watson Davis of Science Service 'how could the world's population be improved most effectively genetically'.
- M.64 **Murray, H.A.** 1926, 1928, nd
Most material undated. Includes undated letter beginning 'Dear Compatriot and Ovian-Enthusiast'.
- M.65 **Nowinski, W.W.** various dates 1934-1949
Nowinski was a Polish scientist who came from Berne, Switzerland, to work with Needham in Cambridge in 1935, supported by the Rockefeller Foundation. After a period in Poland he returned to Cambridge, worked in Argentina during the Second World War and eventually made his career in the USA.
- M.66 **Olby, R.** 1969-1970, 1974

- | | | |
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| M.78 | Rapkine, L. | 1926, 1948 |
| M.79 | Raven, C.E. | Nd |
| | Raven's letters were written while he was based in Liverpool. He was Canon of Liverpool Cathedral from 1924 to 1932 when he became Regius Professor of Divinity at Cambridge. | |
| M.80, M.81 | Ritchie-Calder, P.R. | 1973-1974 |
| M.80 | Correspondence and papers <i>re</i> conference on 'Guidelines for a global science policy' held at the Center for the Study of Democratic Institutions, Santa Barbara, California, where Ritchie-Calder was a Senior Fellow 1972-1975. | |
| M.81 | Report prepared by Ritchie-Calder for the Secretary-General of the United Nations on science and technology issues. | |
| M.82 | Robertson, M. | 1931-1932 |
| | Robertson was based at the Lister Institute, London. | |
| M.83 | Rogers, V.E. | 1937-1940 |
| | Rogers researched for a period in the Cambridge biochemistry department. | |
| M.84 | Rose, H. | 1980-1981 |
| | Includes papers by Hilary and Steven Rose. | |
| M.85 | Rosenbrock, H.H. | 1984 |
| | Rosenbrock was Professor of Control Engineering at Manchester University.
Includes papers by Rosenbrock.
See also F.49-F.56. | |

- M.99 1933, 1935-1937. Includes unsigned carbon copy of letter from Dorothy Wrinch to 'my dear Socrates', 23 May 1935.
- M.100 1946, 1948, 1955, 1964, 1974, nd. The undated letters are personal letters from Dorothy Needham to Woodger and his wife.
- M.101 **Wormell, R.L.** 1957, 1976-1978
Includes papers by Wormell.
- M.102 **Wrinch, D.M.** 1929, 1933, 1935
1933 material relates to Leverhulme Trust application and includes programme of work.
- M.103-M.112 **Wu Lien-Tê** 1956-1960
(Gnoh Lean-Tuck)
Wu is described by Needham as one of the most distinguished of living Chinese physicians. Born in Malaya and educated at Cambridge he achieved renown for his classical epidemiological work done in combating the pneumonic plague in Manchuria in the early years of the century. He founded, and for a long time directed, the Plague Prevention Service in Manchuria and the All-China Public Health Service.
Correspondence and papers *re* visit to Cambridge in 1956, honorary degree proposal and autobiography about which he sought Needham's advice.
- M.103 1956 February, March.
- M.104 1956 April, May.
- M.105 1956 June - October.

- M.106 1957, 1959-1960. Includes dedication, preface etc for Wu's autobiography dated 1957.
- Needham's letter of condolence to Wu's daughter of 20 March 1960 refers to Wu's enthusiastic support in the last months of his life for an appeal by Needham to a number of wealthy men in Malaya towards helping with the research and preparation expenses of *Science and Civilisation in China*.
- M.107 Curricula vitae, miscellaneous biographical information.
- M.108-M.112 Photographs. 5 folders.
- Relate to preparation of autobiography.
- M.113 **Wurmser, R.** 1925-1927, 1932
- Wurmser was based at the College de France, Paris.

SHORTER CORRESPONDENCE

- M.114 1920-1922.
- M.115 1923.
- M.116 1924.
- M.117 1925.
- M.118 1926 January - April.
- M.119 1926 May - August.

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CORRESPONDENCE ARRANGED BY COUNTRY

China

Correspondence and papers, 1972-1976. Includes requests for advice and information on Chinese affairs from academics and others.

M.204	1972.
M.205	1973 January - April.
M.206	1973 May.
M.207	1973 June - October.
M.208	1974, 1976.

Poland

Contents of Needham's box: correspondence and papers, 1936-1945.

Principally correspondence from Polish scientists including correspondence *re* Needham's visit to Poland in 1937 and printed material *re* Poland. The 1945 correspondence relates to Polish scientists displaced by war and based at that time in Russia.

See also E.138, E.139.

M.209	1936.
M.210	1937.
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M.213, M.214	Miscellaneous printed material. 2 folders.

Soviet Union

Principally correspondence from Soviet scientists, 1926-1939 and nd. Needham visited the USSR in August 1935 to attend the 15th International Physiological Congress which was held in Moscow and Leningrad. See H.14-H.17.

M.215	1926-1929.
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Contents of Needham's folder: correspondence 1946-1975.

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M.222	1947-1949. Includes papers for meetings of Editorial Board of the Oriental Year Book.
M.223	1950-1952.
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M.233 1965-1969.

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