



National Cataloguing Unit for the Archives of Contemporary Scientists

Catalogue of papers and correspondence

of

**JOSEPH NEEDHAM CH FRS**

(1900-1995)

by Timothy E. Powell and Peter Harper

VOLUME II

Sections E - J

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**SECTION E**

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## Undergraduate and research work

### 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.

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### Undergraduate and research work

- /...
- 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).

**Undergraduate and research work**

- 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.

### Undergraduate and research work

- 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. Lillee
- 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.

### Undergraduate and research work

- 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.

### Undergraduate and research work

- 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 .

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- 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.

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- 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.

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- 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.

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- 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'.

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- 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.

### Undergraduate and research work

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.

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- 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.

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- 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.

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- 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 yolk sac, *ca.*1932.
- E.130-E.139 'Organiser Our notes & papers & photos' and 'Steroids etc'. Contents of Needham's boxfile so labelled divided into ten for ease of reference, 1933-1939.
- 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.

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- 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 letters *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 mss'. 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.

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- 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 'denatured 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'.

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- 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 and typescript 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.

**Undergraduate and research work**

- 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 'Amφ 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

## Publications

### 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.

### Publications

- 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.

### Publications

- 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 ployuria nephritis in the rat', submitted to *British Journal of Experimental Pathology* 1925.
- 3pp typescript + figures; correspondence with editor *re* publication.

### Publications

- 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  $P_H$  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.

### Publications

- 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.

### Publications

- 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.

### Publications

- 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.

**Publications**

- 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 dendrastrer', 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.

**Publications**

- 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.

### Publications

- 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.

### Publications

- 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.

### Publications

- 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.

### Publications

- 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.

**Publications**

- 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.

### Publications

- 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.
- F.129 16pp typescript draft + references, figures.
- F.130 Material found with preceding: 'Rejected pages'; correspondence; figures; manuscript notes.

### Publications

- 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

### Publications

- 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'.

### Publications

- 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.

### Publications

- 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.

### Publications

- 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.

### Publications

- 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.

### Publications

- 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.

### Publications

- 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.

### Publications

- 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.

### Publications

- 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).  
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.

### Publications

- 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.

**Publications**

- 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.

### Publications

- 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.

### Publications

- 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.240
- 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.243
- 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.

### Publications

- 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 Holorens Shaw', 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 Holorens Shaw'.
- 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.

### Publications

- 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*.

**Publications**

- 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.

### Publications

- 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'.

### Publications

- 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.

### Publications

- 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.

### Publications

- 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.

### Publications

- 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'.

### Publications

- 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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### Publications

- /... 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.

### Publications

- F.346, F.347      Photographs of Hopkins for illustrations for the book. 2 folders.  
  
At F.347 is group photograph of members of the Biochemistry Laboratory, 1916.
- F.348              'Marjory Stephenson' by D.M.M. Needham, obituary for *Nature* (1949).  
  
4pp typescript; proof with corrections.
- F.349              Needham's review of *Chemical Embryology* by J. Brachet (Interscience Publishers, New York, 1950), submitted to *Archives of Biochemistry*  
  
10pp typescript draft; correspondence with *Archives of Biochemistry*, *Science Progress* and *L'Année Biologique* re review of the book.
- F.350              'Human Law and the Laws of Nature', *Journal of the History of Ideas* 12 (1951).  
  
Correspondence with editor, 1950.
- F.351, F.352      'The pattern of mysticism and empiricism in the philosophy of science: -3rd century China, +10th century Arabia and +17th century Europe', in *Science, Medicine and History. Essays on the Evolution of Scientific Thought and Medical Practice written in Honour of Charles Singer*, ed. E.A. Underwood (Oxford University Press, 2 vols., 1953).  
  
38pp typescript + references and block of Chinese characters for use in the text.
- F.352              Correspondence re volume, chiefly with Underwood.
- F.353, F.354      'Developmental physiology', *Annual Review of Physiology* 17 (1955), 37-60.  
  
Background material for this article was kept by Needham with notes and references for lectures delivered at Cambridge. See B.42-B.230.
- F.353              44pp typescript + references.

### Publications

- 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.

### Publications

- 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.

### Publications

- 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.

.../

### Publications

- /... '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.

### Publications

- 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.

## Publications

### 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).

### Publications

- |       |   |            |
|-------|---|------------|
|       | <i>Biochemical Journal</i>  | 1925, 1930 |
| F.410 | Correspondence.   |            |
|       | <i>Biological Abstracts</i>   | 1926-1930  |
| F.411 | Abstracts of publications by Needham.   |            |
|       | <i>Biological Reviews</i>   | 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.  |            |
|       | <i>Comparative Biochemistry and Physiology</i>  | 1959, 1988 |
| F.414 | 3pp typescript Foreword for the new journal; correspondence, including exchange <i>re</i> reprinting the Foreword in the 40th anniversary volume. |            |
|       | Encyclopaedia Britannica  | 1929, 1945 |
| F.415 | Correspondence.   |            |
|       | <i>Enzymologia</i>  | 1939, 1959 |
|       | Needham was a 'collaborator' of the journal from its inception to 1959.   |            |
| F.416 | Correspondence.   |            |

**Publications**

*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.

### Publications

*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.

### Publications

- 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.

**Publications**

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.

**Publications**

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 and 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.

**Lectures and broadcasts**

- 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'.

**Lectures and broadcasts**

- 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.

### Lectures and broadcasts

- 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.

### Lectures and broadcasts

- 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.

### Lectures and broadcasts

- 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.

**Lectures and broadcasts**

- 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.

**Lectures and broadcasts**

- 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'.

**Lectures and broadcasts**

- 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.

**Lectures and broadcasts**

- 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.

**Lectures and broadcasts**

- 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.

**Lectures and broadcasts**

- 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.

**Lectures and broadcasts**

- 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.

### Lectures and broadcasts

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.

**Lectures and broadcasts**

- 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.

**Lectures and broadcasts**

**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.

**Lectures and broadcasts**

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.

### Visits and conferences

#### 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.

### Visits and conferences

#### 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.

### Visits and conferences

- 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.

### Visits and conferences

- 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.

### Visits and conferences

- 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.

### Visits and conferences

- 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.

**Visits and conferences**

**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.

### Visits and conferences

- 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.

### Visits and conferences

#### 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.

### Visits and conferences

- 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.

### Visits and conferences

#### 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.

### Visits and conferences

#### 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.

### Visits and conferences

- 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.

### Visits and conferences

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.

### Visits and conferences

#### 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.

### Visits and conferences

#### 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.

### Visits and conferences

#### 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.

### Visits and conferences

#### 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.

### Visits and conferences

#### 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.

### Visits and conferences

/... 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.

### Visits and conferences

#### 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.

### Visits and conferences

#### 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.

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**Societies and organisations**

**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.

- |     |  |
|-----|--|
| J.1 | 1947-1955.   |
| J.2 | 1956-1958.   |
| J.3 | 1959-1960.   |
| J.4 | 1961-1962  |
| J.5 | 1963-1965.   |
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| 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.

- |     |                  |
|-----|------------------|
| J.8 | 1949-1950, 1954. |
| J.9 | 1956-1959.       |

### Societies and organisations

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

1924-1936

J.14 Notices of scientific meetings, some annotated by Needham.

#### BRITISH ACADEMY

1971-1982

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.



### Societies and organisations

/... 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.

### Societies and organisations

#### 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.

**Societies and organisations**

**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**

**1930, 1978-1980, nd**

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**

**1957-1960**

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.

.../

### Societies and organisations

/...

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.

**Societies and organisations**

- 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.

**Societies and organisations**

- 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.

**Societies and organisations**

- 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.

### Societies and organisations

- 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.

**Societies and organisations**

- 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.

### Societies and organisations

#### COMMITTEE AGAINST MALNUTRITION

1933-1937

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.

### Societies and organisations

- J.121 1974. Letter from R.M. MacLeod enquiring about the whereabouts of early papers of the Committee.

**CONSEIL SCIENTIFIQUE DE PERFECTIONNEMENT DE L'INSTITUT D'ÉTUDE DE DÉVELOPPEMENT ECONOMIQUE ET SOCIAL, PARIS** 1959

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** 1934, 1948-1951

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.

### Societies and organisations

#### FONDATION FRANCQUI

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

1950-1952

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.

**Societies and organisations**

**INSTITUTE OF CONTEMPORARY ARTS**

**1950-1953**

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.

**Societies and organisations**

**INTERNATIONAL INSTITUTE OF EMBRYOLOGY (later the  
INTERNATIONAL SOCIETY OF DEVELOPMENTAL BIOLOGISTS)**

**1949-1988**

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**

**1950-1953**

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  
OF SCIENCE**

**1948-1976**

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.

.../

### Societies and organisations

/... 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.

**Societies and organisations**

- 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.

### Societies and organisations

- 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.

## Societies and organisations

### History of Mathematics

- J.179 Papers 1972-1975, chiefly *re* launch and support of journal *Historia Mathematica*.

### LOUIS RAPKINE MEMORIAL FUND APPEAL /LOUIS RAPKINE ASSOCIATION

1949-1957, 1968

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.

**Societies and organisations**

- 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.

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- 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.

**Societies and organisations**

J.204 Fortieth Anniversary Programme, 1973; minutes of Advisory Council meeting 11 December 1976.

**NATIONAL ACADEMY OF SCIENCES**

**1978, 1986**

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**

**1919-1927, 1934**

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.

### Societies and organisations

#### 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.

### **Societies and organisations**

- 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.

### Societies and organisations

#### Elections

J.224 1956-1957.

#### ROYAL SOCIETY OF MEDICINE

1941, 1942

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

1977, 1986

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.

**Societies and organisations**

**SOCIÉTÉ EUROPÉENNE DE CULTURE**

**1953-1971**

This was founded in 1951.

J.229-J.231

Papers, chiefly *re* General Assemblies and other business. 3 folders.

**SOCIETY FOR EXPERIMENTAL BIOLOGY**

**1925-1941**

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.

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**Societies and organisations**

- /... 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.

### Societies and organisations

#### THEORETICAL BIOLOGY CLUB

1930-1949, nd

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.

**Societies and organisations**

**WORLD ACADEMY OF ART AND SCIENCE**

**1959-1986**

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 *re* book *Science and the Future of Mankind* (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 *re* Symposium on Highly Saline and Seawater Irrigation.
- J.256                    1969-1973.

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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  
AND CYBERNETICS**

**1970**

J.260                      Letter *re* participation of People's Republic of China.