

THE ROYAL COMMISSION ON HISTORICAL MANUSCRIPTS

Report on the papers and correspondence of

OTTO ROBERT FRISCH, FRS

(1904 - 1979)

physicist

deposited in

Trinity College Library, Cambridge

Reproduced for the Contemporary Scientific Archives Centre

(CSAC 87/5/82)

by

THE ROYAL COMMISSION ON HISTORICAL MANUSCRIPTS

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CONTEMPORARY SCIENTIFIC ARCHIVES CENTRE

under the guidance of the Royal Society's

British National Committee for the History of Science, Medicine and Technology

Catalogue of the papers and correspondence of

OTTO ROBERT FRISCH, OBE, FRS

(1904 - 1979)

Including material relating to

LISE MEITNER, For. Mem. RS

(1878 - 1968)

Deposited in the Library of Trinity College, Cambridge

Compiled by: Jeannine Alton

Julia Latham-Jackson

1982

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GENERAL INTRODUCTION

Otto Robert Frisch (he was known by both names, singly or in conjunction) is assured of a place in the history of twentieth-century physics. Naturally endowed with an intuitive grasp of the practicalities of physical problems and the deftness which enabled him to devise useful experiments and the relevant instrumentation to carry them out, he learnt his craft under such towering masters as - successively - Otto Stern, Patrick Blackett and Neils Bohr. In 1938 he collaborated with his aunt Lise Meitner in the famous analysis of Hahn's and Strassmann's experimental results on neutron collision, to which he also contributed not only the corroborative experiment but the name for the process - nuclear fission. In 1940, with Rudolf Peierls, he wrote the important memorandum 'On the construction of a "super-bomb" based on a nuclear chain reaction in uranium', which launched the Maud Committee; he worked at Liverpool with Chadwick on the 'Tube Alloys' project and in 1943 moved with other British scientists to Los Alamos on the Manhattan project where he was head of the Critical Assembly Group and an eye-witness of the Trinity Test of an atomic bomb in July 1945. (See A.58A for the official report on Frisch's work at Los Alamos drawn up in August 1946.)

This sequence of events gives emphasis to Frisch's active contribution to twentieth-century history; yet in other respects he could be seen as one of its victims. A glance at the number and location of his places of work in Section B tells its own tale. Hitler's accession to power in 1933 obliged him to leave Hamburg and his work with Stern; the annexation of Austria in 1938 deprived him of nationality, and, a year later, separated him from his work in Denmark with Bohr, from family and friends, and from continental Europe. It was only in 1947 on his appointment to the Jacksonian Chair at Cambridge that he reached a point of rest. Here he contracted in 1951 a happy marriage, raised a family, and remained for the rest of his life.

General Introduction

Mention of Frisch's family and his aunt Lise Meitner introduces a further dimension into his career and the interest of his papers. He belonged to a large, gifted and close-knit family, many of whose members were scattered by the events of the Thirties and the Second World War or who were forced to rebuild lives and careers on foreign soil. Frisch's own father was briefly in Dachau and had subsequently to find work and support his wife in Sweden. It is clear that Frisch did his best to contribute to the support of his parents and other relations, often in tiny sums from his own modest earnings; his sunny nature and unassuming kindness must surely have been a major factor in the willingness of his parents, and later his aunt, to emigrate yet again on retirement in order to spend their last years with him in Cambridge.

With this cosmopolitan European background it is not surprising that Frisch had - or acquired from necessity - considerable linguistic fluency, which is in evidence throughout his papers. He rapidly learnt Danish and English when occasion required and continued to use Danish and German for lectures, speeches or correspondence to the end of his life; English became however his language of choice for writing. Another gift was sketching, particularly of semi-cartoon likenesses of colleagues; there are some specific items of samples of his drawings, but others are scattered passim on letters, conference programmes, menus and the like.

Music was much more for Frisch than a 'gift' or hobby. He played several instruments, but chiefly the piano, on which he was proficient to recital standard. In later life he gave increasing time to music, regularly attending the Dartington School, and sometimes lecturing.

Shortly before his death in 1979 Frisch published his autobiography What little I remember (Cambridge University Press), giving an informal account of his life mainly up to 1947. This has been drawn upon as a basis for dating material, and catalogue entries are linked to it where appropriate. There have also been several accounts of his work, obituary tributes and memoirs, among them the Memoir by R.E. Peierls for the Royal Society of London (Biographical Memoirs of Fellows of the Royal Society, 27, 1981) which has been drawn upon and referred to in the catalogue.

General Introduction

The surviving manuscripts and papers provide a good picture of Frisch's career and work at all stages. Section A, Biographical and Personal, is particularly full, incorporating material relating to his own career and interests including music (A.86 - A.90) and sketching (A.84), and also those of his family and relations. These have historical interest as an example of the diaspora of the Thirties, and in the case of Lise Meitner a more specific scientific interest complementing other material deposited elsewhere.

Section B, Scientific Research, includes notebooks, laboratory notes and calculations, publication drafts and correspondence. It presents a full record for the periods of work at Hamburg and Copenhagen, but for obvious reasons the wartime work on the atomic bomb project is only scantily documented in a private collection; there is, however, his original eye-witness account of the Trinity Test (B.135). For the later period, the paucity of material relating to the Cavendish Laboratory reflects Frisch's lack of interest in administrative and committee work and his preference for relatively small-scale experimental projects such as his scanning device, and the various constructions and gadgets which he continued to devise for his Laser Scan company to the end of his life. It can be seen that he never lost interest in some types of research problems, nor acquired it in others.

Sections C and D illustrate Frisch's expository skills in the written and the spoken word; he was greatly in demand as a lecturer, and the broadcasting services made regular calls on his multi-lingual gifts.

Section E, Visits and Conferences, is relatively short; this is in part because many of the important meetings of the Thirties were held at the Institute of Theoretical Physics at Copenhagen where he was already working, and in part because of his greater family commitments in later life. The material in Section G often provides a supplementary photographic record of meetings and conferences.

The correspondence in Section F dates mainly postdates 1947 and Frisch's establishment in Cambridge. Very little survives for 1943 - 47 because of security restrictions at Los Alamos. Incoming scientific correspondence for the earlier periods 1930 - 43 is scanty and usually kept by Frisch with the relevant

General Introduction

research notes where it remains. Incoming personal letters for those years are mainly in the 'Family correspondence and papers' in Section A. During the Thirties, Frisch kept copies of his outgoing letters in chronological folders where correspondence of all kinds and in several languages is juxtaposed. In a letter to Margaret Hope of 14 September 1936, Frisch explains 'I like to keep a duplicate of all my letters, it is like a diary for me'. This material remains in its original order, but presented in smaller units for ease of handling, at B.39 - B.42, B.73 - B.81.

ACKNOWLEDGEMENTS

We are grateful for help and information from many sources and in particular to:

Mrs. Ulla Frisch, for making the material available for cataloguing, for permission to quote, for information on the family tree and for comments on the draft catalogue;

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SECTION A BIOGRAPHICAL AND PERSONAL A.1 - A.225

A.1 -A.7 BIOGRAPHICAL AND AUTOBIOGRAPHICAL

A.8 -A.32 DIARIES AND NOTEBOOKS

 With an introductory note

A.33 -A.106 CAREER AND MEMORABILIA

A.107-A.225 FAMILY CORRESPONDENCE AND PAPERS

 With an introductory note

 A.107-A.124 The Frisch family

 A.125-A.218 The Meitner family

 A.219-A.225 The Blau family

For photographs, slides, tape-recordings, etc. of Frisch, his family and
colleagues, see Section G.

Biographical and personal

- A.1-A.7 BIOGRAPHICAL AND AUTOBIOGRAPHICAL
- A.1 Articles about Frisch.
 Obituary tributes.
 Memoir by R. E. Peierls (Biographical Memoirs of
Fellows of the Royal Society, 27, 1981).
- A.2 Miscellaneous C.Vs and biographical notes prepared by
Frisch at various dates.
- A.3-A.7 'What little I remember'
 Material relating to Frisch's memoirs, published
 under this title by Cambridge University Press, 1979.
 N.B. The surviving material, whether drafts or
 correspondence, is scanty.
- A.3 Frisch's own notes.
- A.4 Photocopy draft of chapter on Niels Bohr, with corres-
 pondence and comments from A. and E. Bohr, 1975-78.
- A.5 Comments and information from others; includes letter
 from Frisch's landlady in Liverpool (1941-43).

 Review of book.
- A.6 Brief correspondence re book with Faber and Faber,
 New York Times.
- A.7 Copy of published book (kindly given by Mrs. Frisch).

Biographical and personal

A.8-A.32 DIARIES AND NOTEBOOKS

Frisch made little distinction between these types of journal. In earlier years, he tended to use 'notebooks' in which he would draw up tables of days and weeks on some of the pages, thus creating a 'diary'. Later on, he used 'diaries' and made them serve for wider purposes than the usual day-to-day record. From about 1947 he often chose the 'Lefax' system which enabled him to keep several years' notes in one binder; see A.24 - A.31, or, for somewhat disorganised examples, A.12, A.13, A.22.

The contents of all these documents are similar though their proportions vary. They include experimental results, ideas for research, journals of visits, notes of conferences, meetings and lectures, personal jottings, memos and addresses. Even in his address books Frisch would use the thumb-index to suit his own purposes; thus 'I' may turn up 'Ideas', 'M' lead to 'Money', etc. These books therefore supplement the scientific and technical material found in Section B as well as documenting Frisch's personal life.

The material is presented as a chronological sequence so far as this is ascertainable and Frisch's methods of work allow.

- A.8 Small black notebook, with diary entries dated 1926-27, of personal notes, drawings of apparatus, diagrams, calculations, etc., latest date 1929.

Both ends of book used.

- A.9 Small black soft-cover notebook, very miscellaneous contents, includes brief diary entries dated 1928, notes on experiments, calculations, etc.

Both ends of book used.

Biographical and personal

- A.10 Small black notebook inscribed 'Gekauft 2.9.1936', includes diary entries November 1936-August 1938, with visits to Copenhagen, Sweden, Norway, addresses, notes on correspondents, drawings, calculations on 'Badewanne', etc.
Both ends of book used.
See What little I remember, pp.106-108.
- A.11 Black soft-cover notebook, includes diary entries 1939 for Frisch's journey to England, meetings in London, Cambridge and Birmingham, arrangements to come to Britain etc. July-August, drawings and calculations.
- A.12 Small red loose-leaf notebook, includes diary entries September-October 1943, notes of and for experiments, apparatus, calculations, etc.
See A.13 below.
- A.13 Loose pages from a diary, some with various dates 1943, probably removed by Frisch from A.12 above. Similar content.
- A.14 Small brown notebook, pages numbered 1-143 and with a brief ms. index of topics on p.1. Includes diary entries January-September 1945 (Trinity test, Hiroshima, Nagasaki are noted), notes of 'work to do', especially Frisch's 'dragon' project, personal memos. etc.
- A.15 Small brown notebook of miscellaneous personal and scientific notes, n.d. but c.1945.
Both ends of book used.
- A.16 Small brown notebook, pages numbered 1-87 and with a brief ms. index of topics on p.1.
Includes diary entries September 1945-May 1946, notes to 'Think About', calculations and diagrams, notes for Frisch's book 'Meet the Atoms', etc.
- A.17 Small black address-book with thumb index, used for addresses and also personal and scientific notes, e.g., α -rays under A, Dose (of radiation) under D, Ideas and Integrals under I, Money (records payments to parents 1946) under M, etc. n.d., c.1945-46.

Biographical and personal

- A.18 Brown soft-cover notebook, includes notes and calculations some dated March 1945, continues with miscellaneous personal material re house and family (latest date 1955).
Both ends of book used.
- A.19 Blue soft-cover notebook, mainly scientific notes and ideas for research, notes at meetings and conferences, latest date 1948, but work probably continues into 1950s.
• Both ends of book used, most of the material being at rear.
- A.20 Blue soft-cover diary 1947, entries mainly January-September.
- A.21 Blue binder inscribed on cover and spine 'Lefax Diary 19(47), 48, 49, 50, 51, 52, 53'.
Entries run 28 June 1947-24 December 1953, including arrival at Cambridge 1 October 1947 ('My name is on the door, my desk is clean!'), etc.
Mainly an engagement diary.
- A.22 Green binder with miscellaneous pages of Lefax and other documents, in reverse chronological order (not exact), various dates 1947-53, mainly scientific material, notes of conferences, meetings, lectures and papers (e.g., Copenhagen conference September 1947), ideas for research, drawings, caricatures, etc.
- A.23 Loose pages from an exercise-book, tabulated to form a diary April-June 1950.
- A.24 Brown loose-leaf diary (Lefax pages) December 1953-August 1957, and miscellaneous following pages of scientific and personal notes.
- A.25 Brown leather wallet containing loose-leaf Lefax pages August 1957-April 1960, and miscellaneous following pages of scientific and personal notes, various dates 1957-61.
- A.26 Small brown spiral-bound notebook of very miscellaneous material, some dated 1958, 1961, but may begin earlier and continue later.
Both ends of book used.

Biographical and personal

- A.27 Orange spiral-bound notebook inscribed 'O.R. Frisch c/o Kowarski', with miscellaneous notes of meetings, conference papers, research, some dated 1960, 1963 and related to work at CERN.
(N.B. Book used from the rear.)
- A.28 Red binder inscribed 'Lefax diary for 1960, 61, 62, 63, 64, 65'.
Entries run April 1960-February 1966, with miscellaneous following pages of scientific and personal notes.
- A.29 Red binder inscribed on spine 'Diary 1966, 1967, 1968, 1969, 1970'.
Entries run February 1966-December 1970, with miscellaneous following pages of scientific and personal notes.
- A.30 Green binder inscribed on spine '1971, 1972, 1973, 1974, 1975, 1976, 1977'.
Entries run December 1970-December 1977.
- A.31 Green binder, inscribed on spine '1978'.
- A.32 Small blue 'Répertoire', French address book, few entries, n.d., probably 1940s.

Biographical and personal

- A.33-A.106 CAREER AND MEMORABILIA
- A.33 School and University reports 1910-25.
- A.34 Red notebook beginning 12 November 1904 to 3 May 1907, of Frisch's parents' notes of his progress as a baby.
At rear of book, miscellaneous mathematical calculations some dated 1921.
- A.35 Black soft-cover notebook of miscellaneous diary entries, school notes, etc., some in shorthand, 1918-19.
Both ends of book used (back cover lost); at rear of book are diagrams for chess and other games (see What little I remember, p.4).
- A.36 Purple exercise-book of diagrams, narratives and calculations, mainly on 4-dimensional bodies. n.d., c.1920 (see What little I remember, pp.11-12).
- A.37 Sketchbook, mainly caricatures, but some water-colour landscapes dated 1921.
- A.38-A.44 University of Vienna
- A.38 Student record book 1922-26.
- A.39 Identity card 1924.
- A.40 'Omnia Mea Heft 1', notes, calculations, diagrams, seminar notes, some dated 1921-22.
- A.41 'Omnia Mea Heft 2', similar material, 1922.
- A.42 'Zahlentheorie 1923', similar material. Both ends of book used.
- A.43 Reports, certification of course of study for doctorate 1925-26.
- A.44 D.Phil. Certificate, 1926.
- A.45 Miscellaneous correspondence August 1926-March 1927 re Frisch's career plans, applications for posts, etc.

Biographical and personal

- A.46 Correspondence and papers re arrangements for Frisch to work with C. Müller at Physikalisch Technische Reichsanstalt, Berlin, payment of stipend, etc. 1927.
Includes Frisch's ms. C.V., and Müller's testimonial to him, 1930.
See also B.3-B.7.
- A.47 Frisch's certificate of baptism in evangelical reformed church, Vienna, 1927.

Letter re Frisch's grant from university authority in Hamburg to work with Stern, 1930.

Residence permit for Copenhagen, 1935.
- A.48 '1939: to England'
Frisch's original folder so inscribed.

Correspondence April-June 1939, re arrangements to come to Britain, visits to London, Cambridge, Birmingham, etc., offers of posts.

Correspondents include Blackett, Bragg, Cockcroft, Oliphant, and also Frisch's farewell exchange with Bohr, his C.V., list of publications, etc.

There are typed duplicates of some of the letters at the back of the folder.

During the correspondence, Frisch refers to his friend F. Urbach and offers to cede his place to Urbach if only one was available (see also B.81, B.104).
- A.49 Miscellaneous material re departure from Copenhagen and journey to Britain, shipping of personal effects, etc. Includes Christmas greetings signed by Bohr family, Lise Meitner and other members of Copenhagen Institute.
- A.50 Correspondence 1939-40 with members of Copenhagen Institute.
- A.51 Press-cuttings re outbreak and progress of Second World War, U-235, etc., 1939-40.
- A.52 Shorter biographical material re journey to Britain, lodgings, etc., 1939-40.

Biographical and personal

- A.53 Correspondence re Frisch's appearance before Aliens Tribunal, registration on Central Register, etc., September–November 1939.
- A.54 Brief financial correspondence, income tax assessments, post-war credits, 1940–43.
- A.55 Correspondence June–July 1940 re arrangements for Frisch to work with Chadwick at Liverpool. The letter of appointment (25 July) defines the work as 'being supervised by a committee under the chairmanship of Professor Thomson on behalf of the Ministry of Aircraft Production'
- Frisch arrived in Liverpool on 27 July (letter of 26 July includes a 'list of things taken with me to Liverpool' (equipment and materials).
- (A little additional correspondence re jobs is also included.)
- A.56 Miscellaneous items of biographical interest for Liverpool period, including Russian lessons, lecture to University Physical Society, recital to Merseyside Anglo-Polish Society, etc. (see What little I remember, p.139).
- A.57 Material re double summons for riding bicycle without front and rear lights (see What little I remember, p.136).
- Included here is a letter, 1975, from Frisch's landlady in Liverpool.
- A.58 Correspondence November 1943 re Frisch's naturalisation, and re his appointment as Temporary Senior Scientific Officer 'for service in the United States of America on Tube Alloys Research'.
- A.58A Photocopy of a letter about 'the activities of Dr. Peierls and Dr. Frisch' on the Los Alamos project, dated 6 August 1946 and declassified 7 April 1982. The letter describes Frisch's work as that of 'a group leader in the Experimental Physics Division carrying out basic experiments in nuclear, neutron and fission physics', and states that 'His extraordinary familiarity with nuclear theory as well as his exceptional experimental skill caused him to be of the greatest value to the atomic bomb experiment'.
- We are grateful to Dr. J. White for permission to include this document and to quote from it.

Biographical and personal

- A.59 Miscellaneous items of biographical interest for Los Alamos period. Includes correspondence re Frisch's desire to communicate with his parents, security restrictions, passes, etc.
- A.60 Miscellaneous items of biographical interest for Los Alamos period. Party invitations, programmes, humorous poems.
- A.61 Frisch's own file of bank statements, salary slips, cheque books, etc., 1943-46.
- A.62 Miscellaneous financial correspondence re Frisch's salary on appointment at Los Alamos, transfer of his account to Liverpool 1945, departure from U.S.A. 1946, etc.
- A.63 Miscellaneous correspondence 1944-45, mainly re offers of posts to Frisch, from Universities of Wisconsin and Saskatchewan, Imperial College London, Cornell, etc.
- A.64 Correspondence 1946 re Frisch's visit to Chalk River, and his appointment as Deputy Chief Scientific Officer in the Directorate of Atomic Energy from 1 January 1946.
- A.65 Miscellaneous items of biographical interest for Harwell period, lease of house, salary statements, etc.
Included here is a letter 1975 re Frisch's time at Harwell.
- A.66 Award of O.B.E., 1946.
Royal Warrant, letters of congratulation (few survive).
- A.67 Award of U.S. Medal of Freedom with Bronze Palm, 1947.
- A.68 Appointment to the Jacksonian Chair of Natural Philosophy, Cambridge.
Correspondence April-May 1947, including enquiries and advice sought by Frisch, official letter offering Chair, Frisch's letter of resignation to Cockcroft at Harwell, his Cambridge M.A. certificate, letters of congratulation (few survive).
- A: 69, A.70 Election to Fellowship of Royal Society 1948.
- A.69 Certificate, letters of congratulation A - K.
- A.70 Letters of congratulation M - V.

Biographical and personal

- A.71-A.75 Trinity College, Cambridge.
- A.71 Correspondence and reports re Fellowship Elections, 1949-56.
- A.72 Invitations to address College societies, chiefly Trinity
Mathematical Society, 1949-59.
- Requests for advice and help with College music, recitals,
etc., 1949-57.
- A.73 Miscellaneous social and administrative correspondence,
including arrangements for Frisch to take his fiancée in
to College, contributors to their wedding present, etc.
- A.74 Miscellaneous luncheon menus of Trinity occasions with
caricatures by Frisch.
- A.75 Miscellaneous financial material and College accounts.
- A.76 Miscellaneous shorter correspondence with Cambridge University
re sabbatical leave, travel expenses, etc.
- A.77 Correspondence and agreements re houses in Cambridge.
- A.78 Shorter correspondence on Cambridge affairs, personal
and scientific 1948-66. Not indexed.
- A.79 Membership of societies and clubs (in alphabetical order).
Not indexed.
- A.80 Brief correspondence re service on Nuclear Physics Com-
mittee, Government Grant Board B. (No other material
on committee service survives.)
- A.81 Miscellaneous letters of complaint written by Frisch
(bus and postal services, etc.).
- A.82 Miscellaneous material re Frisch's health 1951-78, including
his own notes on his condition.
- A.83 Miscellaneous shorter financial correspondence, including
material re Frisch's support for Gisela Lion, Lise Meitner's
affairs, statements of expenditure, covenants, etc. Various
dates, 1947-60.
- A.84 Miscellaneous drawings and caricatures; includes sketch-
book from New Mexico.

Biographical and personal

- A.85 Miscellaneous birthday greetings 1964-77.
(Mainly for 70th birthday 1974.) Not indexed.

A.86-A.90 Music.

Frisch's mother was a gifted musician, and his own keen love of music is often referred to in his autobiography and in published obituaries. He played the violin well enough to participate in chamber ensembles, and the piano to recital standard. The folders below are samples of this important strand in his life; there are many other references elsewhere, e.g., A.56, A.72, A.95 and in the general correspondence.

- A.86 Correspondence, programmes, etc. re concerts and recitals by Frisch 1940-78 (includes Birmingham, Los Alamos, Harwell, Cambridge).
- A.87 Correspondence re Frisch's piano 1963-78.
- A.88 Miscellaneous correspondence re music 1948-77. Not indexed.
- A.89 Miscellaneous correspondence re Summer School of Music, Dartington, which Frisch regularly attended and where he occasionally lectured.
- A.90 Frisch's own folder inscribed 'Acoustics'; miscellaneous notes, diagrams and material, probably assembled for course of lectures given at Cambridge College of Arts and Technology, October term 1978 (includes some earlier material).
- A.91-A.95 Letters of condolence received on Frisch's death, 1979.
- A.91 A - G
- A.92 H - N
- A.93 O - S
- A.94 T - W

The above are indexed folders of letters from colleagues, relatives or friends containing reminiscences or information.

- A.95 Unindexed letters, of more general nature, often referring to Frisch's gifts as a musician.

Biographical and personal

- A.96-A.106 Memorabilia.
- A.96 Juvenilia, greetings and cards from various relations, early notes to parents, sketches and drawings, c.1905-17.
- A.97 Miscellaneous items from school and university period, poems, invitations, etc. (see also A.106).
- A.98 Miscellaneous musical items, programmes, concert tickets.
- A.99 Envelope of miscellaneous correspondence, souvenirs, etc.
- A.100 Money.
- A.101 Passports.
- A.102 Miscellaneous passes, badges, admission cards and tickets.
- A.103 Miscellaneous invitations, faire-part, etc.
- A.104 Miscellaneous later items of biographical interest, 1950s-1970s.
- A.105 Miscellaneous press-cuttings.
- A.106 'Maturazeitung', 'Erste und letzte Nummer' of humorous journal to celebrate leaving school, 12 July 1922. Frisch was an editor and contributor.
See E.47 for 50th Anniversary celebrations.

Biographical and personal

A.107-A.225 FAMILY CORRESPONDENCE AND PAPERS

Although he was himself an only child, Frisch came from a large family, particularly on his mother's side. His father was a typographer and printer, his mother a gifted pianist, and his most distinguished and best-known relative was his maternal aunt, Lise Meitner the physicist. The family was a close one, and Frisch himself was a devoted son and nephew, writing home regularly during his earlier, more carefree days as student and research worker. When hard times came for his family after the annexation of Austria and the occupation of Vienna in 1938, his father was interned in Dachau concentration camp before emigrating to Sweden (A.113) where Lise Meitner had already moved to work in the Nobel Institute, Stockholm.

On the outbreak of the Second World War, Frisch himself moved to Britain, and made several attempts to obtain permission for his parents to join him (A.115, A.116). These were not successful and in the event the Frisch parents and Lise Meitner spent the war years together in Sweden, communicating with him sometimes by post but mainly by cable (A.115 - A.119); these scanty communications were sent and shared jointly and the assignment of the surviving documents under the name of Justinian Frisch is for convenience only. After his retirement in 1948, Justinian and Auguste Frisch moved to Cambridge to spend the remainder of their days with their son.

With his famous aunt, Lise Meitner, Frisch's relations, though equally close, had another dimension. They had always corresponded about their research, and at Christmas 1938, when Frisch was staying with her, there occurred the crucial episode of their calculation of nuclear fission (the term was Frisch's coinage) and the letter in Nature under their joint names 'Disintegration of uranium by neutrons; a new type of nuclear reaction'. These events are well known through published accounts. Lise Meitner remained in Sweden during the war, though various suggestions were made in 1939 of possible places in Britain where she might work (A.181, A.182); she was not entirely happy with her conditions of work in Stockholm (A.184, A.194) but she remained based there until she too moved in 1960 to Cambridge (A.141) and died there shortly before her ninetieth birthday.

Biographical and personal

Many other members of the Frisch and Meitner families scattered by the events of the Thirties and the War to Britain, Holland and the United States, remained in correspondence with Frisch.

For convenience, the material has been divided among the Frisch, Meitner and Blau (Frisch's wife) families, and presented by alphabetical order of Christian name in order to avoid confusion arising from the married names of the female members. The major part consists of correspondence, but there are other biographical items included. Many of the letters employ nicknames and diminutives as modes of address or signature; Lise Meitner normally signed herself 'T. L.' (= Tante Lise) when writing to Frisch.

A.107-A.124	THE FRISCH FAMILY	
	Frisch, Auguste	See Frisch, Justinian
A.107	Frisch, Emil	1913
	Frisch's uncle, brother of Justinian.	
A.108	Frisch, Felix	1949-63
	Frisch's uncle, brother of Justinian; includes letters from Maria (Felix's wife)	
A.109-A.120	Frisch, Justinian and Frisch, Auguste	1899-1953
	Frisch's father and mother. Almost all the letters are joint communications, sometimes also incorporating greetings and messages from other relations.	
A.109	Certificates of education, doctorate, technical proficiency.	1899-1924
A.110	Brochure re printing firm of Moriz Frisch (Frisch's grandfather) in which J. Frisch and other members of the family were employed.	1907
A.111	Miscellaneous early correspondence, mainly cards, letters, greetings from Frisch's parents, various dates 1904-26.	

Biographical and personal

- A.112 Similar material, 1930s. Few letters survive; for Frisch's letters home, see B.39-B.42, B.73-B.81.
- A.113 'J. Frisch - Sweden 1938'. Frisch's original folder also inscribed 'Eltern', of correspondence and papers July-November 1938 re closure of the Bermann-Fischer firm in Vienna, attempts of J. Frisch to obtain a post in Britain, his internment in Dachau and eventual success in obtaining a labour permit to work with his previous firm in Sweden.
- A.114 Similar material, August-September 1938, kept separately by Frisch, mainly re attempts by J. Frisch to obtain work in publishing houses in Britain. Includes also letter re K. Lion.
- A.115 Letters, cards and cables, July-December 1939, including note from Chadwick enclosing one of the letters, correspondence December with Society for the Protection of Science and Learning re renewed attempts by Frisch to bring his parents to Britain, and a little correspondence with other friends about the Frisch family.
- A.116 Letters, cards and cables, January-December 1940, including various representations by Frisch to try to bring his parents to Britain (refused), and to send the sum of £10 when his father was temporarily unemployed. There are a few references to research projects.
- A.117 Letters and cables, January-December 1941.
- A.118 Letters, cards and cables, January-December 1942.
- A.119 Letters, cards and cables, January-October 1943.
- A.120 Miscellaneous later correspondence, 1948-53, re move to Cambridge, etc. Includes letter from G. Bermann-Fischer (J. Frisch's former employer) on his death 1949, and correspondence 1953 re a translation of a novel 'Age of Thunder' projected by J. Frisch but left unfinished at his death.

Biographical and personal

- A.121 Tausk, Martha (née Frisch) 1926, 1940, 1953-55.
Sister of Justinian, Frisch's aunt.
- A.122 Tausk, Hugo (son of Martha) 1964-65.
- A.123 Tausk, Marius (son of Martha) 1955, 1963-79.
- A.124 Tausk, Robbie 1965-71
Porro-Tausk, Susi 1971-73
(Children of Marius, grand-children of Martha.)
- A.125-A.218 THE MEITNER FAMILY
Auguste Meitner (m. J. Frisch q.v.)
- A.125-A.128 Frida Meitner (m. Leo Frischauer)
The Frischauers settled in America after being obliged to leave Vienna. Frida Frischauer died in 1967. Leo Frischauer subsequently married Elena Spina, and died in 1972. Correspondence with Elena Frischauer continues to 1979.
- A.125 Correspondence 1939-41. Includes a letter from Frisch to P.B. Moon 1941 asking him to get in touch with Frida Frischauer during his forthcoming journey to America.
- A.126 Correspondence mainly 1954-55.
- A.127 Correspondence 1956-62.
- A.128 Later correspondence 1970-79 with Leo Frischauer, Elena Frischauer and others.
- A.129 Fritz Meitner
Fritz Meitner was an engineer who died in a mountaineering accident. Only one item (postcard, 1926) survives, and no material of his wife, Clarissa, but Frisch maintained correspondence with his son Johannes (Hanno) who settled in America until his death in 1974. The correspondence runs 1939 (1 letter only), 1953-73. There is also correspondence, 1974-77, with Richard Meitner (son of John Meitner, grandson of Fritz Meitner, a glass designer working in Holland).

Biographical and personal

A.130-A.132 Gisela Meitner (m. Karl Lion)

Gisela (Illa) was the eldest child of Philipp and Hedwig Meitner. Herself a doctor, she married a distinguished urologist, Karl Lion; the family (including two daughters, Frida and Ilse) came to Britain on the outbreak of war. Karl was interned in June 1940 but was later released, largely after representation by Frisch (see A.130, A.132); Frida was also interned (see A.132). Many of the letters refer to Frisch's parents, to Lise Meitner and other relatives, and also show that Frisch, though sometimes a dilatory correspondent, often sent money to help his family; see also A.83.

A.130 Correspondence with Gisela Lion 1939-40. Included here are a few early items 1905, 1907, 1920.

A.131 1941-43, 1947, 1962

A.132 Correspondence with and re Karl Lion, 1940-41. Includes C.V., list of publications and Frisch's letters re internment and employment of K. Lion.

Correspondence from Frida Lion, 1940 (one letter only)

Correspondence from Ilse Lion 1940.

A.133 Hedwig Meitner

Frisch's grandmother. Only one item survives (1923), but included here is a press-cutting of H. Meitner's death in 1924, listing her children and grandchildren. Also included is a photocopy press-cutting of the death of Philipp Meitner (husband of Hedwig, and Frisch's grandfather) headed 'Dr. Meitners letzte Schachpartie'; the death occurred on 9 December 1910.

Biographical and personal

A.134-A.211 Lise Meitner

Lise, the third daughter of Philipp and Hedwig Meitner, became a physicist of international renown. In her personal life she was close to her sister Auguste (Frisch's mother), while she shared a strong bond, on both personal and scientific levels, with her nephew and also with her younger brother Walter, a chemist.

The material is presented as follows:

- A.134-A.154 Biographical and personal
- A.155-A.176 Notes and drafts
- A.177-A.211 Correspondence

See G.31 for a tape-recording of a conversation between Frisch and Lise Meitner.

N.B. The main deposit of material relating to Lise Meitner's life and work is at Churchill College, Cambridge.

A.134-A.154 Biographical and personal

- A.134 Notes on geometry, some in shorthand, some dated 3. ix.99. Perhaps related to special coaching for entrance to Vienna University by Arthur Szarvasy (see Meitner's autobiographical talk 'Looking Back', Bulletin Atomic Scientists, 1964).
- A.135 Miscellaneous material re Kaiser-Wilhelm Gesellschaft and University of Berlin 1911-20. Includes appointment to work with Hahn, election as member of Institute, grant of title of 'Professor', agreement for new contract of appointment (1920).
- A.136 Miscellaneous items of biographical interest. Includes grant to Lise Meitner by Chemical Society (1913), assessment by Hahn of a patent claim (1913), ministerial congratulations on Lise Meitner's work (1915), copy of letter from Rutherford to Stefan Meyer (1915), etc.
- A.137 Miscellaneous items 1916-18, including travel document, notes, etc.
- A.138 Miscellaneous items 1920-28, including correspondence re residence permit of Elisabeth Schiemann, election as corresponding member, Academy of Sciences Göttingen, award of Ellen Richard Research Prize from U.S.A. (jointly with Ramart Lucas).

Biographical and personal

- A.139 Miscellaneous items 1930s, re department, lectures, conferences, etc. Includes inventory of Lise Meitner's property as required of Jews, 1938.
- A.140 Award of prize by Swedish Vetenskapsakademiens (1945) and City of Vienna Prize (1947).
- A.141 Correspondence of Frisch and S. Eklund (Director-General, International Atomic Energy Authority) re Lise Meitner's settling in Britain, etc. 1959-79.
- A.142 Correspondence of Frisch and others on affairs of Lise Meitner, 1960-65.
- A.143, A.144 Correspondence of Frisch and others, mainly from prospective biographers of Lise Meitner requesting information, access to papers.
- A.143 1955, 1960-70
- A.144 1971-79
- A.145 Miscellaneous biographical articles, and obituary tributes 1958, 1968. Includes Frisch's correspondence with colleagues re Festschrift for Lise Meitner's 80th birthday 1958.
- A.146 Two articles by Frisch on Lise Meitner, 'The work of Lise Meitner', 10 pp. typescript with a note 'Written for Max Born at his request; he said he was planning to propose Lise Meitner for the Nobel prize. I don't know if he did; and if so, whether he used this draft'.
'Nuclear Pioneer: Lise Meitner', 8 pp. typescript, 1978.
See also C.74, E.51, E.52.
- A.147-A.154 Memorabilia
- A.147 Early birthday greetings and letters.
- A.148 Poems. Includes two early notebooks of poems, humorous poems for celebrations in Bohr's laboratory, etc. (in various hands).
- A.149 Envelope of photographs.
- A.150 Envelope of invitations, faire-part, etc. Various dates.
- A.151 Miscellaneous printed material, scientific and personal, various dates.

Biographical and personal

A.152, A.153 Press-cuttings

A.154 Shorter unidentified material.

A.155-A.176 Notes and drafts.

With the exception of the brief items in A.155-A.157 these are all later works, dating from Lise Meitner's postwar periods in Sweden and Cambridge.

A.155 Humorous poem (perhaps not in her hand) on protactinium (refers to Hahn's and Meitner's work, see Frisch, Biographical Memoirs of Fellows of the Royal Society, 16, 1970, p.407), 1919.

Humorous poem 1920, related to visit by Franck.

A.156 Miscellaneous short notes dated 1925, 1926, and n.d.

A.157 Heavily corrected ms. draft, headed 'American Association for Scientific Research for Women', 1929, probably related to award of Ellen Richards prize (see A.138).

A.158 Ms. draft for slide lecture at Free University Dahlem, 1957.

A.159 pps.4-6 only of typescript and ms. draft (on neutrino). n.d., latest reference 1955.

A.160 'Ueber einige Probleme in der Ausnutzung der Atomkernenergie'.
12 pp. typescript and ms., n.d., 1950s.

A.161 Untitled slide lecture on similar subject.
21 pp., heavily corrected typescript. n.d., 1950s.

A.162 'Geschichte der Erde', slide lecture.
15 pp. typescript and ms.

A.163 3 pp. ms. note on W. Heitler and his work. n.d., after 1962.

A.164 Ms. notes, and 5 pp. ms. draft on Sonja Kowalevska (an early woman professor of mathematics at Stockholm in the 1880s). n.d., c.1950 (see letter to Lotte Meitner, 28 March 1950 in A.198).

Biographical and personal

- A.165 5 pp. heavily-corrected ms. draft on history of atomic physics, with corrected proof of article 'Wege und Irrwege zur Kernenergie' using similar material.
- A.166 3 pp. ms. draft on atomic energy, n.d.
- A.167 pps. 14-18 of ms. draft of a historical paper, mainly on work of Lee and Yang.
- A.168 Autobiographical talk on '50 years of physics', given in Vienna, 1963.
Notes for paper and slides, 17 pp. ms. draft (lacks pp. 13, 15, 16).
- A.169-A.171 Three typescript drafts of lecture, all with different pagination and ms. corrections.
- A.169 18 pp. heavily corrected and headed 'Wiener Vortrag 1962' (sic).
- A.170 19 pp.
- A.171 20 pp.
- A.172 Version published as 'Looking Back' in Bulletin of the Atomic Scientists, November 1964.
- A.173 'Was verstehen wir unter Freiheit?'
1 p. typescript note contributed to series run by Deutscher Evangelischer Kirchentag, November 1964.
- A.174 Untitled lecture, in English, on position of girls studying science in Austria in early years of 20th century.
4 pp. heavily-corrected typescript and ms. draft.
- A.175 Miscellaneous shorter ms. notes, in Lise Meitner's original folder, inscribed 'Handgeschriebene Manuskripte'.
- A.176 Miscellaneous reprints of articles by Lise Meitner (not a complete set).
- A.177-A.211 Correspondence
- A.177 Atanaskovic, G. 1961
(Schoolfriend of Walter Meitner.)
Barany, H. 1949

Biographical and personal

- A.178-A.186 Frisch, O.R. 1914-64
These are personal and scientific letters and cards.
A few of Frisch's replies are included; others,
for the 1930s, appear in Section B.
- A.178 1914-27
- A.179 1931-34
- A.180 1935-38
Includes references to Frisch's parents' move to
Sweden.
- A.181 1939 May-August
Mainly scientific, on fission research and papers
but also re journeys to Britain.
- A.182 1939 September-December
Includes further correspondence re possibility
of Lise Meitner coming to Britain, and also re
text of forthcoming publication and alterations
proposed by Bohr (see also B.97).
- A.183 1940
Lise Meitner's letter of 23 May gives an account
of the German invasion of Denmark and its
impact on Niels Bohr's laboratory where she was
visiting at the time.
- A.184 1941 (one letter only)
1942
Several letters refer to the constraints placed on
Lise Meitner's research by conditions in Siegbahn's
institute, and also to her attempts to send money
to assist refugee relatives and friends.
- A.185 1943
- A.186 Miscellaneous later letters and cards, 1952, 1964.
- A.187 Frischauer, F. 1963
Glum, F. 1963
Hahn, O. 1953

Biographical and personal

- | | | |
|-------------|---|------------|
| A.188 | Laue, M.v. | 1947, 1953 |
| | Includes copies of opening speech at physics conference 1933, and of radio talk on work of Planck, 1957. | |
| A.189 | Levy, A. | 1951 |
| | Lion, G. | 1963 |
| | Meitner, A. | 1903 |
| | • (card only) | |
| | Meitner, F. | 1909 |
| | (card only) | |
| A.190-A.210 | Meitner, W. | |
| | Letters and cards, addressed (sometimes jointly) to Walter Meitner (youngest of the Meitner family) and Lotte Graf whom he married and who practised as an internationally famous photographer under the name Meitner-Graf. | |
| | Most of the letters are signed 'Wuzerl'. | |
| A.190 | 1912, 1925-28 | |
| A.191 | 1929-30 | |
| A.192 | 1931-32 | |
| A.193 | 1933-36, 1939 | |
| A.194 | 1942-44 (3 letters only) | |
| | Letters of 26 March 1942 and 19 November 1943 refer to Lise Meitner's isolation in Siegbahn's institute and in Copenhagen and her regret at not having stayed in Britain in 1939. | |
| A.195 | 1945-47 | |
| A.196 | 1948 | |
| A.197 | 1949 | |
| A.198 | 1950 | |
| A.199 | 1951 | |
| A.200 | 1952 | |

Biographical and personal

A.201	1953	
A.202	1954	
A.203	1955	
A.204	1956	
A.205	1957	
A.206	1958	January-June
A.207	1958	July-December
A.208	1959	January-June
A.209	1959	July-December
A.210	1960	and undated
A.211	Schoffer, H.	1962
	Schrödinger, A.	1962

Biographical and personal

- A.212, A.213 Lola (Carola) Meitner (m. Rudolf Allers).
Lola and Rudolf Allers lived in Washington D.C.; R. Allers was a professor of philosophy at Georgetown University. Lola Allers died in 1952 and Rudolf in 1964. There is later correspondence with Ulrich Allers (son) also a philosopher and his wife Christel.
- A.212 Correspondence with Lola and Rudolf Allers. 1945-51
- A.213 Correspondence with Ulrich and Christel Allers. 1952-79
Ulrich Allers was addressed as 'Steve' in later years; he died in 1974. The correspondence is mainly about family matters and music, and includes reference to Lise Meitner's health and estate.
- A.214-A.218 Walter Meitner and Lotte Meitner-Graf.
Walter Meitner, youngest of the Meitner family, was an organic chemist obliged to leave Austria in 1938. He was interned in 1940 but released relatively quickly (A.214) and obtained work in Manchester. His wife, Lotte (née Graf) was a distinguished photographer; most of the letters are from her though there are some from Walter. He died in 1961, and she in 1973.
- A.214 1939-40
Includes correspondence re Walter Meitner's internment, Frisch's visit to him, and his release.
- A.215 1941
Includes a letter from Bertha Graf.
- A.216 1942
- A.217 1943 and later.
Includes recommendations for posts for Walter Meitner 1950 and later exchanges with Lotte Meitner-Graf.

Biographical and personal

A.218 1973-78

Mainly re death of Lotte Meitner-Graf in 1973 and matters arising.

Includes obituary notice (by Frisch), letters of condolence, suggestions for volume of selected photographs, 'Lottes Büches Liste' and later correspondence with son (Philip, formerly Franz) and his family.

A.219-A.225 THE BLAU FAMILY

Frisch married Ursula (Ulla) Blau in 1951 and they had two children. The letters they exchanged (A.221-A.225) contain information about conferences, scientific colleagues, research projects and the like as well as personal and family news.

A.219	Helga Blau (mother of Ulla)	1957-67
A.220	Kurt Blau (brother of Ulla)	1966, 1979
A.221-A.225	Ulla Frisch (née Blau)	
A.221	1951-52	
		Includes a little earlier material
A.222	1953-54	
A.223	1955-57	
A.224	1962-69	
A.225	1973-77	

SECTION B SCIENTIFIC RESEARCH B.1 - B.207

Introduction to Section B

The material, which is presented in chronological order linked to the various laboratories, institutions and universities where Frisch worked at successive dates, includes notebooks, laboratory notes, observations and working papers, drafts for publications, and correspondence.

Several of the diaries and notebooks in A.8 - A.32 also contain some scientific information and should be consulted as supplementary sources.

The outgoing correspondence presented in B.39 - B.42, B.73 - B.81 covering the period 1930 - July 1939, retains Frisch's own chronological order and therefore includes personal and family as well as scientific letters.

The material is presented as follows, the subsections being preceded by an introductory note where appropriate:

B.1, B.2	VIENNA
B.3 -B.7	BERLIN
B.8 -B.42	HAMBURG
B.43	BIRKBECK COLLEGE, LONDON
B.44 -B.94	COPENHAGEN
B.95 -B.104	BIRMINGHAM
B.105-B.131	LIVERPOOL
B.132-B.136A	LOS ALAMOS
B.137-B.142	HARWELL
B.143-B.207	CAMBRIDGE

Scientific research

- B.1, B.2 VIENNA
- B.1 'Quick'
A stapler for electric or radio wiring.
1 p. ms. notes, and a printed leaflet, n.d.
- B.2 Invention for protective glasses.
1 p. ms. notes, and letter re patenting, 1924.
- B.3-B.7 BERLIN
- Work at the Physikalisch Technische Reichsanstalt (P.T.R.) with Carl Müller (see What little I remember, pp.29-40).
For material re Frisch's appointment at P.T.R. see A.46.
- B.3 Black soft-covered notebook.
Notes, calculations, diagrams of work at institute, and also of colloquia at the university.
The material runs 15.XI.27 to 9.IV.1929.
- B.4 Black hard-covered looseleaf notebook (many loose pages).
Similar material, 9.1.29. - 19.6.29.
Bibliographical references continue to 1931.
- B.5-B.7 Contents of Frisch's original folder inscribed 'Alte Korrespondenz'.
- B.5 Calculations by Frisch, photographs.
'Ueber die spektrale Durchlässigkeit von Tauschichten', 3 pp. research note or draft for paper.
(In original folder.)
- B.6 Correspondence re apparatus, 1929.
Correspondence with C. Müller re research and patents, 1929-30.

Scientific research

B.7 Correspondence re payment of Frisch's research grant,
1929.

Miscellaneous items: C.V. by Frisch up to and including
his work with MÜLLER; timetable of laboratory visits
March 1929.

Scientific research

B.8-B.42

HAMBURG

Work as Assistant to Otto Stern (see What little I remember, pp.41-56).

See F.123 for Stern's acknowledgement of Frisch's contribution to the work on molecular beams.

B.8-B.29

Sequence of 22 dated notebooks of calculations and experimental results, not all in Frisch's hand. Some have a descriptive note by Frisch on the cover.

B.8

18.VII - 7.VIII.1930 .

B.9

11.VIII - 27.VIII.1930

B.10

28.VIII - 9.XII.1930 (last page has notes dated January 1931)

B.11

10.XII.30 - 14.I.31

B.12

14.I.1931 - 6.II.1931

B.13

6.II.1931 - 20.II.1931

B.14

20.II.1931 (only few pages used)

B.15

14.IV.1931 - 8.V.1931

B.16

8 Mai 1931 - 10 Juni 1931

B.17

10 Juni 31 - 22 Juni 1931 (with note by Frisch 'Neuer 2-Kristall-App.')

B.18

22 Juni - 2 Juli 1931 (with note by Frisch '2-Kr.App.')

B.19

2 Juli - 15 Juli 1931 (with note by Frisch '2-Kr.App.')

B.20

15 Juli - 23 Nov 1931 (with note by Frisch '2 Kr.App (H₂). ab 5 Nov. Halbkugel')

B.21

24 Nov - 1 Dez 1931 (with note by Frisch 'Halbkugel')

B.22

1 Dez - 9 Dez 1931 (with note by Frisch 'Halbkugel')

B.23

11 Dez 1931 - 8 Febr. 1932 (with note by Frisch 'Halbkugel Refl.App.')

B.24

9 Febr - 22 Febr 1932 (with note by Frisch 'Refl.App.')

Scientific research

- B.25 22 Febr. - 18 März 1932 (with note by Frisch 'Refl.App.; ab 18 wieder Beng. App.')
- B.26 18 März - 30 März 1932
- B.27 30 März - 1 April 1932
14 Jan. - 20 Jan. 1933
- B.28 20 Jan. 1933 - 1 Febr. 1933
- B.29 1 Febr. (last experiment dated 3.II.1933)
- B.30 Similar notebook, all in Frisch's hand, dated 9.2.1933 - and with a note 'Na-Rückert'. Last experiment dated 28.7.33.
- B.31 Similar notebook, all in Frisch's hand, dated 24.3.33 - and inscribed ' β '. Last experiment dated 5.4.33.
- B.32 Similar notebook, all in Frisch's hand, dated 22.6.33 - and inscribed 'Dellen'. Last experiment dated 5.8.33.
See B.33-B.37 for other work on 'Dellen', and What little I remember, p.53, re this last work at Hamburg before being obliged to leave Germany.
- B.33-B.37 Contents of a folder inscribed 'Dellen' (= depressions, in molecular beams).
- B.33 Graphs and observations of molecular beams in various conditions; miscellaneous bundles of material in Frisch's order, and some loose pages. Various dates 1931-33.
In original folder.
- B.34 Similar material, but undated.
- B.35 Miscellaneous ms. drawings of apparatus, graphs, calculations, etc., probably for collaborative paper or papers by Frisch and Stern.
- B.36 'Berechnung der Impulsmomente der Beugungsdellen, austretender Strahl (Ofenfest)'
2 sets of calculations so titled, kept separately with miscellaneous graphs, and a letter by Frisch on his results, August 1933 (addressee unknown).
Also included here is a C.V. drawn up by Frisch c.1933 to include his work with Stern at Hamburg.

Scientific research

- B.37 Typescript and ms. draft of paper by Frisch and Stern 'Anomalien bei der Reflexion und Beugung von Molekularstrahlen an Kristallsplittflächen II' (Z. Physik. 84, 1933).

Also included are proof with ms. corrections and a little editorial correspondence.

- B.38 Correspondence from C. Müller, 1932.

Two letters only, on patent rights, and on equipment.

- B.39-B.42 Contents of a folder inscribed 'R. Frisch Eigene Briefe bis Oct. 1933'.

The letters are Frisch's carbons only, in date order; those from 22 January-27 October 1930 are sent from Berlin, those from 11 November - 7 August 1933 are from Hamburg, and there is one letter, 28 September 1933, from Copenhagen immediately before Frisch's departure for England.

The correspondence constitutes a record of all Frisch's affairs, including family letters, research and publications, personal friends, etc. The letters to Frisch's parents ('Schnumpunzel' and 'Bavitschkerl') and to Lise Meitner ('Tanterl') should be consulted in association with the incoming family correspondence in Section A.

Identifiable correspondents are indexed, but many are addressed either by a nickname or in formal terms such as 'Herr Professor', 'Herr Kollege'.

- B.39 January-December 1930

- B.40 January-December 1931

Includes a note (October 1931) on 'Beugung von Protonenwellen'.

- B.41 January-December 1932

(first letter wrongly dated 1931)

- B.42 January-September 1933

Includes references to the Rockefeller Foundation Fellowship awarded to Frisch to study in Rome with Fermi and which he was unable to take up for political reasons, and to his forthcoming journey to England to work at Birkbeck College, London, with Blackett. The last letter (28 September) is sent from the Institute of Theoretical Physics, Copenhagen, where he was waiting for a passage to England.

Scientific research

B.43

BIRKBECK COLLEGE, LONDON

Frisch spent roughly the academic year 1933-34 in the laboratories of P.M.S. (later Lord) Blackett at Birkbeck College, London, supported by a grant of £250 from the Academic Assistance Council.

In early 1934, Niels Bohr, on a visit to Blackett, offered Frisch a place in his Institute of Theoretical Physics at Copenhagen; accordingly Frisch left England in the early autumn of 1934 and remained in Denmark until the annexation of Austria by Germany obliged him to leave continental Europe permanently.

Although Frisch occupied himself productively during this first short stay (see What little I remember, pp.74-75), virtually no documentation survives other than the few letters itemised below, some references in the correspondence folders at B.73 - B.75, C.90, C.99, and in Section F.

Correspondence 1934

Letters re publications, research, etc. Includes letter from L. Szilard (August) re experiments using Frisch's radiation counter, and from G. Mönch (October) re his cloud-chamber.

Scientific research

B.44-B.94

COPENHAGEN

Work at the Institute of Theoretical Physics,
directed by Niels Bohr (see What little I remember,
pp.81-119).

- B.44 Black soft-covered notebook of notes and calculations,
in Danish and German.
There is a note 'Kopenhagen Augekommen 13.10.34.'
and the experiments run 20.10.34. to 20.6.35.
- B.45 Notebook dated 29.3.1936-17.8.1936.
Pages are numbered by Frisch 1-93 and there is
an index by him inside front cover.
- B.46 Notebook dated '7 Dez. 36' and numbered '3'.
Pages are numbered 1-93, and the material (not all
in Frisch's hand) runs 7 December 1936 to 21 June 1937.
- B.47 Notebook inscribed 'Badewanne' and 'H.4' and dated
13.3. [1937] - 28.5.37.
Pages are numbered 1-85; not all the material is in
Frisch's hand.
- B.48 Notebook inscribed 'Badewanne' and 'H.5'.
Material (not all in Frisch's hand) runs 1-22 June 1937.
See A.10, B.57, B.62-B.65 for other material on
'Badewanne' work.
- B.49 Patent (sent December 1934, registered June 1935),
'Verfahren zur Herstellung von Polonium' (Method of
polonium production).
- B.50 Folder inscribed 'Allotria. Fun and Games'.
Miscellaneous humorous verses, songs, caricatures,
many connected with work and personalities at the
Institute, and including the 'Journal of Jocular Physics'
produced as part of the celebration of Niels Bohr's
50th birthday in 1935 (see What little I remember, p.98).
The 'Journal' contains an article by Frisch and Placzek
'Zur Frage der Messbarkeit des Landau'schen Schön-
heitskoeffizienten'.
See B.82 for similar material.

Scientific research

- B.51 Folder inscribed 'Prospekte'.
Correspondence from manufacturers of apparatus and equipment, and miscellaneous technical suppliers' catalogues. 1935-36.
- B.52-B.55 'Berechnungen [calculations] bis 1938'.
Contents of a substantial folder so inscribed. The material is very diverse, and not all in Frisch's hand; it includes notes on the literature, drafts for papers or reports, drawings of apparatus, calculations and results, ideas for experiments and techniques, etc.
Notes and sequences clipped together by Frisch have been preserved as such; similarly, the dated material has been retained in chronological order (1932-37) at B.52. The remaining undated and unidentified notes appear at B.53-B.55.
- B.52 Dated sequences of notes.
Includes:
'Ablenkung von Mol. Str. in mag. Feld'.
3 pp. sequence, kept with other notes on magnetron, B-recoil, etc., some dated October 1932 (during Frisch's period in Stern's laboratory at Hamburg).
Notes and draft for short talk on work of Stern's laboratory (on proton, and on diffraction anomalies). In English, possibly for talk at Birkbeck, or at Copenhagen. c.1933-34.
Sequence of notes, various dates September-October 1936, on 'Schrödgerheits-korrektur', neutrons, etc.
Miscellaneous notes, various dates January-February 1937.
Miscellaneous bibliographical references, 1937.
All these items are in Frisch's original folder, which also bears notes and diagrams on the front cover.
- B.53 Undated sequences of notes.
Includes:
'Isotopentrennung', 3 pp.
'Dirac, Quantenmechanik', 6 pp.
'Plattenelektrometer', 2 pp.
'Courant-Hilbert', 3 pp.

Continued

Scientific research

- B.53 Cont'd 'Schwankungen eines Zählens mit endlichen Auflösungsvermögen', 7 pp. notes, calculations, diagrams.

'Scattering of protons in hydrogen', 4 pp. draft not in Frisch's hand, but kept with notes and diagrams by him.

'Fokussierung des Cyclotrons', 8 pp. draft not in Frisch's hand, perhaps by H. Jehle.
- B.54 Shorter notes by Frisch, titled but not dated, on various research ideas.
- B.55 Undated and unidentified notes, diagrams, etc., almost all by Frisch, but includes some material in other hands.
- B.56 'Berechnungen 1938'

Contents of a folder so described. Includes notes and calculations, various dates December 1937-July 1938 (notes of December 1937 are headed 'Wien'), and diagrams chiefly May 1938.
- B.57 'Berechnungen 1939'

Contents of a folder so described. Notes, calculations and diagrams, some dated 1937 (1 p. note April 1937 is headed 'Badewanne', see A.10, B.47, B.48, B.62-B.65).
- B.58 Untitled folder of notes, calculations, figures (1 p. dated December 1936).
- B.59 'Laufendes' [Current]

Contents of a folder so described.

Includes correspondence re equipment for laboratory 1937, notes on theories of Möller (1937), Schrödinger (n.d.), Auger (1938), notes on the literature, miscellaneous notes, calculations, diagrams.
- B.60 'Kurven, Diagramme, Tabellen'

Contents of a folder so described.

Similar material, some dated 1937; includes 1 p. table of elements with a note 'Kopenhagen. (Kopfermann) Sept. 1933', and a letter re magnet for laboratory 1935.

Scientific research

- B.61 'Kurven'
- Contents of a folder so described, some dated 1937 (not all in Frisch's hand).
- Included here is a heavily-corrected proof of 'A method of measuring the magnetic moment of free neutrons', by Frisch, Halban and Koch (Nature, 139, 1937).
- Also included here is a letter January 1938 to Bohr from S. Goudsmit expressing interest in the results and suggestions for further research.
- B.62-B.65 'Badewanne 1'
- Contents of a substantial folder so described.
- The term 'Bathtub' was used by Frisch to describe the work on slow neutrons in hydrogenous substances. There is no other surviving folder with this title but there are two notebooks (B.47, B.48) to which reference is occasionally made in headings to diagrams, etc. (See also A.10, B.57, B.78.)
- Notes, drafts, diagrams and calculations, related to work on slow neutron capture and in particular to 'The slowing-down and capture of neutrons in hydrogenous substances', by Frisch, Halban and Koch (Mat.-fys. Medd., K. Dansk Vid. Selsk., 15, 1937).
- B.62 Heavily-corrected 7 pp. draft for paper.
- Miscellaneous pages of extensive ms. notes and narrative, by Frisch and another, some headed 'Badewanne' and with various dates 1937. Pages run 1-42, but with many omissions.
- These items are in the original folder.
- B.63 Continuing sequence of notes, paginated 51-57.
- Miscellaneous curves and diagrams, all by Frisch, a few dated 1937.
- B.64 Figures, tables, shorter drafts, some headed 'Badewanne' and with dates 1937.
- B.65 Shorter unidentified notes and diagrams.
- Brief correspondence re results, 1937.

Scientific research

- B.66-B.70 Contents of an untitled folder of notes and drafts.
- B.66 'A Pentode Vacuum Tube Scale-of-Two Circuit'
4 pp. typescript and 1 p. figures for paper by Frisch dated July 1938. (Not listed in bibliography.)
Included here is a request to reproduce the scale of two circuit in a book on cosmic rays, 1944.
- B.67 Dated sequences of notes and figures, on circuits (1937), cyclotron (June-September 1938), Rabi's resonance method (4 pp. September 1938), etc.
- B.68 Ms. and typescript note on Fermi and leading figures in nuclear physics, c.1938 (in Danish).
Report on 'High frequency systems for the Cyclotron', by Dunning, Anderson, Booth and Glasoe, August 1938.
- B.69 Drawings and sketches for apparatus (not all in Frisch's hand).
- B.70 Miscellaneous shorter notes and figures by Frisch.
- B.71 Folder inscribed 'Turner'
Correspondence June-August 1938 from L.A. Turner (working at Copenhagen Institute while on leave from Princeton) re research and proposed publications.
Includes draft mss. of collaborative papers by Frisch and Turner, 'The Isomers of Br⁸⁰' and 'Isomers of stable nuclei'. (Not listed in bibliography.)
Also enclosed is a letter of comment from M.L. Pool.
- B.72 Two undated drafts for papers:
'Width of Neutron Capture Levels', 2 pp. only.
'Energy Distribution of Uranium Fission Fragments', 3 pp.

Scientific research

- B.73-B.81 Correspondence October 1933-July 1939.
Like B.39-B.42 above, these are Frisch's carbons, in date order, of his outgoing letters both personal and scientific. His order has been preserved, and identifiable correspondents are indexed.
- B.73-B.75 'Eigene Briefe Oct.1933-Dec.1934'
This covers Frisch's period at Birkbeck College, London, and the beginning of his work at the Copenhagen Institute of Theoretical Physics. Letters 25 October 1933 - 24 September 1934 are headed 'London', those from 18 October 1934 'Kopenhagen'.
- B.73 October-December 1933
(In original folder.)
- B.74 January-September 1934
Includes references to Frisch's career plans and arrangements for his move to Copenhagen.
- B.75 October-December 1934
Includes letters of thanks (in English) to Academic Assistance Council, and to Mrs. Blackett for help during visit to Birkbeck.
- B.76 'Briefe 1935'
- B.77 'Briefe 1936'
Almost entirely on research projects, but Frisch's letter to M. Hope of 14 September explains that 'I like to keep a duplicate of all my letters, it is like a diary for me'.
- B.78 'Briefe 1937'
Almost entirely on research projects including 'Badewanne' work, and publications.
- B.79, B.80 'Briefe 1938'
Includes, in addition to letters on research and publications, correspondence arising from the annexation of Austria by Germany in March and the consequent anxieties about Frisch's parents, relations and his aunt Lise Meitner. See especially letters of 12 June, 8, 18, 19, 30 August, 5, 8 September, 21, 31 October, 5, 16, 29 November, 12 December.
- B.79 January-July (in original folder)
- B.80 August-December

Scientific research

- B.81 'Letters 1939'
 Contents of an envelope, not original folder.

 2 January-10 July
 Includes material relating to the publication of Meitner's
 and Frisch's two notes in Nature on nuclear fission;
 see letter of 22 January for reference to the coining
 of the term 'fission' and history of the discovery, and
 letter of 15 March re publication delay.
 * Letters also relate to arrangements for F. Urbach
 to work in Birmingham (see also A.48, B.104), and
 to Frida and Leo Frischauer.
- B.82 Folder of humorous verses, songs, caricatures, parodies, etc.
 relating to personalities and projects at the Copenhagen
 Institute.
 Includes a poem 'Zum Abshied von Frisch'.
 See B.50 for similar material.
- B.83-B.94 Not allocated.

Scientific research

B.95-B.104

BIRMINGHAM

Frisch spent only a year (July 1939-July 1940) at Birmingham. Invited there by M.L. Oliphant originally on a short visit which was extended when the outbreak of war became imminent, he worked on uranium isotopes and, with R.E. Peierls, on the early theory of the atomic bomb. The development of this work led to his moving to Liverpool which had a cyclotron.

For personal material relating to Frisch's appointment at Birmingham, departure from Copenhagen and settling in to Britain, see A.11, A.48-A.53.

B.95

Sheets of graph paper, folded and stitched to form a 'book', containing diagrams and calculations of experiments (in English and German).

Includes experiments on uranium October-December 1939, 'Neutron-Chain-Experiment' beginning January 1940, miscellaneous undated pages of diagrams and calculations.

B.96-B.104

Correspondence c. July 1939-July 1940

These are almost wholly concerned with research projects. Unlike the previous correspondence files, they may include both incoming and outgoing letters.

In alphabetical order.

B.96

American Physical Society

1940

Frisch's carbon only.

Bjerge, T.

1939

Blackett, P.M.S.

1939

Bloch, F.

1939

B.97

Bohr, N

1939-40

Includes correspondence re changes proposed by Bohr to paper by Frisch and Lise Meitner (see also A.182).

A letter from Mrs. Bohr is also included here.

Scientific research

- | | | |
|-------|--|---------|
| B.98 | Buchthal, F. | 1939 |
| | Ehrenberg, W. | 1939 |
| | Hahn, O. | 1939 |
| | 2 letters. | |
| B.99 | Halban, H. | 1939-40 |
| | Halban's letter of 29 January 1940 (in French) describes the difficulties of research under prevailing conditions and the deposit of their results in sealed letters to ensure priority. | |
| B.100 | Hevesy, G. | 1939 |
| | Höffer-Jensen, S. | 1939-40 |
| | Kinsey, B.B. | 1939 |
| | Klein, O. | 1939 |
| | Koch, J. | 1939 |
| B.101 | Möller, C. | 1939 |
| | Moon, P.B. | 1939 |
| | Neugebann, O. | 1939 |
| B.102 | Paterson, R. | 1940 |
| | <u>re</u> supplies of radon. | |
| | Peierls, R.E. | 1939 |
| | Placzek, G. | 1939 |
| B.103 | Rasmussen, E. | 1939 |
| | Rosenfeld, Y.V. | 1940 |
| B.104 | Simons, L. | 1939 |
| | Smith, C. | 1939-40 |
| | <u>re</u> Annual Report for the Journal of the Chemical Society (see <u>What little I remember</u> , pp.124-125), see also B.129. | |
| | Stern, O. | 1939 |
| | Frisch's carbon only. | |
| | Urbach, F. | 1939 |
| | See also A.48, B.81 | |

Scientific research

B.105-B.131

LIVERPOOL

Frisch moved to Liverpool in July 1940; he worked in Chadwick's laboratory, the work being officially supervised by the Ministry of Aircraft Production of which he was an employee. He remained there until he left for America in 1943, though he had many meetings with colleagues chiefly in Birmingham, Cambridge and London, and also a short stay in Oxford in 1941.

For material relating to Frisch's appointment at Liverpool, see A.55.

B.105

Red soft-cover exercise book, inscribed 'FRISCH AND CHIPS' (see What little I remember, p.137).

Experiments, calculations, diagrams, etc. running '26.2.1941' to '13.12.1942'.

A few calculations also at rear of book.

B.106

Red soft-cover exercise book, numbered '56'.

Similar material, but including more narrative and writing-up and fewer dates.

Dated material runs '6.3.1941' to '16.11.42'.

Includes a little material not in Frisch's hand.

A few calculations also at rear of book.

B.107

Grey stiff-covered exercise book, numbered '57'.

Experiments and calculations, running '20.11.1942' to '5.6.1943'.

B.108

Small red soft-cover notebook, of very miscellaneous material, including some personal notes as well as experiments and extensive drawings of apparatus.

n.d. but includes several caricature drawings of friends and colleagues, two (of Shull Arms and Evan Gill) dated '~ 1943'.

Includes loose page of notes on verso of concert programme, 1943.

See A.12, A.13 for additional notes of work at Liverpool.

Scientific research

- B.109-B.116 Research reports on nuclear project.
- B.109 'Test for short-delay neutron', by Frisch.
 2 pp. typescript and ms., n.d. but probably
 early work at Liverpool.
- B.110 'Fission cross section of uranium for photo neutrons', by
 Frisch.
 2 pp. typescript and ms., with 1 p. ms. calculations
 attached, n.d. but c. July 1941.
- B.111 'Outline of fast neutron projects'
 2 pp. typescript dated 11 June 1942 and signed
 J.H. Manley and J.R. Oppenheimer, with 6 pp.
 ms. and typescript comments by Frisch.
- B.112 'Informal Report. 17 July 1942'
 2 pp. typescript on research in Britain, no author.
 (2 copies.)
- B.113 'Nuclear work in connection with a fast-neutron reaction'
 8 pp. typescript, no author or date.
- B.114 'Some remarks on the production and detection of f.products'
 1 p. typescript with ms. corrections by Frisch, c. August
 1942.
- B.115 'Proposed test for neutron delay in fission'
 1 p. typescript, no author or date.
- B.116 'Preparation of U235 by a Mass Spectrograph'
 1 p. typescript with ms. corrections and calculations
 by Frisch.

Scientific research

- B.117-B.131 Correspondence c. July 1940-August 1943.
These are almost wholly concerned with research projects, and may include incoming and outgoing letters.
In alphabetical order.
- B.117 Arms, S. 1942
Telegram only.
Blaschko, H. 1942
Chadwick, J. 1940-43
Council of Austrians in Great Britain 1941
- B.118 Feather, N. 1940 (Frisch's carbon only), 1942
Freundlich, H. J. 1941-42
(letter of 12 November 1941 has 'A Postscript by Kowarski')
- B.119 Halban, H. 1940-41
letter of 29 December 1941 has 'Postscript by Kowarski')
- B.120 Johnson, C.H. 1940, 1943 (Frisch's carbon only)
Kinsey, B.B. 1942
- B.121 Kowarski, L. 1941-43
Includes 11 pp. report 'Study of density distributions of resonance neutrons in widely extended media' (by Halban, Kemmer and Kowarski) August 1941; a 1 p. note on 'Capture cross-sections for thermal neutrons', March 1942; 2 pp. Progress Report of Cambridge slow neutron group, August 1943.
- B.122 Kurti, N. 1941
London, H. 1941
Low-Beer, 1940

Scientific research

- | | | |
|-------|--|---------|
| B.123 | Marshall, D.G. | 1943 |
| | MAUD Committee | 1941 |
| | Invitation to serve on Committee, letter of thanks on its winding-up. | |
| | Moon, P.B. | 1940 |
| | Morris, J.H. | 1940 |
| | Orowan, E. | 1942 |
| B.124 | Paneth, F.A. | 1942 |
| | <u>re</u> carbon isotopes for H.A. Krebs. | |
| | Park, J.R. | 1942 |
| | Frisch's carbon only. | |
| B.125 | Peierls, R.E. | 1940 |
| B.126 | Peierls, R.E. | 1941-42 |
| B.127 | Pryce, M.H.L. | 1941 |
| | Frisch lodged with the Pryces for a while (see <u>What little I remember</u> , pp.134-136). | |
| B.128 | Simon, F.E. | 1941-42 |
| B.129 | Smith, C. | 1941 |
| | <u>re</u> Annual Report on Radioactivity and Subatomic Phenomena for Journal of the Chemical Society, see also B.104. | |
| B.130 | Thomson, G.P. | 1940 |
| | Includes note from R.W.B. Stephens. | |
| | Titterton, E.W. | 1940-41 |
| | Turner, L.A. | 1941 |
| | Telegram only. | |
| | Tyndall, A.M. | 1940 |
| | Unidentified | |
| B.131 | Folder of Frisch's carbons, 1942-43, with answers to two or more correspondents on each sheet. Many of these are replies to correspondence listed above, but they also include family or personal letters. | |

Scientific research

B.132-B.136A

LOS ALAMOS

Virtually no material survives for this important period because of the strict security restrictions enforced on all personnel.

For personal material relating to Frisch's service at Los Alamos, see A.58-A.63 and also A.12-A.15.

B.132

Miscellaneous items 1944.

Includes letter re supplies; 'Informal Report March 5, 1944' 2 pp. typescript, no author; 5 photographs of uranium blocks, neutron counter, etc.

B.133

'Optical analogy'

Contents of a folder so described.

Includes report numbered 'BR 399' 'A study of the escape probability of neutrons from fissile material by an optical analogy', by D.G. Marshall, March 1944, with appendices by others, and miscellaneous notes, drafts and diagrams based on the report (by Frisch and another).

B.134

Receipts for classified material sent by Frisch to various colleagues, various dates December 1943-February 1945.

B.135

'Eye witness report of nuclear explosion, July 16, 1945'.

Frisch's 1 p. typescript contemporary account, and a later (1974) typescript note by him annotating the published version of his 1945 account.

Miscellaneous ms. notes and calculations by Frisch.

B.136

Correspondence March-December 1945.

Exchanged mainly with J. Chadwick re research plans, offers of jobs, Frisch's parents, etc. Reference is often made to the 'dragon' (R. Feynman's name for Frisch's method of testing chain reaction, see What little I remember, p.159), and includes plans for improvements, safety precautions, etc.

See A.63 for other correspondence re Frisch's career plans, offers of posts, etc.

Scientific research

B.136A

Letter dated 'April 15' and signed 'Louis', with news of work and colleagues at Los Alamos.

Probably April 1946 and sent by Louis Slotin, Frisch's successor in charge of critical assemblies, who died of exposure to radiation received from a careless accident during experimental work (see What little I remember, pp.161, 171).

We are grateful to Sir Rudolf Peierls for his help in dating and identifying this letter.

Scientific research

B.137-B.142

HARWELL

Frisch accepted the post of Division Leader in the Atomic Energy Research Establishment being built at Harwell, with the grade of Deputy Chief Scientific Officer. He was mainly occupied there with theoretical research in fluctuation problems in chain reactors. Very little material survives among his papers relative to this period.

For personal material relating to Frisch's period at Harwell, see A.64, A.65.

- B.137 Red notebook, pages numbered 2-144 by Frisch, and with a part-index of contents.
No date, but probably 1946-47.
Miscellaneous contents, including references to Chalk River, Harwell, Cavendish Laboratory, meetings at Stockholm and Oxford, ideas for research, personnel, drawings for apparatus.
At rear of book is a home-made series of diary entries June 1946-January 1947.
- B.138 Two sets of architectural plans for buildings at Los Alamos, one inscribed 'Gamma-Building (Los Alamos, 1945)' (perhaps used for guidance at Harwell).
- B.139 R.A.F. notebook, pages numbered 3-35 by Frisch.
Notes, diagrams, calculations, drafts, notes of meetings and lectures.
Entries begin 28 November 1946. On pp.35-36 are entries for 1952, 1954, 1955.
- B.140 Correspondence 1946 re Frisch's move to Harwell, buildings, staff appointments, etc.
Frisch's letter to Cockcroft of 21 January begins 'Thank you for sending me those plans. One referred to the theoretical building and I have given it to Fuchs, who will write you his own comments'. Also included are Frisch's comments on a paper 'Absolute Calibration of a Neutron Source'.
See also A.64.

Scientific research

- B.141 Original folder inscribed 'Personnel'.
 Correspondence 1947, re staff and research.
- B.142 Original folder inscribed 'N.P.' (= Nuclear Physics).
 Duplicated typescript of 20 lectures by Frisch on
 nuclear physics, given 3 December 1946-11 June 1947.
 Also included here are programme of nuclear physics
 conference at Harwell, September 1947, and a letter
 . 1955 re Frisch's consultancy at Harwell.

Scientific research

B.143-B.207

CAMBRIDGE

In 1947 Frisch was appointed to the Jacksonian Chair of Natural Philosophy at the University of Cambridge (see A.68) and was elected to a Fellowship at Trinity College. He retired from his Chair in 1972, but remained in Cambridge until his death.

The material is presented as follows:

B.143-B.183 THE CAVENDISH LABORATORY 1947-72

B.143-B.152 Notebooks and research notes

B.153-B.175 Lectures

B.176-B.183 Correspondence

B.184-B.207 LASER SCAN LIMITED

B.184-B.196 Notebooks and research notes

B.197-B.200 Publications and manuals

B.201-B.207 Correspondence

LASER SCAN was the name of the company, incorporated in 1969, with Frisch as Chairman, to develop various devices and in particular the SWEEPNIK, which was a machine for analysing tracks in bubble-chamber photographs. The machine had been developed during the 1960s by Frisch and his collaborators at the Cavendish Laboratory, and there is therefore some overlap in time. Nevertheless, it has been thought convenient to list separately the various LASER SCAN projects which were Frisch's chief research interest during his retirement from the Jacksonian Chair in 1972.

Frisch's own folder of material on the history of the company can be found at B.201-B.205.

Scientific research

B.143-B.183 THE CAVENDISH LABORATORY 1947-72

B.143-B.152 Notebooks and research notes

B.143 Hard-cover notebook inscribed 'ORF 18'.

Includes observations, diagrams, narratives of a project 15.12.1950-29.4.54. when the entry reads 'Project has fizzled out'.

Book then continues under heading 'SWEEPNIK' with detailed account of development of project; entries run 28 September 1965-6 February 1977.

B.144 Correspondence re patents.

Notice of U.K., U.S.A. and Canadian patents filed (U.K. no.10697/49) on 'High Density short pulse neutron source'.

Drawings and draft application for patent of 'A fastener consisting of two interlocking strips of flexible plastic of uniform cross-section', c.1949.

B.145 Folder of dated research notes and ideas, 1947-50.

'Neutron spectrometer', 1947.

'Negative mesons' (sent from Copenhagen 1947).

'Counting', 'Coincidences', 'Poisson-Gauss', 'Cosmology', 1950.

'ORF Newsletter' nos. 1-4, various dates during trip to United States 1950, describing research in progress in laboratories there.

B.146 Folder of dated research notes and ideas, 1957-70.

Letter to Frisch, from 'Dennis', on discovery of non-conservation of parity, 1957.

'Coherent Bremsstrahlung', 1962.

'Decisions of the High Energy Collaboration' (not by Frisch), c.1963.

'MOIRE', 1963.

'Proposal for an Experiment to Detect Pulses of Gravitational Radiation', 1970, with a ms. note by Frisch 'Train (Der Senator) well cushioned; written on case on my lap; hardly a sound'.

Scientific research

- B.147 Shorter undated ms. notes, diagrams, ideas, etc. by Frisch.
- B.148 Shorter, more fragmentary notes and calculations.
- B.149 Miscellaneous ms. notes by Frisch on papers or conference discussions, some dated. 1959-78.
- B.150 Shorter correspondence and papers re the 'Eddington Group', chiefly re Frisch's contribution 'What is an observation?' to 1956 meeting.
- B.151 'Odd Physics'
Original folder so described, containing correspondence and papers, all on Special Theory of Relativity, sent to Frisch for advice and comment, 1973.
- B.152 Research notes and reports by others, ms. and typescript. Some with brief ms. notes by Frisch.
- B.153-B.175 Lectures
These are presented in chronological order as far as possible. The majority are graduate and undergraduate lectures given at Cambridge University, but see B.167-B.169 for lectures as visiting scientist at CERN 1967. Almost all the work is ms. and rarely written up as a narrative.
- B.153 1947
'Suggestions for the presentation of nuclear physics'. 3 pp. typescript, no author, from Cavendish, October 1947.
- B.154 1948
Frisch's folder inscribed 'ORF Lectures'.
Includes 'Nuclear Physics Lectures 1948', lecture on nuclei, 4 lectures on neutrons, n.d., miscellaneous undated notes and calculations.
- B.155 1949
Nuclear Physics, October-December 1949.

Scientific research

- | | | |
|-------|------|---|
| B.156 | 1950 | |
| B.157 | 1951 | |
| B.158 | 1952 | |
| B.159 | 1953 | Includes various paginated sequences January-March and October-November 1953 (some pages also used 1955). |
| B.160 | 1954 | Includes sequences on atomic physics, nuclear physics, and molecular beams. |
| B.161 | 1955 | |
| B.162 | 1956 | Includes sequence on 'Nuclear Physics for Maths.' and 1 p. only 1957. |
| | | No mss. survive for lectures 1957-60. |
| B.163 | 1961 | |
| B.164 | 1962 | |
| B.165 | 1963 | Book list and synopsis only. |
| | 1964 | Synopsis and one lecture only. See B.168 below. |
| | 1965 | Notes only, related to A.B. Pippard's course on 'Forces and Particles'. |
| B.166 | 1966 | |

Scientific research

B.167-B.169 1967

Lectures at CERN as Visiting Scientist, June-September, where Frisch gave a course of 12 lectures on 'Fundamentals of Quantum Mechanics and Particle Physics'.

B.167 Correspondence, including invitation to lecture, arrangements, bibliography, notice, etc. (in Frisch's folder inscribed 'Physics (CERN)').

B.168 Miscellaneous sequences of notes and narratives, variously paginated 37A-84, originally given as Frisch's 'Quantum Mechanics' course for Lent Term 1964.

(In Frisch's folder inscribed 'Wave Mech. CERN Lecture notes, etc. Q.M.')

B.169 Miscellaneous additional sequences of notes, diagrams, etc. on various aspects of quantum mechanics and fundamental particles, some dated 1967 and probably intended for CERN lectures.

B.170 1969

'Philosophical Aspects of Relativity and Quantum Mechanics. Lent Term 1969'.

59 pp. typescript with ms. corrections, probably transcript from tape-recording.

'Lecture 1' occupies pp.1-16; 'Lecture 2' starts p.17 to c.p.29, the course being probably 4 lectures in all.

Also included are miscellaneous notes on the subject, dated 1969 and 1970.

B.171 1971

Notes for course of 8 lectures on relativity, January-February 1971.

Scientific research

- B.172 Shorter notes and drafts for lectures, 1953-57.
- Notes for 4 lectures on Radioastronomy.
Included with these is 22 pp. ms. draft on 'Recent Advances in Radio Astronomy' for the Ritchie Lecture, Edinburgh, 21 May 1954 (perhaps by M. Ryle).
- Notes for 'Philosophical Society Lecture' dated 23 November 1953 (ms. corrections not in Frisch's hand).
- 'Why are there laws of nature?'
- 5 pp. typescript, February 1954.
- 'Complementarity', 1 p. ms., Trondheim, May 1956.
- 'Big circles', 1 p. ms., December 1957.
- B.173 Shorter notes and drafts for lectures, 1959-69.
- 'K-meson decay modes', 2 pp., March 1959.
- Historical lecture, 2 pp., c.1959.
- 'Time and Relativity', 4 pp., February 1960.
- 'Recoilless gamma resonance', 3 pp., c.1960.
- 'Measurement and chance', 1 p., May 1964.
- Plans of three 'Proposed lectures', February 1969.
- B.174 Undated notes and drafts for lectures, some on history of Cavendish and of atomic physics.
- (Some are on verso of Trinity College Minutes from which an approximate dating may be made.)
- B.175 Synopses, bibliographies, problems, etc., for courses by others at Cavendish Laboratory.

Scientific research

B.176-B.183 Correspondence

Very little correspondence re the Cavendish Laboratory survives in Frisch's papers. A little additional material may be found in the correspondence with N.F. Mott, G.G. Scarrott, G.S.B. Street, D.H. Wilkinson in Section F.

- B.176 Correspondence re staff and research, 1947-52.
- B.177 Correspondence and papers 1951-52 re setting-up of CERN, and U.K. participation.
Mainly printed matter, but includes letter from Chadwick inviting Frisch to attend discussion meeting on the subject.
- B.178 Shorter correspondence re staff and research, 1958-65.
- B.179-B.182 Correspondence re theses, references, appointments, careers advice, etc.
- B.179 1949-54
- B.180 1957-63
- B.181 1964-70
- B.182 1973-76
- B.183 Miscellaneous material re visits to Cavendish, and laboratory occasions (including dinners for Bragg, Perutz, Crick, Kendrew, etc.).

Scientific research

B.184-B.207 LASER SCAN LIMITED

B.184-B.196 Notebooks and research notes

These include Frisch's later miscellaneous projects related to the company, as well as the original SWEEPNIK material.

See also B.143.

B.184 Blue spiral-bound notebook.

Begins with 1 p. only dated 1959, then continues with notes on 'Geneva Bubble Meeting March 8, 1960'.

Miscellaneous other notes of meetings, research, etc., continuing to 1977.

At rear of book, brief notes on experiments 1977, 1978.

Some loose pages of calculations, 1979, are tucked into rear of book.

B.185 Black soft-cover notebook, inscribed inside 'LS Research 1977'.

Miscellaneous notes of experiments 27 February-7 October 1977 (few pages only used).

B.186 Spiral-bound notebook of notes and calculations, 11 January-3 March 1978 (few pages only used).

B.187 Folder of notes, reports, etc. re: scanning devices and track-measurements for bubble chamber at CERN, 1969-71. Some papers annotated by Frisch.

Includes CERN report 'A study about the applicability of the principle of SWEEPNIK for the analysis of BEBC pictures', by K.K. Geissler, 1972 (BEBC = Big European Bubble Chamber).

B.188 Contents of envelope inscribed 'Laser-scan'.

Various notes, diagrams and narratives, some with dates 1975-78.

Includes 1 p. ms. notes on optics (on verso of programme for opening of Cambridge Science Park, June 1975, which included a visit to Laser scan Laboratories), 7 pp. paper on 'The Optical system of the modular display', July 1975, 1 p. paper on 'Diffraction focussing elements', June 1977, 5 pp. paper 'LS Research section: proposals for work', September 1976, 2 pp. paper

Scientific research

'Principles of a Laser Entertainment Device',
February 1978. These late papers, like those in
B.189-B.196, represent some of Frisch's last work
and show his continued inventiveness.

- B.189 'Spherical errors. Astigmatism'
Folder of notes and diagrams, some dated 1976.
- B.190 'Holo-lens computations'
Folder of notes and diagrams, mainly 1976.
- B.191 'Diazo. Moiré'.
Includes paper 'Proposed Diazo Dispenser', March
1976, and miscellaneous notes and diagrams 1974-75.
- B.192 'DEAFaid'
Folder of notes and diagrams, 1978-79 (latest date
April 1979), and including correspondence and
related offprints from R. L. Gregory.
- B.193 'Character Recogn.'
Miscellaneous notes and related offprints.
- B.194 'Hologr.'
Folder of notes and diagrams 1977-78.
- B.195 '2-D and 3-D Lens Trace'
Envelope of notes and diagrams. Frisch's notes
dated 1977-78, with some earlier correspondence
and memos. 1976.
- B.196 Miscellaneous notes on mathematical problems, chiefly
methods of calculating prime numbers.
1 p. 1971, but mainly November 1977-July 1979,
and some undated.
The latest note 'Continued Fraction', not related
to the above, is dated '12 Sept. 79' (Frisch died
on 22 September).

SECTION C LECTURES AND PUBLICATIONS C.1 - C.139

Introduction to Section C

Much of the material in this Section is subsequent to Frisch's return to Britain in 1947 and is aimed at a more general public than were his earlier scientific writings. He had an acknowledged gift for expository writing and speaking and the ability to express difficult technical concepts in lucid, unassuming terms without over-simplification. He also knew his own limitations and refused invitations to speak or write on topics which he considered beyond his range, preferring to limit himself to keeping the intelligent layman - of all ages - up to date on developments in nuclear physics. In addition, he was of necessity aware of the part he had himself played in the history of his subject, and he gave many talks on the collaborative discoveries with Lise Meitner in 1938 and on the general history of twentieth-century atomic and nuclear research.

The combination of great personal charm and modesty together with a distinguished direct contribution to knowledge made Frisch in constant demand as writer, speaker and also as broadcaster on radio and television (see Section D). An additional attraction was his linguistic range; there is work in German, French and Danish as well as English.

The items listed at C.1 - C.89 below represent only those undertakings for which drafts or documents survive. The correspondence (invitations, letters of thanks, etc.) at C.90 - C.101 make clear how highly Frisch was valued as a speaker and how generously he responded to requests; similarly the correspondence with editors and publishers (C.102 - C.133) indicates many unrealised projects for books which he was asked to write.

An incomplete set of reprints of Frisch's published papers, presented in the order adopted for the Bibliography accompanying the Memoir by R.E. Peierls (Biographical Memoirs of Fellows of the Royal Society, 27, 1981) appears at the end of the Section at C.138, C.139. Several items in the sequence C.1 - C.89 are omitted from or additional to this Bibliography.

Lectures and publications

The material is presented in chronological order so far as this is ascertainable, as follows:

- C.1 - C.54 LECTURES AND ARTICLES
 - Drafts and related correspondence
- C.55 -C.76 BOOKS AND UNPUBLISHED WORK
 - Drafts and related correspondence
- C.76 BOOK REVIEWS
- C.77 -C.89 OBITUARIES AND BIOGRAPHICAL WRITINGS
- C.90 -C.101 REQUESTS FOR LECTURES AND PAPERS
- C.102-C.133 CORRESPONDENCE WITH PUBLISHERS AND EDITORS
- C.134-C.139 PUBLISHED MATERIAL

Lectures and publications

C.1-C.54 LECTURES AND ARTICLES

Drafts and related correspondence

- C.1 Paper on diffraction of slow electrons by crystals, 6 pp. typescript, n.d., but with a ms. note 'Werner Ehrenberg, 1934 (my draft?) ORF 1972'.
- C.2 'Wie die Urankernspaltung entdeckt wurde'.
Introduction to a talk by Frisch, with a ms. note by him 'Spring 1947'.
- C.3 'Eine neue Komponente der Kosmischen Strahlung'.
Article for Neue Rundschau, with ms. date 1947, galley proof.
- C.4 'Isotope im Dienste der medizinischen Forschung'.
Article for Neue Rundschau, with ms. date 'Dez. 1947', galley proof and Frisch's forwarding note.
- C.5 'Growing Points in Science III'.
Summary of discussion meeting organised by Society for Visiting Scientists, March 1948.
- C.6 'Statistics of multiplicative processes'.
15 pp. duplicated typescript 1948.
- C.7 'Counting of nuclear fragments: the primary detectors'.
2 versions, each 12 pp. with ms. corrections, of an article contributed to a collaborative volume. n.d., latest reference 1948.
- C.8 'The Cyclotron and its limitations'.
15 pp. typescript for article in Discovery, with ms. note 'Very urgent'. The ms. bears a date '1952?' but accompanying correspondence is dated 1950 and includes a draft written in 1949.
- C.9 'Recent research on nuclear structure'.
Short article for Cambridge Review, c.1951, galley proof.
- C.10 'The particles of physics: what kind of pattern?'
6 pp. typescript, n.d. early 1950s.

Lectures and publications

- C.11 Untitled talk or article on similar subject.
 13 pp. typescript, n.d. early 1950s.
- C.12 Untitled heavily corrected draft, perhaps for popular
encyclopaedia, on current state of physics research.
 9 pp. typescript and ms., n.d. c.1953.
- C.13 'Giant accelerators - what do we expect from them?'
 Article for Times Science Review, 1953, 22 pp.
 typescript and ms.
- C.14 'On the Feasibility of Coal-Driven Power Stations'.
 This light-hearted piece rapidly became second in
 renown only to the Meitner-Frisch papers on fission.
 Originally published in the spring 1954 number of
 Harlequin (the 'Leisure Magazine of the Atomic Energy
 Research Establishment') it was republished in many
 journals and several languages.
 Folder includes original draft (3 pp. typescript and
 ms.), letter 1953 re publication in Harlequin, copy of
 first publication, Italian version, Journal of Nuclear
 Physics 1955 (Bohr's 70th birthday number) and later
 correspondence re article from editors and readers
 1956-77.
- C.15 'The stolen submarine'.
 Short story, 6 pp. typescript, with a few ms. corrections.
 Written probably in 1950s for Frisch's children and other
 members of the family. See C.54 for similar material.
 Also includes photocopy of story with ms. note 'Karli & Kurt'.
- C.16 'La radioactivité artificielle et la physique'.
 Lecture at Sorbonne, as part of celebration by University
 of Paris of 20th anniversary of discovery of artificial
 radiation, November 1954.
 Folder includes English text, 15 pp. typescript (lecture
 was given in French), invitation and notice, shorter
 related correspondence.

Lectures and publications

- C.17 Untitled lecture on hydrogen bomb.
 9 pp. typescript and ms., 1954.
 Folder also includes a letter of comment on the draft, later correspondence re course of lectures 1954-55 at Shrewsbury (Frisch lectured 11 March 1955 on 'The military application of nuclear energy') and 1 p. ms. notes and references by Frisch updating the subject to January 1956.
- C.18 'Thermonuclear weapons (H-bombs)'.
 5 pp. typescript article for The Daily Telegraph, March 1955. Includes brief correspondence re articles for the newspaper.
- C.19 'Counting atomic particles'.
 Typescript and proof of article for Times Science Review, 1955.
- C.20 'An electron accelerator for arbitrarily high energies'.
 Humorous article, perhaps intended for Journal of Jocular Physics, 1 p. typescript, October 1955.
- C.21 'On Energy Selection with Cherenkov Counters'.
 3 pp. duplicated typescript, June 1956.
- C.22 'Antiparticles and Antimatter'.
 16 pp. typescript of article for Times Science Review, 1956.
- C.23 Untitled draft on similar subject.
 9 pp. heavily-corrected typescript, with a heading 'Rotblat' (possibly for Discovery, see C.110).
- C.24 'Peaceful uses of atomic fission'.
 17 pp. typescript draft, July 1957, of article published in The Atlantic Monthly, with a little related correspondence.
- C.24A Untitled article (on the scientific principles involved in the release of nuclear energy), for United Nations News, November 1958.
 7 pp. typescript and ms., with related correspondence, which also includes arrangements for Frisch to give lecture to U.N. Association (Cambridge) on 'Nuclear Radiation', March 1959.

Lectures and publications

- C.25 'Fluctuations in chain processes', with subtitle 'Notes on a series of lectures presented at Chalk River in August, 1958, and published with the kind permission of the author'.
Chalk River, Ontario, report no.748, February 1959.
18 pp. duplicated typescript and Frisch's forwarding letters.
- C.26 'Coherent Bremsstrahlung from crystals'. Collaborative paper by Frisch and Olsen, published in Phys. Rev. Lett, 1959.
Includes 4 pp. typescript draft, ms. notes by Frisch and collaborator, notes perhaps for lectures on similar subject, correspondence from collaborator.
In original folder inscribed 'Überall Effect'.
- C.27 'What do atomic nuclei look like?'
8 pp. typescript and ms. with 1 p. references, May 1959.
- C.28 'Are the laws of nature symmetrical?'
Evening Discourse given at the Royal Institution, May 1960.
1 p. draft summary only, with invitation and related correspondence.
Included here are corrected proof and correspondence re Frisch's article of the same title, published in Nature, 187, 1960.
- C.29 'The new elementary particles'.
5 pp. typescript (incomplete), perhaps for article in Times Science Review, 1959.
- C.30 'Fundamental Physics of the Atom'.
14 pp. typescript and ms., with 1 p. figures, n.d. early 1960s.
- C.31 'Fundamental Particles'.
16 pp. typescript and ms., with a ms. note 'Keep this', n.d. early 1960s.
Included here is correspondence re the York lecture on 'The fundamental particles of physics', given at British Association meeting, August 1961, with a 2 pp. summary for the lecture.

Lectures and publications

- C.32 'Radiation and Matter'.
20 pp. typescript and ms., August 1961.
- C.33 'Observation and the Quantum'.
Contribution to The Critical Approach, a celebration volume for K. Popper, 1962.
Includes text (13 pp. typescript and ms.), notes, related background material, correspondence.
- C.34 'Experimentation with elementary particles'.
21 pp. typescript and ms., with a ms. note 'Store', February 1963.
- C.35 'Symmetry'.
11 pp. typescript and ms. article in dialogue form (incomplete) n.d. c.1965.
- C.36 'Die Elementarteilchen der Physik'.
Contribution to conference or discussion meeting, includes questions and discussion.
(Offprint only). See E.33 for possibly related correspondence.
- 'Die Datierung Vorgeschichtlicher Funden'.
Article in German review.
(Offprint only) n.d. c.1964-66.
- C.37 'Guest leader' article (on value of particle physics research) for Science Journal, July 1965.
4 pp. typescript and related correspondence.
- C.38 'Die Bausteine der Welt'.
2 pp. typescript, September 1967.
English version, titled 'Particles'.
3 pp. typescript (incomplete), n.d.
- C.39 'The interest is focussing on the atomic nucleus'.
Contribution to Niels Bohr; His life or work as seen by his friends and colleagues, ed. S. Rozenthal, 1967.
Offprint only: two copies, one heavily annotated and revised for use in What little I remember.

Lectures and publications

- C.40 'Fission - how it all began'.
Talk given at American Physical Society History of Fission Session, April 1967.
2 pp. typescript 'Summary and explanations', and later correspondence, 1974, re use of talk in audio-visual historical programme.
Copy of talk as published in Physics Today.
- C.41 'Rutherford'.
Stokes Lecture 1971 (with slides).
Folder includes 22 pp. transcript of tape recording (incomplete), photographs, copy of Rutherford's and Geiger's 1912 paper on α particles.
- C.42 'Electroscope to Atomic Power'.
20 pp. typescript and ms. draft for illustrated lecture or broadcast.
Includes letter (June 1972) forwarding draft, notes and an earlier 1 p. draft dated December 1971.
- C.43 'From MeV to GeV'.
Article contributed to 'A Hundred Years of Cambridge Physics', September 1973.
5 pp. ms. and typescript draft, and comment from A. Kempton on the draft.
- C.43A 'Who discovered the electron?'.
11 pp. typescript and ms. draft, and published version, n.d., but after 1972.
See C.120 for a later published version, 1977.
- C.44 'Presenting physics'.
8 pp. typescript and ms. draft for article published in Physics Bulletin, 1974.
- C.45 'Distinguishing the main types of radioactivity'.
1 p. typescript, and related correspondence re distribution as a cassette tape-recording study guide of this talk and of 'The origin of nuclear fission', also by Frisch.
See G.29, G.30 for tape-recordings of talks.
See also C.73.

Lectures and publications

- C.46 Notes and background material for a slide lecture on the history of nuclear physics, September 1975.
- C.47 'Track Identification in High-Energy Jets in Bubble Chambers'.
2 pp. typescript, July 1976.
- C.48 'The Importance of Technology for the Growth of Physics'.
2 pp. notes for lecture at Newcastle, March 1977, with related correspondence.

'Words'.
1 p. typescript and ms., perhaps for short broadcast, August 1977.
- C.49 Untitled article (on books which had influenced him) for New Scientist, February 1977.
Heavily-corrected typescript, 3 pp.
- C.49A 'Nuclear reactors'.
Various typescript and ms. drafts for article or talk, April 1978.
- C.50 'You can prove anything with statistics'.
10 pp. typescript and ms. draft, September 1978, for contribution to Lying Truths.
- C.51 Correspondence, 1977-78, re publication by Minnesota University Press of Frisch's lecture 'Experimental Work with Nuclei: Hamburg, London, Copenhagen', delivered in May 1977.
See E.58.
- C.52 'A crazy function'.
Humorous short note, June 1979.
Draft, correspondence, offprint.
- C.53 Correspondence re Frisch's contribution (on Space and Time) to proposed St. Michael General Knowledge Book, August 1979.
Includes notes and several drafts for article.
- C.54 'Two stories about a small bear', March 1979.
Included here are other anecdotes and sketches, probably written in 1950s.

Lectures and publications

- C.55-C.75 BOOKS AND UNPUBLISHED DRAFTS
- Drafts and related correspondence.
- C.55-C.57 Meet the atoms (New York 1947).
- C.55 Correspondence with U.S. publishers, initially Bermann-Fischer Verlag, later their successors A.A. Wyn, Inc., 1946-60.
- Includes contract, comments on draft manuscript, publishing arrangements, letter from Lise Meitner re Frisch, royalty statements, etc.
- In original folder inscribed 'Meet the Atoms'.
- C.56 Correspondence with Sigma Books Ltd., U.K. publishers, 1946-51, and one letter 1958.
- Includes suggestion that Frisch's father should design book jacket for U.K. edition.
- C.57 Reviews of book, shorter correspondence re various translations, 1947-52.
- C.58-C.61 Atomic physics today (New York 1962).
- C.58 Correspondence with U.S. publishers (Basic Books Inc.), 1959-77.
- Includes Agreement, publication arrangements, publicity, royalties, translations, arrangements for U.K. publication (by Oliver and Boyd).
- C.59 Royalty statements, reviews, blurb, etc.
- C.60 Frisch's notes for book, correspondence with colleagues re information, photographs.
- C.61 Correspondence with Basic Books Inc. re arrangements to publish American edition of Working with Atoms (see C.62) 1966.
- Includes reviews.
- See also C.113.

Lectures and publications

- C.62-C.64 Working with atoms (Leicester: Brockhampton Press 1965).
- C.62 Correspondence with publishers (Brockhampton Press Ltd.) 1962-76.
Includes Agreement, publication arrangements, translations, arrangements for American edition published by Basic Books (see C.61).
- C.63 Royalty statements, 1965-70.
Proof copy of book, with some ms. corrections.
- C.64 Frisch's notes for book, illustrations and photographs.
Correspondence, 1963-65, re illustrations for book, on which Mrs. U. Frisch initially collaborated.
- C.65, C.66 The Nature of matter (London 1972).
- C.65 Correspondence with publishers (Thames and Hudson Ltd.), 1967-72.
Includes Agreement, publishing arrangements.
N.B. The book was published in February 1972 (not 1973, as given in the Bibliography, Biographical Memoirs of Fellows of the Royal Society, 27, 305).
- C.66 Royalty statements and correspondence, 1972-78.
Review of book.
- C.67-C.75 Miscellaneous drafts for books.
- C.67 'Manual of radioactivity'.
3 pp. typescript plan for collaborative book (4 authors) with chapter-headings and detailed summary of General Introduction on natural, artificial and applied radioactivity. n.d. c.1946.
See C.125 for correspondence with Pergamon Press on possible publication.
- C.68 Folder inscribed 'Atoms - Manual', containing typescript and ms. draft of two chapters, 'Atomic Structure' (39 pp.) and 'Types of Radioactivity' (46 pp.) n.d.
There is also a 'Historical introduction' (8 pp. typescript, with 2 pp. ms. comments in another hand) intended for a book

Lectures and publications

- C.68 on fission, n.d., 1950s. (The back of the folder has
(Cont'd) a note 'Fission Book'.)
- Probably intended for proposed book for C.U.P, see
C.105.
- C.69 Folder inscribed 'Subatomic Particles', containing notes
and drafts for several chapters for a proposed book, as
follows:
- Miscellaneous notes and headings, some dated 1959,
1960.
 - 'Atoms and the quantum', dated 14 February 1959.
 - 'Introduction', 2 drafts, one with revisions.
 - 'Historical Introduction', dated 1961, 2 drafts,
one with revisions and 1 p. comments (numbered 1).
 - 'Waves, Spin, Positrons', incomplete (numbered 3).
 - Untitled, on waves and spin, incomplete (numbered 4).
 - 'Beta decay and the neutrino' (numbered 7).
 - 'Nuclear Force and the "Mesotron"' (numbered 8).
 - 'Nature's bullets' (numbered 10).
- See C.105 for correspondence for proposed book of this
title for C.U.P.
- C.70 Chapters of a proposed book on 'New Particles', as follows:
- 'New particles' (numbered 1).
 - 'Observing single particles' (numbered 2).
 - 'The photon: waves and particles' (numbered 2).
 - 'Electrons, protons, nuclei' (numbered 3).
 - 'The atom and the quantum' (numbered 4).
 - 'Recording individual particles' (numbered 4).
 - 'Seeing the tracks of particles' (numbered 5).
- Also included are ms. notes by Frisch of the Contents
page of a proposed book, containing 18 chapters,
dated 27 September 1962.

Lectures and publications

- C.71 'Elementary atomics'.
Foreword and draft for chapter 1 'Atomic Structure',
n.d., perhaps 1950s.
- C.72-C.74 Miscellaneous typescript drafts, some dated 1974, 1976,
originally contained in an envelope inscribed 'Through
the eyes of a scientist', and intended for a book with that
title (see C.74).
- C.72 'Energy', miscellaneous drafts and revisions, some dated
August 1974.

'Heat'.
- C.73 'Coping with Numbers', dated February 1976.

'Sound'.

'Distinguishing the Main Types of Radioactivity'.
See C.45.
- C.74 'The Origin of Nuclear Fission'.

11 pp. typescript headed 'The Society of Nuclear
Medicine, Nuclear Pioneer Lecture honouring Lise
Meitner. Presented by Dr. Otto Frisch from Cambridge
University at the Annual Meeting of the Society in
Miami Beach, Florida in June 1973'.

See also E.51, E.52.

Includes correspondence re slides and cassette of
lecture, and also correspondence with publisher re
Frisch's ideas for book 'Through the eyes of a scientist'.
- C.75 Shorter unidentified and undated drafts for books.

Lectures and publications

C.76

BOOK REVIEWS

Most of these are additional to the list given in the Bibliography, Biographical Memoirs of Fellows of the Royal Society, 27, 305.

'The Acceleration of Particles to High Energies', Discovery, 1950.

'Atomkraft heute und morgen', by Carlos Sánchez del Rio, 1955.

'The Great Decision', by M. Amrine, New Scientist, 1960.

'The Birth of the Bomb', by R.W. Clark, Discovery, 1961.

'From Dualism to Unity in Quantum Physics', by A. Landé, Contemp. Physics, 1961.

'The New World', U.S. Atomic Energy Commission History, Vol. I, New Scientist, 1962.

'Physics in the Sixties', ed. S.K. Runcorn, Discovery, 1963.

Combined review of books by Oppenheimer, Weizsäcker and Schrödinger, New Statesman, 1964.

'The Nature of matter', by L.C.L. Yuan, Science Journal, 1965.

'The Art of the soluble', by P.B. Medawar, 1969.

'Rutherford - Recollections of the Cambridge days', by M. Oliphant, 1973.

'Collected Works of Leo Szilard', ed. B. Feld and G. Szilard, Physics Bulletin, 1973.

'Solvay Conferences on Physics', by J. Mehra, 1977.

'Scientists in Power', by S. Weart, Nature, 1979.

Lectures and publications

C.77-C.89

OBITUARIES AND BIOGRAPHICAL WRITINGS

N.B. Many of these are additional to those listed in the Bibliography, Biographical Memoirs of Fellows of the Royal Society, 27, 306.

- C.77, C.78 N. Bohr
- C.77 Miscellaneous obituary notices and tributes by Frisch, for The Times (1961, includes copy of previous Times stock obituary 1937), broadcast (December 1962), article or talk (1967).
- C.78 Miscellaneous printed matter, press-cuttings and articles by or about Bohr, assembled by Frisch.
- C.79 M. Born
Address at Memorial Service, Caius College, Cambridge, May 1970.
- C.80 J. Chadwick 1974
- C.81 J.D. Cockcroft
Obituary broadcast on 'Ten O'Clock' programme, September 1967.
- C.82 A. Einstein
Notes for centenary talk, 1979.
- C.83 E. Fermi
Offprint from Nature, Lond., 1955.
- C.84, C.85 O. Hahn
- C.84 Articles and tributes by Frisch, for The Observer (1964), Physics Bulletin (1968).
- C.85 Miscellaneous notices, printed matter, press-cuttings and articles by or about Hahn, assembled by Frisch.
- C.86 J.E. Littlewood
5 pp. tribute with a ms. note 'Memorial Service?'
- C.87 J.R. Oppenheimer
n.d., perhaps on occasion of Fermi Prize, 1963.

Lectures and publications

- C.88 G.P. Thomson
 Draft for obituary notice in Phil. Mag. and Cont. Phys.,
 with a little editorial correspondence, 1975.
- C.89 D.H. Wilkinson

Lectures and publications

C.90-C.101

REQUESTS FOR LECTURES AND PAPERS

The material, which consists of correspondence sometimes accompanied by a little background information, is presented chronologically. A note is given of any material of particular scientific or personal interest, and significant correspondence is indexed, but it has not been possible to itemise every invitation which Frisch received or accepted, from universities, industrial firms, scientific societies, Jewish organisations, schools and colleges.

N.B. For invitations to give lectures abroad, see Section E.

C.90 1934, 1946-49

Letter of 1934 is from Birkbeck College Physical Society during Frisch's period in Blackett's laboratory.

C.91 1950-55

Includes correspondence re Frisch's participation in course of extra-mural lectures, London, on 'Atomic Energy', 1954, to which Frisch contributed the second lecture, on 'Atomic Weapons'.

C.92 1956-59

C.93 1960

C.94 1961

C.95 1962-64

C.96 1965-69

C.97 1970-74

C.98 1975

C.99 1976

Includes arrangements for Frisch to give a memorial lecture for W. Ehrenberg at Birkbeck College.

C.100 1977-78

C.101 1979 and undated

Lectures and publications

C.102-C.133

CORRESPONDENCE WITH PUBLISHERS AND EDITORS

The correspondence is mainly with editors or representatives of firms or newspapers, but there are a few exchanges with individuals.

The content relates to Frisch's own publications (articles, books, translations), written or proposed, and to requests for advice or comment by him on material submitted for publication by others.

N.B. Correspondence relating to specific identified writings by Frisch is included with the relevant manuscript drafts in C.1-C.89 above.

C.102	<u>Adventures in Experimental Physics</u> Allen and Unwin Limited Correspondence and agreement <u>re</u> proposed 'Collected Papers' by Frisch.	1973 1958
C.103	American Technion Society Appleton-Century-Crofts <u>Atlantic Monthly</u>	1948 1964 1962
C.104	Bergmann-Fischer Verlag <u>Bild der Wissenschaft</u> <u>Bulletin of the Atomic Scientists</u> Butterworths	1945 1966-67 1959, 1974 1950
C.105	Cambridge University Press Correspondence on various projects and proposed books. Includes Agreement for collaborative book on 'Fission', 1953. See C.68 Correspondence <u>re</u> proposed book on 'Subatomic Particles' or 'Elementary Particles', eventually dropped at Frisch's request 1960-64. See C.69. Correspondence <u>re</u> Niels Bohr's <u>Atomic Theory and the Description of Nature</u> , and including Frisch's introduction for reissued version, 1960.	1953-74

Continued

Lectures and publications

- C.105 (Cont'd.) Correspondence re translation of Schrödinger's Meine Weltansicht, and including a 'trial translation' by Frisch, 1961-64.
Agreement for proposed book on 'Quantum Theory and Beyond' to be written by Frisch, 1970.
Other miscellaneous correspondence, last date 1974
- C.106 University of Chicago Press 1957-60
Correspondence mainly re proposed collection of essays and lectures by Frisch, to be published under the title 'Looking at Atoms'; includes Frisch's suggested list of material (July 1957) and readers' reports (January 1958).
- C.107 Clarendon Press, Oxford 1947, 1971
re proposed books 'The Neutron (1947) and 'High Energy Physics' (1971).
E.U. Condon 1962
re proposed publication of historical work by Lise Meitner and Frisch, 1962.
- C.108 Contemporary Physics 1959-79
Frisch was a member of the Editorial Board, and contributed an article on 'Molecular Beams' to the introductory issue.
General correspondence, on articles and reviews by Frisch submitted for publication in the journal, his comments on papers by others, suggestions for articles or authors to be approached, etc.
- C.109 André Deutsch 1977-78
- C.110 Discovery 1948-63
Correspondence on articles and reviews by Frisch.
N.B. Drafts of book reviews by Frisch for Discovery are in C.76.
- C.111 R. Fraser 1954
W.H. Freeman and Company Limited 1979
G.G. Harrap and Company Limited 1959-60

Lectures and publications

- C.112 A.W. Haslett 1952-62
Correspondence on various articles by Frisch for Penguin Science News, The Times Science Review, Science Survey, etc.
- C.113 W. Heinemann Limited 1961-62
re possible publication by Heinemann of U.K. edition of Atomic Physics Today.
See also C.58-C.61.
- C.114 A. Hildesheimer 1953-54
Correspondence with author and with several publishing houses about Hildesheimer's book 'Die Welt der Ungewohnten Dimensionen' and including report by Frisch.
- C.115 Hutchinson's University Library 1960
re proposed book on nuclear physics.
- D. Karten 1967
Macmillan 1970
A. Mondadori Company 1973-74
F. Muller Limited 1954
J.C. Muster 1970
re 'Single Concept Tapes' project, Otterbein College, Ohio.
- C.116 Nature 1959-60
Naturwissenschaften 1931
T. Nelson and Sons 1959-64
re proposed book 'The Young Physicist', with a few notes for chapter-headings.
- C.117 G. Newnes Limited 1955-56
Frisch acted as Consultant and Adviser for books on peaceful uses of atomic energy (see letter of 9 November 1955 for details of appointment).
General correspondence with the firm, and with possible authors re publications, comments on mss.

Lectures and publications

- | | | |
|-------------|--|---------|
| C.118-C.120 | <u>New Scientist</u> | 1957-79 |
| | Correspondence on articles and reviews by Frisch (many not documented elsewhere in the collection). | |
| C.118 | 1957-60 | |
| C.119 | 1970-75 | |
| | Includes a short article 'One Christmas I shall never forget' [1938] 1973, notes for article on High Energy Physics 1974, correspondence arising from Frisch's article 'Shooting sparrows in the dark' 1975 and a biographical 'profile' of Frisch 1975. | |
| C.120 | 1976-79 | |
| | Includes correspondence <u>re</u> publication of Frisch's earlier lecture 'Who invented the electron?' (see C.43A) 1977, anniversary articles on Lise Meitner and on Einstein 1978. | |
| | For book review by Frisch for <u>New Scientist</u> , see C.76. | |
| C.121 | <u>New York Times</u> | 1977 |
| | <u>The Observer</u> | 1964 |
| C.122-C.124 | Penguin Books Limited | 1946-63 |
| | Correspondence on books and articles written or proposed. | |
| C.122 | 1946-50 | |
| C.123 | 1951-56 | |
| C.124 | 1962-63 | |
| C.125 | Pergamon Press Limited | 1953-77 |
| | Mainly <u>re</u> launching of 'Progress in Nuclear Physics'. | |
| | Correspondence 1953 refers to proposed 'Manual of Radioactivity' (see also C.67). | |

Lectures and publications

- C.126 Physics Bulletin 1959, 1972-74
Correspondence 1959 is re article by Frisch on 'Fundamental Particles'; correspondence 1972-74 is re articles on SWEEPNIK and on 'Presenting physics' (see C.44).
- C.127 SALVAT Editores 1975
- C.128 Scientific American 1963-67
 . Correspondence re Frisch's article 'Molecular Beams' and essay-review on Niels Bohr.
- The Sunday Times 1967
 re book on Niels Bohr.
- C.129 Charles Scribners' Sons 1969-76
Includes Agreement for Frisch to write book 'Lise Meitner as I remember her', 1969, and other articles especially for Dictionary of Scientific Biography.
- C.130 Technica (Russian journal) 1967
 J.A. Teegan 1950
 The Times 1973
 Ulisse 1949
 re Premio Europeo Cortina, for which Frisch's book Meet the Atoms was runner-up.
- Universities Quarterly 1957-59
- C.131 Victoria Publications 1956
 F. Vieweg and Sons 1959-60
 Wissenschaftliche Buchgesellschaft 1978
 re re-issuing of Meitner/Frisch 1939 article on Disintegration, and Frisch's 1939 article on Neutron bombardment, both originally in Nature.
- C.132 " World University Library 1963-64
 Mainly re proposed book 'The Anatomy of Matter'.
- C.133 Miscellaneous shorter correspondence, permission to quote, requests for information, acknowledgement of material, etc.

Lectures and publications

C.134-C.139 PUBLISHED MATERIAL

C.134 Biographical articles and obituary notices of scientists.

C.135 Early reprints on nuclear research.

C.136 Pamphlets, declarations, etc. on nuclear warfare, security, C.N.D., including some Second World War material.

C.137 Humorous material, articles, verses, songs assembled at various dates.

C.138, C.139 Frisch's publications, presented in the order of the Bibliography, Biographical Memoirs of Fellows of the Royal Society, 27, 1981.

N.B. This is not a complete set, and there are many additional drafts for unlisted writings elsewhere in Section C.

2 Boxes.

SECTION D RADIO, TELEVISION, FILMS D.1 - D.59

Introduction to Section D

In many respects, this Section is complementary to Section C. It covers a similar time-span (1947 - 79) and illustrates the same linguistic range, fluency and ease of exposition. Few scientists of his generation were so regularly in demand, whether for formal - or at least scripted - talks, or for unscripted interviews, contributions to discussion panels, etc. addressed to so many types of listening public. Frisch's success in the medium is attested in D.29 which includes a very favourable Audience Research Report on a series of talks broadcast in 1963; the papers in D.36 also show him actively shaping as well as contributing to a series.

As with the material in Section C, the talks, etc. for which scripts survive and which are listed at D.1 - D.38 are only a proportion of Frisch's contribution to radio; the folders of correspondence, contracts or receipts at D.39 - D.43 give a fuller impression of his popularity as a broadcaster.

The material is presented in chronological order so far as this is ascertainable, as follows:

D.1 -D.43	BRITISH BROADCASTING CORPORATION (RADIO) Drafts, scripts and related correspondence
D.44-D.50	TELEVISION COMPANIES (U.K.)
D.51-D.54	RADIO AND TELEVISION (EUROPE)
D.55-D.59	FILMS

Radio, television, films

- D.1-D.43 BRITISH BROADCASTING CORPORATION - RADIO
- D.1 'Kann man Atome sichtbar machen?'
- Talk for 'Aus der Welt der Wissenschaft' series,
 B.B.C., broadcast 1948.
- Drafts and correspondence 1947-48.
- D.2 Correspondence 1948-49 re broadcasts for European and
 Overseas Services, to be given in English and German,
 on 'The Atom'.
- No English script survives, but there are drafts
 for two talks in German on the nature and uses
 of atomic energy, one with a note 'BBC 19(48)
 or 49'.
- D.3 'Introducing the atom'.
- Talk for 'Science Survey', broadcast October 1949.
- Draft and correspondence.
- D.4 'Experiments in Physics'.
- Two talks for 'Science Review' nos. 100 and 101,
 broadcast January and March 1950.
- Scripts and correspondence 1949-50.
- D.5 Three talks on 'The Modern Picture of the Atomic Nucleus',
 given in English and German for Overseas Service, broad-
 cast 1952. The talks were:
- The atomic nucleus - what is it made of?
- The atomic nucleus - how does it hold together?
- The atomic nucleus - new ideas about its structure.
- Scripts in English and German, correspondence,
 plans of talks 1951-52.
- D.6 'Unsolved problems in atomic physics'.
- Heavily-revised typescript draft with a ms. note
 'BBC 1951(?)'.

Radio, television, films

- D.7 'Causality in modern physics'.
Talk broadcast in English and German, 1953, and also in Italian translation.
Notes only for English version, German translation by Frisch, text of Italian translation, correspondence.
The English version was printed in The Listener.
- D.8 'Individuality in modern physics'.
Talk for Third Programme, broadcast January 1954 and also in Italian translation.
Draft, Italian translation, correspondence 1953-54.
The English version was printed in The Listener.
- D.9, D.10 Talks on the hydrogen bomb, in Home, European and Overseas Services, given in English, German and Danish, 1954.
- D.9 Drafts for several talks in English, Danish translation of 'How the hydrogen bomb works', correspondence.
- D.10 Press-cuttings and correspondence from general public arising from broadcast.
- D.11 'Theory and Experiment'.
Talk broadcast January 1955, English and German versions, correspondence.
- D.12 'Heavy water'.
Talk for Home Service, broadcast February 1955.
- D.13 'Atomic energy today'.
Series of four talks, broadcast as prelude to Geneva Conference, July 1955.
The subjects were: 'As a power source'
'Medical and research uses'
'Hazards'
'Future possibilities'
Outline of talks, Danish version, correspondence.

Radio, television, films

- D.14 'The anti-proton'.
Talk on Third Programme, December 1955.
Correspondence, 3 typescript drafts for talks with this title (all different texts).
- D.15 '"Fossiler Magnetismus"und die Wanderung des Poles'.
Talk in German Service, broadcast December 1955.
2 drafts, with slight variations.
- D.16 'A new model of the atomic nucleus'.
Talk in European Service 'Frontiers of Knowledge', broadcast February 1956.
Typescript.
- D.17 'What are those atoms?'
3 talks for Home Service 'Science Survey', broadcast February 1956.
The talks were: What are those atoms?
The structure of atoms
The atomic nucleus
- D.18 'Letter to a young scientist'.
Broadcast in Home Service, August 1956 and printed in The Listener.
No script survives; folder includes contract and correspondence arising from publication in The Listener.
- D.19 Correspondence and part drafts for contributions to two programmes on atomic energy ('The British contribution' and 'Wartime and post-war developments'), broadcast November 1956.
- D.20 'The Neutrino discovered'.
Broadcast in Home Service 'The Frontiers of Knowledge', October 1956 and in Italian translation.
Correspondence, copy of Italian version.
- D.21 'Antiteilchen und Antimaterie'.
Talk in German Service, broadcast December 1956.

Radio, television, films

- D.22 'Hydrogen Fusion'.
Talk in German Service, broadcast April 1957.
- D.23 'This Age of Magnetism'.
Talk for 'Science Survey', May 1959, also broadcast in German Service, June 1959.
Scripts of English and German versions, correspondence which also refers to publication in The Listener and to re-broadcast in Swedish.
- D.24 'Thinking in numbers'.
Talk for Network Three series, broadcast November 1959.
Includes script and contributions from other participants, correspondence.
- D.25 'This Atomic Age'.
Contributions to a three-part series for the German Service, recorded September 1959.
Plans for series, Frisch's contributions, correspondence.
- D.26 'The New Fundamental Particles'.
Three talks given in Third Programme, January 1960, under the titles 'The First Fourteen', 'The Strange Particles', 'Strangeness and Parity'.
Scripts, revised drafts, correspondence 1959-60.
- D.27 'The Microcosm'.
Contribution no.3 to 'The World Picture 1960', broadcast in European Service, November 1960.
Draft, broadcast script, brief correspondence.
- D.28 'At the Speed of Light'.
Series of six programmes in Network Three; Frisch took part in no.5 'Electromagnetic Radiation and the Atom', broadcast May 1963.
Outline of series, script of Frisch's contribution, correspondence, arrangements for script to be amended and re-broadcast in French by Université Radiophonique et Télévisuelle Internationale.

Radio, television, films

- D.29 'The Magnetic Proton'.
No.2 in the series 'Experiment', broadcast in Third Programme, September 1963 (describing work with Hahn in 1930).
Draft, script of broadcast, correspondence, report (highly favourable) from Audience Research Department, plans to publish series as booklet.
- D.30 'Causality'.
No.6 in a series of talks 'A Few Ideas', broadcast in Third Programme, April 1964 and subsequently published in The Listener.
Revised draft, correspondence 1963-64.
- D.31 'The particles of modern physics'.
Draft, March 1965, probably for broadcast.
- D.32 Talk on Einstein, recorded July 1965, as part of three programmes on 'Einstein - the Man and his Achievement', broadcast on the Third Programme, 1966.
Draft, correspondence re talk, German version, publication by B.B.C. Publications 1965-67, and later correspondence re U.S. publication 1970, 1973.
- D.33 'Science and Society in the Thirties'.
Discussion programme with many leading scientists as participants, broadcast in Third Programme December 1965.
Script, brief correspondence.
- D.34 'Atomic bombs and atomic power'.
Programme 3 in a series of 4 on the history of the atom, World Service, broadcast June 1966.
Draft corrected scripts dated April 1966, correspondence.
- D.35 'The Frontiers of Knowledge'.
Series of three contributions broadcast in the form of interviews with G. Steedman, recorded May 1966.
The subjects were 'The Three Parities' and 'Time Reversal' (two talks), broadcast in the European and World Services.
Correspondence, script of one talk only 'Charge, Position and Time Through the Looking-Glass' which was the first of the two on 'Time Reversal'.

Radio, television, films

- D.36, D.37 'Growing Points in Physics'.
Contributions to two series of nine programmes each, broadcast under this title in Study Session (Network Three) 1967.
By invitation, Frisch submitted the general plan of the series, acted as consultant on speakers and scripts, and gave the introductory and the concluding talks 'What is Physics?' and 'The Future of Physics'.
A booklet 'Growing points in physics' was produced by B.B.C. Publications in conjunction with the series, to which Frisch contributed an introduction.
- D.36 Correspondence re planning of series, including Frisch's outline for all the talks, suggestions for speakers, etc. 1966-67, and a little later correspondence 1973.
- D.37 Draft and broadcast scripts, booklet, etc.
- D.38 Contribution to Christmas edition of 'Science in Action', World Service, December 1969.
Script of broadcast (other contributors were K. Lonsdale, A.F. Huxley, J. Needham), brief correspondence.
- D.39-D.43 Shorter B.B.C. correspondence.
These folders document broadcasts or projects for B.B.C. radio for which no identifiable script survives. Many were for unscripted discussion programmes or interviews such as the 'Questions in the air' series to which Frisch frequently contributed. Others were for projects which may not always have been completed. In some cases only the contract, or receipt for payment, have survived.
- D.39 1947-56
- D.40 1957-62
Correspondence June 1959 includes invitation to participate in B.B.C. European Service 21st Anniversary series on 'The Scientist and Society'; Frisch's letter, declining, explains his interest in science as entirely for its own sake.

Radio, television, films

- D.41 1963-79
- Correspondence August 1969 is re an interview on SWEEPNIK.
- Correspondence 1977 is re interview with Frisch for series 'One man's lifetime'.
- Correspondence 1979 is re Frisch's participation in 'Kaleidoscope' programme on Einstein.
- D.42 Miscellaneous correspondence on B.B.C. programmes, various dates 1948-66.
- D.43 Envelope of receipts for various B.B.C. payments.

Radio, television, films

D.44-D.50 TELEVISION COMPANIES (U.K.)

In alphabetical order.

D.44 Anglia Television Limited 1964

D.45 Associated Television Limited 1961

'Decisions of our Time'.

D.46-D.49 British Broadcasting Corporation - Television

D.46 Correspondence, proposals, etc. for a projected programme 'Science International'. Frisch was asked to serve as 'Visual Technical Adviser' and submitted a draft script on elementary particles. Plans for the programme were later cancelled. 1960.

D.47 1961-62

D.48 1964 (includes contribution to film biography of Einstein).
1973 (programme on Bohr 'The Steadfast Tin Soldier')
1979 (Open University programme on 'Science and Belief')

D.49 Miscellaneous shorter correspondence.

D.50 Yorkshire Television Limited 1976

D.51-D.54 RADIO AND TELEVISION (EUROPE)

In chronological order.

D.51 Rot-Weiss-Rot (Viennese radio station).
Requests for a talk in series 'Osterreicher
im Ausland'. 1953-54

D.52 U.S. Government's Radio Station RIAS, Berlin 1956-57
Correspondence, drafts, script for talk 'Neuere
Ergebnisse der Kernforschung', broadcast October
1956, and re publication of this talk and another
on causality.

Radio, television, films

- D.57 'Birth of the Bomb', film for American television.
Correspondence with producer, 1970.
- D.58 'A World in Flight', documentary film.
Correspondence with director, outline treatment of
project, 1971.
- D.59 Pathé cinéma, documentary film 'The atomic development'.
Correspondence 1976-77.

SECTION E

VISITS AND CONFERENCES E.1 - E.63

The material is presented in chronological order. It varies in content from a brief notice or programme to a substantial folder including scientific correspondence, arrangements for lecture or publication, travel arrangements, visits to friends and the like.

For Pugwash conferences see F.101, F.112.

- E.1 American Physical Society, M.I.T., April 1946.
The Physical Society, Conference on Fundamental Particles and Low-Temperature Physics, Cambridge, July 1946.
University of Ghent Colloquium, invitation and letter of thanks from A. Berthelot, 1946-47.
Collège de France, Rutherford memorial meeting, 1947.
University of Birmingham, Conference 'Problems of Nuclear Physics', September 1948.
- E.2 8th Solvay Conference, Brussels, September 1948.
Information, programme, typescript 'Solvay Conference notes 1948' on papers by E. Teller and R. Serber.
- E.3 Conference on high-speed automatic calculating-machines, Cambridge, June 1949 (programme only).
- E.4-E.6 International Congress for Nuclear Physics, Quantum-Electrodynamics and Cosmic Rays, Basle - Como, September 1949.
Frisch gave a lecture on 'Scintillation counters' later published in Helv. phys. Acta, 23.
- E.4 Programmes, list of participants.
- E.5 Brief ms. notes for Frisch's lecture, printed abstracts of lectures some annotated by Frisch.
- E.6 Brief correspondence with organisers and editor.
Family correspondence received by Frisch at conference.

Visits and Conferences

- E.7 Visit to Stanford University, California, June-September 1950.
Correspondence re award of Fulbright travel grant,
and with Cavendish Laboratory.
- E.8 Commisariat à l'Énergie Atomique, Paris, invitation to
lecture, November 1950.
The Physical Society, Cambridge, December 1950.
Università degli Studi, Rome, invitation to lecture,
April 1951.
Discussion - conference on Nuclear Physics (arranged for
60th birthday of Bothe), Heidelberg, June 1951.
Correspondence and programme.
- E.9 Conference on Problems of Quantum Physics, Institute of
Theoretical Physics, Copenhagen, July 1951.
Information, programme.
Also enclosed is correspondence re another visit to
Copenhagen, October 1951.
- E.10, E.11 Visit to U.S.A. August-October 1951.
Frisch attended the International Conference on
Nuclear Physics and Fundamental Particles organised
by the Institute for Nuclear Studies, University of
Chicago, September 1951. He chaired the session on
'Reactions of Light Nuclei'.
He also attended the 'Lecture Series' at Oak Ridge,
visited other laboratories and gave several talks during
his period in U.S.A.
- E.10 Correspondence re Conference at Chicago, programme, list
of participants, etc.
- E.11 Correspondence re other visits and talks, to Bell Telephone
Laboratories, Brookhaven National Laboratories, Carnegie
Institute of Technology, Harvard University, Iowa State
College, Oak Ridge National Laboratory, Washington
University.

Visits and Conferences

- E.12 Royal Institute of Technology, Stockholm, lecture and 'ORF Newsletter' to Cavendish Laboratory, April 1952.
Lund University, Sweden, lecture, April 1952.
- E.13 Visit to German physical laboratories, June 1952.
Itinerary, reports on research projects and on scientists met, own journal of trip, brief correspondence from colleagues arranging visits, etc.
- E.14 Visit to Singapore, as External Examiner in Physics, University of Malaya, May-June 1953.
Correspondence re appointment and visit, lecture, comments on draft papers, incidental visits to Rome, Bombay, Colombo.
- E.15 Birmingham Conference on Nuclear Physics, July 1953.
List of participants, programme, printed report of proceedings.
- E.16, E.17 Visit to Vienna, arranged by British Council under Foreign University Interchange Scheme, June 1954.
Frisch gave lectures at Vienna, Graz and Innsbruck and attended a Conference of the Austrian Physical Society.
- E.16 Correspondence with British Council and with colleagues, re visit and engagements.
- E.17 Correspondence re Cavendish Laboratory affairs.
Personal and family correspondence during visit.
Corrected draft of an article on atomic energy (by a journalist) which Frisch substantially rewrote.
- E.18 International Nuclear Physics Conference, sponsored by International Union of Pure and Applied Physics and Unesco, Glasgow, July 1954.
Information, programme, abstracts of papers.
'Some notes on the Glasgow Nuclear Physics Conference', 12 pp. typescript.
- E.19 Ms. and typed notes taken at Conference at Pisa, June 1955.

Visits and Conferences

- E.20 Invitation card (only) to lecture on 'Cherenkov Detectors', given by Frisch at Stockholm, May 1956.
- E.21 Visit to Austrian Atomic Energy Study Group, Vienna, May 1957.
Frisch lectured on 'Probleme der Atomenergiegewinnung aus Wasserstoff'.
Correspondence, brief summary of lecture, draft of similar lecture 'Kann Mann aus Wasserstoff Atomkraft gewinnen?' dated April 1957.
- E.22 Conference on Controlled Thermonuclear Reactions, A.E.R.E. Harwell, June 1957.
Information, participants, programme.
- E.23 Visit to Cornell, U.S.A. as Visiting Professor in Department of Nuclear Studies, 1957-58.
Correspondence with colleagues and authorities at Cornell and at Cambridge.
- E.24 Brookhaven Conference on Molecular Beams, Heidelberg, June 1959, organised by H. Kopfermann.
Invitation and travel grant application only.
- E.25 Visit to Heidelberg, to lecture on 'Kohärente Bremsstrahlung von Krystallen', June 1960.
Brief correspondence only.
- E.26 Correspondence re possible visit to Australia on Commonwealth Universities Interchange Scheme, 1960-63.
- E.27 Visit to American University of Beirut, Lebanon, to give three lectures, March 1961, as part of British Council visit, see E.30 below.
Correspondence only.
- E.28 Visit to Dortmund under auspices of British Council, to give lecture as part of the Dortmund English Festival, May 1961.
Correspondence only.
- E.29 Visit to Institute of Theoretical Physics, Vienna, to give two lectures (on elementary particles and on bubble chamber research), May 1961.
Correspondence only.

Visits and Conferences

- E.30 Correspondence with British Council 1960-61 re proposed visit to Iran and Pakistan to lecture and visit laboratories, scheduled for March 1961 but cancelled by Frisch. The visit to Beirut (see E.27) was intended as part of this trip.
- E.31 Visit to Basle under British Council University Interchange Scheme, to lecture on new particles, and on work at the Cavendish Laboratory, June 1962.
- E.32 Itinerary (only) for visit to U.S., March-April 1962.
- E.33 Visit to Düsseldorf to lecture to Arbeitsgemeinschaft für Forschung des Landes Nordrhein-Westfalen, December 1962.
Frisch lectured on elementary particles and his talk was published (see C.36).
Correspondence 1961-63 re arrangements and publication.
- E.34 Correspondence 1963-64 re proposed visit September 1964-June 1965 as Visiting Professor, University of Miami. Frisch was not able to take up the offer.
- E.35 International University Course, Vienna, September 1964, on 'Formgestaltung der Welt seit dem Ersten Weltkrieg'.
Frisch lectured on '50 Jahre Grundlagenphysik'.
- E.36 Visit to Symposium on Relativistic Astrophysics, Austin, Texas, December 1964, and to various other laboratories, universities and friends.
Correspondence re arrangements to visit and lecture, notes taken at Texas conference.
- E.37 World Jewish Congress, British Section.
Informal Conference on 'Why Remain Jewish in this Changing World?' June 1965.
Invitation and acceptance only.
- E.38 'Perspectives of Nuclear Physics, Elementary Particle Physics, Radiochemistry and Nuclear Chemistry'.
Symposium for Centenary of Marie Sklodowska-Curie, Warsaw, October 1967.
Invitation, correspondence, programme, list of participants, information, etc.

Visits and Conferences

- E.39 Visit to Israel, December 1967-January 1968.
Ms. diary of events, some ms. notes of laboratories and people seen, brief correspondence.
- E.40 Visit to U.S.A., January-February 1969.
Frisch attended a National Topical Meeting of the American Nuclear Society, on Fast Burst Reactors, at Albuquerque, January 1969, and also lectured and visited at other laboratories and universities.
Frisch chaired Session I on 'Fast Burst Reactor Analysis Techniques'.
Itinerary, correspondence with colleagues and friends, 1968-70.
- E.41 European Physical Society, Inaugural Conference, 'The Growth Points of Physics', Florence, April 1969.
Programme, information, abstracts.
- E.42 Visit to Leiden, May 1969.
Letter from Frisch to his family, describing the visit.
- E.43 Visit to Russia (Moscow, Novosibirsk), sponsored by Board of Trade Fairs and Promotions Branch, September 1970.
Itinerary, correspondence, Frisch's ms. journal of trip.
- E.44 Visit to Hungary (Budapest), sponsored by Department of Trade and Industry Fairs and Promotions Branch, as part of 'British Engineering Week', March 1971.
Various itineraries and arrangements, correspondence.
- E.45 Second Symposium on the Recent Developments in Neutron Activation Analysis, Cambridge, June-July 1971.
Frisch gave the opening speech, a copy of which is included in the folder.
- E.46 Visit as External Examiner for doctorate theses, University of Ibadan, Nigeria, February 1972.
Correspondence, arrangements, Frisch's ms. journal of trip.

Visits and Conferences

- E.47 Visit to Vienna, for 50th anniversary of 'Matura' at Piaristner-Gymnasium.
Frisch gave a talk, '50 Jahre unter Physikern', May 1972.
Correspondence, including news of old schoolfellows.
See A.106.
- E.48, E.49 Visit to Sweden and Finland, June-July 1972.
Frisch lectured at the Seventh Summer School in Physics at Loma-Koli, organised by Research Institute for Theoretical Physics, Helsinki. Mrs. Frisch accompanied him, and gave a talk on brass-rubbing.
After the conference, Frisch suffered a heart attack and was obliged to remain in hospital until 14 July.
- E.48 Correspondence re conference, information, programme, itinerary.
- E.49 Personal correspondence re Frisch's illness and delayed return home.
- E.50 'Exploratory Conference on the Future of Science and Technology in Austria', Vienna, October 1972.
Invitation, correspondence, Frisch's notes, press-cuttings, plans for questions to be discussed, etc.
- E.51, E.52 Visit to U.S.A., June-July 1973.
Frisch was invited to give the Nuclear Pioneer Lecture, on Lise Meitner, at the 20th Annual Meeting of the Society of Nuclear Medicine, Miami. Because of his heart attack the previous year, he arranged for his daughter Monica to accompany him.
After the conference Frisch visited various laboratories and institutions, lecturing and seeing friends.
- E.51 Correspondence re meeting and lecture, programme, press-cuttings, visas.
11 pp. typescript and ms. version of lecture (another copy is at C.74).
3 pp. typescript of a lecture 'The Origin of Nuclear Fission', perhaps prepared for same trip.

Visits and Conferences

- E.52 Correspondence re visits and lectures at Berkeley, Dartmouth, Los Alamos, National Accelerator Laboratory, Princeton, University of Washington Seattle; and a little personal correspondence with friends in U.S.
- E.53 Visit to CERN, to lecture on 'Lise Meitner and the Growth of Nuclear Physics', May 1974.
Correspondence, notes for lecture, marked for slides.
- E.54 Symposium on the retirement of R.E. Peierls, Oxford, July 1974, at which Frisch spoke.
Correspondence, programme, participants.
- E.55 Visit to Denmark, sponsored by Niels Bohr Institute and Atomic Energy Commission, September 1975.
Frisch gave two lectures on 'The Tortuous Path to Atomic Power'.
Correspondence, 16 pp. transcript from recording of lecture at Risø (Atomic Energy Research Establishment).
- E.56 Visit to Max-Planck-Institut für Kernphysik, Heidelberg, to lecture at colloquium, February 1976.
Correspondence only.
- E.57 Visit to Vienna at invitation of University, to celebrate 50th anniversary of Frisch's Doctorate. Frisch lectured on 'Der schmale Pfad zur Uranspaltung', and also lectured at Graz, Innsbruck and Linz.
The folder also includes a little personal correspondence about visits by Frisch and his wife to relatives and friends in the course of the trip, and Frisch's brief ms. journal.
- E.58 Visit to U.S.A., May-June 1977.
Frisch attended the Symposium on the History of Nuclear Physics, University of Minnesota and gave a talk 'Experimental work with Nuclei: Hamburg, London and Copenhagen'.
Frisch was accompanied by his son Anthony, and arranged visits to several universities and institutions, lecturing and seeing friends.
Itinerary, conference programme and information, correspondence.
See also C.51.

Visits and Conferences

- E.59 Symposium on the Foundations of Modern Physics, Loma-Koli, Finland, August 1977.
- Frisch accepted an invitation to attend and to give a talk on 'The Importance of Technical Innovations for the Development of Physics'.
- He was invited to participate in a meeting of the Finnish Pugwash Group, but later declined both invitations through pressure of work.
- E.60 American Physical Society Symposium commemorating 40th anniversary of discovery of fission, Washington D.C., April 1978, at which Frisch was invited to take the chair.
- Letter of invitation only (Frisch did not go).
- E.61 Visit to 'Herbstschule' on high energy physics, Maria Laach Abbey, Bonn, September 1978.
- Folder also includes correspondence re lecture to be given at DESY (organisers of 'Herbstschule'), Hamburg, March 1979.
- E.62 Visit to U.S.A., April-May 1979.
- Frisch attended the International Symposium in Honor of Robert R. Wilson at Fermilab, Illinois, April 1979.
- Frisch was accompanied by his wife, and arranged visits to several universities and institutions, lecturing and seeing friends.
- Itineraries, conference material, correspondence.
- E.63 1979 and undated.

SECTION F CORRESPONDENCE F.1 - F.147

Introduction to Section F

This Section brings together the remaining letters not kept by Frisch in folders with related research notes, drafts for publications, etc. Some of the letters complement material in other Sections, but the majority are shorter exchanges with scientific colleagues, or personal correspondence.

It should be noted that several of the letters have Frisch's reply typed on the verso.

The correspondence is presented in alphabetical order, dated and indexed, and with a brief indication of any material of particular scientific or personal interest.

F.1	Adelman, S.L.	1964-70
F.2	Agnew, D.	1945-c.1951
	Frisch was briefly engaged to her in 1947 (see <u>What Little I remember</u> , p.197).	
F.3	Alexandrov, A.	1977
	Allen, W.D.	1957
	Frisch's carbon only: comments on book.	
	Alvarez, L.W.	1948, 1968, 1978
F.4	Arms, S.	1953
	Aspden, H.	1974
	Frisch's carbon only.	
F.5	Atomic Scientists Association	1946-48
	Miscellaneous printed matter, policy declarations, conference programmes, the Nunn May case, etc., with a few ms. notes by Frisch.	
	See also Pugwash Conferences, F.101.	

Correspondence

- | | | |
|------|---|--|
| F.6 | Badash, L. | 1965 |
| | Badura-Skoda | 1972 |
| | Frisch's draft only. | |
| F.7 | Bagguley, B. | 1940-41 |
| | Includes accounts of life in Birmingham and Liverpool. | |
| F.8 | Baldinger, E. | 1954, 1955 |
| | Barbour, J.B. | 1963-66, 1974 |
| F.9 | Bentwich, N. | 1951 |
| | Bethe, H.A. | 1950, 1978 |
| | Correspondence 1978 is photocopy letter from Bethe on his recollections of 'compound nucleus' concept in 1934-35. | |
| F.10 | Bjerge, T. | 1947 |
| F.11 | Blackett, P.M.S. | 1935, 1955 |
| F.12 | Blaskopf, H. | 1951 (card), 1953-56 |
| F.13 | Blau, M. and others | 1961-66 |
| | Mainly with colleagues to obtain some financial help for Marietta Blau, a distinguished Viennese scientist who had worked on nuclear emulsions. | |
| F.14 | Bloch, F. | 1935 (1 letter only)
1948-67
1973 (Frisch's carbon only) |
| F.15 | Bøggild, J.K. | 1945-73 |
| | Bøggild was a colleague of Frisch at the Niels Bohr Institute in the 1930s and remained there. | |
| | Includes card, October 1945, signed by Bohr and other colleagues, and letter March 1948 with message from Lise Meitner. | |

Correspondence

- | | | |
|------|---|------------------------|
| F.16 | Bohr, N. and Bohr, M. | 1947, 1951, 1963 |
| | Scientific and personal correspondence from Niels and Margarethe Bohr. | |
| | Includes 1 p. 'N. Bohr's 1930 lectures on quantum mechanics (From notes by E. Krüger and T. Bjerger)'. | |
| F.17 | Bondi, H. | 1959 |
| | Frisch's carbon only. | |
| | Bondy, H.F. | 1942 |
| | Born, M. | 1955-63 |
| | Braddick, H.J.J. | 1954 |
| F.18 | Bragg, W.L. | 1947, 1950, 1962, 1967 |
| F.19 | Braunschweig, R. | 1948-54 |
| F.20 | Breitenberger, E. | 1954-67 |
| F.21 | Brent, B.J. | 1973-79 |
| | Brent (formerly Josephy) had worked at Hamburg under Stern at the same time as Frisch. Correspondence is mainly <u>re</u> photographs and film of distinguished scientists. | |
| F.22 | Bretscher, E. and Bretscher, H. | 1946-70 |
| | Personal and scientific correspondence with Egon and Hanni Bretscher, mainly <u>re</u> Harwell. | |
| | Includes obituary tribute to Bretscher, written by Frisch for <u>Nature</u> , 1973. | |
| F.23 | Brings, T.H. | 1947 |
| | Broch, E. | 1945 |
| | Broda, E. | 1954 |
| F.24 | Brode, B. | n.d. |
| | Letter at Los Alamos, arranging a meeting to discuss 'Peace after this war'. | |
| | Brookes, A.M.P. | 1979 |
| | Broström, K.J. | 1961 |

Correspondence

F.25	Bugg, D.	1958
	Bunemann, O.	1947, 1950
	Byer, T.	1967
F.26	Campbell, A.J.	1958
	Casimir, H.B.G.	1948
	Cassels, J.M.	1957
F.27	Chadwick, J.	1947-70
	Scientific and personal correspondence. Includes 'Some stories about Sir James Chadwick (reported by O.R. Frisch, 1976)'.	
F.28	Clark, R.W.	1959-60
	Cochran, W.	n.d.
	Cockburn, R.	1950-51 and n.d.
F.29	Cockcroft, J.D. and Cockcroft, E.	1946, 1956, 1959, 1965, 1967
F.30	Cohen, S.	1975
	Conrad, R.	1934
	Copley, E.	1977
	Corbière, H.	1953
	Request for impressions of Einstein for proposed book 'Homage to Einstein'.	
	Cüer, P.	1953
F.31	Darwin, C.G.	1954 (Frisch's carbon only) 1963 (from Frisch to Lady Darwin)
	Davies, D.J.M.	1970
	Deakin, C.	1965
	Dee, P.I.	1952
F.32	Delbrück, M.	1950, 1978-79
	Deutsch, M.	1948
	Devons, S.	1955, 1965, n.d.

Correspondence

F.33	Dobbs, H.A.C.	1965
	Dott, H.M.	1971
	Droste, J.V.	1954
	Duncan, R.	1972
	Dunworth, J.V.	1955
F.34	Eaton, C.	1964
	Ehrenberg, W. and Ehrenberg, M.	1963-64, 1975
F.35	Eikhoff, L. (later Montgomery)	1950-57
F.36	Estermann, I.	1962-64, 1973
F.37	Feather, N.	1945-51, 1965, 1975
F.38	Feld, B.T.	1948
	Feldau, W.V.	1958, 1959
	Feldberg, W. and Feldberg, J., Feldberg, K.	1947-52, 1960-61
F.39	Feynman, R. P.	1948
	One letter only, <u>re</u> work at Los Alamos.	
F.40	Fischer, R.	1959
	Fleischmann, R.	1956-57
	Fokker, A.D.	1966, 1969
F.41	Franck, J.	1934, n.d., 1952 (<u>re</u> Franck's birthday)
F.42	Fraser, R.	1947, 1963
	Freeman, J.	1955
	Freudenreich, R.v.	1965, 1973
	Letter 1965 is to Lise Meitner, <u>re</u> history of her work in 1930s; letter 1973 is <u>re</u> work of P.A.M. Dirac).	
	Friesen, I.v.	1948-49
	Frisch, D.H.	1963

Correspondence

F.50	Gregory, R. L.	1978
	Grimble, A.F.	1952-53
	Groth, W.	1964-65
	Gustafson, T.	1946
F.51	Hahn, O.	1948, 1957, 1963-65, 1979
F.52	Hahn, O.	
	Photocopies of letters by Hahn written December 1938; letters of 19 and 21 are to Lise Meitner, card of 23 is to Eva von Bergius, letter of 28 to 'Liebe Kollegin'.	
F.53	Halban, H.	1953
	Halpern, J.	1954-55
	Hanle, P.A.	1977
	<u>re</u> E. Schrödinger.	
F.54	Haxel, O.	1954-76
F.55	Hearst, W.	1951, 1953
	Hein, P.	1948
	Henriques, O.M.	1949
F.56	Herz, M.	1939-43
	See <u>What little I remember</u> , p.137.	
F.57	Herzog, G.	1945
	Hesse, M.B.	1962, 1977
F.58	Hevesy, G.	various dates 1935-50, and 1966
F.59	Hill, R.	1977
	Hintz, N.	1953
	Hirsch, F.	1961

Correspondence

F.60	Hodgson, P.E.	1954
	Høffer-Jensen, S.	1945-49, 1975
	Letter of 1945 contains news of Niels Bohr Institute, during and after the Second World War.	
	Hogben, E.	1966, 1978
	Holland, A.E.	1973, 1977, 1979
F.61-F.64	Hope, M. (later Herrman) and others	1939-78
	Personal correspondence, with accounts of work in Birmingham, Liverpool, London, life in war-time Britain, etc. Not all letters are dated.	
F.61	1939	
F.62	1940	
F.63	1941-42	
F.64	1943, various dates 1947-78	
F.65	Houtermans, F.G.	n.d., 1948
	Howorth, M.	1955
	Huber, P.	1954
	Hutchinson, G.W.	various dates 1959-78
	Hutten, E.H.	1947, 1961
F.66	Irving, D.	1966
	Request for comments on history of uranium fission.	
	Isenstein, H.	1968, 1973, 1978
	Isenstein was a Danish sculptor and the folder includes photographs of his portrait busts of A. Wheeler and E. Rutherford. Correspondence 1973 is re drawing of Frisch by Isenstein sent to Trinity College, Cambridge.	
F.67	Jacobsen, J.C.G.	1947, 1948
	Includes a little correspondence with other members of the Jacobsen family.	
	Jahn, H.A.	1952
F.68	Jeffreys, H. and Jeffreys, B.	1947-49, 1966

Correspondence

F.69	Jellis, R.E.	1973-75
	Jensen, E.	1952
	Jensen, H.D.	1955
	Jentschke, W.	1961
F.70	Jones, R.V.	1965
	Josephson, B.D.	1960, 1977
	Junghaus, J.	1948
	Jungk, R.	1956
F.71	Karlik, B.	1947-59, 1979
F.72	Katz, N.	1945
	Kemmer, N.	1964, 1970
	Khanna, R.C.	1964
	King, W.J.	1962
	Kirchner, F.	1932
	Klemperer, O.	1934
F.73	Koch, J.	1964
	Köllmer-Langhammer, E.	1954
	<u>re</u> Frisch's father	
	Kopfermann, H.	1949, 1955
F.74-F.76	Kowarski, L. and Kowarski, K.	1946-78
	Personal and scientific correspondence, <u>re</u> meetings, publications, research projects, nuclear energy programme, etc.	
F.74		1946-66
F.75	Photocopy of Kowarski's Affidavit to the Patent Compensation Board, United States Atomic Energy Commission, describing his research in France and Britain (to January-March 1941).	
F.76		1967-78
F.77	Laslett, L.J.	1945, 1951
F.78	Laurikainen, K.V.	1973-77

Correspondence

F.79	Lauritsen, T.	1950
	Lawson, D.	1963
	Lawson, J.D.	1955
F.80	Lemmerich, J.	1978
	Lenz,	1954
	Frisch's carbon only.	
	Levi, H.	1975
	Recollections of work at Niels Bohr Institute (see <u>What little I remember</u> , p.89).	
	Lewkowicz, A.	1970
F.81	Lisco, L.	various dates 1969-78
	(Daughter of J. Franck; includes recollections of Franck, Lise Meitner, etc.)	
F.82	Littauer, R.	1949
	Lohde, H.	1972
	Longuet-Higgins, H.C.	1978
	Lonsdale, K.	1958
	Lorenz, K.	1964
F.83	McCutchen, B.S.	1967-76
F.84	McCutchen, C.	1957-75
	Includes some research papers.	
F.85	Manley, J.H.	1963, 1970
	Marshak, R.	1950
	Frisch's carbon only.	
	Massey, H.S.W.	n.d.
	Mattauch, J.	1952
	Mayr, G.	1953, 1960

Correspondence

F.86	Menuhin, Y.	1960
	Metropolis, N.C.	1979
	Miller, F.	1967-69
	Milner, E.V.	1970
	Møller, C.	1970
F.87	Moon, P.B.	1943-79
F.88	Morrison, P.	1946, 1950
	Moss, N.	1978
F.89	Mott, N.F. and others	1946, 1954-63
F.90	Motz, H.	1950, 1954
	Neurath, M.L.	1954-55, 1960
	Newton-John, I.	various dates 1954-70 (Daughter of M. Born; includes some recollections.)
F.91	O'Gorman, M.	1950
	Oliphant, M.L.E.	1947, 1977-78
	Oppenheimer, J.R.	1951
	Ortner, G.	1954
F.92	Oxley, A.J.	1962-63 <u>re</u> bubble-chamber and scanning research.
F.93	Pais, A.	1950, 1974-76
	Paneth, F.A.	1939
	Parkinson, W.C.	1953
	Pauli, W.	1944, 1949
F.94	Peierls, R.E.	1945-48, 1955, 1979 Includes a little correspondence 1978 for Lady Peierls's 70th birthday.

Correspondence

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|-------|---|--------------------------------|
| F.95 | Peyrou, N. | 1956 |
| | Pickavance, T.G. | 1952, 1959 |
| | Pihl, M. | n.d. |
| | Pincher, H.C. | 1949 |
| | Ping, W.C. | 1962-74 |
| | Pirenne, M.H. | 1975 |
| F.96 | Plaçzek, G. | 1934, 1935, 1946,
1947 |
| F.97 | Popper, K.R. | 1935, various dates
1961-77 |
| F.98 | Poschmann, H. | 1954 |
| | Powell, C.F. | 1947-53 |
| F.99 | Pringsheim, P. | 1961 |
| | Includes photograph of Pringsheim as a young child and an offprint of an early (1930) article on Luminescence. | |
| | Pryce, M.H.L. | 1956, 1961 |
| F.100 | Przibram, K. and others | 1947-69, 1973 |
| | Przibram was Frisch's supervisor for his doctorate in Vienna in 1926. Correspondence 1973 is with Przibram's family and others after his death. | |
| F.101 | Pugwash Conferences | 1954-67 |
| | Miscellaneous material <u>re</u> meetings, conferences, policy statements, etc., some annotated by Frisch; includes a little ms. material, notes taken at conferences, brief correspondence. | |
| F.102 | Rabel, G. and others | 1948-66 |
| | Dr. Gabriele Rabel was an Austrian scientist, contemporary with Lise Meitner, who attended Einstein's lectures in Berlin. Folder includes offprint of her article 'Die Geschichte des "Cavendish"' 1946, miscellaneous correspondence <u>re</u> her house near Cambridge bought with the help of Frisch and other friends, and its disposal after her death in 1963. (See <u>What little I remember</u> , pp.35-36, and a note by Mrs. U. Frisch about Dr. Rabel enclosed in the folder). | |

Correspondence

F.103	Rabi, I.I.	1934, 1947, 1949, 1950
F.104	Rainer, A.C. Mainly <u>re</u> Frisch's parents.	1939-41, 1950
	Ramsey, N.F.	1950, 1954
	Rasmussen, E.	1946, 1949
	Ratcliffe, J.A.	1969-70, 1974
	Raven, C.E.	n.d. c.1969
F.105	Rehder, M-L. Reines, F. Frisch's carbon only.	1967 1962
	Richards, H.T.	1950
	Ridley, B.	1955, 1976
	Rieser, L.M.	1946, 1979
	Riley, K.F.	n.d.
F.106-F.108	Robinson, G.S. Robinson was a clergyman whom Frisch met in Liverpool (see <u>What little I remember</u> , p.140). He was a keen amateur musician and much of the correspondence is on this subject. Not all the letters are dated, and few of Frisch's letters have survived.	c.1943-79
F.106	c.1943-59	
F.107	1960-69	
F.108	1970-79	
F.109	Rona, E. One letter only.	1935
	Rosbaud, P. and one letter 1942 from Rosbaud, H.	1959-63
F.110	Rosenfeld, L. Correspondence 1970 includes copy of events at 'Copenhagen Conferences', 1929-37.	1949, 1970-74

Correspondence

F.111	Rossi, B. Reporting research on mesons.	n.d. probably 1948
F.112	Rotblat, J. General scientific correspondence, including some material <u>re</u> Pugwash conferences(q.v.).	various dates 1946-78
	Rothschild, N.M.V.	1952, 1962
F.113	The Royal Society	1952-54, 1964, 1975
F.114	Rozenthal, S. Correspondence 1968 is <u>re</u> retirement of Betty Schultz who had been secretary to Niels Bohr Institute for 50 years.	1949, 1963-64, 1968
	Sauter, F.	1949
	Scarrott, G.G.	1974, 1979
	Scherrer, Frisch's carbon only.	1952
F.115	Schiemann, E. A friend of Lise Meitner in Berlin. One letter only. See also A.138.	1947
	Schiller, K.K.	1979
	Schnurmann, R.	1933, various dates 1964-78
	Schreiber, S.	1953
	Schrödinger, E.	1960
F.116	Scott, I. Schreier	1955-76
F.117	Seelig, C.	1955-56
	Segré, E. Correspondence 1979 contains recollections of atomic energy research.	1933, 1979
	Serber, R.	1948
F.118	Simon, F.E. Correspondence 1961 is from N. Arms <u>re</u> her biography of Simon.	1946-47, 1951, 1961-62
	Simons, L.	1947

Correspondence

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|-------|--|---------------------|
| F.119 | Simpson, E. | 1942-78 |
| | Esther Simpson was for many years Secretary of the Society for the Protection of Science and Learning, in which capacity Frisch first became acquainted with her. She also shared his love of music, often referred to in the letters. | |
| | Correspondence 1965-66 refers to the presentation fund on her retirement in 1966, correspondence 1978 refers to later presentation. | |
| F.120 | Smith, C. | 1950 |
| | Smith, K.F. | 1964 |
| | Snow, C.P. | 1949 |
| F.121 | Sondheimer, F. | 1976 |
| | Sopka, K.R. | 1977 |
| | Biographies of Lise Meitner. | |
| | Spencer-Palmer, H. | 1979 |
| | Enclosing humorous account of wartime work at I.C.I. | |
| F.122 | Stafford, G.H. | 1948 |
| | Staub, H. and Staub, E. | 1946, 1947 |
| F.123 | Stern, O. | 1934, 1945, 1964-65 |
| | Letter of 21 March 1945 sends Frisch £1,000 'as a kind of secondary of my Nobel prize' in view of his contribution to the work on 'molecular rays'. | |
| F.124 | Strassmann, F. | 1969-70 |
| | Brief correspondence <u>re</u> visits. | |
| | Strauss, | 1939 |
| | Street, G. | 1968, 1971 |
| | <u>re</u> work at Cavendish Laboratory. | |
| F.125 | Strohmeyer, O.H. | 1947-48, 1965 |
| F.126 | Taylor, G.I. | 1952, 1970 |

Correspondence

F.127	Telcs, M.L.	1921-22
	Correspondence and diagrams <u>re</u> inventions. Includes copies of British Patents for 'Sound Operated Electric Gear' filed by Telcs 1945.	
F.128	Thirring, H. and others	1957-67
F.129	Thompson, E.P.	1975
	Thomson, G.P.	n.d. c.1964
	Titterton, E.W.	1950, 1952
	Todd, W.M.	1976
F.130	Trenn, T.J.	1974, 1979
F.131	Tuck, J.L.	1950, 1973
	Turner, L.A.	1951, 1953
F.132	Ulam, S.M.	1945, 1946
	Urbach, F.	1933-34, 1950
	Includes a reference written by Frisch in 1940 for Urbach to teach in U.S.A.	
F.133	Vellacott, E. and Vellacott, P.	1947, and various undated letters
	Voigt, H.	1948
	Volkman, E.	various dates 1964-79
F.134	Walgate, R.	1972, 1974
	Warhanek, H.	1954, 1957
F.135	Warnow, J.	1974
	Weart, S.	1975
	Both <u>re</u> history of physics.	
F.136	Wechsler, R. and Wechsler, J.	1939-42
	A friend of Frisch's parents.	
	Weinberger, L.	1954
	Weiss, E.	1948
	Weiss, J.	1947-49

Correspondence

- F.137 Weisskopf, V. and Weisskopf, E. various dates 1939-52
- F.138 Welsh, E. 1947-54
- F.139 Werner, S. 1949
- Wheeler, J.A. 1964, 1970, 1978
- Correspondence 1964 is re nomination of Frisch for National Science Foundation professorship; correspondence 1970 includes Frisch's note of a lecture by Wheeler on 'pregeometry'.
- Whitehouse, J. 1951-53, 1962
re publications.
- Wick, G.C. c.1939
Refers to Frisch's letters in Nature, 1939.
- F.140 Wiechowski, S. 1954-58
Mainly re historical writings by Wiechowski.
- F.141 Wilkinson, D.H. 1951-54, 1959-60, 1978
- F.142 Wilson, R. 1960
Frisch's carbons only.
- Winklehaus, A.F. 1973-79
- Winter, A. 1938, 1978
- F.143-F.145 Winter, G. 1918-62
- Gerhard Winter was one of Frisch's oldest friends, since they were fellow-students at High School. He shared Frisch's interests in practical gadgetry, and in music, but took no degree. He emigrated to Australia during the 1930s and remained there except for occasional visits, working relatively humbly for watchmakers, teaching and playing music and translating light verse in his spare time. See correspondence September-October 1952 for an account of his life.
- F.143 1918-39, 1947-51
- F.144 1952-62
- Includes correspondence re Winter with M.L.E. Oliphant.

Correspondence

- F.145 Miscellaneous verse translations by Winter (some
with dates 1942-47, and 1961), programmes of
concerts at which he played, photographs, etc.
- F.146 Wolf, H. 1975
 re possible research and inventions.
- Woodside, R. 1973
- Wooster, W.A. 1978
- Wu, C.S. 1973-74
- F.147 First-name, unidentified or missing signatures.

SECTION G

NON-PRINT MATERIAL G.1 - G.31

Photographs, films, slides, magnetic tape.

- G.1-G.8 8 envelopes of photographs, some dated and identified on verso. The envelopes all bear titles in Frisch's hand.
N.B. These titles are only a partial guide to the present content of the envelopes.
- G.1 'Scientists from Europe'.
- G.2 'Breit, Estermann, Pringsheim, Weisskopf, Pauli, T. Goldhaber, Gold'.
- G.3 'J. Franck w[ith] Lise Meitner; Marg. Bohr; Fru Klein. 1963.'
- G.4 'Bhaba, Blackett, Dirac, Casimir' [1963]
- G.5 'Herzog, Laslett, Maria G. Mayer, Nierenberg, Alvarez, Ramsey et al.'
- G.6 'Pugwash Cambridge'.
- G.7 'Pugwash 1964 (Karlov Vary)'.
- G.8 'The Eklunds 1964. Kowarski'.
N.B. No photograph of Kowarski remains in the envelope.
- G.9 Larger envelope of photographs labelled 'Physicists etc.' Various dates 1930s-1950s and including photographs of award of Fermi Award to O. Hahn.
- G.10 Photograph of Planck by Lotte Meitner-Graf, 1946, together with 2 early photographs and a postcard.
- G.11 Miscellaneous collection of photographs, some identified on verso.
- G.12 Larger photographs similar to above, many by Lotte Meitner-Graf.
- G.13 Photographs of Sir James Chadwick's 70th birthday celebrations, October 1966.
- G.14 Group photographs of research students at the Cavendish Laboratory, 1965, 1967, 1969 and n.d.

Non-print material

- G.15 Miscellaneous negatives, some in an envelope labelled 'A.B. Pippard 1961. Bøggild and Knud Hansen 1965'.
- G.16 Miscellaneous photographs of N. Bohr and of Lise Meitner.
- G.17 Photograph of a counter.
- G.18 12 portrait studies of Frisch, by Lotte Meitner-Graf.
- G.19 Miscellaneous photographs of Frisch, as a child with his parents, 1930s, 1940s, lecturing in Vienna, 1969, etc.
- G.20 'Bendicks Buttermints' box containing miscellaneous photographs, some identified on verso, and slides of Hahn, Meitner and others, probably assembled by Frisch for lectures.
Includes photographs taken at Los Alamos 1944-45.
- G.21 Wooden cigar box labelled 'Films taken by ORF 1937 Tisville [sic] Copenhagen and other conferences'.
Contains 15 rolls of films, almost all identified and dated variously 1937-39.
Miscellaneous negatives are also included in the box.
- G.22 Box labelled '35 mm. Films' containing several films, mostly unidentified, but including some post-war conferences.
- G.23 5 glass plates labelled 'Hahn and Meitner 1909'.
- G.24-G.28 Five boxes of glass lecture slides, labelled as follows:
- | | |
|------|-----------------------------------|
| G.24 | '1. Portraits' |
| G.25 | '2. Groups' |
| G.26 | '3. (Radioactivity) Portraits'. |
| G.27 | 'Bragg to Squires. Fermi-Surface' |
| G.28 | '8 to 17. Particles' |

N.B. The slides do not conform to the indications on the boxes.

Non-print material

- G.29, G.30 2 educational tapes by Frisch recorded in August 1968
and published by Spring Green Multimedia in 1974
(see C.45).
- G.29 'Distinguishing the Main Types of Radioactivity'
- G.30 'The Origin of Nuclear Fission'
- G.31 Tape labelled 'A conversation between Lise Meitner
and Otto Frisch FRS'. n.d. (On side 2 of tape.)

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