

Supplementary catalogue of the papers and
correspondence of

Sir (Frederick) Charles Frank FRS

(1911-1998)

VOLUME I

General Introduction

Section A: Biographical

Section B: University of Bristol

Section C: Research

Section D: Publications

by Caroline Thibaud and Timothy E. Powell
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GENERAL INTRODUCTION

PROVENANCE

The papers were received from Lady Frank, widow, and colleagues including J.F. Nye, via Bristol University Library, in 2003.

OUTLINE OF THE CAREER OF SIR CHARLES FRANK

For an outline of Frank's life and career to 1988, see NCUACS catalogue no. 15/8/89. Sir Charles Frank remained active in attending conferences, writing papers and corresponding with colleagues well into the 1990s. In 1994 he was awarded the Royal Society's Copley Medal, its highest honour, 'in recognition of his fundamental contribution to the theory of crystal morphology, in particular to the source of dislocations and their consequences in interfaces and crystal growth; to fundamental understanding of liquid crystals and the concept of disclination; and to the extension of crystallinity concepts to aperiodic crystals'. Frank died on 5 April 1998 and is survived by his wife Maita.

DESCRIPTION OF THE COLLECTION

The archives in this collection are supplementary to those previously catalogued for Bristol University Library as NCUACS catalogue no. 15/8/89, in conjunction with which this catalogue should be used. The material, which spans the period 1911-2001, is presented in the order given in the List of Contents. The arrangement of the material into sections and the numbering of folders follows on from that in the previous catalogue.

There is supplementary material for all ten sections and although much of the material is additional to partial documentation existing in the earlier collection, in some important cases material listed here covers events and activities not previously documented - including, of course, events occurring subsequent to the completion of the previous catalogue.

Section A, Biographical, forms a particularly valuable addition to the material in the previous collection. There is good coverage of Frank's education with schoolwork and undergraduate notes as well as documentation of his extracurricular interests at Oxford University in the 1930s, including the Film Unit, fascinating material relating to his time in Germany 1936-1937 and a little wartime memorabilia. There is additional material relating to Frank's career, honours and awards, 1935-1994 including a number of honorary degrees and the award of the Royal Society's Copley Medal in 1994.

A significant component of the section is a virtually complete sequence of Frank's pocket diaries 1926-1994, recording - in varying detail - appointments, social activities, meetings etc and reflecting Frank's breadth of interests across the arts, humanities and sciences. There is also family and personal correspondence. The section includes many photographs of Frank at various occasions, from infancy to shortly before his death, and also photographs of colleagues and family members. As the present catalogue was compiled after Frank's death, the section also includes obituaries and memorial material.

Section B, University of Bristol, is divided into Department of Physics and general University papers. Departmental material includes documentation of ICI support of research activity through its Research Fellowships and Loan Purchase Schemes, Frank's manuscript notes on lectures, seminars and colloquia given by colleagues 1945-1957 and manuscript and duplicated typescript teaching material for undergraduate and M.Sc. courses. University material includes papers of the Art Lectures Committee from 1971 to 1997 and the Colston Research Society 1967-1996, as well as a little documentation of other committees on which Frank served and general correspondence and papers.

Section C, Research, follows the previous catalogue in covering Frank's entire research career from postgraduate studies in 1933 to post-retirement research. Pre-World War Two research is particularly well covered, including Frank's postgraduate notebooks used at Oxford 1933-1936, four pocket notebooks used during his time in Germany 1936-1937, and notebooks documenting work with O. Gatty 1939-1940 in the Department of Colloid Science, University of Cambridge. There is some documentation of wartime research at Porton on smoke generation and later work on analysis of the accuracy of German V-bombs. Post-war material is chiefly the contents of Frank's folders, often with an inscription of the topic, and subjects include ice (1940s), crystal growth (1940s-1950s) and geophysics (1960s). There is also late work on nuclear cold fusion, a field in which Frank had published a pioneering paper in 1947 and to which he returned in the late 1980s, in part through the claim of B.S. Pons and M. Fleischmann to have produced cold fusion in a test tube. The papers include notes, data, calculations, figures, rough drafts etc, with a little related correspondence.

Section D, Publications, offers significant additional coverage of Frank's published output from 1936. It includes Frank's contributions on a wide range of topics in chemistry, physics and geophysics, including some not listed in his bibliography. The section is dominated, however, by documentation of the 1993 book *Operation Epsilon: the Farm Hall transcripts* for which Frank wrote the introduction. Material includes drafts of Frank's introduction, proofs of the book, correspondence about the release of the transcripts and correspondence with colleagues and historians studying the German atomic programme and the contribution of German science to the Nazi war effort more generally. The section also includes editorial correspondence and some manuscript drafts of unpublished letters to *The Times* on a variety of subjects.

Section E, Lectures, covering 1938-1997, includes a wide range of public and invitation lectures, addresses and informal speeches. Scientific lectures include a 1945 lecture on 'Nuclear Structure and Nuclear Energy', and several lectures on Orientation Mapping delivered in the UK and overseas 1983-1991. There are also Civil Defence lectures for courses during the 1960s, and later autobiographical reminiscences.

Section F, Societies and organisations, provides further documentation on twenty-two UK and international organisations with which Frank was associated. There are few extended sequences, with the most substantial body of material relating to the Royal Society and Frank's service on the Armourers and Brasiers' Company Research Fellowship Committee and the British National Committee for the History of Science, Medicine and Technology. There is some significant further documentation of Frank's involvement with the International Organization for Crystal Growth, including the 1968 international congress, and of the Pugwash Conferences on Science and World Affairs. Also of note is material relating to Frank's service as a Home Office Regional Scientific Adviser for Civil Defence.

Section G, Consultancies, documents Frank's work for commercial organisations. It covers the period 1949-1997. As in the previous catalogue, the bulk of the material relates to Frank's work for the diamond company De Beers. There is further material relating to the Diamond Research Committee, which oversaw De Beers-funded diamond research in UK universities and which organised the Diamond Research Conferences, and to the Conferences themselves 1973-1997.

Section H, Visits and conferences, covers the period 1933-1997. It includes overseas visits to South Africa, Japan, India and the continent of Europe, while UK conferences documented include Royal Society discussion meetings 1949, 1960, 1970, 1984, 1986 and 1993. There is also documentation of Frank's participation in NATO Advanced Study Institutes on the Application of Modern Physics to the Earth and Planetary Interiors (1969), Surface Effects in Crystal Plasticity (1975) and the Mechanism of Continental Drift and Plate Tectonics (1979).

Section J, Correspondence, spans Frank's whole career, from postgraduate days in the early 1930s to the late 1990s. It is presented in alphabetical order. The bulk of the correspondence is either early (1930s) or dates from the 1980s and 1990s - some of which postdates the compilation of the previous catalogue in 1989. There are few extended sequences and most of the correspondents represented are also to be found in the previous catalogue. However, there is significant additional material for R.V. Jones, F.R.N. Nabarro and K. Wirtz.

Section K, References and appointments, is chiefly material from the late 1980s and 1990s, postdating the previous catalogue.

There is also an index of correspondents, and an Appendix listing Frank's medals and academic gowns held by the University of Bristol Special Collections.

Caroline Thibaud
Timothy E. Powell
Bath
December 2003

SECTION A	BIOGRAPHICAL, A.99-A.566	1911-2001
	A.99-A.101	OBITUARIES AND MEMORIALS
	A.102-A.119	AUTOBIOGRAPHICAL AND BIOGRAPHICAL
	A.120-A.187	EDUCATION
	A.188-A.288	CAREER, HONOURS AND AWARDS
	A.289-A.357	DIARIES
	A.358-A.362	LITERARY COMPOSITIONS
	A.363-A.406	FAMILY
	A.407-A.468	FRIENDS AND COLLEAGUES
	A.469-A.492	CLUBS, ASSOCIATIONS AND OTHER INTERESTS
	A.493-A.565	PHOTOGRAPHS
	A.566	MISCELLANEOUS

A.99-A.101	OBITUARIES AND MEMORIALS	1998-1999
A.99	Obituaries	1998
	Obituaries from:	
	<i>The Times</i>	
	<i>The Guardian</i>	
	<i>The Independent</i>	
	<i>The Daily Telegraph</i>	
	<i>Nature</i>	
	The British Crystallographic Association	
A.100, A.101	Thanksgiving Service for the Life of Sir Charles Frank, Cathedral Church of the Holy and Undivided Trinity, Bristol, 4 November 1998.	1998-1999
A.100	Order of service; transcript of the addresses by Sir John Kingman, John Nye and Jerry Hicks	
A.101	Audio cassette tape-recording of the service	
A.102-A.119	AUTOBIOGRAPHICAL AND BIOGRAPHICAL	1938-2001
A.102	Curricula vitae	1938-1983
A.103-A.113	Entries for biographical and professional directories	1959-1998
	Requests for biographical information, information provided and copies of entries.	
A.103	<i>Who's Who</i>	1959-1997
A.104	<i>Who's Who in the World</i>	c.1977, 1993

Biographical, A.99-A.566

A.105	<i>International Who's Who</i>	1982-1994
A.106	<i>Who's Who of British Scientists</i>	1983
A.107	Indian Academy of Sciences Frank was a Visiting Professor at the Raman Research Laboratory in Bangalore between 1979 and 1980 and as such appeared in 'History of the Academy'. The book was published by the Indian Academy of Sciences on the occasion of the Jubilee Meeting of the Academy in November 1984.	1984
A.108	<i>People of Today</i> (Debrett)	1988-1992
A.109	Lincoln College 'Who's Who'	1989
A.110	<i>Who's Who in Science and Engineering</i>	1989
A.111	<i>Who's Who in American Education</i>	1992
A.112	'Honoured by the Queen' (Belgravia Press)	1994
A.113	Record of Science Research Scholars The 'Record of Science Research Scholars' was produced by The Royal Commission for the Exhibition of 1851.	1998
A.114	Request for an interview Correspondence <i>re</i> arrangements. Frank was requested to give an interview <i>re</i> intelligence in World War Two and his recollections of the internment of German scientists at Farm Hall (see D.360-D.406) for the	1997

Biographical, A.99-A.566

Catholic University of Chile Television Network 'Contacto'.

A.115, A.115A	Interview with Maita Frank Correspondence with University of Bristol Archivist <i>re</i> the interview; two interview transcripts; audio cassette tape-recording (A.115A). John Nye conducted the interview, which focused on Sir Charles Frank.	1999-2001
A.116-A.119	Archival cataloguing and preservation of Frank's papers	1988-2001
A.116, A.117	Correspondence with the National Cataloguing Unit for the Archives of Contemporary Scientists <i>re</i> the cataloguing of Frank's papers. Also includes correspondence with the University of Bristol Archivist. 2 folders.	1988-1999
A.118, A.119	Lists of Frank's papers. 2 folders.	1990-2001
A.120-A.187	EDUCATION	1920-1997
A.120-A.131	Thetford Grammar School, Norfolk	1920-1932
A.120-A.125	Thetford School exercise books	1920-1926
A.120	'Inorganic Chemistry'	
A.121	'Geography'	

Biographical, A.99-A.566

A.122	'5b History'	
A.123	'History'	
A.124	'History'	
A.125	'E.H. Wallace'	
	Used by Frank from the front for stories.	
	E.H. Wallace is not identified, possibly adopted as a pseudonym after the popular novelist Edgar Wallace.	
A.126, A.127	School reports 2 folders.	1920-1926
A.128	Foundation scholarship records	1923-1926
A.129	School certificate	1926
A.130	Thetford Grammar School Troop Boy Scouts Correspondence, 1 photograph and membership card. See also A.495.	1927
A.131	'The Fulmerstonian', Thetford Grammar School school magazine, July 1932	1932

Biographical, A.99-A.566

A.132-A.141	Ipswich School, Suffolk	1927-1977
	Frank became President of the Old Ipswichians Club in 1978 (see also A.517).	
A.132	Exercise book inscribed on front cover 'F.C. Frank English VIa' Used for English essays. Paginated with list of contents inside back cover.	c 1928
A.133	Hardback notebook inscribed inside front cover 'Essays F.C Frank' Used for English literature notes. Paginated with list of contents inside back cover.	c 1928
A.134	School reports	1927-1929
A.135	Higher School certificates, etc Also includes 1 letter of congratulation.	1928-1930
A.136	Correspondence with Ipswich School <i>re</i> state scholarship	1929
A.137	Ipswich School plays Autographed programmes of 'She Stoops to Conquer' by Oliver Goldsmith (1927) and 'Le Malade Imaginaire' by Molière (1928). See also A.497. Frank played female characters in the two plays.	1927-1928
A.138	Issues of the Ipswich School Magazine	1928, 1929, 1935
A.139	Old Ipswichians Dinner programme	1933
A.140	Visit to Ipswich School	1977

Biographical, A.99-A.566

Correspondence *re* arrangements.

A.141	Miscellaneous memorabilia	n.d.
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A.142-A.147	Lincoln College, Oxford	1928-1997
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See also A.469-A.480, A.499, A.500.

A.142	Miscellaneous correspondence with Lincoln College	1928-1997
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A.143	Faculty of Physical Sciences lecture programme, with Frank's annotations	1930-1932
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A.144	Bachelor of Science (Physical Sciences) Degree certificate.	1933
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Certificate and letters of congratulations.

A.145	Oxford Union Library Committee	1933-1936
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Correspondence with Librarians and committee members.

Frank became a member of the Union Library Committee in 1933.

A.146	Student accomodation and bills	1929-1938
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A.147	Lincoln College dinners	1936, 1968
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Programmes, menus and seating plans.

Biographical, A.99-A.566

A.148-A.183	Undergraduate notes	1923-1935
	Presented in a single chronological sequence.	
A.148	'Elementary Phys. Chem. Jun 1923' The date notwithstanding, these appear to be undergraduate notes.	
A.149	Binder inscribed on front cover 'F.C. Frank, Lincoln' and labelled on front and spine 'Questions answered' Used for notes entitled 'Advanced Organic Chemistry (1925)'	
A.150	Binder of Frank's literary writings Found with sequence of science notes. Includes drafts of plays, poems, travel notes, jottings, letters. See also A.358-A.362.	1929-1931
A.151	'Organic chemistry: - aliphatic. [H.B.] Baker'	1929-1930
A.152	'Essays for [N.V.] Sidgwick'	1929-1930
A.153	'Inorganic chemistry H to Ni'	1929-1930
A.154	'Random remarks [F.W.] Soddy'	1929-1930
A.155	'Dyson Perrin Lab'	1929-1930
A.156	'Electrochemistry [J.F.] Wolfenden'	1929-1931

Biographical, A.99-A.566

A.157	'Essays for Sidgwick'	1930
A.158	'Organic chemistry: aromatic [H.B.] Baker'	1930
A.159	'Balliol & Trinity Labs. Physical Chemistry'	c 1930
A.160	Specimens of toilet paper These have a note of make, date and location.	1930
A.161	'Inorganic chemistry (II) Ru to Po'	1930-1931
A.162	'Aspects of structural organic chemistry [R.] Robinson'	1930-1931
A.163	'Colloids George'	1930-1931
A.164	'Stereochemistry of carbon. Plant [...] Of other elements [?T.W.J.] Taylor'	1930-1931
A.165	'Atomic structure Sidgwick [...] Molecular structure Sidgwick'	1930-1931
A.166	'Thermodynamics [C.N.] Hinshelwood. Physics for Chemists Hinshelwood. Chemical Kinetics Hinshelwood'	c 1930-1931
A.167	'Rate of reaction [E.J.] Bowen [...] Photochemistry Bowen'	1930-1932
A.168	'Essays'	1931
A.169	'Chemical history'	1931

Biographical, A.99-A.566

A.170	'Inorganic analysis. Quantitive Russell. Qualitative'	1931
A.170A	'Inorganic Practical O.C.D.'	1929-1931
	Found with preceding notes.	
A.171	'Personal prejudices and work in progress General science'	1931
A.172	'Organic chemistry: - mainly heterocyclic. [H.B.] Baker'	1931
A.173	'Essays for Brewer'	1931
A.174	'Tautomerism Taylor'	1931
A.175	'Heterogenous equilibrium [?D.L.] Hammick'	1931
A.176	'Personal prejudices and work in progress General chemistry'	1932
A.177	'L.E. Sutton on dipoles'	1932-1934
A.178	Miscellaneous manuscript notes	1932-1934
A.179	'Essays'	1932-1935
	Includes notes on learning Russian, jottings, musings, poems etc.	
	Not all undergraduate.	

Biographical, A.99-A.566

A.180-A.182	Miscellaneous manuscript pages of notebooks and binders 3 folders.	1933 and n.d.
A.183	'Divers Lectorers'	n.d.
A.184-A.187	Postgraduate	1933-1940
A.184	British Association 'Oxford' Exhibition Correspondence <i>re</i> arrangements. Frank was nominated by the Vice-Chancellor to attend the British Association 'Oxford' Exhibition in Aberdeen.	1934
A.185	Goldsmiths' Company Senior Studentship Correspondence and certificates. Frank was the recipient of a Goldsmiths' Company Senior Studentship from 1936 to 1937.	1933-1937
A.186	Doctor of Philosophy in Physical Sciences Correspondence, mainly with Frank's examiner Dr L.E. Sutton <i>re</i> viva arrangement. Frank was awarded a D. Phil. in 1937.	1933-1937
A.187	Royal Commission for the Exhibition of 1851 Senior Studentship Correspondence <i>re</i> the studentship.	1939-1940

Biographical, A.99-A.566

A.188-A.288 CAREER, HONOURS AND AWARDS 1927-1994

A.188-A.194 Germany 1936-1943

This includes memorabilia from Frank's time in Germany 1936-1937 and after the war with the Allied Control Commission.

Frank studied dielectric loss in Germany from 1936 to 1938 at the Kaiser Wilhelm Institut fur Physik, Berlin-Dahlem.

A.188 Miscellaneous correspondence *re* visit to Germany 1937

A.189 Invitations and programme of ball and opera evenings 1937-1938

A.190 Hotel and restaurant bills 1937

A.191 Pocket map of Germany n.d.

A.192 Copy of the Nazi party newspaper 'Der Sturmer', November 1936 1936

A.193 Zielgevierttafel, in leather case 1943
German mapping device.

A.194 Miscellaneous memorabilia c.1937
Ski clothes brochures in German, Gemaldegalerie museum brochure, business cards, typescript descriptions of photographs taken by Frank.

Biographical, A.99-A.566

A.195	Correspondence <i>re</i> job applications	1927-1939
A.196-A.203	Wartime activities	1939-1950
A.196	Correspondence <i>re</i> appointment as a Scientific Officer at the Ministry of Aircraft Production Also includes National Service Armed Forces registration card.	1940-1941
A.197	Scientific Research Central Register Frank's biographical details and leaflet on the Central Register. The Register was compiled by the National Service Department of the Ministry of Labour to gather information on professional scientific, technical and higher administrative personnel who could serve the UK government in their professional capacity in wartime.	1939
A.198	'Combined Operations Headquarters' card	1942
A.199	Ration book	1941
A.200	Untitled, undated manuscript draft on Allied control in Germany	n.d.
A.201-A.203	Postwar material Includes Official Gazette of the Allied High Commission for Germany with Law 22 on atomic energy; typescript paper entitled 'Research and Development'; typescript notes on Law 23 on control of scientific research. 3 folders.	1949-1950

Biographical, A.99-A.566

A.204-A.288	Professional honours and awards	1935-1994
A.204	List of Frank's professional honours and awards compiled by Maita Frank	n.d.
A.205	Fellowship of the Chemical Society, London, 6 June 1935 Correspondence <i>re</i> election.	1935
A.206, A.207	Fellowship of the Royal Society, London, March 1954 Correspondence; information for newly elected members; certificate. 1 folder, 1 tube.	1954
A.208	Chair of Physics, University of Bristol, August 1954 Correspondence and contract of employment.	1954
A.209, A.210	Honorary Degree, University of Ghent, Belgium, 3 October 1955 Correspondence and certificate. See also A.509. 1 folder, 1 tube.	1955
A.211	Fellowship of the Institute of Physics, London, 1 October 1957 Certificate.	1957
A.212	Invitation to become Institute Professor of Solid State Science and Engineering Materials at the Carnegie Institute of Technology, Pittsburgh, Pennsylvania, September 1960 Correspondence <i>re</i> invitation.	1960

Biographical, A.99-A.566

Frank declined the invitation.

A.213	Invitation to become Dean of the Faculty of Physical Sciences at the University of Kent, Canterbury, August 1963 Correspondence <i>re</i> invitation.	1963
A.214-A.219	A.A. Griffith Medal, British Materials Science Club, Banbury, 22 September 1967	1967
A.214, A.215	Correspondence <i>re</i> arrangements 2 folders.	1967
A.216	Typescript drafts of speech with corrections	1967
A.217	Manuscript biographical notes on A.A. Griffith	1967
A.218, A.219	Manuscript notes found with the material 2 folders.	n.d.
A.220	Honorary Degree of Doctor of Science, University of Bath, 12 December 1973 Certificate and 2 photographs of the ceremony.	1973
A.221-A.224	Doctor Honoris Causa of the University of Surrey, Guildford, 3 December 1977	1977-1978
A.221	Correspondence Includes newspaper cuttings and photograph.	1978
A.222	Programme and order of proceedings	1977

Biographical, A.99-A.566

A.223	Printed booklet with addresses delivered at the ceremony	1977
A.224	Photographs 4 photographs.	1977
A.225, A.226	Honorary Fellowship of the Institute of Physics, London, 13 December 1977 1 letter <i>re</i> the election, photograph and certificate of election. 2 folders.	1977
A.227-A.229	Honorary Degree of Doctor of Sciences, University of Dublin, 6 July 1978 Programme of the ceremony; dinner seating plan; 2 photographs; certificate. Most documents are in Latin. 3 folders.	1978
A.230, A.231	Crystal Growth Award, The American Association for Crystal Growth, Washington DC, USA, 18 July 1978 3 photographs, magazine cutting and award plaque (A.231). Frank was the first recipient of this newly established award. 2 folders.	1978
A.232, A.233	Royal Medal of the Royal Society, London, 30 November 1979 Correspondence <i>re</i> election and certificate in leather bound case. 1 folder, 1 case.	1979

Biographical, A.99-A.566

See also A.518.

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|--------------|--|------|
| A.234, A.235 | <p>Foreign Associate of the National Academy of Engineering of the United States, Washington DC, USA, 3 March 1980</p> <p>Correspondence, University of Bristol Newsletter on the award and certificate.</p> <p>The award ceremony was held in October 1980 in Washington DC.</p> <p>1 folder, 1 tube.</p> | 1980 |
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 | | |
| A.236-A.238 | <p>Gregory Aminoff Medal, Royal Swedish Academy of Sciences, Stockholm, 3 June 1981</p> <p>Certificate, information on Gregory Aminoff and announcement of Frank's award in the University of Bristol Newsletter.</p> <p>3 folders.</p> | 1981 |
|
 | | |
| A.239-A.241 | <p>Honorary Degree of Doctor of Sciences, University of Warwick, Coventry, 17 July 1981</p> <p>Programme of the ceremony, 2 photographs and certificate.</p> <p>2 folders, 1 tube.</p> | 1981 |
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 | | |
| A.242 | <p>Service on the British National Committee for Physics, January 1982</p> <p>Certificate.</p> <p>Frank was a committee member before 1973 and again 1976-1981.</p> | 1982 |
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 | | |
| A.243 | <p>Guthrie Medal and Prize, Institute of Physics, January 1982</p> <p>Letters of congratulation.</p> | 1982 |

Biographical, A.99-A.566

A.244	Honorary Fellowship of the Indian Academy of Sciences, Bangalore, India, January 1984. Correspondence <i>re</i> the fellowship and announcement in the University of Bristol Newsletter.	1984
A.245, A.246	Unveiling ceremony of Frank's portrait, University of Bristol, 20 September 1985.	1984
A.245	Correspondence <i>re</i> the portrait	1984
A.246	List of contributors Also includes photograph of the portrait and photograph of Frank and his wife in front of the portrait.	1984
A.247, A.248	Foreign Associate of the Royal Society of South Africa, 24 April 1986. Correspondence and certificate. 2 folders.	1986
A.249, A.250	Honorary Presidency of the British Association of Crystal Growth 1981-1986 Certificate and commemorative plaque. 2 folders.	1981, 1986
A.251-A.252A	Doctor Honoris Causa, Universite de Paris-Sud, Orsay, France, 28 October 1986 Correspondence, dinner menu, addresses and certificate. 3 folders.	1986
A.253-A.255	Honorary Fellowship of the University of Bristol, Bristol, 5 December 1986 Correspondence, announcement in university	1986

Biographical, A.99-A.566

publications, certificate and addresses.

3 folders.

- | | | |
|--------------|--|-----------|
| A.256 | Robert Franklin Mehl Award, The Metallurgical Society,
Denver, Colorado, USA, 26 February 1987 | 1987 |
| | Framed certificate. | |
| | See also E.150-E.155. | |
|
 | | |
| A.257-A.261 | Foreign Associate of the American Academy of Science,
Washington DC, USA, 25 April 1987 | 1985-1989 |
|
 | | |
| A.257, A.258 | Letters of congratulation | 1987-1989 |
| | Also includes correspondence with the Academy. | |
| | 2 folders. | |
|
 | | |
| A.259 | Certificate of election | 1987 |
| | 1 tube. | |
|
 | | |
| A.260, A.261 | Miscellaneous correspondence and papers | 1985-1988 |
| | Includes photograph of Frank at the award ceremony and
announcement of the award in the University of Bristol
Newsletter (A.261) | |
| | 2 folders. | |
|
 | | |
| A.262 | Establishment of International Organization for Crystal
Growth's Frank Prize | 1987 |
| | Correspondence. | |
| | The International Organisation for Crystal Growth named
the Crystal Growth Prize after Frank. | |
|
 | | |
| A.263-A.265 | Von Hippel Award, Material Research Society, Boston,
Massachusetts, USA, 2 December 1987 | 1987 |

Biographical, A.99-A.566

A.263	Correspondence <i>re</i> arrangements	1987
A.264	Certificate Also includes biographical information on Frank and a schedule of the ceremony.	1987
A.265	Announcement of the award in the University of Bristol Newsletter	1987
A.266	The Frank Theatre, University of Bristol 1 letter <i>re</i> the naming of the G.44 lecture theatre after Frank.	1989
A.267-A.271	80th birthday celebrations and symposium, University of Bristol, 15 April 1991 See also A.524.	1991
A.267	Correspondence.	1991
A.268	Programme of the celebration and list of participants.	1991
A.269	Typescript copy of Frank's speech.	1991
A.270	Drawing and card offered on the occasion.	1991
A.271	Publication of the proceedings of the symposium. Also includes announcement in scientific and academic magazines.	1991
A.272, A.273	Honorary Degree, University of Surrey, Guildford, 29 November 1991	1991

Biographical, A.99-A.566

Correspondence, seating plan, colour photograph and photocopy photograph.

2 folders.

A.274-A.278	Honorary Degree of Doctor of Sciences, University of Leeds, 21 July 1992	1991-1992
A.274	Correspondence <i>re</i> arrangements	1991-1992
A.275	Certificate and presentation addresses	1992
A.276	Graduation supper guest list and seating plans	1992
A.277	2 colour photographs, with legend.	1992
A.278	Announcement in university publications and newspaper	1992
A.279-A.288	Copley Medal of the Royal Society, London, 30 November 1994 See also A.527.	1994-1995
A.279-A.281	Correspondence <i>re</i> arrangements and letters of congratulation 3 folders.	1994
A.282, A.283	'Copley Congrats' Contents of Frank's folder so inscribed divided into two for ease of reference.	1994-1995
A.284	Programme of the award ceremony	1994

Biographical, A.99-A.566

A.285	Portrait photograph of Frank. 1 photograph.	1994
A.286	Certificate	1994
A.287	Announcement in the Royal Society News, July 1994	1994
A.288	Miscellaneous material	1994
A.289-A.357	DIARIES This is a virtually complete run of Frank's pocket diaries. Intercalated within the diaries are visiting cards, notices of meetings, notes of addresses etc. At A.298 is a journal covering the outbreak of the Second World War	1926-1994
A.289	1926 Boy Scouts' diary.	
A.290	1927	
A.291	1928	
A.292	1932-1933	
A.293	1933-1934	

Biographical, A.99-A.566

A.294	1934-1935
A.295	1935-1936
A.296	1937 German pocket diary
A.297	1938 German pocket diary
A.298	Hardback notebook, used at front as a journal covering the outbreak of the Second World War 25 August-12 September 1939 Most pages not used.
A.299	1940
A.300	1940 Entries are by Maita Frank.
A.301	1941
A.302	1942
A.303	1942
A.304	1944

Biographical, A.99-A.566

A.305	1945
A.306	1946
A.307	1947
A.308	1947-1948
A.309	1948
A.310	1948-1949
A.311	1949
A.312	1950
A.313	1951
A.314	1952
A.315	1953
A.316	1954
A.317	1955
A.318	1956

Biographical, A.99-A.566

A.319 1957

A.320 1958

A.321 1959

A.322 1960

A.323 1961

A.324 1962

A.325 1963

A.326 1964

A.327 1965

A.328 1966

A.329 1967

A.330 1968

A.331 1969

A.332 1969

Biographical, A.99-A.566

A.333 1969-1970

A.334 1970

A.335 1971

A.336 1972

A.337 1972-1973

A.338 1973-1974

A.339 1974-1975

A.340 1976

A.341 1976-1977

A.342 1978

A.343 1978-1979

A.344 1980-1981

A.345 1981-1982

Biographical, A.99-A.566

A.346 1982-1983

A.347 1983-1984

A.348 1984-1985

A.349 1985-1986

A.350 1986-1987

A.351 1987-1988

A.352 1988-1989

A.353 1989-1990

A.354 1990-1991

A.355 1991-1992

A.356 1992-1993

A.357 1993-1994

Biographical, A.99-A.566

A.358-A.362	LITERARY COMPOSITIONS	1934-1980
	<p>Chiefly verses and early writings by Frank. Includes a humorous essay after Sellars and Yeatman entitled 'Science and all that'.</p> <p>See also A.150.</p> <p>4 folders, 1 notebook.</p>	
A.363-A.406	FAMILY	1923-1994
	See also A.551-A.558.	
A.363-A.374	Correspondence with Frank's parents	1923-1953
	12 folders.	
A.375-A.403	Correspondence with other members of the family	1931-1994
	Arranged in alphabetical order by surname, or first name where no surname is given.	
A.375	Arnautov, Zoe	1992
A.376	B[?], Vivienne	1937, 1945
	Vivienne B was a relative from South Africa. She may be the same person as the Vivienne at A.377.	
A.377	C[?], Vivienne	1935-1936
	Vivienne C was a cousin from Durban, South Africa.	
A.378	'Aunt Carrie'	n.d.

Biographical, A.99-A.566

A.379	Frank, Alice M. Alice Frank was F. C Frank's aunt.	1939
A.380	Frank, Audrey	1985-1990
A.381	Frank, Edward Edward Frank was F. C Frank's brother.	1937-1950
A.382	?Frank, Fred	1951-1991
A.383	Frank, Geoff and Liz	1985-1994
A.384	Frank, Joy and Angela	1990-1991
A.385	Frank, Lottie Lottie Frank was an aunt.	1931
A.386	Frank, M.E. ('Molly')	1985-1990
A.387	Frank, Phil.	1931, 1985
A.388	Jo and Margaret	1985-1994
A.389	John and Jo	1986
A.390	Ken and Elizabeth	1992
A.391	Pat and Vera	1985-1990

Biographical, A.99-A.566

A.392	Peggy Folder inscribed 'Perhaps a relative'.	1941
A.393	Pond, Ada and Arthur	1934-1935
A.394	Pond, Desmond Possibly the son of Ada and Arthur Pond.	1936-1938
A.395	Read, Arnold	1934, 1946
A.396	Read, John Carley Wedding invitation.	1934
A.397	Read, Rowland	1933
A.398	Romaine, [?]	1986
A.399	Smith, Effie Effie Smith was an aunt.	1934
A.400	Smith, Effie Effie Smith, cousin, was the daughter of Frank's aunt, also called Effie Smith.	1934
A.401	Southwell, Warburton	n.d.
A.402	Stanton, Rex and Gladys The Stantons were cousins.	1935-1936

Biographical, A.99-A.566

A.403	Miscellaneous correspondence	1934-1939
A.404-A.406	Frank family tree	1986-1989
A.404	Correspondence with members of the family <i>re</i> the Frank family tree	1986-1989
A.405, A.406	'Family tree plus related material' Contents of Frank's folder so inscribed divided into two for ease of reference.	n.d.
A.407-A.468	FRIENDS AND COLLEAGUES	1929-1997
A.407-A.436	Correspondence with friends From Oxford and Germany	1932-1941, n.d.
A.407	Adelheim, [?] Adelheim was a friend from Berlin.	1938
A.408	Bellam, Jim	1938
A.409	Brown, Thea	n.d.
A.410, A.411	Carpenter, Anne See also Thea Brown. Also includes a text in German entitled 'The Skier's Waltz'.	n.d.
A.412	Clarke, E.J.S.	n.d.

Biographical, A.99-A.566

A.413	Davis, Alan	1936
A.414	Davis, Mal	1935
A.415	Dutta, A.	1938
A.416	Evans, Patrick See also Alan Davis (A.413).	1937
A.417	Finn, Edward	n.d.
A.418	Gatty, Penelope	1940-1941
A.419	Gatty, Richard and Katharine	1940
A.420	Guerrini, V.H. Frank met Guerrini in Berlin.	1938-1939
A.421	Hill, Roger P.	1937
A.422	Holt, R.V.	1935
A.423	Horton, A.J.	1934
A.424	[L?], [?] In German.	1938

Biographical, A.99-A.566

A.425	Marsden, Ralph J.B.	1936-1939
A.426	Nettleton, Martin	1935
A.427	[?P], B.	1934
A.428	Pelmore, Denis Denis Pelmore was Frank's successor in Oxford as a research student.	1937
A.429	Purna, Kittu R.	1934-1935
A.430	Richards, J.	1937
A.431	Seyear, E.N.	n.d.
A.432	Stroud, L. Stroud was Frank's landlady in Oxford.	1935, 1936
A.433	Not used	
A.434	Wallace, Bertie Bertie Wallace was a school friend of Frank.	1932
A.435	Wynne, Charles G.	1934
A.436	First names only	1933-1937

Biographical, A.99-A.566

A.437-A.461	'Correspondence with girlfriends'. Contents of folder so inscribed	1929-1940
A.437	Allan, Isobel	1937
A.438	Allison, E.	1938
A.439	[?B], Zoe	1937
A.440	Bremner, H.	1936
A.441	Burdett, Dulce	1929-1938
A.442	C[?], Judy	1936
A.443	C[?], Marion Frank met Marion C during the Holiday Fellowship. See H.172.	1935
A.444-A.446	'Elsi' 3 folders.	1937
A.447-A.449	Mathisson, Ilse 3 folders. See also A.559. Frank met Ilse Mathisson in Estonia.	1933-1939
A.450, A.451	Mac Currach, Jean	1935-1938

Biographical, A.99-A.566

Also includes 6 photographs from Frank's time in Germany.

2 folders.

A.452	Meier, Theena	1933
A.453	Menser, G.	1938
A.454	Michaelis, Lotte	1934
A.455	Platz, Margaret	1937
A.456	Saunders, Mary	1940
A.457	Schreiber, Betti	1936-1937
A.458	Undritz, M. With typescript transcriptions of correspondence, compiled in the 1990s. Frank met M. Undritz in Estonia.	1931-1932
A.459	Wagen, Gertrud	1938
A.460	Williams, Molly	1938
A.461	Unidentified	1937

Biographical, A.99-A.566

A.462-A.468	Information on colleagues	1977-1997
A.462	Service of Thanksgiving for Harry Garner Edwards, Clifton College Chapel, 29 April 1995 Order of service and address.	1995
A.463, A.464	Newspaper cuttings on Reginald V. Jones. 2 folders.	1977-1997
A.465	N.F. Mott's 80th birthday List of guests and poem entitled 'Some Jots for Mott'. See also J.357.	1985
A.466-A.468	Newspaper cuttings on colleagues and various personalities 3 folders.	1983-1995
A.469-A.492	CLUBS, ASSOCIATIONS AND OTHER INTERESTS	1931-1997
A.469-A.480	Oxford University clubs	1931-1940
A.469	Oxford University Alembic Club Programmes of meetings 1935-1936; signed menus 1931 and 1935; Rules.	1931-1936
A.470-A.475	Oxford University Film Unit Chiefly correspondence <i>re</i> speakers for meetings, films to be shown, Film Unit policy and membership etc. Also includes some scripts, lists of camera shots etc. See A.9 of the previous catalogue. Frank was a committee member of the University Film	1933-1940 and n.d.

Biographical, A.99-A.566

Society and Founder and first President of the Film Unit.
The two merged in 1936.

A.470 1933-1934

A.471 1934

A.472 1934-1935

A.473 1936

Includes shooting script for documentary on the Oxford
University Air Squadron.

A.474 1937, 1940 and n.d.

A.475 Scripts, shooting lists, scenarios etc. N.d.
Also includes some memorabilia of the (Left wing) Film &
Photo League.

A.476 Oxford University German Club 1934
Programme of meetings.

A.477 Oxford University Jiudo/Jiu-jitsu Club 1935
Brief correspondence only.

A.478 Oxford University Junior Scientific Club 1935-1936
Programmes for meetings etc.

A.479 Oxford Union Society 1932
Life membership certificate.

Biographical, A.99-A.566

A.480	Oxford Society	1937
	Letter <i>re</i> possible branch in Germany; membership card, constitution.	
A.481-A.488	'Subscriptions'	1934-1997
	Contents of Frank's folder so inscribed: correspondence and papers relating to subscriptions for membership of clubs and associations, and charitable donations. It also includes some scientific societies otherwise documented in section F.	
	Arranged in alphabetical order.	
A.481	A	1958-1997
	Includes (incomplete) list of Frank's memberships.	
A.482	B (1)	1969-1986
A.483	B (2)	1981-1988
A.484	C-E	1940-1994
A.485	F-I	1971-1990
A.486	M	1979-1985
A.487	N-R	1935-1990
A.488	S-Y	1934-1989

Biographical, A.99-A.566

A.489-A.491 Concerts and functions 1935-1950

Programmes for music concerts, plays etc.

3 folders.

A.492 'Historical material' 1939, 1940

Contents of Frank's folder so inscribed: newspaper and magazine cuttings kept by Frank.

A.493-A.565 PHOTOGRAPHS 1911-1995, n.d.

Most of the photographs have some note identifying occasion, date and/or those featured inscribed on verso or by attached note.

There are many other photographs elsewhere in the collection, particularly with the Career, honours and awards material (A.204-A.288). These have been retained with the correspondence and papers with which they were found.

A.493-A.533 Photographs of Frank 1911-1995, n.d.

A.493 Frank as a baby 1911

3 photographs.

For further photographs of Frank as an infant see Family photographs below.

A.494 Frank as a schoolboy early 1920s

2 photographs.

A.495 Thetford Scout Camp 1927

6 photographs.

Biographical, A.99-A.566

See also A.130.

- A.496 Group photograph of pupils at Ipswich School 1928
1 photograph (rolled).
See also A.132-A.141.

- A.497 Ipswich School play 1928
4 photographs, two mounted.
See also A.136, A.137.

The photographs are of a performance and cast of
Molière's *Malade Imaginaire*. Frank played Béline,
second wife of Argan.

- A.498 Portrait photograph of Frank 1930
1 photograph.

- A.499 Lincoln College Oxford early 1930s
2 graduation photographs.
1 group photograph of B.Sc./D.Phil. class, featuring Frank
in back row.
See also A.142-A.147.

- A.500 ?Lincoln College early 1930s

Note on verso suggests the photograph is 'Lincoln College
staff? or some charitable or other organisation'.
1 photograph.

- A.501 Group photograph of Oxford Scientific Club 1934

'A souvenir of the visit [...] to the laboratories of Parke,
Davis & Co., Hounslow, on 1st November 1934'.

Biographical, A.99-A.566

Frank is featured on the right of the middle row.

1 photograph.

A.502	Frank and K. Wirtz	1937
	1 photograph.	
A.503	Group photograph of Colloid Science group, Cambridge	?1939
	Frank is on the right of the middle row.	
	1 photograph.	
A.504	Group photograph of H.H. Wills Laboratory staff and researchers	1948
	1 photograph.	
A.505	'Fort Royal Lab 1948-9 Party'	1948 or 1949
	Those featured include Frank, A.M. Tyndall and N.F. Mott.	
	8 photographs.	
A.506	Frank and J. H. Hollomon at GE Laboratory, Schenectady, USA	c 1951
	1 photograph.	
A.507	Frank, Maita Frank and G.P.S. Occhialini, Bristol	1953
	1 photograph.	
A.508	Frank, J.C. Fisher and T. Read	1954
	1 photograph.	

Biographical, A.99-A.566

A.509	Honorary Degree ceremony, Ghent, Belgium 1 photograph. See also A.209, A.210.	1955
A.510	Visit of the Duke of Edinburgh to the H.H. Wills Laboratory Those featured include the Duke of Edinburgh and C.F. Powell. 3 photographs; newspaper cutting on the visit.	1957
A.511	'Charles Frank observing dilatancy effects in wet sand, La Jolla shore 1964 or 1965' 1 photograph.	1964 or 1965
A.512	Frank, Maita Frank and D. Parkin, Mexico Annotated on front 'Wish you were here', sent to H.H. Wills Laboratory for their Christmas Party. Those featured are wearing Mexican hats and sitting in a donkey-cart. 1 photograph.	1964
A.513	Portrait photographs of Frank 5 photographs; letter found therewith.	1969
A.514	Visit to Prague Frank visited Prague, Czechoslovakia, in September 1969. 2 photographs.	1969
A.515	Frank at ?Physics Department party, Bristol. 1 photograph.	1972
A.516	Frank's Retirement Party	1976

Biographical, A.99-A.566

Features Frank and Maita Frank.

1 photograph.

- | | | |
|-------|---|------------|
| A.517 | Group photograph of Old Ipswichians Reunion | 1978 |
| | 1 photograph, with key. | |
| | | |
| A.518 | Royal Medal of the Royal Society | 1979 |
| | Features all the Royal Society medallists for 1979. | |
| | 1 mounted photograph. | |
| | See also A.232, A.233. | |
| | | |
| A.519 | Farewell Party for A.W. Merrison, Vice-Chancellor, Bristol | 1984 |
| | Features Frank, Maita Frank, Isobel Powell and D.M.C. Hodgkin. | |
| | 1 mounted photograph. | |
| | | |
| A.520 | Group photographs of the Polymer Physics Group | 1985, 1997 |
| | 2 photographs | |
| | | |
| A.521 | Frank, A.R.Lang and N. Sumida, Bristol | 1987 |
| | 1 photograph. | |
| | | |
| A.522 | 'Fowler breakfast' | 1989 |
| | Those featured include Frank and E. Sondheimer. | |
| | 3 photographs. | |
| | | |
| A.523 | Frank with Mai Zhenhong, Assistant Director of the Institute of Physics of the Chinese Academy of Sciences, Bristol | 1990 |

Biographical, A.99-A.566

1 photograph.

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|-------|---|------|
| A.524 | Photographs of Frank's 80th birthday celebrations

Photograph at civic function, featuring the Lord Mayor of Bristol, N.F. Mott and J.F.C. Kingman.

1 group photograph of celebrants, with key.

See also A.267-A.271. | 1991 |
| A.525 | Frank with A.Keller and D.C. Bassett

3 photographs. | 1991 |
| A.526 | Trinity College Cambridge

Features Frank with colleagues including A. Keller, A.H. Windle and E.L. Thomas.

1 photograph. | 1993 |
| A.527 | Copley Medal of the Royal Society

Features all the Royal Society medallists for 1994.

1 mounted photograph.

See also A.279-A.288. | 1994 |
| A.528 | Frank, M.L.E. Oliphant and M.M. Gowing

Taken during Kaptiza Centenary Symposium, Cambridge, 8 July 1994

2 photographs. | 1994 |
| A.529 | Frank, A.R. Lang and S. Takagi, Bristol

1 photograph. | 1995 |

Biographical, A.99-A.566

A.530	Undated group photographs of staff and researchers of the H.H. Wills Laboratory 3 photographs.	N.d.
A.531	Group photograph of visit of members of Chinese Academy of Sciences to Bristol Bristol figures featured include Frank, J.M. Ziman and ?R.L. Gregory. 1 photograph.	N.d.
A.532	?H.H. Wills Laboratory party Those feature include Frank and C.F. Powell. 5 photographs.	N.d.
A.533	Frank at ?Departmental Party, Bristol N. Thompson is also featured. 4 photographs.	N.d.
A.534-A.550	Conferences Photographs of proceedings and group photographs of participants from conferences attended by Frank. There are other photographs in the Visits and conferences section H, retained with the material with which they were found.	1948-1976, n.d.
A.534	Group photograph of participants at conference 'Amsterdam 1948' 1 photograph. See also H.177.	?1948

Biographical, A.99-A.566

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|-------------|---|--------|
| A.535 | Group photograph of participants at 'Cambridge ? ca 1950' | c 1950 |
| | 1 photograph. | |
|
 | | |
| A.536 | Mounted group photograph of participants at 9th International Solvay Conference in Physics, Brussels, Belgium, 25-29 September 1951 | 1951 |
| | 1 photograph. | |
| | See also H.186-H.192. | |
|
 | | |
| A.537-A.541 | Visit to Japan, September-October 1953 | 1953 |
| | See H.195 of this catalogue, and H.11-H.22 of the previous catalogue. | |
|
 | | |
| A.537 | Group photograph of participants at meeting | |
| | Frank is to the left of the fourth row up. | |
| | 1 photograph. | |
|
 | | |
| A.538 | Photographs of lectures and meetings | |
| | Those featured include Frank, N.F. Mott and R.P. Feynman. | |
| | 5 photographs. | |
|
 | | |
| A.539 | Photographs of visits to Japanese laboratories and research facilities | |
| | Those featured include Frank, N.F. Mott, J.C. Fisher and Japanese colleagues. | |
| | 9 photographs. | |
|
 | | |
| A.540 | Photographs of excursions | |
| | 14 photographs. | |

Biographical, A.99-A.566

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|-------|--|--------|
| A.541 | Photographs of social occasions and parties

5 photographs. | |
| A.542 | Photographs 'c 1953 ?Berlin'

5 photographs.

See also A.188-A.194. | ? 1953 |
| A.543 | Group photograph of participants at International Congress on Theoretical Physics, Seattle, USA, September 1956

1 photograph. | 1956 |
| A.544 | Group photograph of participants at 'Cooperstown Conference', 1958

1 photograph.

See also E.111A. | 1958 |
| A.545 | International Conference on Crystal Growth, Japan, March-April 1974

Photographs of Frank lecturing, and with colleagues at social functions and on excursions.

Those featured also include Maita Frank, S. Takagi and B. Pamplin.

6 photographs.

See also H.229. | 1974 |
| A.546 | Group photograph of participants at 2nd International Spring School on Crystal Growth, Japan, 31 March-7 April 1974

1 photograph. | 1974 |

Biographical, A.99-A.566

A.547	Group photograph of participants at 26th Pugwash Conference on Science and World Affairs, Mühlhausen, East Germany, 26-31 August 1976 1 photograph.	1976
A.548	Group photograph of participants at NATO Advanced Study Institute on Surface Effects on Strength of Materials ('Hohe Geiss Conference 1976') 1 photograph.	1976
A.549	Group photograph of participants at unidentified conference Those featured include N. Cabrera, B. Bilby and N.F. Mott.	N.d.
A.550	Informal photographs from unidentified conference Those featured include Frank, A.B. Pippard, A.H. Cottrell and N.F. Mott. 2 photographs.	N.d.
A.551-A.558	Family See also A.363-A.406.	N.d.
A.551	Grandparents Includes photographs of Frank as an infant with his grandmother. 4 photographs.	
A.552	Frederick Frank (father) Includes photographs of Frank as an adult with both his parents and of both his parents together. 5 photographs.	

Biographical, A.99-A.566

A.553	Dora Frank (née Read) (mother) 2 photographs.	
A.554	John and Edward Frank (brothers) Includes photographs of Frank with his two brothers as an infant. 8 photographs.	
A.555	South African relatives 8 photographs.	
A.556	Canadian relatives 14 photographs	
A.557	Frank and Maita Frank with Canadian relatives in 1980 1 composite photograph.	
A.558	Miscellaneous family-related photographs. Includes photographs of Frank's uncle; Frank family residences in Canada and South Africa. 7 photographs.	
A.559-A.565	Friends and colleagues	1934-1992, n.d.
A.559	Ilse Mathisson 1 photograph. See also A.447-A.449.	1934

Biographical, A.99-A.566

A.560	Photographs from Frank's period of research in P. Debye's laboratory, Berlin, Germany Those featured include M. Pirene, P. Debye, M. von Laue and E. Fischer. 10 photographs. See also A.188-A.194.	1936-1937
A.561	Group photograph of ?H.H. Wills Laboratory staff and researchers 1 photograph.	c 1949
A.562	J.E. Mayer and A. Sommerfeld, Bad Nauheim, Germany, October 1950 1 photograph.	1950
A.563	F. Seitz, Japan 1 photograph.	1953
A.564	Group photograph of members of the H.H. Wills Laboratory on the occasion of J. Malos's retirement 1 photograph.	1992
A.565	Group photograph of colleagues in Uppsala, Sweden 1 photograph, with key.	N.d.
A.566	MISCELLANEOUS Household finance, tenancy agreements, insurance, etc.	1932-1945

SECTION B	UNIVERSITY OF BRISTOL, B.152-B.327	1945-1997
	B.152-B.281	PHYSICS DEPARTMENT
	B.282-B.327	UNIVERSITY
B.152-B.281	PHYSICS DEPARTMENT	1945-1976, n.d.
	B.152-B.155	Administration
	B.156-B.169	Research funding
	B.170-B.226	Research seminars
	B.227-B.266	Teaching
	B.267-B.270	Postgraduate courses
	B.271-B.279	Students
	B.280, B.281	Miscellaneous
B.152-B.155	Administration	1966-1972
B.152	Minutes of Physics Steering Committee, 19 October and 21 December 1968	1968
B.153	Correspondence <i>re</i> registration of research assistant for Ph.D.	1966-1967
B.154	Correspondence and papers <i>re</i> technicians' dispute	1969-1970
B.155	Correspondence and papers <i>re</i> Research Fellow in Polymer Science	1970-1972

University of Bristol, B.152-B.327

B.156-B.169	Research funding	1966-1975
	<p>This is material relating to ICI support of science research activity at Bristol, and support of research in the Physics Department in particular.</p> <p>See B.104 of the previous catalogue.</p>	
B.156, B.157	General funding	1967-1974
B.156	Correspondence <i>re</i> possibilities for cooperation between ICI and the University of Bristol; ICI Vacation Student Scheme	1967
B.157	Correspondence chiefly <i>re</i> ICI support for Bristol research after the end of the Fellowships scheme	1973-1974
B.158-B.165	ICI Research Fellowships Scheme	1969-1975
	<p>Chiefly papers of the ICI Research Fellowships Committee. Arranged chronologically.</p> <p>Includes applications.</p>	
B.158	1969	
B.159	1970	
B.160	1971	
B.161	1972	
B.162	1973	
B.163	1973	
	Correspondence <i>re</i> future of Fellowship scheme.	

University of Bristol, B.152-B.327

B.164	1974	
B.165	1975	
B.166-B.169	ICI Loan Purchase Scheme	1966-1972
	Invitations to apply for loans, applications, etc.	
	Arranged chronologically.	
	This scheme enabled university science departments to acquire special apparatus which was too costly to be included in usual departmental expenditure but not large enough for a major grant application. The equipment remained the property of ICI although it was not required to be returned while it remained of use in the department.	
B.166	1966-1968	
B.167	1969	
B.168	1971	
B.169	1972	
B.170-B.226	Research seminars	1945-1957, n.d.
	Manuscript notes on postgraduate lecture courses (may include some undergraduate teaching), departmental seminars and colloquia given by colleagues.	
	See B53.-B.56 of the previous catalogue.	
B.170	'[W.K.] Burton & [N.] Cabrera: Equilibrium at crystal surfaces 25.5.45'	1945

University of Bristol, B.152-B.327

B.171	A.F. Devonshire, 8 October-12 November 1946 6 lectures.	1946
B.172	N.F. Mott, 14 October-9 December 1946 11 lectures.	1946
B.173	'[H.] Fröhlich Nov 4th', '18.11.46', '25.11.46' and '2.12.46'	1946
B.174	A.F. Devonshire, 19 November-17 December 1946 5 lectures.	1946
B.175	N.F. Mott, 14 January-10 March 1947 7 lectures.	1947
B.176	A.F. Devonshire, 21 January-4 February 1947 3 lectures.	1947
B.177	H. Fröhlich, 27 January-21 March 1947 8 lectures on dielectrics.	1947
B.178	'Devonshire 11.2.47 Organic molecules with double bonds'	1947
B.179	'[D.] Polder: Group theory Nov. 12th' and 'Nov 19th 1947 Infinite Groups'	1947
B.180	'Heisenberg Superconduc. 1.12.47'	1947

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B.181, B.182	Duplicated typescript notes for Biochemical Kinetics lectures by D.D. Eley 2 folders.	1947
B.183	'Polder - Group theory - Jan 21st 1948'	1948
B.184	'Fröhlich Sat 24 Jan 1948'	1948
B.185	'Devonshire 26th Jan 1948'	1948
B.186	'[H.] Dingle Fri 2[?] Jan 1948'	1948
B.187	'Polder 4 Feb 1948'	1948
B.188	'[J.D.] Eshelby 6 Feb 1948 Damping'	1948
B.189	'Dingle 6 Feb 1948'	1948
B.190	'Group theory Booth 3.3.48'	1948
B.191	'Mitchell 8th Mar 1948'	1948
B.192	'Booth 18th Mar'	1948
B.193	'[J.K.] Galt. Magnetism 30 April 1948'	1948
B.194	'Devonshire 5.5.48. Comparison of collision theory & activ. complex theory'	1948

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B.195	'Mehl 18.5.48. Diffusion in Metals'	1948
B.196	'Polder. Magnetism 21.5.48'	1948
B.197	'Mrs Garforth Oxidation 15.9.48'	1948
B.198	'Ferroelectrics [A.F.] Devonshire 13.10.48'	1948
B.199	'[N.F.] Mott. Wigner-Seitz cohesion theory. Nov 2nd 1948'	1948
B.200	'Devonshire': '17 Nov 1948', '24.11.48' and 'Dec 1st 1948'	1948
B.201	'[W.K.] Burton Dec 1st. 2nd lecture'	1948
B.202	'Devonshire 8.12.48'	1948
B.203	'Burton 9.12.48'	1948
B.204	'Burton 27.1.49'	1949
B.205	'Mott 31st Jan 1949. Method of tight binding'	1949
B.206	'Burton': '3rd Feb 1949', '3rd Mar' and '24.3.49'	1949
B.207	'Mott': '8.3.49', '14th Mar 1949' and '21.3.49'	1949
B.208	'Burton 25.4.49'	1949

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B.209	'Mott 2nd May 1949' on defects	1949
B.210	'Burton 20.5.49. (Another [?lemmary] explanation)' and 'Burton recap 7th June 1949'	1949
B.211	'Roberts 2.11.49' and 'Roberts 2nd lecture' on subatomic particles	1949
B.212	'Burton Groups 26.1.50' and 'Burton Feb 2nd'	1950
B.213	'Mackenzie', ?February	1950
B.214	'[J.D.] Eshelby Screw dislocation 8.2.50'	1950
B.215	'Burton 9.2.50'	1950
B.216	'Roberts': 20.2.50', '27.2.50' and '1 lecture on quantum mechanics'	1950
B.217	'Eshelby 26.2.50'	1950
B.218	'Burton 2[?8].2.50' and '2.3.50'	
B.219	'Hill [...] Lecture 23 Oct. 1950' on Coordinates in the yield focus plane	1950
B.220	University of Bristol Public Lecture on Meteorites by H.C. Urey, 17 June 1957 Notice; manuscript notes.	1957

University of Bristol, B.152-B.327

B.221	Undated notes on Burton	N.d.
B.222	Undated notes on Eshelby	N.d.
B.223	Undated notes on Mott	N.d.
B.224	'Thermodynamics of irreversible processes' by J. Meisener	N.d.
B.225, B.226	Miscellaneous shorter notes 2 folders.	N.d.
B.227-B.266	Teaching	1946-1970, n.d.
B.227	Duplicated typescript notes for teaching on precipitation in alloys and dislocations	c 1946
B.228	Manuscript outline of lecture course on 'The constitution of matter', summer term 1947	1947
B.229	Syllabus for course on the Earth, winter 1947-1948 Manuscript draft.	1947
B.230-B.233	'Lectures on solids' Contents of Frank's folder so inscribed divided into four for ease of reference: manuscript notes.	1952
B.234-B.240	Contents of Frank's folder divided into seven for ease of reference: manuscript lecture notes on thermodynamics	1953

University of Bristol, B.152-B.327

B.241-B.244	<p>'Thermodynamics'</p> <p>Contents of Frank's folder so inscribed divided into four for ease of reference: manuscript notes.</p>	N.d.
B.245-B.247	<p>'Lectures + notes on waves in crystals + related matters'</p> <p>Contents of Frank's folder so inscribed divided into three for ease of reference: manuscript and typescript notes.</p>	1958-1966
B.248	<p>Manuscript lecture notes beginning 'The general topic of this course is Physics since 1910, and my particular part of it is the Defects of Crystals'</p>	N.d.
B.249-B.251	<p>'Notes on crystallography etc'.</p> <p>Contents of Frank's folder so inscribed divided into three for ease of reference: manuscript notes.</p>	
B.252-B.257	<p>'Lecture notes on E.M. [electromagnetic] theory'</p> <p>Contents of Frank's folder so inscribed divided into six for ease of reference: manuscript notes for lectures 1-20 (not all represented).</p>	N.d.
B.258	<p>'Gravity survey'</p> <p>Manuscript ?lecture notes.</p>	N.d
B.259-B.263	<p>Lecture notes for unidentified course</p> <p>Lectures II, IV, V and VII, and manuscript notes found therewith.</p> <p>5 folders.</p>	N.d.
B.264	<p>Duplicated typescript physics examination papers</p>	1970

University of Bristol, B.152-B.327

B.265, B.266	Manuscript draft questions 2 folders.	N.d.
B.267-B.270	Postgraduate courses	1966-1971
B.267	M.Sc. course in the physics of materials Outline syllabuses, 4pp duplicated typescript; examination paper.	1966
B.268	M.Sc. course in the physics of materials Photocopy examination paper.	1967
B.269	M.Sc. course in the physics of materials Manuscript notes for introductory lectures. Not in Frank's hand.	1968
B.270	Manuscript draft of M.Sc. examination question	1971
B.271-B.279	Students	1954-1976, n.d.
B.271	'Notes on students' Contents of Frank's folder so inscribed: manuscript notes on students applying for courses at Bristol.	1954-1959
B.272	Hardback notebook used for notes on progress of M.Sc. students	1965-1966
B.273	Marks for student projects	1969-1970
B.274	Student marks	1970

University of Bristol, B.152-B.327

B.275	<p>'Stage III Honours projects'</p> <p>Contents of Frank's folder so inscribed: manuscript notes on projects.</p>	1970, 1972
B.276	<p>Hardback notebook used for notes on progress of students</p>	1970-1976
B.277	<p>Notes on Stage II tutorial group</p>	1974
B.278	<p>Completed questionnaire returns</p> <p>The returns mark Frank's proficiency as a Lecturer in geophysics.</p>	N.d.
B.279	<p>Marked student essays</p>	N.d.
B.280, B.281	Miscellaneous	1948, 1962
B.280	<p>'The Shape and Size of the Universe', University of Bristol Department of Adult Education talk, Taunton, 6 October</p> <p>Letter; notice.</p> <p>Frank was deputising for C.F. Powell.</p>	1948
B.281	<p>'On Atoms', 'Talk to Prof Beare's Lucretius Class', 1 February 1962</p> <p>9pp manuscript.</p>	1962
B.282-B.327	UNIVERSITY	1962-1997
	<p>B.282-B.285 General correspondence and papers</p>	

University of Bristol, B.152-B.327

	B.286-B.309	Committees	
	B.310-B.324	Colston Research Society	
	B.325-B.327	University of Bristol Newsletters	
B.282-B.285	General correspondence and papers		1963-1993
B.282	Speech for University of Bristol Council, 2 June 1967 2pp typescript; newspaper cutting <i>re</i> Oxford Fund. Frank raised the issue of student fees.		1967
B.283	Miscellaneous correspondence		1969-1993
B.284	Salary information		1963-1975
B.285	Memorabilia from Centenary Celebrations of the University of Bristol		1976
B.286-B.309	Committees		1962-1997
B.286-B.295	Art Lectures Committee Papers for committee meetings. See B.90-B.93 of the previous catalogue.		1971-1997
B.286	1971		
B.287	1972		
B.288	1973		
B.289	1974		

University of Bristol, B.152-B.327

B.290	1975	
B.291	1986, 1990 Two letters only.	
B.292	1994	
B.293	1995	
B.294	1996	
B.295	1997 Also includes letter of thanks to Frank for 34 years of service.	
B.296	Chemistry Department Scheduling Sub-Committee Correspondence and papers <i>re</i> mechanical and glass-blowing workshops.	1962
B.297	Committee of Professors in the Faculty of Engineering Agenda and minutes of meetings.	1974-1976
B.298-B.300	Engineering Board Agenda and minutes of meetings. 3 folders.	1975-1976
B.301-B.305	Knowlson Trust Foundation Awards Committee Papers for committee meetings and applications for	1963-1973

University of Bristol, B.152-B.327

awards, and related correspondence.

Those for 1963-1967 are C.F. Powell's, passed to Frank in 1968.

See B.109-B.111 of the previous catalogue.

B.301	1963-1964	
B.302	1965-1966	
B.303	1967-1968	
B.304	1969-1970	
B.305	1971-1973	
B.306-B.309	Library Committee Includes Periodicals Subcommittee (B.308).	1973-1974, 1994-1995
B.306	Papers of meeting, May	1973
B.307	Papers of meeting, November	1973
B.308	Papers of meeting of Periodicals Subcommittee, December	1973
B.309	Correspondence	1974, 1994- 1995
B.310-B.324	Colston Research Society	1967-1996
B.310	Correspondence <i>re</i> Council membership	1974-1992

University of Bristol, B.152-B.327

B.311-B.318	Papers for meetings of Council	1974, 1986-1996
B.311	1974	
B.312	1986	
B.313	1987	
B.314	1988	
B.315	1992, 1993	
B.316	1994	
B.317	1995	
B.318	1996	
B.319	Minutes of Colston Research Fund Committee meetings	1967-1971
B.320-B.322	Papers for meetings of the Colston Research Society Symposium Committee	1972-1975
B.320	1972, 1973	
B.321	1974	
B.322	1975	

University of Bristol, B.152-B.327

B.323, B.324	Miscellaneous correspondence	1973, 1991
B.323	Correspondence <i>re</i> offprints policy	1973
B.324	Correspondence and papers <i>re</i> Colston Symposium on Understanding Science, Bristol, March 1991 Includes 2pp typescript by Frank 'Understanding Science'. Frank was invited to give the introductory talk opening the Symposium.	1990-1991
B.325-B.327	University of Bristol Newsletters Newsletters kept by Frank for items of interest.	1980-1989
B.325	12 June and 26 June 12 June has letter from Frank on the Association of University Teachers' opposition to military research in universities; that of 26 June has letters arising.	1980
B.326	Letter on the Tyndall family Arising from article on the 'The last of the Tyndalls' in the newsletter of 15 June 1985.	1985
B.327	Miscellaneous newsletters	1987, 1989

SECTION C	RESEARCH, C.204-C.396	1914-1992, n.d.
<p>Divided into subsections to follow the arrangement of the previous catalogue and presented in a largely chronological order, though related material has been kept together.</p> <p>At C.386-C.396 are miscellaneous photographs of crystal structure etc.</p>		
C.204-C.209A	POSTGRADUATE	1933-1937
<p>See C.1-C.33 of the previous catalogue.</p>		
C.204	Hardback notebook inscribed on first page 'Nov 1933'	1933-1937
C.205	Hardback notebook inscribed inside front cover 'I' and on first page 'Nov 1933' Used November 1933-2 April 1935, chiefly for work on electrical circuits. Loose material intercalated at front.	1933-1935
C.206	Hardback notebook inscribed inside front cover 'II' and April 1935' Used 2 April-1 October 1935.	1935
C.207	Hardback notebook inscribed inside front cover 'III' Used 22 October 1935-8 July 1936. Loose intercalated material dated 1936.	1935-1936
C.208	Hardback notebook inscribed inside front cover 'IV' Used 28 July-13 October 1936 for work on acetonitrile, palmitonitrile and butyronitrile.	1936
C.208A	Manuscript notes on the 'Contents of the 4 "Physics Books" and 1 Chemistry Book'; miscellaneous manuscript notes on octonitrile etc.	1935-1936

Research, C.204-C.396

C.209	Ring back pocket notebook Used for notes on the literature, bibliographical references and jottings. Latest reference 1935.	c 1935
C.209A	Abstract of D. Phil. thesis Manuscript draft; manuscript calculations, notes and figures.	1936
C.210-C.213	GERMANY See C.34-C.54 of the previous catalogue.	1936-1937
C.210	Pocket notebook Used 1936-1937 for notes, calculations etc. A little loose intercalated material including sketch of 'Scientists Three Faith, Hope & Charity'.	1936-1937
C.211	Pocket notebook Used 1937 for rough notes and calculations.	1937
C.212	Pocket notebook Used c 1937 for rough notes and calculations. Many loose intercalated pages at end of notebook.	c 1937
C.213	Pocket notebook Used c 1937 for rough notes and calculations. Some notes in German.	c 1937

Research, C.204-C.396

C.214-C.216	CAMBRIDGE	1939-1940
<p>These notebooks record Frank's work with Oliver Gatty of the Department of Colloid Science, University of Cambridge at the end of 1939 and early 1940.</p> <p>See C.55-C.79 of the previous catalogue.</p>		
C.214	Hardback notebook inscribed on first page 'F.C. Frank and O. Gatty'	1939-1940
<p>Used for notes on work by Frank and Gatty 14 November 1939-16 January 1940.</p>		
C.215	Hardback notebook inscribed on first page 'F.C. Frank and O. Gatty Vol II'	1940
<p>Used for notes on work by Frank and Gatty 16 January-2 February 1940.</p>		
C.216	Hardback notebook inscribed on first page 'F.C. Frank & O. Gatty III'	
<p>Used for notes on work by Frank and Gatty 2-16 February 1940.</p>		
C.217-C.233	SECOND WORLD WAR	1935-1946
<p>See C.80-C.109 of the previous catalogue.</p>		
C.217-C.226	'Smoke generation Porton 1940'	1935-1941
<p>Contents of Frank's folder so inscribed.</p> <p>This work was to investigate smoke density and dispersal. O. Gatty who had been working with Frank at Cambridge (see C.214-C.216 above) was also involved in this work.</p>		
C.217	'Mists and volatile smokes' by Frank, Gatty and H. Campbell.	1940

Research, C.204-C.396

Typescript with manuscript figures; summary by Frank, August 1940, manuscript draft and 3pp typescript.

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| C.218 | 'Specification of boiling point for oil smokes' | 1940 |
| | 4pp manuscript draft, 1p typescript draft + figure, September 1940. | |
| C.219 | 'A theory of evaporation in wind from surfaces of small downwind length' by Frank | 1940 |
| | Manuscript draft, October 1940. | |
| C.220 | 'Comments on P.D.R. 246' by Frank | 1940 |
| | 1p manuscript and 1p typescript drafts. | |
| C.221 | Figures illustrating the 'Porton Creosote Burner' | 1940 |
| | Includes mounted photographs of the Burner in action. | |
| C.222, C.223 | Titled sets of manuscript notes and calculations | c 1940 |
| | 'Aerodynamic boundary layers', 'Diffusion into an air flow with uniform velocity gradient', 'Effective density of coagulating particles of hard substance', 'Note on the nature of the conduction in highly insulating substances' and 'Shape of capillary drops'. With two letters to Frank, 1940, found therewith. | |
| | 2 folders. | |
| C.224 | Miscellaneous manuscript notes and calculations | c 1940 |
| C.225 | Typescript translations of German language journal articles on smoke-related topics from 1940. | 1940 |
| C.226 | Published background material | 1935, 1938 |

Research, C.204-C.396

Pages from *Berliner Illustrirte Zeitung*, 20 June 1935;
Daily Express, 17 August 1938 featuring failures of
government-issued gasmasks.

C.227-C.231	'Air Ministry Intelligence 1940-1945' Contents of Frank's folder so inscribed.	1942-1946
C.227	'Elements of flight' Manuscript note and calculations.	early 1940s
C.228	Calculations of 'Isobar rules' Manuscript note.	early 1940s
C.229	Manuscript notes	early 1940s
C.230	'Dr Jones 30th Nov 1945' Contents of folder so inscribed found within Frank's 'Air Ministry' folder: 'Theory of a U-235 Bomb (treatment according to Heisenberg)', 'Elements of Pu-production calculation', manuscript notes.	1945
C.231	'Prof Jones 1.8.46' Contents of folder so inscribed found within Frank's 'Air Ministry' folder. Includes letter to R.V. Jones from Frank explaining why he does not wish to continue in the Civil Service, May 1946; photograph of Porton Down reunion, September 1946, with key; humorous material 1942 and n.d.	1942-1946
C.232, C.233	'Analysis of Rocket Accuracy' Contents of Frank's folder so inscribed: material re analysis of fall of German V-rockets in England.	1945
C.232	Manuscript calculations and analyses	

Research, C.204-C.396

C.233 Duplicated typescript sections of report, including 2pp
summary of conclusions

C.234-C.377

BRISTOL

1940s-1992

Frank's method of working often resulted in many scraps of paper being used for untitled and undated calculations. Frequently drafts begin in longhand and after two or three papers peter out into increasingly roughly written calculations. Many of the calculations are themselves written on the verso of earlier drafts, not necessarily related.

See C.110-C.203 of the previous catalogue.

C.234

'Ice crystallography'

1940s

Contents of Frank's folder so inscribed: manuscript notes and calculations, latest reference 1940.

C.235, C.236

'Ice. Polarisation kinetics'

1940s

Contents of Frank's folder so inscribed: typescript extracts of Frank's contributions to Faraday Society discussions, manuscript notes and calculations.

2 folders.

C.237

'Ice. Dielectric Prop[ertie]s'

1940s

Contents of Frank's folder so inscribed: manuscript notes, diagrams etc.

C.238, C.239

'Alternating reaction kinetics'

c 1945

Contents of Frank's folder so inscribed: manuscript notes and calculations. One page of calculations dated to December 1945.

2 folders.

Research, C.204-C.396

C.240, C.241	<p>'Mathematical'</p> <p>Contents of Frank's folder so inscribed: chiefly manuscript notes and calculations.</p> <p>2 folders.</p>	c 1946
C.242	<p>Contents of Frank's untitled folder.</p> <p>Includes manuscript notes and calculations; 30pp duplicated typescript 'The quantum theory of crystalline solids with particular references to semi-conductors', September 1946; and references to visit to Germany December [?1946] to visit K. Wirtz and Th. Forster.</p>	1946
C.243	<p>Manuscript note on 'Crystal growth', with duplicated typescript 'Calculation on the rate of migration of a ledge' found attached. Latest bibliographical reference 1946.</p>	c 1946
C.244, C.245	<p>'Entropy of Ice 1947'</p> <p>Contents of Frank's folder so inscribed: 11pp typescript draft on 'Entropy of Ice-I'; untitled manuscript draft referring to work by Pauling dated May 1947; manuscript notes and calculations.</p> <p>2 folders.</p>	1947
C.246-C.269	<p>'Crystal growth'</p> <p>Contents of Frank's boxfile so labelled divided into twenty four for ease of reference.</p>	1948-1954
C.246	<p>Correspondence, chiefly with D.A. Jones of the University of Aberdeen, <i>re</i> lecture course on crystals</p>	1948
C.247	<p>Brief correspondence, with typescript and manuscript notes etc.</p>	1948

Research, C.204-C.396

C.248	Correspondence, chiefly with Faraday Society, <i>re</i> discussion on crystal growth	1949
C.249	Correspondence chiefly <i>re</i> Faraday Society discussion	1949
C.250	Correspondence, chiefly with L.J. Griffin <i>re</i> theory of dislocations.	1949
C.251	Miscellaneous correspondence	1951-1952
C.252	Letter from F.H. Horn replying to Frank's comments on his draft paper on dislocations, 11 July With 8pp typescript draft of paper.	1952
C.253	Miscellaneous correspondence Includes drafts on dislocations by N. Cabrera and on crystal growth from the melt by J. Franks, sent to Frank for comment.	1953
C.254	Miscellaneous correspondence	1954
C.255	'Continuous crystallisation' and Growth rate of one crystal face' Manuscript and typescript notes, dated March and April 1949.	1949
C.256	Ministry of Supply Advisory Council on Scientific Research and Technical Development Crystallisation Panel paper 'Interferometric studies on quartz crystal' by S. Tolansky and L.J. Griffin Duplicated typescript with figures, July 1949.	1949
C.257	'Memorandum on Kossel's Reciprocity Theorem'	1949

Research, C.204-C.396

Manuscript notes, November 1949.

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|-------|---|------------|
| C.258 | 'Note on the structure of a crystal surface' | c 1949 |
| | 8pp typescript; manuscript notes, calculations etc found therewith. | |
| C.259 | 'Crystal growth and surface structure. I' by W.K. Burton and N. Cabrera | c 1949 |
| | 13pp typescript. | |
| C.260 | Manuscript notes on layer lattice structures by Frank | 1951 |
| C.261 | Manuscript on the theory of crystal growth with two different 2pp typescript summaries on work carried out in the US by Frank, July | 1951 |
| C.262 | Miscellaneous manuscript notes found clipped to offprint of 'Vapour pressure and rate of evaporation' by I.N. Stranski, Research vol 4 (1951) | c 1951 |
| | The offprint is annotated by Frank ' He must be a very clever man to understand his own article'. | |
| C.263 | 'Wachstum und kristallographische Orientierung von Dendriten' by A. Seeger and J. Schlipf, sent to Frank by N.F. Mott | 1954 |
| | 4pp typescript + figure. | |
| C.264 | 'A theory of the shape of growth pyramids on crystals' by Frank | N.d. |
| | 9pp typescript. | |
| C.265 | Titled sets of manuscript notes and calculations by Frank | 1950, n.d. |

Research, C.204-C.396

'A method to grow dsingle crystals', 'Model for NaCl' and
'Point charge & dielectric'.

C.266	Miscellaneous manuscript notes, graphs and calculations	N.d.
C.267	Miscellaneous notes on the literature and bibliographical references	N.d.
C.268	Miscellaneous photographs of crystals and crystal structure	N.d.
C.269	Miscellaneous published material	1958, 1951, n.d.
C.270-C.276	'Diffusion' Contents of Frank's folder so inscribed.	1948-1952
C.270	Correspondence	1948, 1952
C.271	'On the growth of crystals from dilute solutions' by A. Seeger 16pp typescript. Work done while on leave from the Technische Hochschule Stuttgart and working at the H.H. Wills Laboratory.	c 1949
C.272	'Calculation of diffusion penetration curves for surface and grain boundary diffusion' by J.C. Fisher, GE Research Laboratory paper, January 1950 With manuscript calculations by Frank found therewith.	1950
C.273	Manuscript notes on 'The crystal growth diffusion problem' by Frank	N.d.

Research, C.204-C.396

C.274-C.276	Miscellaneous manuscript notes and calculations 3 folders.	N.d.
C.277-C.281	'Twins' Contents of Frank's folder so inscribed: material <i>re</i> Frank's work on twinning in uranium published as 'A note on twinning in alpha-uranium', Bibliog. no. 40 (1952), see D.290.	1949-1952
C.277	Letter from J. Herenguel on orientation texture of aluminium, with offprints of his work	1949
C.278	Exchange of correspondence with R.W. Cahn on uranium twins, with copy of Cahn's Atomic Energy Research Establishment report 'Plastic deformation of uranium' The figures at the back are annotated by Frank. Intercalated within the report are manuscript notes and calculations by Frank.	1951
C.279	Letter from B. Bilby enclosing typescript draft of 'On the dislocation theory of lattice transformations' for comment	1952
C.280, C.281	Manuscript notes and calculations 2 folders.	N.d.
C.282-C.287	'Plastic deformation - anatomy of' Contents of Frank's folder so inscribed.	1949-1951
C.282	Manuscript notes on 'Orowan's discussion 15/16/ Sept 1949' and 'Lecture to Rheology Club Mon 26/9/49'	1949
C.283	Typescript reports and note	1950-1951

Research, C.204-C.396

'Report on the present state of theoretical research on deformation of metals' to the B.I.S.R.A. Metal Physics Committee, 5pp, 1950; 'Report on research in metal physics at the H.H. Wills Physical Laboratory', 4pp, 1951; 'Distribution of slip in metal crystals', 4pp, 1951.

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| C.284 | Manuscript note on 'The one-dimensional dislocation model under uniform shear stress' | c 1950 |
| C.285 | <p>Letter from H. Nishimura enclosing offprint 'The effect of strain rate on the plastic deformation in aluminium single crystals' by Nishimura and J. Takamura</p> <p>Intercalated are manuscript note by Frank and photographs.</p> | 1951 |
| C.286, C.287 | <p>Manuscript notes and calculations</p> <p>2 folders.</p> | |
| C.288-C.290 | <p>'Curved crystals'</p> <p>Contents of Frank's folder so inscribed.</p> <p>Dated by offprint of 'Misfitting Monolayers' by Frank and J.H. van der Merwe, <i>Bibliog.</i> no. 19 (1949) found in the folder.</p> | c 1949 |
| C.288 | <p>'Curvilinear crystals of non uniform composition'</p> <p>Manuscript draft by Frank, with note 'The following considerations began from being shown by Dr T.S. Westall [...] some highly curved crystals of Augite'.</p> | |
| C.289, C.290 | <p>Manuscript notes, calculations, figures etc</p> <p>2 folders.</p> | |
| C.291 | Miscellaneous material on damping in metals | 1949 |

Research, C.204-C.396

C.292-C.294	'Notes on lectures by Burton, Roberts, Hill, 1950-51' Contents of Frank's folder so inscribed.	1948-1951
C.292	Manuscript notes on lectures by Roberts, Burton and R. Hill	1950-1951
C.293	Manuscript notes on lectures Not in Frank's hand	N.d.
C.294	Manuscript notes Not all in Frank's hand. Also includes duplicated typescript question sheet from McGill University, 1948.	N.d, 1948
C.295, C.296	'Supercooled water, 1950' Contents of Frank's folder so inscribed.	1950
C.295	Correspondence with H.P. Palmer <i>re</i> work of W. Rau	
C.296	Photographic copies of paper and figures (annotated). Found in envelope within the folder.	
C.297	'Report on work during period 1.IV.50-26.IX.50' 6pp typescript on work on crystals 'not by FCF'.	1950
C.298-C.301	'Growth spirals' Contents of Frank's folder so inscribed.	1950-1952
C.298	Correspondence Includes electron micrographs and other photographic	1950-1951

Research, C.204-C.396

material.

C.299	Correspondence	1952
	Includes photographic material.	
C.300	'Growth spirals originating from screw dislocations on gold crystals' by S. Amelinckx	1952
	11pp typescript + photographs, sent to Frank for comment.	
C.301	Miscellaneous photographs	
C.302	'Wulff's theorem'	c 1951
	Contents of Frank's folder so inscribed: manuscript notes, latest reference 1951.	
C.303	'Wulff's constructions'	N.d.
	Contents of Frank's folder so inscribed: manuscript notes.	
C.304	Contents of Frank's untitled folder: manuscript notes on Wulff's theorem	N.d.
C.305	'Surface free energy'	1951
	Contents of Frank's folder so inscribed: letter to N.F. Mott from J. White; Electric Furnace Refractories Subcommittee paper on 'Effect of reducing conditions on the sintering of basic materials' by White and P.W. Clark; manuscript notes etc.	
C.306-C.309	'Supercooling and nucleation'	1951-1952
	Contents of Frank's folder so inscribed.	

Research, C.204-C.396

C.306, C.307	Letters and printed material from D. Turnbull of the General Electric Metallurgy Research Department, Schenectady, New York 2 folders.	1951
C.308	Typescript and manuscript drafts on super cooling liquids by Frank	
C.309	Letter to H.N.V. Temperley on the theory of liquids Manuscript draft and typescript carbon copy.	1952
C.310	Manuscript notes	
C.311-C.313	Contents of Frank's folder: miscellaneous manuscript notes, duplicated and typescript papers by others etc on dislocations 3 folders Latest reference 1951.	c 1951
C.314	Contents of Frank's untitled folder: miscellaneous manuscript and typescript material <i>re</i> sintering	c 1951
C.315-C.318	'Wyllie, R.G.' Contents of Frank's folder so inscribed.	1952
C.315	Correspondence with Wyllie <i>re</i> super-cooled water	
C.316	'On the hysteresis of adsorption on solid surfaces' by Wyllie 18pp photostat typescript; figures.	

Research, C.204-C.396

- C.317 'On the freezing of supercooled water' by Wyllie
Typescript draft.
- C.318 'The role of diffusion in nucleation process' by Wyllie
11pp typescript.
- C.319 'Creep and ageing effects in solid solutions' by A.H. Cottrell 1954

12pp typescript sent to Frank by Mott; typescript notes by Frank, etc.
- C.320 'Report on the theory of Prism Matching' by B. Bilby 1955

18pp typescript; figures; covering letter.

The covering letter explains the typescript was sent to Frank as 'arising from our discussion last September'.
- C.321 Manuscript calculation on the 'Intersection of travelling crack & sound waves' 1955
- C.322 'Very sundry notes' c 1956

Contents of Frank's folder so inscribed; manuscript calculations.
- C.323-C.341 Research folders from La Jolla 1959-1967

Material from Frank's geophysics research during his extended visit to the Institute of Geophysics and Planetary Physics, La Jolla, California, August 1964-August 1965.

See C.156-C.159 of the previous catalogue.

Frank spent the 1964-1965 as a Visiting Professor.
- C.323, C.324 'La Jolla 1964-5 Sundry correspondence, inc. initial invitation' 1961-1965

Contents of Frank's folder so inscribed: correspondence

Research, C.204-C.396

re arrangements to visit La Jolla; correspondence received (much of it forwarded from Bristol) while in La Jolla.

C.323	Correspondence <i>re</i> invitation to La Jolla	1961-1964
C.324	Correspondence	1964-1965
C.325, C.326	'La Jolla 1964-5 Sundry correspondence'	1964-1965
C.325	General correspondence Includes exchange with E. Orowan on fracture zones.	1964-1965
C.326	Contract as research analyst, US Air Force Materials Laboratory, Wright-Patterson Air Force Base, Ohio; manuscript notes.	
C.327, C.328	'La Jolla 1964-5 Alefield paper' Contents of Frank's folder so inscribed.	1964
C.327	'Grouping of pinning points on dislocation lines' by G. Alefield Bound General Electric research paper with notes etc by Frank intercalated at front.	
C.328	Manuscript notes.	
C.329-C.333	'Geophysics' Contents of Frank's folder so inscribed.	1959-1967
C.329	Brief correspondence; 'The origin of diamonds' by Frank, 1p typescript 1967; manuscript notes	1965-1967

Research, C.204-C.396

C.330	US Defence Research Board translation of Russian language papers on Asian and Pacific geomagnetic features Bound volume.	1964
C.331	Papers by E. Orowan for the Boeing Solid State Physics Laboratory Two bound volumes.	1966
C.332	Geological maps of California	1959
C.333	Printed graphical data for mapping	N.d.
C.334-C.337	'La Jolla '64-5. Geophysics notes'. Contents of Frank's folder so inscribed divided into four for ease of reference: manuscript notes.	1964-1965
C.338-C.341	'La Jolla 1964-65. Schlossin and Lang paper. Amethyst' Contents of Frank's folder so inscribed: material chiefly relating to work by H. Schlössin and A.R. Lang, with some manuscript notes by Frank on amethyst crystals	1964
C.338	'A study of repeated twinning, lattice imperfections and impurity distribution in amethyst' by Schlössin and Lang 19pp typescript + references and captions; figures.	1964
C.339	Correspondence, chiefly with A.R.Lang, <i>re</i> the paper Also includes 'On the orientation of the Miller-Bravais axes in gamma-quartz' by Lang, 6pp typescript.	1964-1965
C.340	'Plastic relaxation of crack tip stresses in gamma-quartz' by Schlössin	1965

Research, C.204-C.396

10pp typescript + figures.

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|--------------|--|-----------|
| C.341 | Manuscript notes on amethyst | |
| C.342, C.343 | <p>'International Geomagnetic Reference Field'</p> <p>Contents of folder so inscribed (not in Frank's hand): correspondence and papers sent to A.J. Zmuda <i>re</i> the proposed IGRF.</p> <p>2 folders.</p> | 1966 |
| C.344 | <p>Report on 'The tensile behaviour of oriented polyethylene' by J.G. Rider</p> <p>Spiral bound 'report on work carried out in the H.H. Wills Physics Laboratory, University of Bristol, in association with Dr A. Keller and under the general direction of Professor F.C. Frank FRS, between September 1964 and August 1965'.</p> <p>With manuscript notes by Frank and photographs intercalated at front.</p> | 1966 |
| C.345-C.349 | <p>'Correspondence <i>re</i>: Hannay diamonds'</p> <p>Contents of Frank's folder so labelled: correspondence, manuscript notes and photocopied background material <i>re</i> history of attempts to create artificial diamonds.</p> | 1968-1969 |
| C.345 | Correspondence, chiefly with R.V. Jones and E.P. Flint | 1968-1969 |
| C.346 | <p>'Thirty-nine steps to artifical diamond' by Frank</p> <p>3pp manuscript rough draft.</p> | 1969 |
| C.347-C.349 | <p>Photocopied background material</p> <p>3 folders.</p> | |

Research, C.204-C.396

C.350, C.351	Manuscript notes on the melting of the Earth 2 folders.	1960s
C.352-C.355	'Sundry notes' Contents of Frank's folder so inscribed divided into four for ease of reference: manuscript notes, calculations, etc, some dated to the 1960s. Topics include relativity, energy storage and gel permeation chromatography.	1960s
C.356	'Surface energy of ice, estimated from number of broken H-bonds per unit area' Manuscript note dated 17 March 1973.	1973
C.357	Photocopied manuscript calculation Inscribed 'Prof Frank - I think this would be the "official" version of your stretched molecule analysis' by J.H.H.'	1983
C.358-C.366	'Fusion' Contents of Frank's boxfile so inscribed: material relating to cold (muon-catalyzed) fusion. Correspondence; manuscript notes; printed background material. Frank attended a number of meetings on cold fusion in this period, including in June 1989 a Spring School on Plasma Physics, International Centre for Theoretical Physics, Trieste, Italy, see H.268-H.269 and in 1990 an International Symposium on Muon catalyzed fusion at Keble College Oxford, 11-13 September 1990. In 1947 Frank had published a pioneering paper on the theoretical possibility of muon-catalysed fusion. He retained an interest in this area which became more active in the 1980s. Cold fusion made headline news in 1989 when M. Fleishmann and B.S. Pons claimed to have successfully produced cold fusion of deuterium by electrochemistry. Some of the material presented here relates to their claim.	1987-1992

Research, C.204-C.396

C.358	General correspondence on the history of work on nuclear fusion	1987-1992
C.359	'Muon-catalysed fusion - a brief history' by Frank 3pp typescript. Prepared for discussion meeting on Cold Fusion.	1989
C.360	Manuscript notes and calculations	
C.361-C.363	General printed and photocopied background material on cold (muon catalysed) fusion. 3 folders.	
C.364-C.366	Notes and printed and photocopied material on the claim of M. Fleischmann and B.S. Pons to have achieved cold fusion. 3 folders.	1989
C.367	'Notes on Toda' Frank's manuscript notes on article by A. Toda.	c 1991
C.368	'Bragg-fringe patterns' Contents of Frank's folder so inscribed: manuscript draft and notes.	N.d.
C.369	Manuscript 'Notes on rock deformation'	N.d.
C.370	Manuscript data on 'The Sargent Law'	N.d.
C.371-C.374	'Sundry notes lecture notes - mainly atomic & nuclear, & fluid flow' Contents of Frank's folder so inscribed.	N.d.

Research, C.204-C.396

C.371	Duplicated typescript copy of 'Recent investigations on the transmutations of atomic nuclei' by N. Bohr	
C.372	Frank's manuscript notes on 'The electronic structure of atoms', 'Fluid flow', 'Surface tension'	
C.373, C.374	Miscellaneous manuscript notes 2 folders.	
C.375, C.376	Contents of Frank's untitled folder: manuscript notes, chiefly on 'Step-contrast microscopy', calculations etc 2 folders.	N.d.
C.377	Miscellaneous manuscript calculations and notes	N.d.
C.378-C.385	PRINTED MATERIAL These are published books, monographs and bound offprints kept with Frank's papers as being of particular historical or scientific significance. They are presented in chronological order by date of publication, although the earliest item (1914) is a photostat copy made later.	1914-1953
C.378	'Schiebungen und Translationen in Kristallen' by A. Johnsen, <i>Jahrbuch der Radioaktivität w. Elektronik</i> , vol 11 (1914) Photostat copy.	1914
C.379	<i>Polar Molecules</i> by P. Debye (Chemical Catalog Co., New York, 1929).	1929

Research, C.204-C.396

Inscribed inside front cover 'F.C. Frank 22/7/33'. With manuscript notes intercalated at p10.

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|-------|---|------|
| C.380 | <i>Mathematische Formelsammlung</i> by O.T. Bürlen and F. Ringleb (Berlin, 1936)

With manuscript annotations by Frank. | 1936 |
| | | |
| C.381 | <i>Übergänge zwischen Ordnung und Unordnung in festen und flüssigen Phasen. Diskussionstagung der Deutschen Bunsen-Gesellschaft</i> (1938)

Cover annotated 'Return to F.C.Frank 14 Gainsborough Rd, Ipswich' | 1938 |
| | | |
| C.382 | 'Kinetik der Phasenbildung' by M. Volmer, vol 4 of <i>Die Chemische Reaktion</i> , Dresden and Leipzig (1939)

Annotated by Frank, with manuscript calculation intercalated at p213.

This book was important in Frank's postwar crystals research. In a letter of June 1999 R.G. Chambers noted that 'After the war he had been sent, by a friend in Germany, a copy of a book by Volmer, published in 1939 on this topic, and it was this that set him thinking'. | 1939 |
| | | |
| C.383 | <i>Kernphysikalische Tabellen</i> by J. Mattauach (Berlin, 1942)

Hardback bound photostat copy with manuscript notes and calculations by Frank intercalated at front of volume.

In a letter of June 1999 R.G. Chambers noted 'The book was clearly used by him [Frank] in working out his ideas on cold fusion'. | 1942 |
| | | |
| C.384 | <i>Der Geschichte der Natur. Zwölf Vorlesungen, gehalten in Göttingen im Sommer 1946</i> by C.F. von Weizsäcker (1946)

Bound duplicated typescript. | 1946 |
| | | |
| C.385 | <i>Dislocations in Crystals</i> by W.T. Read, Jr (McGraw-Hill, | 1953 |

Research, C.204-C.396

New York, 1953)

C.386-C.396

PHOTOGRAPHS

N.d.

Miscellaneous photographs of crystal structures, most
captioned and identified on verso.

11 folders.

SECTION D PUBLICATIONS, D.272-D.482 1936-1998, n.d.

D.272-D.412 A DRAFTS 1936-1997, n.d.

A chronological sequence of material relating to publications or to the intention to publish. Where applicable reference is made to the bibliography on pp 224-235 of the previous catalogue in the form *Bibliog. no.* ... Cross-references to related material in the previous catalogue are also provided where appropriate.

D.272 'Energy of formation of "cyclo" molecules', not listed in Bibliog. but published in *Nature* vol 138 (1936), p242 1936

Proof copy.

D.273 'A possible explanation of some anomalous electric dipole moments', with L.E. Sutton, *Bibliog. no.* 4 (1937) 1974

Untitled typescript draft beginning 'It has been suggested in connexion with dimethyl and diphenyl mercury that their normal molecular configurations are linear, but that they possess finite average dipole moments [...]'

Exchange of letters about the article with L.E. Sutton, 1974.

D.274 'On high dielectric constants', not listed in Bibliog. but published in *Transactions of the Faraday Society* vol 33 (1937), pp 513-523 1936-1937

Correspondence *re* publication; proof copy.

See D.6 of the previous catalogue.

D.274A 'Dielektrische Relaxation von Molekülen mit frei drehbaren Dipolgruppen', with E. Fischer, not listed in Bibliog. but published in *Phys. Zeitschrift* vol 40 (1939), 345-352 1939

16pp typescript with manuscript corrections.

D.275 'On slip bands as a consequence of the dynamic behaviour of dislocations', *Bibliog. no.* 15 (1948) 1948

Publications, D.272-D.482

7pp duplicated typescript pre-print.

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|--------------|--|--------|
| D.276 | <p>'The influence of dislocations on crystal growth', <i>Bibliog.</i> no. 21 (1949)</p> <p>Copy of volume of <i>Discussions of the Faraday Society</i> featuring the article.</p> | 1949 |
| D.277 | <p>'Radially symmetric phase growth controlled by diffusion', <i>Bibliog.</i> no. 26 (1950)</p> <p>Corrected typescript sections; offprint annotated 'Corrected copy'.</p> | 1950 |
| D.278, D.279 | <p>'The origin of dislocations', possibly early draft of <i>Bibliog.</i> no. 50 (1956)</p> | c 1950 |
| D.278 | <p>25pp typescript + references</p> | |
| D.279 | <p>Correspondence 1950; manuscript notes and calculations</p> | |
| D.280 | <p>'Multiplication processes for slow moving dislocations', with W.T. Read Jr. Not listed in <i>Bibliog.</i>, latest bibliographical reference 1950</p> <p>4pp duplicated typescript + figures.</p> | c 1950 |
| D.281 | <p>'One-dimensional dislocations IV Dynamics', with J.H. van der Merwe, <i>Bibliog.</i> no. 27 (1950)</p> <p>Proof copy; untitled manuscript draft found therewith with later note attached 'Part of a draft paper on dislocation theory'.</p> | 1950 |
| D.281A | <p>Review of: <i>The mathematical theory of plasticity</i>, by R. Hill (Oxford, 1950). In: <i>Philosophical Magazine</i></p> <p>2pp typescript.</p> | c 1950 |

Publications, D.272-D.482

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|-------------|---|----------------------------|
| D.282-D.288 | <p>'The growth of crystals and the equilibrium structure of their surfaces', with W.K. Burton and N. Cabrera, <i>Bibliog. no. 30</i> (1951)</p> <p>Contents of folder inscribed 'Burton, Cabrera & Frank'.</p> <p>See D.29 of the previous catalogue.</p> | <p>1950-1951,
1990</p> |
| D.282 | <p>Manuscript title page and list of contents; typescript introduction</p> | |
| D.283 | <p>Part I. Movement of steps on a crystal surface</p> | |
| D.284 | <p>Part II. Rates of growth of a crystal surface</p> | |
| D.285 | <p>Part III. Steps and two-dimensional nuclei</p> | |
| D.286 | <p>Part IV. Structure of a crystal surface as a cooperative phenomenon</p> | |
| D.287 | <p>Appendices C and E</p> | |
| D.288 | <p>Letter <i>re</i> inclusion of the paper as a Citation Classic</p> | <p>1990</p> |
| D.289 | <p>'Crystal growth and dislocations', <i>Bibliog. no. 37</i> (1952)</p> <p>21pp typescript.</p> <p>See D.30, D.31 of the previous catalogue.</p> | <p>c 1952</p> |
| D.290 | <p>'A note on twinning in alpha-uranium', <i>Bibliog. no. 40</i> (1952)</p> <p>10pp typescript with manuscript corrections; references; abstracts in English, French and German.</p> | <p>1952</p> |

Publications, D.272-D.482

See also C.

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|--------------|--|--------|
| D.291-D.293 | 'Martensite', <i>Bibliog. no. 41</i> (1953)

See D.33 of the previous catalogue. | 1953 |
| D.291 | 17pp typescript with manuscript corrections; list of those to receive offprints; abstracts in English, French and German | |
| D.292, D.293 | Manuscript and typescript parts of drafts; manuscript notes; figures

2 folders. | |
| D.294, D.295 | 'Stable dislocations in the common crystal lattices', with J.F. Nicholas, <i>Bibliog. no. 42</i> (1953)

Contents of Frank's folder inscribed 'Notes for dislocation catalogue'. | 1953 |
| D.294 | 37pp typescript draft | |
| D.295 | Figures; pages of manuscript draft. | |
| D.296 | 'On tin whiskers', <i>Bibliog. no. 43</i> (1953)

Manuscript rough draft. | c 1953 |
| D.297 | 'Hexagonal networks of dislocation', <i>Bibliog. no. 45</i> (1954)

12pp typescript; offprint with manuscript notes found attached.

See D.34 of the previous catalogue. | 1954 |
| D.298 | Review of: <i>Chemistry of the Defect Solid State</i> by A.L.G. Rees (London, 1954)

Proof copy. | c 1954 |

Publications, D.272-D.482

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|--------------|--|--------|
| D.299 | 'On the X-ray diffraction "spikes" of diamond', <i>Bibliog. no. 54</i> (1956)

14pp typescript + figure; proof. | 1956 |
| D.300 | 'Complex alloy structures regarded as sphere packings. I. Definitions and basic principles', with J.S. Kaspar', <i>Bibliog. no. 57</i> (1958)

Contents of folder inscribed 'Frank & Kaspar and coordination shells': typescript and manuscript drafts.

See D.44, D.45 of the previous catalogue. | c 1958 |
| D.301-D.303 | 'On the theory of liquid crystals', <i>Bibliog. no. 65</i> (1958) | c 1958 |
| D.301 | Manuscript rough draft | |
| D.302 | 20pp typescript | |
| D.303 | Manuscript notes on liquid crystals | |
| D.304 | Untitled manuscript draft with later note attached 'Draft ms on crystal growth & diffusion' | c 1958 |
| D.305-D.307 | 'A note on the impingement problem'

Contents of folder inscribed: 'Unpublished drafts, mainly on polymer crystallisation'. | c 1961 |
| D.305 | Manuscript draft | |
| D.306, D.307 | Pages of manuscript drafts and notes

2 folders. | |

Publications, D.272-D.482

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|-------|---|-----------|
| D.308 | <p>'Linear compounds of dislocations in silver chloride with cupric ions', with A.S. Parasnis and J.W. Mitchell, <i>Bibliog. no. 79</i> (1963)</p> <p>Rough manuscript draft.</p> | c 1963 |
| D.309 | <p>'On superconductive dynamic geometries', not listed in <i>Bibliog.</i>, latest bibliographical reference 1963</p> <p>4pp typescript + abstract and figure; 19pp typescript on superconductors; manuscript calculations.</p> | c 1963 |
| D.310 | <p>'A note on platelets and diffraction spikes in diamond', <i>Bibliog. no. 81</i> (1964)</p> <p>7pp typescript; proof.</p> | 1964 |
| D.311 | <p>'Hydrolytic weakening of quartz crystals', with D.T. Griggs et al, <i>Science</i>, c 1966</p> <p>Letter with abstract.</p> <p>D.T. Griggs wrote to Frank with the abstract asking Frank whether he wished to be included as a co-author.</p> | 1966 |
| D.312 | <p>Review of: <i>Melting and Crystal Structure</i> by A.R.J.P. Ubbelohde (Oxford University Press, 1965)</p> <p>2pp typescript; exchange with Nature.</p> | 1966 |
| D.313 | <p>'Defects in diamond', <i>Bibliog. no. 91</i> (1967)</p> <p>Proof copy with manuscript corrections, with later manuscript note attached 'A splendid paper - the historians should read it!'</p> | 1967 |
| D.314 | <p>'On the theory of Hertzian fracture', with B.R. Lawn, <i>Bibliog. no. 93</i> (1967)</p> <p>Proof copy.</p> <p>See D.80, D.81 of the previous catalogue.</p> | 1966-1967 |

Publications, D.272-D.482

D.315	'On the characterization of crustal drift', not listed in Bibliog., latest bibliographical reference 1968 6pp manuscript.	c 1968
D.316	'Diamonds and deep fluids in the upper mantle', <i>Bibliog. no. 99</i> (1969) 8pp typescript.	1969
D.317-D.336	'Cecil Frank Powell', with D.H. Perkins, <i>Bibliog. no. 108</i> (1971) This material was assembled by Frank in preparing his Royal Society Biographical Memoir of Powell (D.317-D.326). It also includes papers relating to other of Frank's published memorials to Powell, and to commemorations of Powell's death, including his funeral service, a Memorial Meeting in Bristol and the erection of a plaque in the Bristol Department of Physics. In addition to co-authoring the Royal Society's Biographical Memoir of Powell, Frank also wrote the obituary of Powell for <i>Physics Bulletin</i> and 'C.F. Powell (1903-1969). A tribute from a colleague', <i>Bibliog. no. 101</i> (1969)	1969-1974
D.317-D.326	Royal Society Biographical Memoir At D.322-D.324 is correspondence and papers of Powell's which appear to have come into Frank's possession during the compilation of the Memoir.	1971
D.317	Typescript draft + appendix	
D.318	Lists of publications	
D.319	Reminiscences of and information about Powell from colleagues	1969
D.320	Reminiscences of and information about Powell from	1970-1971

Publications, D.272-D.482

colleagues

D.321	Correspondence with D.H. Perkins, co-author, and Royal Society <i>re</i> preparation and publication of the memoir PERKINS, Don H.; ROYAL SOCIETY	1969-1971
D.322	Correspondence of Powell <i>re</i> career.	1928-1947, n.d.
D.323	Correspondence and papers <i>re</i> Westinghouse Time Capsule	1964-1965
D.324	Notebook of Powell's 'Fees and expenses for income tax'	1964-1969
D.325, D.326	Printed and typescript biographical accounts, tributes and obituaries 2 folders.	1948-1969
D.327	Obituary of Powell by Frank, <i>Physics Bulletin</i> , vol 20 (1969) 2pp typescript; proof copy; copy as published; brief correspondence.	1969
D.328	'C.F. Powell (1903-1969). A tribute from a colleague', <i>Bibliog. no.</i> 101 (1969) Copy of <i>Scientific World</i> with Frank's article on pp5-7; covering letter.	1969
D.329	Funeral service for Powell Order of ceremony; 4pp typescript of Frank's address; newspaper cutting.	1969
D.330-D.333	Memorial Meeting, Bristol, February 1970	1969-1970

Publications, D.272-D.482

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|--------------|---|-----------|
| D.330 | Programme; lists of invitees | 1970 |
| D.331, D.332 | Correspondence with University of Bristol, speakers and participants <i>re</i> arrangements

Includes letters of condolence to Isobel Powell (widow)

2 folders | 1969-1970 |
| D.333 | Supplement to <i>Scientific World</i> 1970, no. 3

This recorded the proceedings of the meeting | 1970 |
| D.334 | Memorial plaque, University of Bristol

Correspondence and papers <i>re</i> fund-raising | |
| D.335 | Plaque marking the residence of Powell in Bristol

2pp typescript of Frank's address at the unveiling ceremony.

This plaque was put up by the Clifton and Hotwells Improvement Society, Bristol. It was unveiled by Frank on 8 October 1974. | |
| D.336 | Miscellaneous correspondence | 1972-1973 |
| D.337 | 'The future of crystal growth', <i>Bibliog. no.</i> 111 (1972)

5pp typescript draft with covering letter to B. Mullin.

See D.99 of the previous catalogue. | 1971 |
| D.338 | 'Descartes' observations on the Amsterdam snowfalls of 4,5,6 and 9 February 1635', <i>Bibliog. no.</i> 122 (1974)

6pp typescript + references; abstract; exchange with publishers. | |

Publications, D.272-D.482

See D.112 of the previous catalogue.

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|--------------|--|------------|
| D.339 | 'The Descartes-Mpemba phenomenon', not listed in <i>Bibliog.</i> but published in <i>Physics Education</i> (1974)

Letter for publication in <i>Physics Education</i> ; correspondence. | 1974 |
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 | | |
| D.340 | 'Japanese work on snow crystals', <i>Bibliog. no.</i> 123 (1974)

Typescript draft; proof copy. | 1974 |
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| D.341 | 'Nucleation-controlled growth on a one-dimensional growth front of finite length', <i>Bibliog. no.</i> 126 (1974)

Abstract; proof copy; typescript notes found therewith.

See D.114 of the previous catalogue. | 1974 |
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| D.342 | 'Crystal dislocations', with J.W. Steeds, not listed in <i>Bibliog.</i> but chapter two of ed. P.B. Hirsch, <i>The Physics of Metals: 2 Defects</i> (Cambridge, 1975)

Correspondence with Cambridge University Press, publishers.

See D.120 of the previous catalogue. | 1974 |
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 | | |
| D.343 | 'Airy functions in the air: an easy way with stress problems', <i>Bibliog. no.</i> 135 (1978)

Correspondence with editor; 12pp typescript 'Original' + figures.

See D.126 of the previous catalogue. | 1977-1978 |
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 | | |
| D.344, D.345 | 'Snow crystals', <i>Bibliog. no.</i> 140 (1982)

This was first delivered as a lecture to the Royal Swedish Academy of Sciences on the occasion of Frank's receiving the Gregori Aminoff Medal in June 1981
See also A.236-A.238 | 1981, 1982 |

Publications, D.272-D.482

D.344	Proof with manuscript corrections	1982
D.345	Figures	1981
D.346	Review of: <i>Diamond</i> by G. Davies (Bristol, 1984). In <i>Physics Bulletin</i> , ca 1984 Proof copy with covering letter	1984
D.347	'Some personal reminiscences of the early days of crystal dislocations', in <i>Dislocations and properties of real materials: proceedings of the conference to celebrate the fiftieth anniversary of the concept of dislocation in crystals</i> (Institute of Metals, London, 1985) 5pp typescript with manuscript corrections; correspondence with the Metals Society re the paper. Frank delivered the paper at a Metals Society meeting on Dislocations and Properties of Real Materials, Royal Society, London, 11-12 December 1984.	1984
D.348	'Prince Rupert's drops', <i>Bibliog. no. 144</i> (1986) Photocopy typescript and manuscript drafts, probably prepared for lecture. See D.141-D.158 of the previous catalogue.	c 1986
D.348A	Review of: <i>A life in science</i> by N.F. Mott (London, 1986). In <i>Physics Bulletin</i> , c 1986 7pp manuscript draft; proof.	c 1986
D.349	'On the Burgers circuit', <i>Bibliog. no. 148</i> (1988) Letter from publishers only.	1987
D.350	'Micro-hot fusion', University of Bristol Newsletter, 29 June 1989 Annotated copy of article by Frank commenting on	1989

Publications, D.272-D.482

developments on cold fusion.

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|-------------|---|------------|
| D.351 | Obituaries by Frank of Reginald Victor Jones for <i>the Independent</i> newspaper | 1989, 1991 |
| | Frank prepared the obituary but in the event it was not used when Jones died in December 1997. | |
| | Frank had. | |
| D.352-D.357 | 'The conformal neo-Eulerian orientation map', <i>Philosophical Magazine A</i> , vol 65 (1992), pp 1141-1149 | 1991 |
| | The first version was returned to Frank for revision, before being accepted for publication | |
| D.352 | 14pp typescript | |
| D.353 | 11pp typescript of 'Master with corrections' | |
| D.354 | Proof copy | |
| D.355 | Correspondence with editor, <i>Philosophical Magazine</i> | |
| | Includes referee's comments on the paper. | |
| D.356-D.357 | Manuscript notes found therewith. | |
| D.358 | 'Body-centred cubic is a close-packed structure', <i>Philosophical Magazine Letters</i> , 1992 | 1992 |
| | Letter from editor only. | |
| D.359 | Preface to <i>Handbook of Crystal Growth</i> ed. D.T.J. Hurle (Elsevier, 1993) | 1990, 1992 |
| | Correspondence with editor; 2pp typescript. | |

Publications, D.272-D.482

D.360-D.406	<i>Operation Epsilon: the Farm Hall transcripts</i> , introduced by Frank (Institute of Physics, Bristol, 1993)	1990-1996
	<p>At the end of the Second World War in August 1945, the leading German physicists were interned at Farm Hall, Godmanchester, near Huntingdon. Their conversations were secretly recorded by British Intelligence, principally for information on the German wartime atomic programme.</p> <p>Following representations by the Royal Society and British Academy, the transcripts (the voice recordings not having survived) were released by the Lord Chancellor in 1992.</p> <p>Frank served during the Second World War. He had met some of the imprisoned German scientists before the war and visited Farm Hall during their time there.</p>	
D.360	Drafts of Frank's introduction	
	10pp typescript and manuscript; 9pp typescript.	
D.361	'Archival note'	
	7pp manuscript; 2pp typescript	
D.362	Correspondence and papers <i>re</i> release of the Farm Hall transcripts into the public domain	1991-1993
D.363-D.367	Correspondence with Institute of Physics, publishers	1992-1993
	5 folders.	
D.368-D.374	Correspondence with colleagues, historians and others preparatory and in the course of preparing the book	1990-1993
	Includes photocopies of articles on German A-bomb work and Farm Hall, sent to Frank for information.	
D.368	Miscellaneous correspondence	1990-1992

Publications, D.272-D.482

D.369	Correspondence with R.V. Jones <i>re</i> draft of article by Jones on atomic bomb development	1992
D.370	Correspondence with P. F. Ganz.	1992
D.371	Correspondence <i>re</i> copy of 1941 report by F.G. Houtermans	1992
D.372	Miscellaneous correspondence Includes correspondence with M. Walker <i>re</i> his article on the Farm Hall transcripts.	1992
D.373	Correspondence with J.L. Logan Includes drafts of articles by Logan Logan disagreed with M. Walker's interpretation of the German A-bomb work.	1992
D.374	Exchange with Sir Michael Atiyah <i>re</i> the transcripts, February	1993
D.375, D.376	Frank's manuscript notes 2 folders.	
D.377-D.379	Miscellaneous background material Printed and photocopied information on the German A-bomb, German scientists and Farm Hall. 3 folders.	
D.380-D.390	Photocopy of original transcript 11 folders.	

Publications, D.272-D.482

D.391-D.399	Photocopy of proof copy of <i>Operation Epsilon</i> 9 folders.	
D.400	Book reviews of <i>Operation Epsilon</i>	1993-1994
D.401-D.406	Correspondence and papers following publication Includes material relating to articles and books discussing the complicity or otherwise of German scientists in trying to create an atomic bomb.	1993-1996
D.401	Correspondence, chiefly with J.H.J. Oerling	1993-1994
D.402-D.404	Letter from P.L. Rose with draft of sections of his book <i>Heisenberg and the Nazi atomic bomb project: a study in German culture</i> This was published by University of California Press, 1998. 3 folders.	1993
D.405	Correspondence and papers	1994-1995
D.406	Correspondence	1996
D.407	Review of: <i>Uncertainty. The life and science of Werner Heisenberg</i> by D.C. Cassidy (New York, 1991). In: <i>Notes and Records of the Royal Society</i> 5pp typescript; correspondence with editor.	1993
D.408	Foreword to unidentified publication 3pp typescript + manuscript corrections.	1993
D.409	Untitled article on the D-Day celebrations, Nonesuch	1994

Publications, D.272-D.482

magazine, University of Bristol, 1994

5pp typescript; 4pp proof copy with extensive manuscript corrections; correspondence with editor.

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|-------------|--|-----------|
| D.410 | <p>'Recollections of Sir Nevill Mott', in <i>Nevill Mott: reminiscences and appreciations</i>, ed. E.A. Davis (London, 1998)</p> <p>3pp typescript; correspondence <i>re</i> Frank's contribution.</p> | 1996-1997 |
| D.411 | <p>'On the condensation of cavities in a crystal'</p> <p>Rough manuscript draft.</p> | N.d. |
| D.412 | <p>'On crystal surface self-diffusion: with particular reference to the growth of ice from the vapour'</p> <p>Manuscript rough draft.</p> | N.d. |
| D.412A | <p>'Gespräch mit Niels Bohr'</p> <p>10pp typescript (in German); manuscript translation by Frank; covering manuscript note.</p> <p>This was an interview conducted by P. Vinding, a Danish journalist, with Niels Bohr in 1935.</p> | N.d. |
| D.413-D.481 | <p>EDITORIAL CORRESPONDENCE</p> | 1955-1998 |
| D.413-D.426 | <p>Butterworths Scientific Advisory Board</p> <p>Chiefly papers for meetings of the board; correspondence <i>re</i> publishing policy in general and specific prospective projects.</p> <p>See D.177 of the previous catalogue.</p> <p>Frank joined the Scientific Advisory Board at the invitation of Sir Harold Thompson in 1969</p> | 1969-1975 |
| D.413 | <p>Correspondence <i>re</i> invitation to join the Board</p> | 1969 |

Publications, D.272-D.482

D.414-D.225	Papers for meetings etc	1969-1974
D.414	1969	
D.415-D.417	1970 3 folders	
D.418, D.419	1971 2 folders.	
D.420, D.421	1972 2 folders.	
D.422-D.424	1973 3 folders.	
D.425	1974	
D.426	One letter only	1975
D.427-D.473	<i>Contemporary Physics</i>	1981-1996

Commenting on synopses of possible contributions, refereeing papers; meetings of the editorial board; journal policy etc.

See D.195-D.206 of the previous catalogue.

Frank was on the editorial board of *Contemporary Physics* from 1979 to 1996 when he resigned for health reasons.

Publications, D.272-D.482

D.427 1981

D.428-D.430 1982
3 folders.

D.431-D.433 1983
3 folders.

D.434-D.437 1984
4 folders.

D.438-D.441 1985
4 folders.

D.442-D.444 1986
3 folders.

D.445-D.448 1987
4 folders.

D.449-D.452 1988
4 folders.

D.453-D.457 1989
5 folders.

D.458-D.461 1990
4 folders.

Publications, D.272-D.482

D.462, D.463	1991 2 folders.	
D.464-D.466	1992 3 folders.	
D.467, D.468	1993 2 folders.	
D.469, D.470	1994 2 folders.	
D.471, D.472	1995 2 folders.	
D.473	1996	
D.474	<i>Geophysical Journal</i> Refereeing.	1985
D.475	<i>Journal of Crystal Growth</i> Honorary slips only. See F.167-F.175 of the previous catalogue.	1971-1980
D.476	<i>Journal of Materials Science</i> Chiefly refereeing.	1970-1994

Publications, D.272-D.482

See D.227-D.229 of the previous catalogue.

D.477	<i>Nature</i>	1938, 1983- 1988
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Chiefly refereeing.

See D.237-D.242 of the previous catalogue.

D.478	<i>Philosophical Magazine</i>	1964-1998
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Chiefly refereeing.

D.479, D.480	The Royal Society	1970-1991
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Chiefly refereeing.

2 folders.

See F.316-F.323 of the previous catalogue.

D.481	Miscellaneous shorter requests for articles etc.	1955-1988
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D.482	LETTERS TO THE TIMES	1981-1995
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Manuscript drafts of unpublished letters to *The Times*.

Subjects include the North Pole, the use of English and the Conservative party.

Supplementary catalogue of the papers and
correspondence of

Sir (Frederick) Charles Frank FRS

(1911-1998)

VOLUME II

Section E: Lectures

Section F: Societies and Organisations

Section G: Consultancies

Section H: Visits and Conferences

Section J: Correspondence

Section K: References and Appointments

Appendix: Medals and Academic Gowns

Index of Correspondents

by Caroline Thibaud and Timothy E. Powell
NCUACS catalogue no. 127/13/03

SECTION E	LECTURES, E.91-E.185	1938-2001
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Includes contribution to a television broadcast at E.164, and photographic slides used for illustrating lectures (E.173-E.185).

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|-----------|---|------|
| E.91 | ‘The Behaviour of Plastics in High Frequency Fields in Relation to their Chemical Structure’, Mouldrite Colloquium, Imperial Chemical Industries Ltd, Billingham, Co. Durham, c. January 1938

Correspondence <i>re</i> arrangements. | 1938 |
| E.92-E.99 | ‘Nuclear Structure and Nuclear Energy’, occasionas unknown, October 1945

The lecture was read twice. | 1945 |
| E.92-E.94 | Typescript drafts of the lecture.

3 folders. | 1945 |
| E.95-E.99 | Manuscript draft of the lecture.

5 folders. | 1945 |
| E.100 | ‘Structure of the Universe’, The Folk House, Bristol, 5 January 1948

Programme of lectures at the Folk House. | 1948 |
| E.101 | ‘Theories of Planetary Evolution’, University of Bristol Scientific Society, 27 November 1951

Correspondence and manuscript notes. | 1951 |
| E.102 | ‘The Mechanical Properties of Metals’, The Guthrie Lecture, The Institute of Physics, London, c. 1951

Typescript lecture notes and summary. | 1951 |

Lectures, E.91-E.185

E.103	Untitled lecture starting 'Crystals may be grown from pure substance or from solutions...', Kapitza Club, Cambridge, 22 April 1952 Manuscript lecture notes with 2 black and white photographs.	1952
E.104	Introductory note on colour films 'Crystal Growth', Bristol Naturalists' Society, 22 January 1953 Programme of events of the Bristol Naturalists' Society.	1953
E.105	'Twinning and Kinking', Bristol Summer School, 14 July 1953 Manuscript lecture notes.	1953
E.106	'Modern Cosmology', Bristol Philosophical Society, 11 December 1953 Manuscript lecture notes.	1953
E.107	Spiral growing experiment, shown at Royal Society Soiree, London, early 1954 1 letter only <i>re</i> arrangements. There is no proof of Frank's participation.	1954
E.108, E.109	'The Nature of the Real Crystal', 45th Annual May Lecture, Institute of Metals, London, 29 March 1955 Correspondence, typescript and manuscript drafts, proofs. 2 folders.	1955
E.110	'Reflections on Sadi Carnot', inaugural lecture, University of Bristol, 29 April 1955 Poster of the lecture.	1955
E.111	Untitled lectures, Royal Military College of Science,	1956

Lectures, E.91-E.185

Shrivenham, 28-29 September 1956

1 letter only *re* arrangements.

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|--------------|--|------|
| E.111A | 'Introductory lecture for Cooperstown conference', International Crystal Growth conference, Cooperstown, New York, summer 1958 | 1958 |
| | Typescript lecture notes. | |
| E.112, E.113 | 'The Nature of Things', Incorporated Society of Musicians, Bristol, 6 January 1962 | 1961 |
| | Correspondence <i>re</i> arrangements and manuscript draft lecture notes. | |
| E.114 | Untitled lecture, Solid State Seminar, University of Cambridge, c. Spring 1963 | 1963 |
| | Correspondence <i>re</i> arrangements. | |
| E.115 | 'Introduction to Civil Defence course', University of Bristol, 3 January 1966 | 1966 |
| | Manuscript lecture notes. | |
| E.116 | Address at Peter Fowler's inaugural lecture as Professor of Physics, University of Bristol, 17 February 1966 | 1966 |
| | Typescript notes. | |
| | Frank took the Chair. | |
| E.117 | 'Introduction to Civil Defence course', Part II course for Scientific Intelligence Officers, University of Bristol, 2 January 1967 | 1967 |
| | Correspondence <i>re</i> arrangements and programme of the course; Frank's manuscript lecture notes. | |
| E.118, E.119 | 'On Hertzian Fracture', with B.R. Lawn, Royal Society, | 1967 |

Lectures, E.91-E.185

London, 20 April 1967

E.118	Programme and manuscript notes	1967
E.119	Figures and 2 black and white photographs	1967
E.120	'Potentialities for Earthquakes Prediction', Boulder, Colorado, USA, 5 September 1967 Typescript lecture notes.	1967
E.121	'How was the Earth Formed?', occasion unknown, 26 July 1969 Manuscript and typescript notes.	1969
E.122	Speech at 'Winford Hospital Nurse's Prize Giving', Winford Orthopaedic Hospital, Bristol, 16 June 1971 Correspondence <i>re</i> arrangements, programme of the ceremony and manuscript speech notes.	1971
E.123, E.124	'Crystal Imperfections', Bakerian Lecture, The Royal Society, 14 June 1973 Correspondence <i>re</i> arrangements and publication, typescript abstract and manuscript lecture notes. 2 folders.	1973-1974
E.125	'Public Orator's Presentation Address for Professor R.V. Jones', Honorary Degree ceremony, University of Aberdeen, 10 July 1979 Typescript address notes. R.V. Jones was awarded a Doctor of Laws Honoris Causa degree.	1979
E.126	'Prince Rupert's Drops', Portfolio Society, Bristol, 12 October 1979.	1979

Lectures, E.91-E.185

Correspondence *re* arrangements.

E.127	'Address for the Opening of a new wing at the Red Maids' School', Bristol, 15 October 1981 Typescript speech notes and 1 black and white photograph.	1981
E.128	'Crystal Growth without Dislocations', William James Dunning Memorial Colloquium, School of Chemistry, University of Bristol, 17 November 1981 Certificate of lecture.	1981
E.129	'Orientation Mapping', Colloquium at the H.H. Wills Laboratory, University of Bristol, 31 January 1983 Typescript lecture notes with figures.	1983
E.130-E.134	'Orientation Mapping', Department of Metallurgy and Materials Science Colloquia, University of Cambridge, 28 February 1983	1983
E.130	Correspondence <i>re</i> arrangements	1983
E.131	Programme	1983
E.132-E.134	Manuscript background notes 3 folders.	1983
E.135-E.142	'Orientation Mapping', European Workshop on Non destructive Evaluation of Polymers and Polymer Matrix Composites, Vimeiro, Portugal, 3-4 September 1984	1984
E.135	1 letter <i>re</i> publication of contribution.	1984

Lectures, E.91-E.185

E.136	Manuscript lecture notes with abstract	1984
E.137	Printed lecture, as published in Proceedings of the Workshop	1986
E.138	'Orientation Mapping transparencies' Folder so inscribed: photocopies of transparencies.	1986
E.139	Transparencies used for the lecture.	1986
E.140, E.141	Manuscript notes and drawing 2 folders.	1986
E.142	Background calculations and drawings.	1986
E.143	'Some Personal Reminiscences of the early days of Crystal Dislocations', Metal Society Discussion on Dislocations and Properties of Real Materials, Royal Society, London, 11 December 1984 Typescript lecture notes and proceedings contents. See also H.241-H.244.	1984
E.144	'Polymer Physics: Early Days', Reading, 12 September 1985 Correspondence and typescript lecture notes. See also H.247	1985
E.145	Speech for 'Susan and Alistair wedding', place unknown, 14 September 1985 Manuscript speech notes.	1985
E.146	'The Icosahedral Orientation Manifold as a Model for	1986

Lectures, E.91-E.185

Icosahedral Close-packing', Colloque C3, Occasion unknown, France?, July 1986

Prints published in the *Journal de Physique*, Tome 47, July 1986.

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|-------------|---|-----------|
| E.147 | <p>'Some thoughts about Carnot and about Olinde Rodrigues', Seminaire Général, Laboratoire de Physique des Solides, Université Paris-Sud, France, 29 October 1986</p> <p>Poster of the lecture.</p> | 1986 |
| E.148 | <p>Untitled lecture starting 'In D symmetry (e.g that of an n-agonal prism) we have one principal axis of n-fold rotational symmetry...', occasion unknown, 9 June 1987</p> <p>Typescript lecture notes.</p> | 1987 |
| E.149 | <p>Speech at 'Convocation Lunch', University of Bristol, 18 July 1987</p> <p>Luncheon programme and menu and manuscript speech notes.</p> | 1987 |
| E.150-E.155 | <p>'Orientation Mapping', 8th International conference on Textures of Materials, Santa Fe, USA, 21 September 1987</p> <p>See also H.254-H.257.</p> <p>Frank was a recipient of the Robert F Mehl medal of the American Metallurgical Society for 1987 and the lecture 'Orientation Mapping' was intended to be delivered on the occasion of the ceremony. However ill health prevented Frank from travelling to Denver, Colorado for the ceremony and the lecture was delivered later on the 21st of September 1987 at the 8th International conference on Textures of Materials in Santa Fe, New Mexico.</p> | 1986-1988 |
| E.150 | <p>Correspondence <i>re</i> arrangements and publication</p> | 1986-1988 |
| E.151 | <p>Print out and abstract of the lecture</p> | 1987 |

Lectures, E.91-E.185

E.152, E.153	'Orientation Mapping transparencies', folder so inscribed Includes calculations. 2 folders.	1987
E.154	Manuscript and typescript notes and comments on a paper	1987
E.155	6 large size black and white photographs; manuscript notes on slides	1987
E.156	'One Hundred Years of the Bristol Scientific Club', Bristol Scientific Club, Bristol, 21 November 1987 Manuscript lecture notes and programme of the Bristol Scientific Club for 1987-1988.	1987
E.157	'For Badminton School Open Day', Bristol, 28 May 1988. Correspondence thanking Frank for his speech, manuscript speech notes, manuscript biographical notes on Frank given to Badminton School.	1988
E.158-E.163	'Orientation Mapping', Mathematical Problems in Material Science conference, International Centre for Mathematical Sciences, Edinburgh, 11 October 1991 See also H.294.	1991
E.158	Correspondence <i>re</i> arrangements	1991
E.159	Programme and invitation	1991
E.160	Printed version of the lecture	1991
E.161	Manuscript notes and typescript lecture draft	1991

Lectures, E.91-E.185

E.162	Figures and transparencies	1991
E.163	1 photographic negative	1991
E.164	<p>'Hitler's Bomb', Horizon, BBC Television programme, 20 October 1991</p> <p>Correspondence <i>re</i> arrangements.</p> <p>Frank was interviewed for the programme because of his involvement in intelligence work during World War Two and in the subsequent internment of German scientists at Farm Hall, near Huntingdon. The conversations between the captives were secretly recorded and eventually published in the 1990s (see D.360-D.406).</p>	1991-1992
E.165, E.166	<p>'Snowflakes', Physics Department, University of Bristol, 7 December 1995</p> <p>Video tape of the lecture, with letter <i>re</i> the deposit of the tape in the University of Bristol Archives.</p>	1995, 2001
E.167	<p>'Talk for Polymer conference', Polymer Physics Group conference, on board the SS Great Britain, Bristol, 11 September 1997</p> <p>Correspondence and manuscript lecture notes.</p>	1997
E.168	<p>'Comments on Nucleation Theory', Lecture 20, occasion and date unknown</p> <p>Typescript lecture notes.</p>	n.d.
E.169	<p>'Current Trends in Polymer Physics', occasion and date unknown</p> <p>Manuscript lecture notes.</p>	n.d.
E.170	Untitled address starting 'I'm here at rather short notice, you know', occasion and date unknown	n.d.

Lectures, E.91-E.185

The speech is addressed to students who are making education and career choices.

E.171, E.172	Untitled, undated lecture notes with 1 black and white photograph and transparencies 2 folders.	n.d.
E.173-E.185	Photographic slides Most of these (E.173-E.183) are glass lantern slides, found in cardboard boxes. Some of the boxes have inscriptions of subjects but it is not possible to say whether these are authoritative descriptions of the contents.	1950s, n.d.
E.173	'0' Box of 6 glass slides.	N.d.
E.174	'Dr Keller Slides on zig-zags. I' Box of 8 glass slides.	N.d.
E.175	'I Lineage etc' Box of 9 glass slides.	N.d.
E.176	'2 Kinking' Box of 5 glass slides.	N.d.
E.177	'3' Box of 3 glass slides.	N.d.
E.178	'Smialowski structure. III [...] IV' Box of 8 glass slides.	N.d.

Lectures, E.91-E.185

E.179	'Spherulites. V. Feb /55' Box of 7 glass slides.	?1955
E.180	'CdI (2) inferior' Box of 7 glass slides.	N.d.
E.181	'Prof N.F. Mott 25.11.55' Box of 5 glass slides.	1953
E.182	Untitled box Box of 7 glass slides.	N.d.
E.183	Untitled box Box of 8 glass slides.	N.d.
E.184	Single double-sized glass lantern slide	N.d.
E.185	Sleeve of small format glass slides Includes two series numbered 1-14 and a-c. 19 slides.	N.d.

SECTION F	SOCIETIES AND ORGANISATIONS, F.381-F.466	1935-1995
F.381	ARMAMENT RESEARCH AND DEVELOPMENT ESTABLISHMENT	
F.382, F.383	ASSOCIATION OF SCIENTIFIC WORKERS	
F.384	ATOMIC SCIENTISTS ASSOCIATION	
F.385	AUDIO-LEARNING LTD	
F.386, F.387	BRISTOL MUNICIPAL CHARITIES	
F.388	BRISTOL SCIENTIFIC CLUB	
F.389	CHEMICAL SOCIETY	
F.390	DEPARTMENT OF EDUCATION AND SCIENCE	
F.391, F.392	DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH	
F.393	EUROPEAN PHYSICAL SOCIETY	
F.394	FARADAY SOCIETY	
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F.401-F.419	INTERNATIONAL ORGANIZATION FOR CRYSTAL GROWTH	
F.420-F.423	LINCOLN COLLEGE OXFORD	
F.424-F.426	MINISTRY OF DEFENCE	
F.427, F.428	MINISTRY OF SUPPLY	

Societies and organisations, F.381-F.466

F.429-F.446	PUGWASH CONFERENCES ON SCIENCE AND WORLD AFFAIRS
F.447	QUEEN ELIZABETH'S HOSPITAL SCHOOL
F.448-F.464	ROYAL SOCIETY
F.465	UNIVERSITY OF ABERDEEN
F.466	UNIVERSITY GRANTS COMMITTEE

Societies and organisations, F.381-F.466

F.381	ARMAMAMENT RESEARCH AND DEVELOPMENT ESTABLISHMENT	1961
	Correspondence <i>re</i> and agenda of meeting of Working Party on Conducting Compositions.	
	Frank was a member of the committee.	
F.382, F.383	ASSOCIATION OF SCIENTIFIC WORKERS	1935-1941
	Correspondence, membership card and subscription records.	
	2 folders.	
F.384	ATOMIC SCIENTISTS ASSOCIATION	1949
	1 letter only.	
F.385	AUDIO-LEARNING LTD	1981
	Correspondence <i>re</i> royalty payments.	
F.386, F.387	BRISTOL MUNICIPAL CHARITIES	1987-1989
	Correspondence, agenda and minutes of meetings of the trustees.	
	2 folders.	
	Frank was a trustee of Bristol Municipal Charities.	

Societies and organisations, F.381-F.466

F.388	BRISTOL SCIENTIFIC CLUB	1987
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Correspondence, some *re* admission of women scientists to the Club.

Frank was a member of the Bristol Scientific Club.

F.389	CHEMICAL SOCIETY	1942
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1 letter.

F.390	Not used.
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F.391, F.392	DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH	1963, 1968
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Minutes and papers for meetings of the Electronic Research Council and the Metallurgy and Material Sub-Committee.

2 folders.

F.393	EUROPEAN PHYSICAL SOCIETY	1992-1995
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Correspondence, by-laws and membership records.

Frank was a member of the European Physical Society.

Societies and organisations, F.381-F.466

F.394	FARADAY SOCIETY	1941-1946
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Re membership.

F.395-F.397	HOME OFFICE	1959-1967
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Material *re* Civil Defence.

Frank was a Regional Scientific Adviser for Civil Defence.

F.395	Correspondence	1959-1967
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F.396	List of Regional Scientific Advisers for Civil Defence	1960
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F.397	Exercise books with manuscript notes	1958, 1960
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Used for civil defence notes.

Societies and organisations, F.381-F.466

F.398-F.400	INSTITUTE OF PHYSICS	1965-1995
	Correspondence, annual dinner programme, etc. 3 folders.	
F.401-F.419	INTERNATIONAL ORGANIZATION FOR CRYSTAL GROWTH	1966-1975
	Frank was President of the Comité International de Croissance Cristalline between 1968-1971 and closely involved in the organisation of the 1968 International Conference on Crystal Growth in Birmingham.	
F.401-F.405	General correspondence	1968-1975
	Correspondence <i>re</i> the formation of the Comité International de Croissance Cristalline, the <i>Journal of Crystal Growth</i> , committee membership, constitutions drafting and conference proceedings. 5 folders.	
F.406	Agenda and minutes of meetings	1969
F.407	By-laws and constitutions of the International Organization for Crystal Growth	1966-1974
F.408-F.419	International Conference on Crystal Growth, Birmingham, 15-19 July 1968.	1967-1969
F.408-F.415	Correspondence <i>re</i> the organisation of the conference and publication of the proceedings 8 folders.	1967-1969
F.416	Conference programme.	1968

Societies and organisations, F.381-F.466

F.417	Budget	1968
F.418	Publication of proceedings	1968
F.419	Abstracts	1968
F.420-F.423	LINCOLN COLLEGE OXFORD	1989-1995
	Frank was an alumnus of Lincoln College.	
F.420, F.421	Correspondence 2 folders.	1989-1995
F.422	Invitations and seating plans for Spring Feasts	1989-1993
F.423	Lincoln College magazines	1991, 1994

Societies and organisations, F.381-F.466

F.424-F.426	MINISTRY OF DEFENCE	1960-1973
	Correspondence, background information and drafts. 3 folders.	
F.427, F.428	MINISTRY OF SUPPLY	1956-1966
	Correspondence <i>re</i> service on the High Explosive Committee of the Weapons and Explosive Advisory Board of the Advisory Council of Scientific Research and Technical Development. Also correspondence <i>re</i> the Liquid Fuel Committee of the Munitions Chemistry Advisory Board. 2 folders. Frank was a member of the High Explosive Committee of the Weapons and Explosive Advisory Board and the Liquid Fuel Committee of the Munitions Chemistry Advisory Board.	
F.429-F.446	PUGWASH CONFERENCES ON SCIENCE AND WORLD AFFAIRS	1975-1992
	Frank was a member of the British Pugwash Group.	
F.429	Correspondence.	1975
F.430	Minutes of British Pugwash Group meeting 23 March 1978	1978
F.431-F.440	40th Annual Pugwash Conference, Royal Holloway and Bedford New College, Egham, Surrey, 15-20 September 1990	1990
F.431	Correspondence.	1990

Societies and organisations, F.381-F.466

F.432	Statements and greetings from politicians and academics delivered on the occasion of the conference	1990
F.433	Programme and proceedings of British Pugwash public meeting	1990
F.434-F.438	Papers delivered. 5 folders.	1990
F.439	Working Group reports	1990
F.440	List of papers and participants	1990
F.441	Conference statement of 41st Pugwash Annual Conference (Beijing, China, 17-22 September 1991)	1991
F.442	42nd Annual Conference programme (Berlin, Germany, 11-17 September 1992)	1992
F.443	Notice of a meeting of Pugwash Ltd	1991
F.444	Brochure and text on the Pugwash Conferences on Science and World Affairs movement	1978, 1990
F.445	Letter to the Editor of <i>The Times</i> by Joseph Rotblat, 11 October 1991	1991
F.446	Articles on arms research and wartime research at the University of Bristol	1980, 1983

Societies and organisations, F.381-F.466

F.447	QUEEN ELIZABETH'S HOSPITAL SCHOOL	1975
	Agenda for committee meeting and correspondence.	
F.447-F.464	ROYAL SOCIETY	1940-1995
	Frank was elected a Fellow of the Royal Society in 1954. He gave the Bakerian Lecture in 1973 and was awarded the Royal Medal in 1979 and the Copley Medal in 1994. He served on a number of Royal Society bodies, including Council 1967-1969 (Vice-President).	
F.447, F.448	General correspondence 2 folders.	1940-1995
F.449, F.450	Royal Society Anniversary correspondence 2 folders.	1994
F.451-F.455	Armourers and Brasiers' Company Research Fellowship Committee Frank was a member of the Armourers and Brasiers' Company Research Fellowship Committee.	1966-1990
F.451-F.453	Correspondence 3 folders.	1966-1990
F.454, F.455	Agenda and minutes 2 folders.	1966, 1972
F.456-F.459	British National Committee for the History of Science, Medicine and Technology	1972-1976
F.456, F.457	Correspondence	1972-1976

Societies and organisations, F.381-F.466

2 folders.

F.458, F.459	Agenda and minutes of meetings 2 folders	1973
F.460	Committee on an Experiment in Synoptic Publishing Correspondence.	1978
F.461	R.W. Paul Instrument Fund Committee Correspondence.	1977-1980
F.462	Miscellaneous Royal Society communications	1984-1995
F.463, F.464	Royal Society Club Correspondence, minutes, agenda and reports. 2 folders.	1982

Societies and organisations, F.381-F.466

F.465 UNIVERSITY OF ABERDEEN 1949-1970

Correspondence etc.

Frank was an external examiner for the University of Aberdeen.

F.466 UNIVERSITY GRANTS COMMITTEE 1970

Re attendance at meetings of the Physical Sciences Sub-Committee and Working Party on Material Studies.

SECTION G

CONSULTANCIES, G.131-G.181

1949-1997

G.131	BRITISH AIRCRAFT CORPORATION
G.132	BRITISH RAILWAYS
G.133	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE
G.134-G.174	DE BEERS
G.175	FIBREGLASS LTD
G.176	GENERAL ATOMIC
G.177	GENERAL ELECTRIC
G.178	IMPERIAL CHEMICAL INDUSTRIES
G.179	INTERNATIONAL BUSINESS MACHINES
G.180	PILKINGTON BROTHERS LTD
G.181	UNIVERSITY OF CALIFORNIA: INSTITUTE OF GEOPHYSICS AND PLANETARY PHYSICS

Consultancies, G.131-G.181

G.131	BRITISH AIRCRAFT CORPORATION	1964
	Offer to Frank of consultancy in the company's Guided Weapons Division in the field of solid state. See G.1 of the previous catalogue	
G.132	BRITISH RAILWAYS	1949
	Letter <i>re</i> meeting of Water Treatment Committee, November 1949. See G.2-G.33 of the previous catalogue.	
G.133	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	1987
	Letter <i>re</i> meeting of the Comité Scientifique to the Laboratoire de Physique des Solides.	
G.134-G.174	DE BEERS	1964, 1973-1997
	The bulk of this material relates to the work of the Diamond Research Committee and the Diamond Conferences. See G.24-G.99 of the previous catalogue.	
G.134-G.137	General correspondence and papers	1964-1996
G.134	Correspondence, chiefly enclosing Frank's consultancy fees	1964-1996

Consultancies, G.131-G.181

G.135	Miscellaneous correspondence, chiefly from E.W.G. Mitchell and A.R. Lang	1987-1996
G.136	<p>'The next decade' at De Beers-sponsored UK University Research on diamond</p> <p>Bound volume; related correspondence and notes.</p> <p>This was prepared by E.W.G. Mitchell.</p>	1991
G.137	<p>'Forward Look 1996-2001' at De Beers-sponsored UK University Research on diamond</p> <p>Bound volume; related correspondence.</p> <p>This was prepared by A.D.E. Stewart, R.J. Caveney and E.W.G. Mitchell.</p>	1996
G.138-G.142	Diamond Research Committee meetings	1985-1995
	Papers for meetings, chiefly minutes.	
G.138	1985-1988	
G.139	1989-1991	
G.140	1992	
G.141	1993	
G.142	1994-1995	

Consultancies, G.131-G.181

G.143-G.147	Diamond research reports	1992-1996
	Half-yearly reports from researchers funded by the Diamond Research Committee	
G.143	January 1992	
G.144	February 1993	
G.145	February 1994	
G.146	February 1995	
G.147	February 1996	
G.148-G.172	Diamond Conferences	1973-1997
G.148	Reading, 15-18 July 1973 Bound volume of conference papers.	1973
G.149	Reading, 6-9 July 1977 Bound volume of conference papers.	1977
G.150	St Catherine's College Oxford, 9-12 July 1978 Bound volume of conference papers.	1978
G.151	Bristol, 7-9 July 1980 Bound volume of conference papers.	1980

Consultancies, G.131-G.181

G.152	Newnham College, Cambridge, 6-9 July 1983 Bound volume of conference papers.	1983
G.153	Bristol, 9-11 July 1984 Bound volume of conference papers.	1984
G.154	Reading, 10-13 July 1985	1985
G.155	Royal Holloway and Bedford New College, 7-9 July 1986 Miscellaneous conference information.	1986
G.156, G.157	Oxford, 5-8 July 1987	1987
G.156	Conference information, programme and list of participants	
G.157	Bound volume of conference papers.	
G.158	Newnham College, Cambridge, 6-9 July 1988 Bound volume of conference papers.	1988
G.159	Bristol, 5-8 July 1989 Bound volume of conference papers.	1989
G.160	Reading, 11-14 July 1990 Bound volume of conference papers.	1990
G.161, G.162	St Catherine's College, Oxford, 7-10 July 1991	1991

Consultancies, G.131-G.181

G.161	Conference information; annotated programme	
G.162	Bound volume of conference papers	
G.163, G.164	Robinson College, Cambridge, 5-8 July 1992	1992
G.163	Correspondence and papers <i>re</i> Bristol contributions to the conference	
G.164	Bound volume of conference papers	
G.165, G.166	Bristol, 11-14 July 1993	1992-1993
G.165	Correspondence and papers <i>re</i> arrangements	
G.166	Bound volume of conference papers.	
G.167, G.168	Reading, 11-13 July 1994	1994
G.167	Correspondence and papers <i>re</i> arrangements; annotated programme	
G.168	Bound volume of conference papers	
G.169, G.170	St Catherine's College Oxford, July 1995	1995
G.169	Correspondence and papers <i>re</i> arrangements	
G.170	Bound volume of conference papers	
G.171	Queen's College, Cambridge, July 1996	1996

Consultancies, G.131-G.181

Bound volume of conference papers.

Frank was unable to attend. A signed postcard from delegates at the conference is at the front of the volume.

G.172 Bristol, 14-16 July 1997 1997

Bound volume of conference papers.

G.173, G.174 Grant applications 1976-1991

Research applications to the Diamond Research Committee.

G.173 1976, 1987

G.174 1991

G.175 FIBREGLASS LTD 1965-1969

Correspondence *re* consultancy.

Frank was appointed a consultant in the field of applied polymer physics in association with glass fibres.

G.176 GENERAL ATOMIC 1965

Consultancy agreement.

G.177 GENERAL ELECTRIC (GE) 1951-1960

Consultancy agreements 1951, 1957, 1959.

See G.100-G.113 of the previous catalogue.

Consultancies, G.131-G.181

G.178 **IMPERIAL CHEMICAL INDUSTRIES (ICI)** **1974**

Brief correspondence *re* consultation meeting in London,
November 1974.

See G.114 of the previous catalogue.

G.179 **INTERNATIONAL BUSINESS MACHINES CORPORATION (IBM)** **1978**

Correspondence *re* consultancy agreement.

See G.115-G.122 of the previous catalogue.

G.180 **PILKINGTON BROTHERS LTD** **1969-1971**

Correspondence *re* consultancy status.

A consultancy with Pilkington followed on from that for
Fibreglass Ltd (G.175).

G.181 **UNIVERSITY OF CALIFORNIA: INSTITUTE OF GEOPHYSICS AND PLANETARY PHYSICS** **1964-1965**

Papers *re* consultancy and visit to US in general.

While serving as a Visiting Professor and researcher,
Frank was an associate investigator for the Institute of
Geophysics and Planetary Physics on a US Air Force
supported Geophysics project.

SECTION H	VISITS AND CONFERENCES, H.170-H.307	1933-1997
H.170	Faraday Society Discussion meeting, ?London, April 1933 Manuscript notes, possibly on a lecture delivered by [?] Stewart.	1933
H.171	'Dipole Moments', 6th General Discussion of the Faraday Society, University of Oxford, 12-14 April 1934 Proceedings of the discussion including a transcript of Frank's participation in a general discussion on 'Polarity and the Association of Liquids' by A.R. Martin and 'Dipole Association in Pure Liquids' by Pierre Girard.	1934
H.172	Holiday Fellowship weekend, Oxford, 1935 Programme of the weekend's activities.	1935
H.173	63rd General Discussion of the Faraday Society, Cambridge, 26-28 September 1935 Photocopies of a group photograph featuring Frank and introductory notes to the meeting in the <i>Transactions of the Faraday Society</i> , 1936.	1936
H.174	Royal Society Conversazione, London, 28 May 1936 Programme of the conversazione.	1936
H.175	Annual Meeting of the British Association for the Advancement of Science, Dundee, 1939 Menu of Section B dinner with colleagues' autographs.	1939
H.176	Physical Society discussion on 'The Electrical and General Physical Properties of Plastics', London, 19 March 1940 Programme, correspondence and manuscript notes on Frank's participation in the discussion.	1940

Visits and conferences, H.170-H.307

H.177	<p>Metal Congress, Laboratory of Physics, Amsterdam, The Netherlands, July 1948</p> <p>List of demonstrations to congress attendees.</p> <p>No proof of Frank's attendance.</p>	1948
H.178-H.181	<p>General Discussion of the Faraday Society on Crystal Growth, University of Bristol, 12-14 April 1949</p> <p>Frank was closely involved in the organisation of the discussion.</p>	1948-1949
H.178	Correspondence <i>re</i> the programme of the meeting	1948-1949
H.179	Draft programmes	1948-1949
H.180	Manuscript notes and typescript draft of Frank's paper 'The Influence of Dislocations on Crystal Growth'	1949
H.181	Typescript summaries of papers.	1949
H.182	<p>Royal Society meeting, London, 19 May 1949</p> <p>Programme of the meeting.</p> <p>Frank and J.H. Van der Merwe presented a paper entitled 'One-dimensional Dislocations. I Static Theory. II Misfitting Monolayers and Oriented Overgrowth.'</p>	1949
H.183	<p>Unidentified summer School, ?University of Bristol, c. July 1949.</p> <p>Correspondence; 6 black and white photographs of sugar crystals found therewith.</p>	1949
H.184	General Conference and Annual General Meeting of the British Rheologists Club, University of Bristol, 26-28 September 1949	1949

Visits and conferences, H.170-H.307

Correspondence and programme of the meeting.

Frank lectured on 'The Nature of Dislocations in Real Crystal Lattices'.

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|--------------|--|-----------|
| H.185 | Institute for the Study of Metals Colloquium, University of Chicago, USA, 31 May 1951 | 1951 |
| | Correspondence <i>re</i> the programme of the colloquium. | |
| | Frank lectured on 'The Role of Dislocations in Crystal Growth.' | |
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| H.186-H.192 | 9th Conference on the Solid State, Solvay Institute, Brussels, Belgium, 25-29 September 1951 | 1950-1951 |
| | Frank lectured on 'Crystal Growth and Dislocations.' | |
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| H.186, H.187 | Correspondence <i>re</i> paper and programme of the conference | 1950-1951 |
| | 2 folders. | |
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| H.188 | Typescript draft transcript of discussion, featuring Frank. | 1951 |
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| H.189 | Timetable, list of guests and general information | 1951 |
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| H.190, H.191 | Typescript of Frank's paper 'Crystal Growth and Dislocations' | 1951 |
| | 2 folders. | |
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| H.192 | Manuscript notes on colleagues' papers taken by Frank | 1951 |
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| H.193 | Royal Society discussion on the Theory of Liquids, London, 13 March 1952 | 1952 |
| | Abstracts of lectures. | |
| | Frank lectured on 'Supercooling'. | |

Visits and conferences, H.170-H.307

H.194	'The Creep Conference', place unidentified, 31 May-2 June 1954 1 letter only.	1954
H.195	Visit to Tokyo, Japan, September-October 1953. Manuscript schedule. Frank chiefly visited Japan to attend the International Union of Pure and Applied Physics Conference on Theoretical Physics. He visited Kyoto and Tokyo.	1953
H.196	Diamond Conference, Cambridge, 1-3 July 1954 1 letter.	1954
H.197	Conference on Mechanical Effects of Dislocations in Crystals, University of Birmingham, 19-20 July 1954 Programme.	1954
H.198, H.199	3rd International Congress of Crystallography, Paris, France, July 1954 Frank lectured possibly on 'The Theory of Crystal Growth.'	1951-1954
H.198	Correspondence and programme of evening entertainment at the Château de Versailles	1953
H.199	Printed papers by Frank 'Crystal Growth and Dislocations' and 'The Growth of Crystals and the Equilibrium Structure of their Surfaces' (with W.K. Burton and N. Cabrera) Also includes 3 black and white photographs and manuscript notes.	1951-1952
H.200	Visit to Glaxo Laboratories, unidentified place, c.1954 1 letter only.	1954

Visits and conferences, H.170-H.307

H.201	117th Annual Meeting of the British Association for the Advancement of Science, 31 August 1955, Bristol Newspaper clipping with photograph of the Presidential address showing Frank and his wife in the audience.	1955
H.202, H.203	The Faraday Society and the Koninklijke Nederlandse Chemische Vereniging General Joint Discussion on 'The Molecular Mechanism of Rate Processes in Solids', 15-18 April 1957, Royal Tropical Institute, Amsterdam, The Netherlands. Correspondence programmes etc. 2 folders. Frank lectured on 'Interaction of Dislocations with Vacancies and Interstitials.'	1956-1957
H.204	5th Course of the International Summer School in Physics, Varenna, Italy, 17 July-7 August 1956 Correspondence and 4 black and white photographs. Frank lectured on dislocations and metal physics.	1956
H.205	Faraday Society General Discussion on Configuration and Interactions of Macro-molecules and Liquid Crystals, University of Leeds, 15-17 April 1958 Correspondence and programme.	1958
H.206	Royal Society Discussion on Stellar Evolution, London, 3 March 1960 Manuscript notes taken by Frank.	1960
H.207	The Scripps Institute Conference, San Diego, USA, 22-24 March 1965 1 letter only.	1965
H.208	Adsorption et Croissance Cristalline, Colloque	1964

Visits and conferences, H.170-H.307

International du Centre National de la Recherche
Scientifique, Nancy, France, 7-12 June 1965

Correspondence.

H.209-H.211	Visit to Durban, South Africa, August-September 1965 Frank delivered a series of 9 lectures.	1965
H.209	Correspondence <i>re</i> organisation of the visit. Includes letters from Maita Frank received in South Africa.	1965
H.210	Programme of lectures	1965
H.211	Newspaper cuttings collected by Frank.	1965
H.212	Symposium on Epitaxial Processes for Electronic Materials, Royal Radar Establishment, Malvern, Worcestershire, 28-30 September 1965 Programme of the symposium. There is no proof of Frank's attendance.	1965
H.213-H.215	Meeting on European Collaboration in Physics, Pisa, Italy, 16-17 April 1966	1966
H.213	Correspondence <i>re</i> European collaboration between physicists	1966
H.214	Invitation to attend the meeting and manuscript notes	1966
H.215	Postcards and brochure on La Scuola Normale Superiore in Pisa	1966
H.216	International conference on Deformation of Crystalline Solids, Carleton University, Ottawa, Canada, 21-25 August 1966	1964-1965

Visits and conferences, H.170-H.307

Correspondence *re* attendance.

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| H.217 | NATO Advanced Study Institute, The Application of Modern Physics to the Earth and Planetary Interiors, University of Newcastle upon Tyne, 29 March-4 April 1967 | 1967 |
| | Invitation to present a paper and outline of the conference. | |
| | There is no proof of Frank's attendance. | |
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| H.218 | Scientific Intelligence Officers Conference, Exeter University, 20 May 1967 | 1967 |
| | Correspondence, Frank's timetable, programme of the conference, address notes and notes on speakers. | |
| | Frank gave the welcome address. | |
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| H.219 | Visit to Colorado School of Mines, Golden, Colorado, USA, July-September 1967 | 1967 |
| | Visa application and correspondence <i>re</i> expenses. | |
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| H.220 | Royal Society Review lecture 'The Alinement of Nuclei' by M.A. Grace, London, 4 April 1968 | 1968 |
| | Abstract of the lecture. | |
| | Frank attended the lecture. | |
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| H.221 | Discussion meeting on Liquid Crystals, Faculté des Sciences, Montpellier, France, 5-6 June 1969 | 1969 |
| | Correspondence <i>re</i> arrangements. | |
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| H.222-H.224 | Centenary celebrations of the Bulgarian Academy of Sciences, Sofia, Bulgaria, 1-6 October 1969 | 1969 |
| | Some of the correspondence and documentation is in French. | |
| | Frank went to the celebrations to represent the Royal Society. | |

Visits and conferences, H.170-H.307

H.222, H.223	Correspondence <i>re</i> arrangements and report of the visit 2 folders.	1969
H.224	Programmes of celebrations and excursions and invitations	1969
H.225	Visit to Imperial Chemical Industries, Ltd, Petrochemical & Polymer Laboratory, Runcorn, Cheshire, 20 October 1969 Correspondence <i>re</i> arrangements.	1969
H.226, H.227	Royal Society discussion on Strong Fibrous Solids, London, 29 January 1970 Frank lectured on 'The Strength and Stiffness of Polymers.'	1968-1970
H.226	Correspondence <i>re</i> arrangements and publication of the proceedings	1968-1970
H.227	Manuscript and typescript drafts of 'The Strength and Stiffness of Polymers'	1970
H.228	135th Annual Meeting of the British Association for the Advancement of Science, University of Kent at Canterbury, 20 August 1973 Programme of the degree congregation associated with the Meeting.	1973
H.229	Fourth International Conference on Crystal Growth, Tokyo, Japan, March 1974 1 letter only <i>re</i> arrangements.	1973
H.230	NATO Advanced Study Institute, 'Surface Effects in Crystal Plasticity', Hohegeiss, Federal Republic of Germany, 5-14 September 1975	1975

Visits and conferences, H.170-H.307

10 Colour photographs.

Frank delivered the concluding summary lecture.

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| H.231 | Exchange visit to the Laboratoire de Physique des Solides, Université de Paris-Sud, Paris, France, September 1976-February 1977 | 1976 |
| | Correspondence. | |
| | Frank collaborated with Jacques Friedel on polymers and liquid crystals. | |
| H.232 | 6th Summer School on Crystal Growth, Boston, Massachusetts, USA, summer 1977 | 1977 |
| | 1 colour photograph. | |
| H.233 | 28th Pugwash Conference, Varna, Bulgaria, 1-5 September 1978 | 1978 |
| | Correspondence <i>re</i> arrangements and programme. | |
| H.234, H.235 | NATO Advanced Study Institute 'The Mechanism of Continental Drift and Plate Tectonics', University of Newcastle upon Tyne, 27 March-10 April 1979 | 1979 |
| | Programme and book of abstracts. | |
| | 2 folders. | |
| | Frank lectured on 'Geophysical Implications of the Effects of Anisotropy on Thermoconvection.' | |
| H.236 | Faraday Division Symposium, Annual Chemical Congress, University of Bristol, 3-5 April 1979 | 1979 |
| | Programme and abstracts of papers. | |
| H.237 | Visit to India, December 1979-January 1980 | 1980 |
| | 1 black and white photograph of Frank, his wife and A.R. Verna. | |

Visits and conferences, H.170-H.307

H.238	<p>NATO Advanced Study Institute on Physics of Defects, Les Houches, France, 28 July-30 August 1980</p> <p>Correspondence and 3 black and white photographs of Frank lecturing.</p> <p>Frank lectured on the history of defects and organised an informal session on smectics.</p>	1980
H.239	<p>British Association for Crystal Growth, Bristol, September 1981</p> <p>1 black and white photograph of Frank lecturing.</p>	1981
H.240	<p>Gordon Research Conference on Crystal Growth, New Hampshire, USA, 12-16 July 1982</p> <p>Photographs of Frank and colleagues.</p> <p>Frank lectured on 'Crystal Growth without Dislocations.'</p>	1982
H.241-H.244	<p>Royal Society meeting on 'Dislocations and Properties of Real Materials', London, 11-12 December 1984</p> <p>See also E.143</p> <p>Frank lectured on 'Historical Perspectives and Personal Reminiscences on the Early Days of Dislocations' with Nevill Mott.</p>	1984
H.241	<p>Correspondence <i>re</i> arrangements</p>	1984
H.242	<p>List of delegates, draft and final programme</p>	1984
H.243	<p>Abstracts of papers</p>	1984
H.244	<p>Background papers</p> <p>One paper is in German.</p>	1984

Visits and conferences, H.170-H.307

H.245, H.246	<p>Institute of Physics Solid-State Physics Sub-Committee, Solid State Physics Conference, Southampton University, 19-21 December 1984</p> <p>Correspondence, list of participants, summary of research at Southampton, abstracts of papers and programme.</p> <p>2 folders.</p>	1983-1984
H.247	<p>Polymer Physics conference, Reading, 11-13 September 1985</p> <p>2 black and white photographs of Frank and a colleague. See also E.144</p>	1985
H.248	<p>British Association for the Advancement of Science meeting, Bristol, 1986</p> <p>Letter inviting Frank to chair a session.</p>	1985
H.249	<p>Materials Research Society Symposium on Phase Transformations, place unknown, possibly the USA, c. January 1986</p> <p>1 letter thanking Frank for his participation.</p>	1986
H.250	<p>Meeting with the US National Academy of Engineering, London, 19 May 1986</p> <p>1 photograph featuring Frank and colleagues.</p>	1986
H.251	<p>1st International Symposium on Shaped Crystal Growth jointly held with the 4th Hungarian Conference on Crystal Growth, Budapest, Hungary, 22-25 July 1986</p> <p>Correspondence <i>re</i> arrangements.</p> <p>Frank was asked to attend the conference and deliver a paper but he declined.</p>	1985
H.252, H.253	<p>40th Anniversary of the Discovery of the Pi Meson, University of Bristol, 22-24 July 1987.</p>	1987

Visits and conferences, H.170-H.307

Correspondence, programme, list of participants and information bulletin.

Also includes 1 black and white photograph featuring Rosemary Fowler, Isobel Powell and Dorothy Hodgkin.

2 folders.

H.254-H.257	ICOTOM 8th International Conference on Texture of Materials, Santa Fe, New Mexico, USA, 20-25 September 1987 Frank lectured on 'Orientation Mapping' and visited the New Mexico area.	1986-1987
H.254	Correspondence <i>re</i> arrangements and publication of papers	1987
H.255	News bulletin and programme with abstracts	1987
H.256	Photocopy of an article on 'Vinland map' sent by a colleague	1987
H.257	Photographs of Frank 3 colour photographs of Frank and a colleague.	
H.258-H.260	Materials Research Society Fall Meeting, Boston, USA, 30 November-5 December 1987 Frank was awarded the Von Hippel Award on the occasion of the conference. He lectured on 'Orientation Mapping.'	1987
H.258	1 letter only <i>re</i> arrangements.	1987
H.259	Typescript lecture notes with figures, possibly on orientation mapping.	1987
H.260	Printed programme of the meeting.	1987

Visits and conferences, H.170-H.307

H.261	Visit to Johannesburg, South Africa, 3-24 February 1988. Correspondence and schedule of visits. Frank accompanied by his wife visited colleagues and lectured.	1988
H.262-H.264	125th Annual Meeting of the National Academy of Sciences, Washington DC, USA, 24-27 April 1988 Programme; printed brochure of the National Academy of Sciences; memorabilia. 3 folders. Frank attended the conference.	1988
H.265	Mathematical Sciences Institute workshop 'The Mathematical Analysis of Material Microstructure', Cornell University, USA, 15-18 June 1988 Correspondence <i>re</i> arrangements. Frank declined the invitation to lecture.	1987
H.266	International Centre for Theoretical Physics 'Spring College in Material Science on Ceramics and Composite Materials', Trieste, Italy, 17 April-26 May 1989 Correspondence and news bulletin. Frank declined the invitation to deliver five lectures.	1988
H.267	3rd International Meeting on Quasi-Crystals 'Incommensurate Structures in Condensed Matter', Vista Hermosa, Mexico 29 May-2 June 1989 Correspondence <i>re</i> arrangements. Frank declined the invitation.	1987-1988
H.268, H.269	Anniversary Adriatico Research Conference on Cold Fusion, Trieste, Italy, 8 June 1989	1989

Visits and conferences, H.170-H.307

Correspondence *re* arrangements and programme.

2 folders.

Frank lectured on 'Muon-Catalyst Fusion: a Brief History.'

H.270	9th International Conference on Crystal Growth, Sendai, Japan, 20-25 August 1989	1987-1988
	Correspondence <i>re</i> attendance.	
	It is unclear whether Frank attended.	
H.271-H.275	Rutherford Appleton Laboratory, International Symposium on Muon Catalysed Fusion, Birmingham, 11-13 September 1989	1989
	Frank lectured on 'How it Began'.	
H.271, H.272	Correspondence <i>re</i> arrangements	1989
	2 folders.	
H.273	Programme and list of participants	1989
H.274	Abstract of papers	1989
H.275	Miscellaneous manuscript notes etc	1989
H.276, H.277	Jacques Friedel retirement party, Université Paris-Sud, Orsay, France, 29 September 1989	1989
	Correspondence <i>re</i> arrangement, address of Friedel (in French and English), travel schedule, invitation.	
	2 folders.	
H.278	25th Anniversary of the International Centre for Theoretical Physics, 'Frontiers in Physics, High Technology and Mathematics', Trieste, Italy, 31 October-3 November 1989	1989

Visits and conferences, H.170-H.307

Programme of the celebrations.

It is unclear whether Frank attended.

H.279-H.288	International Conference on Muon Catalyzed Fusion, Vienna, Austria, 27 May-1 June 1990	1989-1993
	Frank chaired the Muonic Atom Processes session.	
H.279-H.283	Correspondence <i>re</i> arrangements and colleagues' papers	1990
	5 folders.	
H.284	Programme and background information	1990
H.285-H.287	Background articles including Frank's 'An Outline of the History of Cold Fusion'	1989-1993
	3 folders.	
H.288	Memorabilia	1990
H.289, H.290	Royal Society meeting 'Science and Technological Aspects of International Security and Arms Control', London, 15 November 1990	1990
	Correspondence, programme and copies of papers delivered.	
	2 folders	
H.291	1991 Colston Symposium, 'Understanding Science', University of Bristol, 25-27 March 1991	1990-1991
	Correspondence, programme and article.	
	Frank gave the introductory address.	
H.292, H.293	Polymer Physics Conference to mark the retirement of Andrew Keller, University of Bristol, 3-5 April 1991	1991

Visits and conferences, H.170-H.307

Correspondence *re* arrangement, programme and general information, manuscript notes of Frank's introduction to the conference.

2 folders.

Frank gave the introductory lecture.

H.294, H.295	International Centre for Mathematical Sciences, 'Mathematical Problems in Material Science', Edinburgh, 11 October 1991	1991
	Correspondence <i>re</i> arrangements, programme of the meeting and abstracts of papers.	
	Frank lectured on 'Orientation Mapping.'	
	2 folders.	
H.296, H.297	Royal Society, Cambridge Weekend, University of Cambridge, 11-12 December 1993	1993
	Correspondence and programme.	
	2 folders.	
H.298-H.301	Royal Society discussion meeting 'Self Order and Form in Polymeric Materials', London, 14-15 December 1993	1992-1993
	Frank chaired the opening session.	
H.298	Correspondence <i>re</i> arrangements	1992-1993
H.299	Programme	1993
H.300	List of papers and abstracts	1993
H.301	List of participants	1993
H.302	Ciba Foundation/Royal Society discussion meeting on	1993

Visits and conferences, H.170-H.307

'The Response of Polymer Form to External Fields',
London, 16 December 1993

Programme of the discussion.

It is unclear whether Frank attended.

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| H.303 | East-West Surface Science Workshop 1994, 'Thin Films and Phase Transitions on Surfaces', Pamporovo Ski Centre, Bulgaria, 14-21 February 1994 | 1992-1994 |
| | Correspondence <i>re</i> arrangements and travel grant. | |
| | The occasion was to celebrate the 85th birthday of Professor Kaischew. Frank declined the invitation because of ill health. | |
| H.304 | Kapitza Centenary Symposium, Cavendish Laboratory, Cambridge, 8 July 1994 | 1994 |
| | Correspondence, programme and invitation to dinner. | |
| H.305 | International Symposium, Muon Catalyzed Fusion, Joint Institute for Nuclear Research, Dubna, Russia, 19-24 June 1995 | 1994 |
| | Correspondence <i>re</i> arrangements. | |
| | Frank acted as honorary chairman of the conference. | |
| H.306 | The Polymer Physics Committee of the Institute of Physics, Biennial Polymer Conference, London, 10-12 September 1997 | 1997 |
| | 1 letter only <i>re</i> arrangements. | |
| | Frank addressed his colleagues at the conference dinner. | |
| H.307 | Unidentified meetings and discussions | n.d. |
| | Discussion transcript, correspondence and travel expenses invoice. | |

SECTION J CORRESPONDENCE, J.267-J.412 1932-1998

Although this correspondence spans Frank's whole career, from postgraduate days in the early 1930s to the late 1990s, the bulk of it is either early (1930s) or from the 1980s and 1990s - some of which postdates from after the compilation of the previous catalogue in 1989.

It is presented in alphabetical order. There are few extended sequences and most of the correspondents represented here are also to be found in the previous catalogue, in conjunction with which this correspondence presented here should be consulted. There is significant additional material for R.V.Jones, F.R.N. Naborro and K. Wirtz.

J.267	Ab.-Al.	1938-1991
J.268	Allibone, T.E.	1946, 1983-1984
J.269	Altmann, S.L.	1987, 1994
J.270	Am.-Ar.	1939-1996
J.271	Arnautov, M.L. <i>Re paradoxes.</i>	1997
J.272, J.273	Ashbee, K.H.G. Ashbee was a materials scientist who was a colleague of Frank's at Bristol.	1984-1992
J.272	Career	1984-1992
J.273	Scientific correspondence	1988

Correspondence, J.267-J.412

J.274	As.-At.	1933, 1997
J.275	Baddeley, O. Typescript recollections, with manuscript notes by Frank	1994
J.276	Ba.	1932-1995
J.277	Banks, W.H. <i>Re</i> saturation theory.	1937
J.278	Bassett, D.C. Personal and scientific correspondence. Bassett was Professor of Physics at the University of Reading.	1985-1996
J.279	Be.-Bu.	1936-1995
J.280, J.281	Bilby, B.A. The bulk of this material is papers and drafts by Bilby sent to Frank for comment. Bilby worked in the Metallurgy Departments of the Universities of Birmingham and later Sheffield	1950-1988
J.280	1950-1955 Drafts on crystal twinning 1950, and Non-Riemannian geometry.	
J.281	1986-1988 <i>Re</i> Royal Society Biographical Memoir of J.D. Eshelby. Includes typescript draft.	

Correspondence, J.267-J.412

J.282	Cahn, J.W. Invitations, comments on paper, social correspondence. Cahn was a Senior Fellow at the US National Bureau of Standards.	1984-1997
J.283	Ca.-Ch.	1985-1995
J.284	Chandrasekhar, S.	1980-1997
J.285	Chernov, A.A. Includes scientific correspondence on ice growth.	1984, 1994
J.286	Chinnery, M.A. <i>Re</i> Chinnery's work on distant uplift associated with strike slip faulting. Includes Frank's manuscript calculations. Chinnery was based at the University of British Columbia.	1965
J.287	Cladis, P.E. Chiefly <i>re</i> career. Cladis worked at the Bell Laboratories, Murray Hill, New Jersey.	1983-1985
J.288	Cl.-Co.	
J.289	Co.	1936-1995
J.290	Cr.	
J.291	Da.	1940, 1990-1994

Correspondence, J.267-J.412

J.292	Davies, M. Includes social correspondence.	1984-1994
J.293	Debye, P.	1935, 1936
J.294	<i>Re</i> Delbrück, M.L.H.	1981
J.295	De., Di.	1938-1992
J.296	Ditchburn, R.W. Includes typescript draft by Ditchburn casting doubt on the nuclear winter concept; posthumous correspondence.	1977-1987
J.297	Do.-Du.	1934-1987
J.298	Ea.	1967, 1992, n.d.
J.299	Edge, R. <i>Re</i> Earth tilt. Edge was based at the Institute of Oceanographic Sciences, Birkenhead.	1976
J.300	El.-Ev.	1936-1994
J.301	Evans, T. Evans was Professor of Physics at the University of Reading.	1983-1996
J.302	Farrell, C.J. Personal news.	1987

Correspondence, J.267-J.412

J.303-J.306	Fisher, J.C.	1983-1991
	Correspondence and papers, including Fisher's 'Particle Theory Countdown' papers 1-15 in which he gave an ongoing account of his efforts to have his theories on particle theory published.	
	4 folders.	
	Fisher was an American colleague researching particle theory.	
J.307	Fi.-Fu.	1932-1991
J.308	Forty, A.J.	1985, 1991
	<i>Re</i> career.	
J.309, J.310	Friedel, J.	1969-1991
	Friedel was a longstanding colleague and friend of Frank's from the Laboratoire des Physique des Solides, Université Paris Sud.	
J.309	1969	
	Chiefly Frank's comments on 'Lignes de dislocation dans les cholesteriques' by Friedel and M. Kléman, including his manuscript notes.	
J.310	1976, 1988, 1991	
J.311	Fumi, F.G.	1985-1991
	Fumi worked at the University of Genoa.	
J.312	Gates, D.J.	1987
	Draft of paper on two-dimensional crystals sent to Frank for comment, with Frank's and D.M. Sadlers' comments thereon.	

Correspondence, J.267-J.412

J.313	Ga.-Ge.	1934-1991
J.314	Gi.	1934-1985
J.315	Go.	1975-1995
J.316	Gr.-Gu.	1938-1991
J.317	Ha.	1934-1996
J.318	Hall, E.O. <i>Re</i> Hall's work on tensile properties of mold steel, with typescript draft by Hall, sent to Frank for comment.	1950-1951
J.319	He. 1941 letter is from Frank to his MP, A.P. Herbert, complaining at Ministry of Information coverage of the fall of Benghazi in April.	1941, 1988-1995
J.320	Hi.	1985-1994
J.321	Higasi, K. <i>Re</i> solvent effect. Higasi wrote to Frank from the Institute of Physical and Chemical Research, Tokyo, Japan.	1936-1937
J.322	Hoffman, J.D. Scientific correspondence.	1962-1991

Correspondence, J.267-J.412

J.323	Hollomon, J.H. Chiefly posthumous material relating to memorials and tributes to Hollomon, who died in 1985.	1983-1991
J.324	Ho. Includes correspondence with Philip Howard, Literary Editor of <i>The Times</i> re use of grammar in that newspaper.	1947-1997
J.325	Hs.-Hu.	1985-1994
J.326	I., J.	1964-1995
J.327	Jackson, W. Correspondence re joint research and visit to Frank in Berlin. Jackson was an early research colleague of Frank's.	1933-1939
J.328-J.330	Jones, R.V. Jones was a long-standing colleague and friend of Frank's. They served together in scientific intelligence in the Air Ministry during World War Two.	1938-1997
J.328	1938-1940 Includes pre-war correspondence on German radar installations, under the name of 'ghosts'; personal correspondence; and work for the Air Ministry.	
J.329	1961-1990 Correspondence on various topics, including reminiscences of wartime work.	
J.330	1992-1997	

Correspondence, J.267-J.412

Correspondence on various topics, including reminiscences of wartime work and personal news.

J.331	Ka.-Ke.	1937-1995
J.332	Keller, A. Chiefly <i>re</i> Keller's retirement.	1989-1998
J.333	Ki.-Kl.	1976-1995
J.334	King-Hele, D. <i>Re</i> submissions to <i>Notes and Records of the Royal Society</i> .	1994-1995
J.335	Kléman, M. Kléman was based at the Université de Paris-Sud Laboratoire de Physique des Solides.	1977-1992
J.336-J.338	Knight, C.A. Personal news, progress of Knight's research on anti-freeze/anti-melt. Knight was based at the US National Center for Atmospheric Research, Boulder, Colorado	1988-1997
J.336	1988-1989	
J.337	1989	
J.338	1993-1997	
J.339	Kn.-Ko.	1950-1996

Correspondence, J.267-J.412

J.340, J.341	Koptsik, V.A. 2 folders. Koptsik was a Professor of Physics at Moscow University.	1993-1994
J.342, J.343	Kramish, A. Chiefly correspondence <i>re</i> P. Rosbaud and the German atomic programme during World War Two. 2 folders.	1993-1997
J.344	Kr.-Ku.	1981-1994
J.345	La.	1936-1993
J.346	Lang, A.R. Lang was a colleague in the Bristol Physics Department.	1987-1998
J.347	Le.-Lu.	1932-1994
J.348	Mac.	1977-1992
J.349	Mackley, M. <i>Re</i> career.	1986-1997
J.350	Ma.	1934-1994
J.351	Mason, B.J. <i>Re</i> paper by Mason.	1991-1992

Correspondence, J.267-J.412

J.352	Me.-Mi.	1932-1997
J.353	Miles, M.J. Work on extension of a polymer molecule in an elongational flow field. Miles worked at the Agricultural and Food Research Council's Institute of Food Research, Norwich.	1987
J.354	Mo.-Mu.	1987-1995
J.355, J.356	Moore, A.M. Moore was based at the Department of Physics, Royal Holloway College, University of London.	1973-1996
J.355	1973-1990 Includes correspondence <i>re</i> research on intersecting cylinders (1985)	
J.356	1995-1996 Includes correspondence <i>re</i> fibre geometry and distribution.	
J.357	Mott, N.F. Includes material <i>re</i> Mott's 80th birthday celebrations, see also A.465.	1963-1995
J.358	Moullin, E.B. <i>Re</i> research activities. Moullin, at the Engineering Labroatory, University of Oxford, supervised Frank's research in the early 1930s.	1933-1939
J.359, J.360	Nabarro, F.R.N.	1964-1996

Correspondence, J.267-J.412

Nabarro was a South African-based colleague, who had worked with Frank at Bristol in the 1940s.

J.359 1964, 1985-1986

Includes correspondence *re* Penrose patterns; personal news.

J.360 1987-1996, n.d.

Includes correspondence *re* E. Orowan, of whom Nabarro was writing the Royal Society Biographical Memoir.

Undated material is guestlist for 'Dinner for Professor Charles Frank'. The guests include University of Witwatersrand figures but also Black African notables.

J.361-J.364 Nelson, J.T.

1993-1996

Nelson was a postgraduate researcher at the University of Washington in Seattle when he wrote to Frank regarding ice growth in 1993. This initiated a correspondence on the formation of growth shapes that continued to 1996. Many of the letters include detailed calculations.

J.361 1993 March-May

J.362 1993 June-August

J.363 1994

J.364 1995-1996

J.365 Ne.-Ni.

1983-1993

J.366 No.-Ny.

1980-1989

Includes Frank's contribution to book by B. Noakes, *I saw*

Correspondence, J.267-J.412

a Ghost.

J.367	O.	1985-1995
J.368	Pârasnis, A.S. Chiefly personal and family news. Pârasnis had studied under Frank at Bristol.	1963-1996
J.369	Pa.-Pe.	1934, 1972-1992
J.370	Pi.	1941-1985
J.371	Pl.-Po.	1984-1993
J.372	Pond, R.C. Includes correspondence <i>re</i> Pond's work on interfacial structure. Pond was based at the University of Liverpool Department of Metallurgy and Materials Science. He made regular visits to Bristol to demonstrate and discuss his work with Frank.	1985-1995
J.373	Ponomarev, L.	1991-1994, n.d.
J.374	<i>Re</i> Powell, C.F. Includes 11pp photocopy typescript autobiographical account by Powell.	1985, n.d.
J.375	Pr.	1991, 1992
J.376	Ra.	1939-1987

Correspondence, J.267-J.412

J.377	Randle, V. Correspondence <i>re</i> Frank's objections to Randle's term 'mesotexture'.	1990
J.378	Reed, M. Correspondence <i>re</i> family history.	1986
J.379	<i>Re.-Ri.</i>	1937-1994
J.380	Robbins, D.J. Frank's comments on Robbins' observations of the ripple of CVD silicon. Robbins worked at the Royal Signals and Radar Establishment, Malvern.	1989
J.381	Ro.	1936-1995
J.382	Ru.	1945, 1993
J.383	Sa.-Sc.	1983-1995
J.384	Schloessin, H.H. Draft on [gamma] for monatomic and liquid metals, sent to Frank for comment.	1977
J.385	Seal, Michael Includes photographs for use by Frank. Seal was a diamond researcher.	1966-1992
J.386	Se.-Sh. Includes correspondence <i>re</i> 'the two-envelope' probability	1977-1997

Correspondence, J.267-J.412

problem.

J.387	Si.	1935, 1939, 1987
J.388	Sillars, R.W. Includes account of Edward VIII's abdication sent to Frank while in Germany.	1936-1937
J.389	Slechta, J. <i>Re</i> career.	1983-1995
J.390	Sl.-Sp.	1939-1996
J.391	Steiner, V.C. Frank- Correspondence <i>re</i> Farm Hall transcripts, P. Rosbaud and M. von Laue. Frank-Steiner was the nephew of P. Rosbaud.	1994-1995
J.392	St.-Su.	1938-1994
J.393	Tabor, D. Includes 1989 correspondence <i>re</i> claim of B.V. Derjaguin to have published findings on cold fusion at room temperature before Pons and Fleischmann.	1971-1993
J.394	Ta.-To.	1986-1995
J.395	Thomas, E.L. Papers and ideas on disclinations sent to Frank for comment, with correspondence arising. Thomas was Head of Polymer Science and Engineering at the University of Massachusetts at Amherst.	1986-1990

Correspondence, J.267-J.412

J.396	Thomas, J.M.	1973-1991
J.397	Tu.-Ty.	n.d., 1984, 1994
J.398	U.	1936-1990
J.399	Va.-Vo.	1985-1988
J.400, J.401	Voigt-Martin, I.G.	1986-1988
J.400	1986, 1988	
J.401	1987 'Direct high-resolution images of defects in smectic polymer liquid crystals', by Voigt-Martin and H. Durst. Sent to Frank for comment, with letter from Frank with detailed observations on the draft.	
J.402	Wa.	1935-1993
J.403	Walker, M. Includes correspondence <i>re</i> audiotaped interview with Frank. Walker was a researcher in history of science, studying German nuclear research 1938-1961.	1984-1992
J.404	We.-Wi.	
J.405	Wilson, T. Includes draft outlines of chapters of book, sent to Frank	1994, 1995

Correspondence, J.267-J.412

for comment.

Wilson was writing a book on Lord Cherwell and World War Two.

J.406	Windle, A.H.	1986-1997
	Includes correspondence <i>re</i> Royal Society Discussion Meeting on Polymeric Materials, 1993 (see H.298-H.301).	
	Windle was Professor of Materials Science at Cambridge.	
J.407, J.408	Wirtz, K.	1937-1990
	Before the war Wirtz was based at the Kaiser Wilhelm Institut für Physik, Berlin, where he met Frank as a visiting researcher. After the war he was based at the Max Planck-Institut für Physik, Göttingen.	
J.407	1937-1939	
	Correspondence <i>re</i> progress of research, invitation to Wirtz to attend Faraday Society meeting in the autumn of 1939.	
J.408	1945, 1949, 1984, 1990	
	1984 correspondence is chiefly <i>re</i> German wartime atomic research.	
J.409	Wo.-Wy.	1935-1994
J.410	Y., Z.	1949-1990
J.411	First names and illegible	1933-1994, n.d.
J.412	Miscellaneous social invitations	

SECTION K	REFERENCES AND APPOINTMENTS, K.63-K.110	1952-1996
K.63-K.67	EXAMINING	1952-1992, n.d.
K.63-K.66	Higher degrees	1952-1992, n.d.
K.63	1952	
K.64	1956	
K.65.	1992	
K.66	N.d.	
K.67	External examining	1975
K.67	University of Ghana	1975
K.68-K.86	APPOINTMENTS	1964-1996
K.68	1964	
K.69	1969	
K.70	1979	
K.71	1980	
K.72	1983	

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K.73	1984
K.74	1984-1985
K.75	1985
K.76	1986
K.77	1987
K.78	1988
K.79	1989
K.80	1990
K.81	1991
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K.83	1993
K.84	1994
K.85	1995
K.86	1996

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K.87-K.94	GRANT APPLICATIONS	1956-1995
K.87	1956	
K.88	1964	
K.89	1979	
K.90	1983	
K.91	1984-1985	
K.92	1992	
K.93	1993	
K.94	1994-1995	
K.95-K.109	HONOURS AND AWARDS	1969-1996
K.95-K.101	Royal Society	1984-1995
K.95	1984-1985	
K.96	1986-1987	

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K.97 1988

K.98 1993

K.99 1994-1996

K.100 1994

K.101 1995

K.102-K.109 Other honours and awards 1969-1996

K.102 1969-1970

K.103 1980-1981

K.104 1986-1987

K.105 1987

K.106 1988

K.107 1990-1991

K.108 1994

K.109 1996

References and appointments, K.63-K.110

K.110	MISCELLANEOUS	Mid 1980s
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K.110	Reference. Undated, probably mid 1980s.
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DM 1837
Sir Charles Frank
Medals, awards, and academic hoods

These were given by Lady Frank. They complement the archival material which is being catalogued by the National Cataloguing Unit for the Archives of Contemporary Scientists at the University of Bath.

Academic Hoods	State University of Gent/Rijksuniversiteit Gent Box Contains three academic hoods	
	Blue and gold	
	Red and green	
	Yellow and blue with white fur (University of Gent, Belgium)	
Printed materials		
	Book presented to Frank on his retirement as Head of the Department of Physics, University of Bristol Includes the names of people throughout the University	31 July 1976
	Illustrated brochure relating to the Royal Academy of Sciences	1980
	Programme: University of Bristol: Concert and Degree Congregation to mark 40th Anniversary of the Bristol- Hanover Link	16 June 1987
	80 th Birthday Symposium Programme and sketches of speakers, by Jerry Hicks	15 April 1991
	Sir Charles Frank, OBE, FRS: an eightieth birthday tribute Edited by RG Chambers, JE Enderby, A Keller, AR Lang and JW Steeds, Printed book, with ornate binding, in green slipcase 4 photographs taken by Professor Okien (?), Tokyo of 15 April 1991 event Review of book in Nature, by Robert W Cahn, Vol 351, 13 June 1991 Letter from Michael (nephew of Frank) to Frank concerning the Fibanacci series and family affairs, 15 July 1991	1991
	Dinner at the Guildhall, Portsmouth to celebrate the 50 th Anniversary of the D-Day Landings Frank attended, menu and arrangements	4 June 1994
Medals		
	Sigill. Mai. Acad. Gandavensis Also Intervtruvmqve In paper case, with Bruxelles address	9 May 1955
	Sigill. Mai. Acad. Gandavensis Also Intervtruvmqve Doctor Honoris Causa Der Rijkuniversitet te Gent Bronze, in paper case	3 Oct. 1955
	La Societe Francaise de Physique, Howleck Prize, Bronze medal in green case	1963
	The Materials Science Club, sponsored by Rolls-Royce The AA Griffith Medal Silver coloured in blue case	1967
	Medal to celebrate the 100 th anniversary of the	1969

	Bulgarian Academy of Sciences, 1869-1969 In Cyrillic script	
	American Association for Crystal Growth: Presented to Sir Charles Frank for his outstanding contribution to the field of crystal growth Rose pink glass paperweight with gold plaque, in black case	18 July 1978
	The Institute of Physics: Frederick Guthrie, 1833-1886 Probably gold, black case, Royal Mint	1982
	The Metallurgical Society of AIME: Institute of Metals Division: Lecturer and Robert Franklin Mehl Medalist Bronze medal in black case	1987
	Von Hippel Award of the Materials Research Society, presented to Sir Charles Frank 'Lucite' block, in presentation box	1987
	Royal Society Medal Probably gold, in Latin, black case, Royal Mint	n.d.

My note says that Lady Frank kept the Royal Swedish Academy Medal (gold) and the Royal Society Gold Medal, 11 June 1902

Hannah Lowery
9 September 2003

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Catalogue of the papers and correspondence of

SIR FREDERICK CHARLES FRANK Kt, OBE, FRS

(b. 1911)

Compiled by Timothy E. Powell and Peter Harper

Volume I

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THE ROYAL COMMISSION ON HISTORICAL MANUSCRIPTS

Report on the correspondence and papers of

SIR FREDERICK CHARLES FRANK OBE, FRS

(B 1911)

physicist

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GENERAL INTRODUCTION

PROVENANCE

The papers were received in March and October 1988 from Sir Charles Frank.

OUTLINE OF THE CAREER OF F.C. FRANK

Frederick Charles Frank was born in Durban, South Africa, in 1911. His parents returned to the U.K. very shortly after his birth. Frank was educated at Thetford Grammar School and Ipswich School before gaining scholarships to Lincoln College Oxford in 1929 to read Chemistry. He took his B.A. with first class honours in 1932 and received his B.Sc. a year later following research on phenyl-nitro-methane under N.V. Sidgwick and L.E. Sutton.

Frank went on to research for his D.Phil. on dielectric loss in organic materials with W. (later Lord) Jackson under E.B. Moullin at the Oxford Engineering Science Laboratory, following which he spent 1936-38 at the Kaiser Wilhelm Institut für Physik, Berlin-Dahlem, continuing his study of dielectric loss under P. Debye.

On his return to Britain Frank won an 1851 Senior Studentship to study at E.K. Rideal's Colloid Science Laboratory Cambridge but his dielectric studies of rubber and plastic were cut short by the outbreak of war. Frank spent the first year of the war working on smoke-filters and smoke-screens with O. Gatty, joining the Chemical Defence Research Establishment, Porton, in June 1940. In November, however, Frank was transferred to the Air Ministry's Assistant Directorate of Intelligence (Science) at the request of its Assistant Director, and Frank's friend from Oxford, R.V. Jones. He spent the rest of the war with the Air Ministry. 1940 was also the year of his marriage to Maia Maita Asché, the daughter of Professor B.M. Asché.

In 1946 Frank took up a post in the Bristol University Physics Department for research in solid state physics (initially dielectric relaxation, and relaxation of the Kerr effect) though one of the first topics which engaged him was the synthesis of the elements in the origin of the Universe. Through sharing a room with W.K. Burton and N. Cabrera, however, Frank switched to research on crystal dislocations. His work with Burton and Cabrera was to demonstrate the role dislocations play in the growth of crystals. Apart from crystal defects Frank's wide-ranging research interests at Bristol included the mechanical properties of polymers, the theory of liquid crystals and the mechanics of the interior of the Earth.

Frank was appointed Reader in 1951, Melville Wills Professor in 1954 and Henry Overton Wills Professor and Director of the H.H. Wills Physics Laboratory in 1969. Appointment as Professor Emeritus upon reaching official retirement age in 1976 enabled Frank to continue with his research.

Among the many honours accorded to Frank were the OBE in 1946, election to Fellowship of the Royal Society in 1954 and the conferral of a Knighthood in 1977. Frank was given Honorary Degrees by the universities of Ghent, Bath, Warwick, Surrey and Paris-Sud and by Trinity College Dublin, received awards from the Physical Society and Société Française de Physique, the Royal Society, the American Society for Crystal Growth, the Royal Swedish Academy of Sciences, the Institute of Physics and the American Institute of Metals and was elected to Associate Membership of the U.S. National Academy of Engineering, the U.S. National Academy of Science, the Indian National Academy of Sciences and the Royal Society of South Africa.

DESCRIPTION OF THE COLLECTION

The material is presented in the order given in the List of Contents. This large and comprehensive collection covers almost all aspects of Frank's professional career.

Section A, Biographical, consists principally of Frank's own biographical material and records of his career, and family and personal correspondence. Some of Frank's non-scientific interests are represented in a subsection of Clubs and Associations of which he was a member or supporter.

Section B, Bristol University, is chiefly Departmental and University administrative papers and related correspondence. Frank's service with the Colston Research Society is documented as is his contribution to the establishment of the Tyndall Memorial Lectures. The organisation of Frank's research and its funding through the Solid State Physics Fund, and his teaching duties are also represented.

Section C, Research, documents Frank's scientific research from the early 1930s. The material, principally manuscript notes, drafts, calculations and diagrams, covers a wide range of Frank's scientific interests including dielectric loss, crystal dislocations, properties of polymers, liquid crystals and geophysics. Wartime research is also represented in the section, particularly work on rockets.

Section D, Publications, brings together notes, drafts, correspondence and other related material for Frank's published work, 1935-88. This material has been linked wherever possible to Frank's numbered list of publications which is reproduced as pp.224-235 of the present catalogue. There is also an extensive sequence of editorial correspondence with publishing houses, learned societies and journals for which Frank acted as adviser, reviewer or referee. This sequence includes Frank's letters to *The Times* on scientific and non-scientific topics.

Section E, Lectures and Broadcasts, is a relatively small section. The material is mainly drafts for Frank's lectures and broadcasts (chiefly for BBC radio in the late 1940s).

Section F, Societies and Organisations, is the largest in the collection. It documents Frank's association with 44 British, overseas and international organisations including the Faraday Society, the Institute of Physics, the International Organisation of Crystal Growth, the Pugwash movement, the Royal Society and the Science Research Council. Frank was also involved with a number of local, Bristol institutions including Badminton School, the Bristol Municipal Charities and Queen Elizabeth's Hospital school.

Section G, Consultancies, comprises material relating to Frank's work for commercial organisations undertaken 1949-86. The best documented is Frank's extensive work for De Beers for whom he served on the Diamond Research Committee which oversaw De Beers-funded diamond research in UK universities

and which organised the Diamond Research Conferences. A short consultancy with British Rail, whom he advised on water-softening 1949-51, is well documented and consultancies with General Electric and IBM are also represented.

Section H, Visits and Conferences, presents a chronological sequence, 1939-87, of some of Frank's many engagements, both at home and abroad. He made many trips to the U.S.A, frequently in conjunction with a summer consultancy, and served as Visiting Professor at the Institute of Geophysics and Planetary Physics, La Jolla, California 1964-65. In 1979-80 he visited India as Raman Research Professor.

Section J, Correspondence, is a substantial section which includes several extended exchanges with friends, colleagues and former students. Among the correspondents are N. Cabrera, J.D. Eshelby, R.V. Jones and F.R.N. Nabarro.

Section K, References and Appointments, includes material for Frank's service as External Examiner for the universities of Aberdeen and Newcastle-upon-Tyne, and correspondence and papers relating to his work as Assessor for the Royal Society's Paul Fund. This material is subject to restricted access.

ACKNOWLEDGEMENTS

We are very grateful to Sir Charles Frank for making the material available and for his advice and encouragement.

Timothy E. Powell
Peter Harper
Bath 1989

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- A.1 Curricula vitae 1936, 1947, 1976, 1978, 1983.
- A.2 Entries for *Who's Who* etc. 1973-83 and nd.
- A.3 Correspondence with E. Braun and P.K. Hoch, Aston University Technology Policy Unit, 1981. Frank was interviewed for the History of Solid State Physics project.
- A.4 Correspondence with J. Baxter of Life-Story Cassettes re "Sir Charles Frank. Reminiscences of the Physics Department, Bristol University 1946-76", a recording made in 1982.
- Includes a typescript summary of the "Reminiscences".
- A.5 "Professor Sir Charles Frank, OBE, FRS". Biographical account dated 10 August 1984.
- A.6 Brief correspondence with S.R. Weart, American Institute of Physics Center for the History of Physics, 1986. Frank gave an "oral history interview" for the Center.
- A.7 Manuscript draft by Frank beginning "We live in a self-deluding century" recording his views on scientific methodology. Nd.
- A.8 Bibliographies 1951, 1978, 1988.

CAREER, HONOURS AND AWARDS

- A.9 Oxford. Miscellaneous material 1935-38 chiefly relating to Frank's interest in cinematography. Frank was a committee member of the University Film Society and Founder and President of the University Film Unit.
- A.10 Germany. Brochure for "Laboratorium Manfred von Ardenne"; programme for meeting of Deutsche Bunsen-Gesellschaft, Breslau, June 1938; list of colour photographs Frank took of "A vanished frontier" on the old German-Czech border in June 1938.
- A.11 Correspondence, October 1938-March 1939, re employment and research opportunities, including Cambridge.
- A.12-A.16 Second World War
- A.12 Correspondence sent to R.V. Jones by D.R. Pye, Director of Scientific Research at the Air Ministry, re Frank's transfer to Scientific Intelligence, 1940.
- Letter notifying Frank of his temporary promotion to Principal Scientific Officer from 1 July 1943.
- A.13 Notification of informal discussion on "Window (A.R.D.E. trials and general operational experience)", 4 March 1944. Annotated "Transport arranged".
- Papers for visit to Paris, April 1945. Includes Frank's Allied Expeditionary Force Permit and copy of his orders.
- A.14 Correspondence from Association of Scientific Workers, 1943-44.
- A.15 Miscellaneous correspondence and papers 1941-45 and nd. Chiefly financial.

- A.16 Later correspondence re Frank's war-work, September 1976, in connection with pension entitlement.
- Brief correspondence with Sir Stanley Hooker, August 1981, who wrote to Frank after reading the account of his and R.V. Jones' work for scientific intelligence in Jones' book *Most Secret War*. Frank's reply includes reminiscences of the period.
- Reminiscences of Frank, R.V. Jones and H. Smith from a female member of scientific intelligence staff, 17 January 1984.
- A.17 Correspondence re employment 1946-48. Frank applied for the Chair in Theoretical Chemistry at Norges Tekniske Högskole, Trondheim, and, provisionally, for a lectureship in Theoretical Chemistry at Cambridge.
- A.18-A.20 Bristol University
- A.18 1948-51. Letters of appointment. Frank was appointed Research Fellow in Theoretical Physics March 1948, and reappointed 1949 and 1950. Also cutting from *Bristol Evening Post* 23 March 1951 announcing Frank's appointment to Readership.
- A.19 1954, 1963, 1969. Includes letter of congratulation on Frank's appointment to the Melville Wills Chair, 10 July 1954, and notification of appointment to the Directorship of the H.H. Wills Physics Laboratory and Henry Overton Wills Chair, 11 July 1969.
- A.20 1976. Frank's speeches given at occasions marking his retirement 10, 19 and 29 June and goodwill letters from colleagues; notification of Frank's appointment as Professor Emeritus, 23 November.
- A.21 Election to Fellowship of the Royal Society 1954.
- Nomination for medal of the Royal Society 1962. See also A.26.
- A.22 Holweck Prize of the Société Française de Physique and the Physical Society 1963.
- Includes material for 1977 reunion of Holweck prizemen. See also E.20.

- A.23 Election to Honorary Fellowship of Lincoln College Oxford 1968.
 Election to Fellowship of Royal Society of Arts 1970.
- A.24 Honorary Degree of Bath University 1974.
- A.25 Conferral of Knighthood 1977.
 Includes accounts of investiture, letters of congratulation etc.
- A.26 Honorary Degree of Surrey University 1977.
 Election to Honorary Fellowship of the Institute of Physics 1977.
 Includes biographical note for *Physics Bulletin*.
 Honorary Degree of Trinity College Dublin 1978.
 Royal Medal of the Royal Society 1979.
- A.27 Election to Foreign Associate Membership of U.S. National Academy
 of Engineering 1980.
- A.28 Honorary Degree of Warwick University 1981.
 Guthrie Medal of the Institute of Physics 1982.
- A.29 Election to Honorary Fellowship of Indian Academy of Sciences
 1984.
 Election to Foreign Associate Membership of Royal Society of South
 Africa 1986.
 Honorary Degree of Université de Paris-Sud 1986.
- A.30 U.S. Institute of Metals Lecture and Robert F. Mehl Award 1987.
 See also E.65.

DIARIES

Those 1965-72 are desk diaries, several of which were kept by his secretaries.

A.31 1964.

A.32 1965 Red. Includes list at back of Frank's editorial, consultancy etc. commitments.

A.33 1965 Blue.

A.34 1966. Includes list at front of Frank's commitments.

A.35 1967. Includes list at back of Frank's commitments.

A.36 1968 Blue. Includes a few loose intercalated notes.

A.37 1968 Red.

A.38 1969 Green. Includes a few loose intercalated notes.

A.39 1969 Red.

A.40 1970 Red.

A.41 1970 Green. Includes a few loose intercalated notes.

A.42 1971 Red.

- A.43 1971 Red. Labelled "Professor F.C. Frank".
- A.44 1972. Includes a few loose intercalated notes.
- A.45 1979-80. Bristol University Pocket Diary. Includes a few loose
intercalated notes and cuttings.

FAMILY**Frank Family**

Most of Frank's paternal grandfather's children emigrated, principally to South Africa and Canada. Frank was born in South Africa but his father returned to England very shortly after his birth.

A.46 Frederick John Frank (son).

The only child of Sir Charles and Maita Frank died in infancy.

A.47-A.52 Frederick and Medora Celia Emma Frank (parents).

Correspondence 1939-70.

6 folders.

A.47 1939-53 and undated early correspondence

A.48 1965

A.49 1966

A.50 1967

A.51 1968

A.52 1969-70

A.53 Edward H. Frank (brother).

Correspondence 1950, 1970, 1976.

A.54 Relatives in England.

Correspondence 1938-78.

A.55 Relatives in South Africa

Correspondence 1969-81.

A.56, A.57 Relatives in Canada.

Correspondence, chiefly with Phoebe Maud Skinner (paternal aunt).

A.56 1963-73

A.57 1974-81

A.58 Correspondence with Ronald Frank of Surrey re possible family connections, 1981.

A.59 Brundish Hall.

Brundish Hall, Suffolk, was the residence of Frank's maternal grandfather, Charles Read. Frank tried to discover the truth of a story that following the Hall's demolition in 1930 it was reassembled in the U.S.A.

The material includes photographs of the Hall.

Asché Family

Frank married Maia Maita Asché, of Finnish nationality, on 28 April 1940. She had many relatives in the Communist bloc and much of the material concerns attempts to get them out.

A.60 Maia Maita Frank (née Asché).

Correspondence 1946-53, 1973, 1982.

A.61 Inessa Zarin (sister-in-law).

The Zarin family were living in Harbin, People's Republic of China, and threatened with deportation to the Soviet Union (Inessa Zarin was born in St. Petersburg). The correspondence, 1954-57, concerns Frank's efforts to obtain entry visas to Australia or Chile for them. They received visas for Chile and Venezuela and were permitted to leave China in 1957.

Correspondence 1954-63.

A.62 Sophia Zinaida Forsbloom (mother-in-law).

Brief correspondence re securing her exit from Prague, 1968.

A.63 Michael Arnautov (nephew).

Brief correspondence chiefly re obtaining permission for M. Arnautov (a Soviet citizen though never resident in the U.S.S.R.) to remain in the U.K., 1968.

PERSONAL CORRESPONDENCE

Arranged chronologically.

A.64	1938-60
A.65	1962-70
A.66	1971-76
A.67	1977-79

A.68	1980-81
A.69	1982-83
A.70	1984, nd

CLUBS AND ASSOCIATIONS

A.71 Athenaeum Club 1968-82.

A.72 Clifton and Hotwells Improvement Society 1974.
Coombe Dingle Residents' Association 1986.
Crabtree Foundation 1970.

A.73 Friends of Brunel's Temple Meads Station 1981-82.

A.74 Friends of the Bristol Art Gallery 1954, 1967, 1973.
Friends of St. George's, Brandon Hill 1981-82.
Malago Society 1986.

A.75-A.79 Old Ipswichian Club 1976-83.

Frank attended Ipswich School 1927-29. He served as President of the Old Ipswichian Club 1978.

5 folders.

A.75	1976	A.78	1978 May-December
A.76	1977	A.79	1979-83
A.77	1978 January-April		

A.80 Oxford Society 1979.

Royal West of England Academy 1981-83.

Thatched House Club 1944.

MISCELLANEOUS

- A.81 1934. "The Almond Tree". Manuscript draft of a short story by Frank.
- A.82 1938-42. Includes 2pp manuscript draft by Frank "Concerning the Baconian theory", 22 August 1939.
- A.83-A.87 1946-49. Financial papers.
5 folders.
- A.88 1949, 1951, 1956.
- A.89 1960s. Includes copy of the first English edition of *Progress, Peaceful Coexistence and Intellectual Freedom* by A. Sakharov, sent to Frank April 1969.
- A.90 1970-71. Chiefly sale of Frank's periodicals.
- A.91 1972-79. Includes Frank's comments on a disarmament proposal in a letter of 23 November 1976.
- A.92 1980-82.
- A.93 1983-86.
- A.94 Nd.

PHOTOGRAPHS

- A.95 Portrait photographs taken following Frank's election to Fellowship of the Royal Society 1954.

Photographs taken during Frank's consultancy with General Electric 1956 (G.100-G.101). One of the photographs (of Frank with G.W. Sears and S.S. Brenner) was reproduced in the *Schenectady Union-Star* (G.101).

- A.96 International Conference on Crystal Growth, N.Y., August 1958 (H.30). Includes group photograph of conference, with key.

Battelle Institute colloquium, Switzerland, May 1966 (H.60). Includes group photograph of colloquium.

Frank and wife at "Wedding of Zbigniew Stachowski... Clifton, 8 July 1966".

- A.97 Frank and K.H.G. Ashbee inspecting their "nitinol" heat engine 1975. See also J.2.

Group photograph in envelope inscribed "?Colston Symposium Group 1976 (Remote sensing)" (B.125).

Sektion für Kristallwachstum der Schweizer Gesellschaft für Kristallographie meeting, Switzerland, October 1978 (H.118). Sent with Christmas card 1980.

Group photograph of 31st Pugwash Conference, Banff, Canada, August-September 1981 (F.230-F.238).

Group photograph of the Gordon Research Conference on Crystal Growth, N.H., July 1982 (H.150), with key.

- A.98 Miscellaneous undated photographs of Frank and colleagues.

SECTION B

BRISTOL UNIVERSITY

B.1-B.151

B.1-B.76

PHYSICS DEPARTMENT

B.1 -B.41 Administration

B.42-B.56 Research

B.57-B.76 Teaching

B.77-B.151

UNIVERSITY

B.77 -B.89 General correspondence and papers

B.90 -B.117 Committees

B.118-B.146 Societies and Organisations

B.147-B.151 Tyndall Memorial Lectures

PHYSICS DEPARTMENT**Administration**

B.1 -B.15	General correspondence and papers
B.16-B.24	Steering Committee
B.25-B.28	Staff meetings
B.29-B.41	Personnel

General correspondence and papers 1947, 1960-86

- B.1 1947, 1960-64. 1960 material is re visit to Physics Department of Professors G.S. Zhdanov and V.I. Iveronova, 10-11 March. With 2pp manuscript draft of Frank's welcoming remarks.
- B.2 1966-68. 1968 material is questionnaire from the Confederation of British Industry/Vice-Chancellors' Committee Working Party on Universities and Industrial Research, with Frank's replies.
- B.3 1969. Chiefly correspondence and papers re visit of A.W. Merrison, the new Vice-Chancellor of Bristol University, to the Physics Department 9 December.
- B.4 1970-72. Includes 1972 material re activities and aims of the Particle Physics Group.
- B.5 1972 October.
- B.6 1973. Contents of a folder inscribed "Departmental Notes": miscellaneous administrative information.
- B.7 1973, 1974. Includes 1973/74 and 1974/75 departmental budget estimates, and letter of 23 March 1973 to the Vice-Chancellor re staff discontent over the lack of computing facilities.
- B.8 1974 February. Physics Department "General Stores Catalogue and Ordering Instructions." Retained in original folder.

- B.9 1975. Includes material re "presentation to Dr. N. Thompson on his retirement", with 3pp typescript copy of Frank's tribute to Thompson given at the farewell ceremony, 22 July.
- B.10, B.11 1975. University Grants Committee Physical Sciences Subcommittee Regional Conference, Bristol, 1 May. Frank represented the Bristol University Physics Department.
- B.10 Papers and correspondence for preliminary meeting of university representatives "to agree on what issues they would like to raise", Bristol, 7 March.
- B.11 Papers for Regional Conference.
- B.12 1976. Chiefly material "For Presentation to A.F. Devonshire" on his retirement. Includes manuscript notes on Devonshire's career and 3pp typescript copy of Frank's tribute to Devonshire, given 2 July.
- B.13 1977, 1978. 1977 material is chiefly re 50th anniversary of the official opening of the H.H. Wills Physics Laboratory. Includes 14pp manuscript copy of Frank's "reminiscences" of the laboratory from 1946, delivered 11 July.
- B.14 1985, 1986.
- B.15 Nd. Includes "Of responsibility and the delegation of duties [of a head of department]", 3pp manuscript (by Frank); "University places for students of physics" by N. Thompson, 10pp duplicated typescript plus 1p graphs; "The Growing Wastage of University Physics Students" by R.G. Chambers, 8pp duplicated typescript; letter from A. Keller [?1973] re history of polymer physics group.

Steering Committee

1964-76

B.16-B.24 Papers for committee meetings.

9 folders.

B.16	1964, 1965	B.21	1971, 1972
B.17	1966	B.22	1973
B.18	1967, 1968	B.23	1974
B.19	1969	B.24	1975, 1976
B.20	1970		

Staff meetings

1968-75

B.25-B.28 Papers for staff meetings.

4 folders.

B.25	1968-71	B.27	1973
B.26	1972	B.28	1974, 1975

Personnel

1956-76

A chronological sequence of papers and correspondence re staff appointments, promotions, etc.

13 folders.

B.29	1956, 1958	B.36	1969 (4)
B.30	1963, 1964	B.37	1969 (5)
B.31	1965-67	B.38	1970
B.32	1968	B.39	1971
B.33	1969 (1)	B.40	1972-74
B.34	1969 (2)	B.41	1975, 1976, nd.
B.35	1969 (3)		

Research

B.42-B.52 Funding
B.53-B.56 Colloquia and Schools

Funding

1954-78

The material chiefly relates to the funding of research in the Physics Department by the Science Research Council and to the financial support of the Department's Solid State Physics Fund, principally by De Beers.

At B.52 is a report on a consultancy carried out by the Department for the Ministry of Supply.

- B.42-B.47 Correspondence and papers re Science Research Council (SRC) funding of research.
- B.42 1968, 1969. Includes material re SRC support for polymer research.
- B.43 1970. Includes enquiries from universities seeking likely candidates for SRC studentships, and related correspondence with B.H. Flowers, SRC chairman, re Cooperative Awards in Pure Science (CAPS).
- B.44 1971. Includes correspondence with C.E.H. Bawn (Polymer Committee) re SRC support for polymer research.
- B.45 1972. Includes correspondence re visit of SRC Physics Committee to Bristol University, February, with copy of their report.
- B.46 1973. Includes correspondence with Flowers re postdoctoral fellowships and CAPS, and photocopied manuscript proposal from G.P. Tonkin for "A Gravimeter Development", 17 September.
- B.47 1974, 1975. 1975 correspondence is chiefly re proposal for exploratory research on poly-SN.

B.48-B.51 Correspondence and papers re Solid State Physics Fund.

Frank took over responsibility for this departmental fund from M.H.L. Pryce in 1964. It received contributions principally from De Beers' subsidiary Industrial Distributors (Sales) Ltd. (later De Beers Industrial Diamond Division Ltd.) for research into the physical properties of diamond.

The material consists chiefly of covering letters from De Beers accompanying payment of funds, and correspondence to the university authorities authorising payments from the fund. The covering letters from De Beers to Pryce and his successor, Frank, also refer to the simultaneous payment of consultancy and Diamond Research Committee fees. Material relating to Frank's work as a consultant and committee member may be found at G.24-G.27 and G.56-G.75 respectively.

B.48 General correspondence re administration of the fund, various dates, 1954-75.

B.49, B.50 Correspondence re payments to the fund, 1962-78.

2 folders.

B.49 1962-67, 1971

B.50 1974-78

B.51 Correspondence re expenditure from the fund, 1961-67.

B.52 "Report on Extra-Mural work carried out in the Department of Physics, University of Bristol, for the Ministry of Supply ... February to July, 1954." With Frank's manuscript notes headed "Cinnabar HgS".

Colloquia and Schools 1946-78

B.53 Summer School on the quantum theory of crystalline solids with particular reference to semi-conductors, 1946.

Duplicated typescript outline of the course prepared for "other members of the [Telecommunications Research] Establishment who ... could not attend". With miscellaneous manuscript notes and graphs found with it.

B.54 Departmental colloquia, 1948-50.

Invitations to give colloquia and correspondence arising. Those agreeing include G.I. Finch, H.A. Jahn, A.C.B. (later Sir Bernard) Lovell (1948), G.V. Raynor (1949) and A.F. Brown (1950).

ICI-Bristol University Theoretical Physics Discussion on Crystal Growth, 18 February 1948.

Correspondence re arrangements.

B.55 Summer School on the Theory of Crystal Growth, 19-24 September 1949. Frank gave three lectures, "A general account of the growth of crystal", "The geometry of dislocations" and "The role of dislocations in crystal growth".

Correspondence re arrangements; notice; lecture notes.

Letter from H.A. Fairbank re colloquium on "Second sound in liquid helium II", 10 April 1954.

B.56 Vacation School on Dislocations in Metals and Inorganic Crystals, 24-29 March 1958. Frank lectured on "The theory of dislocation networks", "Dislocations and diffusion processes" and "The theory of etching processes".

Programme only.

Mott School on Crystal Growth, 6-10 April 1970. Frank welcomed the School and spoke on "Theories of crystal growth mechanisms".

Programme; lecture syllabuses.

Notices for Physics Department colloquia, 1977, 1978 and nd.

Teaching

B.57-B.67	Undergraduate
B.68-B.72	Postgraduate
B.73-B.76	Miscellaneous

Undergraduate

B.57, B.58 Syllabuses, lecture timetables, course outlines and course notes for undergraduate teaching.

B.57 1950, 1965-69

B.58 1974-76

B.59 Syllabus for stage III Special Honours Lectures on Solid State Physics, 1955-56. With manuscript notes for lectures.

B.60 B.Sc. examination papers, 1953, 1955, 1956.

B.61 Exercise book, used 1960-67, containing Frank's manuscript notes on undergraduates and their work.

B.62 Physics problem sheets, 1971-72 and nd.

B.63, B.64 Material re stage III physics courses 1973-74. Chiefly Frank's manuscript notes and questions on geophysics.

2 folders.

B.65 "Stage III Projects 1977-78". Contents of folder so inscribed.

B.66 Miscellaneous correspondence and papers re undergraduate courses, various dates 1949-72.

B.67 Duplicated typescript copies of 16 lectures on geophysics, nd.

Postgraduate

B.68 Correspondence and notes re postgraduates, various dates 1949-74 and nd.

B.69-B.71 M.Sc. course in Physics of Materials.

This course was initiated by Frank.

B.69 Material found in folder with attached note from N. Thompson inscribed "This folder contains papers relating to the M.Sc. course including the detailed exam results, and the correspondence with [A.J.] Kennedy." Kennedy was external examiner for the newly established course 1965-66.

B.70 Papers re course 1969-71.

B.71 Papers re course 1975-76, nd.

B.72 Miscellaneous papers and correspondence re M.Sc. courses.

Miscellaneous

B.73 "Regular and Irregular Motion", photocopy of manuscript text of "An informal series of talks by M.V. Berry", 1976.

B.74 "An Introduction to Algebraic Topology", typescript notes of lectures given by B.R. Pollard, 1976-77.

B.75 Student essays.

B.76 "Physics since 1910" syllabus, 1961; "Introduction" by Frank beginning "The extension by flow of polymer chain molecules ...", 6pp photocopied manuscript; "Stress functions: a mechanical analogue", Project Assessment by P. Gosshy, 12pp photocopied manuscript; etc.

UNIVERSITY**General correspondence and papers**

- B.77 1956, 1963, 1964. 1963 letter expresses the wish of the Deans of the Faculties (including Frank) to honour Sir Alfred Pugsley for his services as Acting Vice-Chancellor.
- B.78 1965, 1966.
- B.79, B.80 1968. Correspondence and papers re presentations for honorary degrees, 9 July, at which Frank was a public orator. Includes copies of Frank's orations.
- 2 folders.
- B.81 1969 February. Chiefly material re Bristol University Peace Group forum "What Research? And What For?" at which Frank spoke on behalf of the Vice-Chancellor. With 7pp manuscript draft of Frank's contribution.
- B.82 1969. Includes draft of Frank's "Address for Senate, 16th June 1969, on the retirement of C.F. Powell".
- B.83 1970.
- B.84 1971. Includes Frank's letter of 31 December suggesting candidates for honorary degrees.
- B.85 1972.
- B.86 1973, 1974. Chiefly material re visit of University Grants Committee (UGC), 27 November 1974.

- B.87 1975, 1976. 1976 material is re Interim Report of the Joint Working Party of the Committee of Vice-Chancellors and Principals and the UGC on Tuition Fees. (Frank received the material as a member of Senate). With 3pp manuscript draft letter to the Vice-Chancellor on "Fees".
- B.88 1976, 1977. Correspondence and papers re "Presentation of Sir Alan Hodgkin for the Degree of D.Sc.". Frank was public orator. Includes draft of Frank's oration, and letter of thanks from Hodgkin.
- B.89 1979-82, 1984, nd. Includes *University Newsletter* 12 June 1980 with letter from Frank re military research, and correspondence arising.

Committees

Arts Lectures Committee

1976-87

This committee arranged series of lectures on the arts. Frank was a member of the committee for the period covered by the material.

B.90-B.93

Papers for committee meetings and brief related correspondence. Includes copies of Frank's introductions to Arts Lectures, 17 February and 9 November 1976.

4 folders.

B.90 1976-79
B.91 1980-82

B.92 1983-85
B.93 1986, 1987

Board of Extra-Mural Studies

1965-67

Frank was appointed to the Board 1 January 1965. See also H.67-H.71.

B.94-B.99

Papers for Board meetings.

6 folders.

B.94 1965 January, May
B.95 1965 November
B.96 1966 January, May

B.97 1966 October
B.98 1967 January, May
B.99 1967 October

Committee on Departmental Organisation

1963-64

Frank chaired this committee, established in May 1963 "to consider the arrangements for consultation and discussion within Departments of the University". It reported the following May.

B.100

Copy of letter requesting information "regarding present practice" and views on general principles, Frank's manuscript notes on responses and manuscript draft of Committee Report etc.

Committee on Ordinances and Regulations for Higher Degrees 1966, 1967

Following a Government request that workers in industrial and government laboratories be given opportunities to gain higher degrees, Frank and A.R. Collar were asked by the committee to put forward ideas for liberalising the regulations surrounding the award of higher degrees.

Much of the material relates to Frank's suggestion that a "Mature Ph.D." degree be instituted to allow worthy candidates whose work did not merit a D.Sc. nevertheless to be awarded a doctorate.

B.101 Correspondence with university authorities, C.F. Powell and Collar, 1966.

B.102 Papers for committee meetings, including suggested amendments to university regulations.

Committee on Technical Staff 1975

B.103 One letter only, 29 January.

ICI Research Fellowships Committee 1975

B.104 Report on ICI postdoctoral fellowships scheme.

Joint Committee on Tutorial Classes 1965-68

This was a joint committee of representatives of the Department of Extra-Mural Studies, the Workers Educational Association and Local Education Authorities. Frank attended as a member of the Board of Extra-Mural Studies (B.94-B.99).

B.105-B.108 Papers for committee meetings, 1965-68.

4 folders.

B.105 1965
B.106 1966

B.107 1967 February, May
B.108 1967 November, 1968

Knowlson Trust Fund Committee

1963-67

This committee was appointed in April 1963 to allocate funds from the bequest of J.M. Knowlson, engineer, for travel grants to students and junior staff. Frank was a committee member from its establishment.

B.109-B.111 Papers for committee meetings and Frank's manuscript comments on reports provided by recipients of grants upon their return.

3 folders.

B.109 1963

B.111 1966, 1967

B.110 1964, 1965

Laboratory Assistants Committee

1954

B.112 Minutes of meeting, 3 November.

"Sub-Committee of Senate which was asked to make a report on the history of events which culminated in the sit-in [occupation of Senate House by students, December 1968] ... "

The sit-in occurred over the issue of reciprocal membership of the Bristol University Students' Union with students' unions at other institutions of further and higher education in the area. A number of students, feeling the university authorities were procrastinating, occupied Senate House.

The senate sub-committee, comprising Frank, C.F. Powell, P.J. Randle and W.D. Howarth, supported the actions of the Vice-Chancellor, A.R. Collar, in securing the eviction of the occupying students.

B.113, B.114 Material re the sit-in, chiefly statements by the sit-in "Action Committee" (and sympathisers) and the university authorities. Also includes typescript draft and final copy of the sub-committee's report, 11 December, and typescript draft and final copy of "Letter to all members of the University" drafted by the sub-committee for the Vice-Chancellor, 9 January 1969.

2 folders.

B.115 Background papers on reciprocal membership issue.

- B.116 News-sheets produced by the Informal Information Office established in the Physics Department, December 1968, February-June 1969.
- B.117 Miscellaneous material.

Societies and Organisations

An alphabetical sequence of other university bodies.

Association of Alumni

1977-84

Frank was invited to become Honorary President for the 1977-78 session and was re-elected several times thereafter. As President he also served on the Joint Executive Committee of Convocation and the Association of Alumni.

B.118 Correspondence, chiefly *re* Presidency, 1977-79, 1982.

B.119, B.120 Papers for meetings of Joint Executive Committee of Convocation and the Association of Alumni.

2 folders.

B.119 1978-80

B.120 1981-84

Association of University Teachers

1973, 1982

B.121 Miscellaneous material.

Bristol Scientific Club

1972-86

Frank was a Past President of the Club.

B.122 Correspondence and papers, including membership lists.

Colston Research Society

1966-86

Frank's connection with the Colston Research Society for the promotion of research in the University of Bristol dates from 1948, when he attended the First Colston Symposium on Cosmic Radiation, organised by N.F. (later Sir Nevill) Mott (see H.2).

In 1966 Frank was invited to sit on the Society's Research Fund Committee which administered a grant from the Society to assist, chiefly, in the publication of research work. Frank was a member of the Council of the Society from 1974, being re-elected in 1978, 1980 and 1984.

In the mid-1970s Frank was associated with two Colston Symposia, as organiser in 1974 and as a chairman in 1976.

B.123	Colston Research Fund Committee	
	Correspondence and papers for committee meetings, 1966, 1967.	
B.124	Colston Symposium on The Structure of Bio-polymers, 1-3 April 1974. Frank helped organise the symposium.	
	Correspondence and papers, 1972, re preliminary organisation. Includes invitation to L.C. Pauling.	
B.125	Colston Symposium on Remote Sensing of the Terrestrial Environment, 5-9 April 1976. Frank was a chairman.	
	Correspondence and papers, 1974, 1976.	
B.126-B.131	Colston Research Society Council	
	Papers for Council meetings and AGMs.	
	6 folders.	
B.126	1975, 1976	B.129 1981, 1982
B.127	1977, 1978	B.130 1983, 1984
B.128	1979, 1980	B.131 1985, 1986
Department of Spanish		1963
B.132	Brief correspondence only.	
Emeritus Professors' Dining Club		1977-84
B.133	Correspondence and papers. Includes invitation, 7 October 1983, to Frank to chair the 1983-84 session (accepted).	
Faculty of Science		1963-75, nd.
	Frank was Dean of the Faculty of Science 1963.	
B.134	Miscellaneous papers.	

Information Office

1973-83

- B.135 Correspondence. Includes Frank's note on P.A.M. Dirac compiled for the Information Office on the occasion of Dirac's appointment to the Order of Merit, 1973.

Library

1975-78, nd.

- B.136 Correspondence.

Mac Innes Club

1976, 1979

- B.137 Papers re meetings.

School for Advanced Urban Studies

1973

- B.138 Papers re constitution of the School, with Frank's notes and copy of letter to Vice-Chancellor, 14 March, "Observations on the Constitution of the School for Advanced Urban Studies".

Senior Common Room (SCR)

1965-68, 1976

Frank was chairman of the SCR committee 1966-68, member of the Art committee 1965-67 and convenor of the Dining subcommittee 1967-68.

- B.139-B.145 Correspondence and papers.

7 folders.

B.139	1965	B.143	1967 Nov, Dec
B.140	1966	B.144	1968 Jan-May
B.141	1967 Jan-May	B.145	1968 June-Dec, 1976
B.142	1967 June-Oct		

University of Bristol Physical Society

1966-78

- B.146 Correspondence and papers. See also B.49 and B.51.

Includes cutting from Bristol paper showing Frank, M.H.L. Pryce, A.M. Tyndall and C.F. Powell at Physical Society dinner c.1954-61.

Tyndall Memorial Lectures

Following his appointment as Director of the H.H. Wills Physics Laboratory in 1969, Frank and his wife endowed a biennial lecture on the physical sciences to commemorate A.M. Tyndall, Professor of Physics at the University 1919-1948. The first was delivered by Sir Bernard Lovell.

- B.147 Correspondence re endowment of Tyndall Memorial Lectures, 1969.
- B.148 Correspondence, 1970, re Lovell's Lecture on "The Astronomer's Universe" 3 December, and Dinner Party following. With typescript draft of Frank's toast to the memory of Tyndall.
- B.149 Correspondence, 1972, re second Lecture, given by Sir George Porter on "Chemistry in Microtime", 7 December.
- B.150 Correspondence, 1974, re third Lecture, given by R.V. Jones on "The Other Way Round", 9 December.
- B.151 Brief correspondence, 1976, 1978, 1980, re later Tyndall Lecturers.

SECTION C**RESEARCH****C.1-C.203**

C.1-C.33 CHEMISTRY PART II AND POSTGRADUATE

C.34-C.54 GERMANY

C.55-C.79 CAMBRIDGE

C.80-C.109 SECOND WORLD WAR

C.110-C.203 BRISTOL

CHEMISTRY PART II AND POSTGRADUATE

- C.1 "Nitro Paraffins". Contents of a folder so labelled: manuscript notes on the literature, latest bibliographical reference 1927.
- C.2 "The molecular structure of phenyl-nitro-methane and its derivatives, studied with the aid of measurements of molecular electric moment". Thesis presented for part II of the examination in Chemistry and for the degree of Bachelor of Science. Lincoln College Oxford, May 1933. 64pp typescript.
- C.3 "Résumé of portions of the Chemistry part II & B.Sc. Thesis of F.C. Frank - Oxford, May, 1933". 12pp typescript.
- C.4 "Phenyl iso-nitromethane & subst. phenyl nitro-methanes". Contents of a folder so labelled: manuscript graphs, notes and diagrams, latest bibliographical reference 1933.
- C.5 "Oxidation of Aliphatics". Contents of a folder so labelled: manuscript notes on the literature abstracted 1933, 1934.
- C.6-C.18 "Dielectric Losses". Contents of a folder so labelled divided into 13 for ease of reference.
- C.6-C.15 Manuscript notes on the literature, calculations, graphs, 1933-37. 10 folders.
- C.16 "Loss in alcohol": manuscript drafts, graphs, data etc., found clipped together; latest bibliographical reference 1934.

- C.17 "Dielectric loss evidence on the molecular condition and properties of palmitic in solid solution" by W. Jackson (later Lord Jackson) and F.C. Frank, 21 June 1935. 6pp typescript.
- "Dielectric loss measurements of W. Jackson on polystyrene ("Trolitul") mouldings prepared by F.C.F." Graph dated 27 October 1936 and 3pp manuscript.
- C.18 "Statement and discussion of power-factor and conductivity measurements on a solution of stearanilide in paraffin wax. Also results of power factor measurements on palmitic acid and beeswax solutions". 3pp manuscript by Jackson, with Frank's manuscript additions.
- C.19-C.21 "Molecular rotation". Contents of a folder so labelled: manuscript notes on the literature abstracted 1934.
- 3 folders.
- C.22 Motion of molecules in crystals. Manuscript notes on the literature abstracted 1934.
- C.23-C.25 Contents of Frank's folder divided into three for ease of reference.
- C.23 Letter from Ronsheim & Moore sending list of chemicals, 3 November 1934; two manuscript drafts entitled "A new solvent effect in dipole moment measurements", typescript draft entitled "An additional solvent effect in dipole moment measurements", 3 May 1935, etc. See also C.27.
- C.24, C.25 Notes on the literature, data, calculations etc. 1935, 1936. 2 folders.
- C.26 "Polar effect". Contents of a folder so labelled: brief correspondence 13 April 1935 and nd. from P.A. Small; notes on the strength of acids etc., some with annotations by Small; graphs.

- C.27-C.29 Contents of Frank's folder divided into three for ease of reference.
- C.27 Typescript draft entitled "An additional solvent effect in dipole moment measurements" 3 May 1935, typescript draft entitled "A new solvent effect in dipole moment measurements" by Frank and L.E. Sutton, latest bibliographical reference 1936.
- C.28 Brief correspondence March 1936; letters to [G.I.] Taylor, 3 April 1936 and 11 May 1936 and "A further note on the theory of absences in crystalline solids" dated 9 March 1936 and enclosed in Frank's letter of 3 April.
- C.29 Manuscript notes, data, calculations, graphs. Some material dated 1936.
- C.30 Letter to the editor of *Nature* on computing the electric moments of solute molecules, by E.A. Guggenheim. 3pp typescript dated 5 March 1936 and 1p table of electric moments of solute molecules, with Frank's manuscript notes attached.
- C.31 "Wrinch proteins". Contents of an envelope so inscribed, including: manuscript and typescript notes on "Wrinch on proteins", typescript dated 21 May 1936; two draft letters to [D.M.] Wrinch, one dated 12 June 1936; letter from W.T. Astbury, 19 June 1936.
- C.32 "Dossier on minor solvent effects": manuscript notes relating to work of H.O. Jenkins 1936.
- C.33 "A research in the physical chemistry of dielectrics with special bearing on dielectric losses". Frank's D.Phil. thesis retained in original covers. The degree was awarded in 1937.

GERMANY

- C.34 Notebook inscribed on front cover "P. Debye" and "Ausgewählte Kapitel der Technischen Mechanik Wintersem. 1905. A. Sommerfeld." The first page of notes is headed "Beanspruchung von Kugeln".
- C.35-C.37 Contents of Frank's folder divided into three for ease of reference. The folder was of German manufacture (F. Soennecken, Bonn).
- Manuscript notes on the literature abstracted 1933-37. Include dielectric loss literature from 1923. There are many references to the work of Debye.
- C.38-C.40 Contents of Frank's folder divided into three for ease of reference. The folder was of German manufacture (F. Soennecken, Bonn).
- C.38, C.39 Manuscript notes on the literature, drafts, data, graphs etc. variously dated 1933-38 and nd. 2 folders.
- Include "Recalcs of Jackson's appendix on voids, which is wrong", plan of a book on rotating molecules 16 September 1937 and diagram of "low temperature small thermostat, to supply a stream of cooled dried air at a regulated temperature" 14 December 1938.
- C.40 Printed material re scientific equipment etc.
- C.41 Contents of Frank's folder.
- Manuscript notes and drafts including items in German, latest bibliographical reference 1937.
- C.42-C.47 Contents of Frank's folder. The folder contained five smaller folders, three with titles, subdividing the contents. In addition a few items were found loose.
- C.42 "Oscillographic Relaxation". Electrical circuit diagrams; manuscript draft "Oscillographische Demonstrationsversuch über Dipolrelaxation."

- C.43 Untitled. Material relating to work with E. Fischer: bibliography headed "Literatur über dielektrische Verluste und Dispersion" with manuscript note at end "zusammengestellt Fischer 29.4.38"; letters from Fischer 1938, 1939; reprint by Fischer "Einfluss der Molekelstruktur auf die dielektrische Relaxation" which acknowledges Frank as a co-experimenter.
- C.44 Untitled. Notes on the literature abstracted 1936; graphs.
- C.45 "Dielectrics & Plastics". Letter from B.W. Sillars sending "some selections from my results on paraffin wax solutions" 18 October 1937; manuscript draft dated April 1938, etc.
- C.46 "Dutta Sound Dispersion". Letter from A. Dutta, Bose Research Institute, Calcutta, 5 May 1938; manuscript drafts by Dutta and Frank on sound dispersion in liquids, etc.
- C.47 Loose items. Include small format notebook, latest bibliographical reference 1939 and draft letter to Professor Hassell nd.
- C.48-C.51 Contents of Frank's folder divided into four for ease of reference.
- C.48 19pp manuscript draft beginning "The foundations of the classical theory of solutions as laid by Van't Hoff, Arrhenius, and Ostwald are distinguished by their simplicity and the readiness with which they can be mathematically formulated". Note at end "Translation for Debye. Finished 6/5/37. F.C.F."
- C.49 Manuscript notes and calculations including "relaxation for non-rigid molecules", "energy of two touching rod-shaped molecules in dependence on the angle between them".
- C.50 Manuscript notes and calculations including "Debye script, notation"; "Debye-Ramm calculations".
- C.51 Printed matter re German scientific equipment.

- C.52 Graphs; diagrams; notes on the literature, latest bibliographical reference 1937; etc.
- C.53 Manuscript "notes on the evaluation of polarisation along axes for links", typescript draft "das Quadrupolmoment des Kerns".
- C.54 Manuscript draft beginning "Nach bekannte und gut begründete theoretische Gesichtspunkte ... gibt es beim Kristallwachstum eine besondere Hemmung in Anfang eines neuen Schichts auf eine ausgefüllte dicht-gepackte Fläche."

CAMBRIDGE

- C.55 "The behaviour of dielectrics in alternating current fields". Three duplicated typescript "informative summaries" based on lectures by E.B. Moullin delivered at the Post Office Research Station, Dollis Hill, London, March 1938.
- C.56-C.60 Material re patenting of "A short wave generator" (British patent application no.29526/38).
- C.56-C.58 Correspondence with patent agency, industrial concerns (Marconi, General Electric Company, Metropolitan-Vickers) and colleagues (R.V. Jones, E.B. Moullin) re Frank's invention, 1938-39.
- C.56 1938 September, October. Includes provisional specification filed 12 October.
- C.57 1938 November, December.
- C.58 1939 January, March, April and nd.
- C.59 Manuscript notes and drafts.
- C.60 Printed material.
- C.61-C.65 "Relaxation Kinetics". Contents of a folder so labelled divided into five for ease of reference.
- C.61 Letter from Electrical Research Developments sending details of their products, 20 October 1938; carbon copy of letter to D.M. Wrinch, 13 December 1938; manuscript drafts of letter to Riley, 9 May 1939.
- C.62 "Frictional Electricity". 7pp typescript with manuscript additions and corrections.

- C.63 Manuscript draft headed "General principles" and beginning "Free charges and induced (or permanent) dipoles on suspended particles produce forces of attraction and repulsion between them, and between particles and the containing walls."
- C.64 Manuscript notes, drafts, graphs, calculations etc. including note of Frank's contribution to unidentified meeting and notes dated 22 March and 1 April 1940.
- C.65 Manuscript notes, drafts, calculations, data.
- C.66-C.72 Contents of Frank's "seven-in-one" folder.
- C.66 Manuscript notes headed "stat. mech", "equilibria", etc.
- C.67 Manuscript notes headed "gases", "improved argument", etc.
- C.68 Manuscript notes headed "Integrated intensity or integrated reflection", "plastic deformation", "conduction in ionic crystals", "photoconduction in alkali halides", etc.
- C.69 Letter from D.M. Wrinch, 14 December 1938; manuscript and typescript notes, diagrams re work of Wrinch.
- C.70 Manuscript notes headed "Particles" and "A model of the melting crystal", the latter dated 25 April 1939.
- C.71 Report on the work of the Cambridge branch of the Association of Scientific Workers, October 1938 - May 1939; programme for Easter term [1939].
- C.72 "Bull Moose Gap". Humorous piece explaining why Bull Moose Gap was one of the friendliest and most peaceful towns in North America. With scientific matter on verso.

- C.73 Contents of Frank's folder.
- Manuscript notes, drafts, diagrams, graphs etc. including rough drafts of letter to E.H. Neville re his "Vector maps as positive evidence in crystal analysis", *Nature* 142, December 3, 1938. The drafts of Frank's letter begin "I saw Dr. Wrinch the other day ... "
- C.74-C.77 Contents of Frank's "five-in-one" file, one compartment found empty.
- C.74 "Notes on the measurement of small differences of impedances" by W.R. Piggott, sent to Frank 17 May 1939; letter from Frank to [O.H.] Wansbrough-Jones appending "very brief notes supplementary to those Rideal sent", 8 June 1940; miscellaneous manuscript notes, calculations, diagrams.
- C.75 Manuscript notes, data, graphs. A few items dated in February and March 1939.
- Exercise book used for brief records of research March-August 1939 including experimental work on rubber.
- Report on Frank's research July-August 1939. It notes that "from Sept. 3rd other work has been performed in the same laboratory, under Prof. Rideal's direction, which cannot be reported here. From Nov. 1st. onwards the work has been paid for by the Ministry of Supply ... "
- C.76 Manuscript notes and drafts including "Concerning the conditions of applicability of the new Debye (inner field) theory of polar dielectrics", 18 November 1936 and note on the literature abstracted 8 May 1938.
- C.77 Receipts, price list, circuit diagram etc. Include items dated between December 1938 and July 1939.

- C.78 Manuscript notes on the literature, latest bibliographical reference 1939. Folder also includes letter from Lloyds Bank Oxford (found with the notes) re transferring Frank's account to their Cambridge branch 8 July 1939.
- C.79 Contents of Frank's folder.
- Manuscript notes, drafts, diagrams, data, nd.

SECOND WORLD WAR

- C.80 "A theory of evaporation in wind from surfaces of small downwind length" by Frank. 8pp typescript plus figures. The figures are dated 25 September and 9 October 1940 and stamped "Photographic Department CDES Porton".
- Folder also contains "Notes on paper by Dr. Frank". 2pp manuscript signed O.G. (later Sir Graham) Sutton 24 October 1940.
- C.81 "Misc. Maths". Contents of a folder so inscribed.
- Manuscript calculations, graph. Some calculations on back of leaves from 1940 calendar, 1943 University of Bristol examination script and postwar form letter re supply of reprints to German scientist, K. Wirtz.
- C.82-C.90 "Frank. Sundry theoretical studies". Contents of a folder so inscribed. This folder contained a number of smaller folders and many loose papers.
- C.82, C.83 Contents of Frank's folder divided into two for ease of reference.
- C.82 Manuscript draft "Heightfinding in RDF - General requirements"; manuscript calculations, data, graphs.
- C.83 Undated letter from Frank at the Air Ministry to O.G. Sutton requesting meteorological data for work on ultra-short radio-waves; letter from R.L. Smith-Rose re literature on ultra-short radio-waves, 16 August 1941; "Abnormal RF Ranges - Preliminary Survey" by D.J. Garrard, 12 September 1941 (7pp typescript); manuscript calculations, data, graphs.

C.84 Contents of Frank's folder.

Manuscript drafts headed "Reflection at inhomogeneities", "Non-abrupt discontinuities"; Department of Scientific and Industrial Research Radio Research Board paper "Study of field strength records obtained on the Post Office Ultra-Short-Wave Radio Telephone Link between Guernsey & England. (Wavelengths 5m. and 8m.) by R.L. Smith-Rose and A.C. Stickland, 1 September 1941; DSIR RRB paper "The dielectric constant and loss factor of water vapour at a wavelength of 9cms. (frequency = 3330 mc/s.)" by J.A. Saxton, 4 March 1942.

C.85, C.86 "The theory of errors in continuous measurement". Contents of folder so inscribed divided into two for ease of reference.

Manuscript drafts, calculations, nd. This theoretical work relates to the process of gunnery.

C.87 "Continuous error theory". Contents of folder so inscribed.

Manuscript draft, calculations.

C.88 Manuscript notes, drafts, calculations, data. Includes 15pp manuscript draft headed "Polar diagrams of arrays".

C.89 Miscellaneous manuscript notes, calculations, graphs etc; also letter from H.M. Nautical Almanac Office to E.M. Wright enclosing mathematical table, 17 January 1945.

C.90 "A particular type of resultant distribution", 7pp manuscript not in Frank's hand.

C.91 "Water launch rocketry". Contents of a folder so inscribed.

Manuscript notes and calculations headed "water launch", "condensation from burnt material"; also letter from R.F. Tuckett re "dielectric manuscript", 14 December 1943.

- C.92, C.93 Contents of Frank's folder divided into two for ease of reference.
- Notes, drafts, calculations re rockets, nd.
- C.94 "Statistics". Contents of a folder so inscribed.
- Manuscript notes headed "Differential binomial", "Zero crossings for a rectangular frequency spectrum", "A collection of noise numbers", etc. One item dated in 1944.
- C.95 "Inductive effects: the internal electrostatic behaviour of molecules", 27 July 1945. 12pp typescript.
- Folder also includes manuscript draft of paper, letter from R.J.B. Marsden commenting on paper, 31 October 1945, manuscript calculations.
- C.96 "Map projection". Contents of a folder so inscribed.
- Manuscript calculations.
- C.97-C.109 Contents of a parcel sent from the Air Ministry to Frank at Bristol, 15 August 1947.
- C.97 Correspondence 1940, 1944, 1945 and nd. Includes letter from E.C. (later Sir Edward) Bullard, 21 December 1944, thanking Frank for the report on rockets and letter from Sir Henry Tizard, 18 June 1945, thanking Frank for his contribution to an enquiry into the future of weapons.
- C.98 Contents of Frank's folder.
- Typescript note "Suggested use of medium wave frequency to standardise ultra short wave measurements" 14 December 1940; letter from Frank to R.L. Smith-Rose 22 April 1941 commenting on DSIR Radio Research Board paper on "The absorption of Ultra-short wireless waves in water vapour of the earth's atmosphere" by J.A. Saxton, with a copy of the paper; manuscript drafts including "Non-reflecting windows for night fighters".

- C.99 Contents of Frank's folder.
- Manuscript drafts "size of a cocked hat in angular measure", "refraction of radio-waves", "atmospheric refraction"; Frank's comments on Operational Research Section report on "Theory of D/F Fixing" with copy of the report; Mathematical Group TRE Swanage report on "Atmospheric Refraction and Blind Bombing"; miscellaneous manuscript notes and calculations. 1941.
- C.100 Contents of Frank's folder.
- Manuscript drafts "Beam width and beam accuracy", "Combustion of hydrazine", data, graphs etc. One item dated 22 August 1944.
- C.101 Report on rockets by Frank. 31pp duplicated typescript plus figures.
- C.102 "Brock's benefit or The future of rockets". 8pp manuscript.
- C.103 "Elementary rocket formulae". Contents of a folder so inscribed.
- Manuscript drafts.
- C.104, C.105 Manuscript notes, calculations, graphs etc. including material on rockets. 2 folders.
- C.106 Government issue notebook. With record of "sites" in the Cherbourg region, St. Lo region, and the area south of Caen. Very few pages used.
- C.107 Miscellaneous items including poems "Der Geraeteraum (nach Christian Morgenstern)" beginning "Es war einmal ein Herr von Braun", "AFIA von Bimbo Morgenstern" (2 copies, one classified "most embarrassing", "trivial" and "top secret"), and "Middle East communique" referring to Rommel and the Auk [Field Marshal Auchinleck].
- "Bimbo" was the nickname of Frederick Norman, Professor of German at King's College London 1937-65. He was at Bletchley during the war and liaised with the Air Ministry's Assistant Directorate of Intelligence (Science).

- C.108 "Schottland und England (nördlicher Teil).
Militärgeographische Operationskarte mit Eintragung der
Kriegswichtigen Wirtschaftsgebiete". 1940.
- C.109 Miscellaneous printed matter, chiefly German wartime scientific
papers.

BRISTOL

- C.110 "Interpolation". Contents of a folder so inscribed.
- Letter from the British Rubber Producers' Research Association to H. Fröhlich, 5 July 1946; manuscript graphs, calculations etc.
- C.111 Manuscript notes including "The boundary layer in stirred fluids", 13 June 1949, manuscript calculations.
- C.112 Miscellaneous notes, drafts, calculations late 1940s. Includes material on dislocations.
- C.113, C.114 Typescript copies of pre-war and wartime Russian scientific papers in German, found with Atomic Scientists Association material 1948-50 (F.4-F.7).
- 2 folders.
- C.115-C.118 Manuscript and typescript notes, graphs, diagrams etc. re crystals research. A few items dated in 1949, 1952 and 1953.
- 4 folders.
- C.119 Contents of Frank's folder.
- Typescript drafts "Written discussion on the Schockley-Read paper - F.C. Frank" 22 May 1950, "The importance of near-screw dislocations in the generation of vacancies and interstitial atoms and in work-hardening" nd; manuscript notes, calculations etc.
- C.120 "Comments by F.C.F." 8 January 1954. 4pp typescript re grain boundaries.

C.121 Contents of Frank's folder.

Manuscript draft "On grain boundary migration in a material containing pores or inclusions", notes headed "Diffusion of large vacancy aggregates", letter from Frank to G. Matsumara 10 April 1954.

C.122-C.127 Contents of Frank's folder divided into six for ease of reference.

Miscellaneous manuscript notes, drafts, calculations, diagrams, correspondence, photographs etc. Include manuscript draft "On the forces due to surface tension with reference to small animals", manuscript draft on martensitic transformations and manuscript draft on the problem of the growth of diamonds. A few items are dated in 1954 and 1955.

C.128 Contents of Frank's folder.

Typescript copy of paper by J.D. Eshelby on "The elastic interaction of point defects", manuscript notes headed "Eshelby", elastic constants data. Latest bibliographical reference 1955.

C.129, C.130 Contents of an envelope divided into two for ease of reference.

Manuscript notes, drafts, calculations including "A note on the crystallization of polymers", a note addressed "Dear Nevill [Mott]" beginning "I take up the discussion of Mrs. Tipper's fracture in glass which you sent me some weeks ago", and "A note on transformation stresses"; also Courtaulds research report dated March 1956.

C.131 "X-ray diffuse scattering due to defects in diamond", 8 May 1956. 5pp manuscript draft.

C.132 Application for patent in respect of "Process for improving the mechanical properties of diamonds" 14 May 1956, with related correspondence 1956, 1957. See also C.140.

C.133 General Electric Research Laboratory report on "Polygonization" by W.R. Hibbard and C.G. Dunn November 1956, with Frank's manuscript notes and calculations.

- C.134 "On Schrödinger's cat, states and statements", 7 April 1957.
4pp manuscript draft.
- C.135, C.136 Manuscript and typescript notes and drafts, diagrams etc; also letter from N.F. Mott requesting information on work of students of Frank on the "Peierls-Nabarro force", 18 July 1958.

2 folders.
- C.137 "Draft application" for research on the mechanisms that operate when a metal breaks under fatigue conditions, August 1958. 4pp typescript.
- C.138, C.139 Contents of Frank's folder divided into two for ease of reference.

Manuscript and typescript notes and drafts, photographs, correspondence re crystal growth, liquid structures. The correspondence (with J.D. Bernal and others) is dated in 1958 and 1959.
- C.140 "On the melting of carbon", latest bibliographical reference 1959. 7pp manuscript draft.

Folder also contains a little earlier (1956) correspondence re patent for improving the mechanical properties of diamonds, found with the draft. See also C.132.
- C.141-C.143 Miscellaneous manuscript and typescript notes and drafts, etc. 1950s.

3 folders.
- C.144 Contents of Frank's folder.

Manuscript notes, drafts, calculations etc. re superconductors including 2pp manuscript "On the interactions between magnetic flux and dislocations in superconductors". Latest bibliographical reference 1962.

- C.145-C.148 Manuscript and typescript drafts, notes, calculations re superconductors and superconductivity.
4 folders.
- C.145 Untitled 12pp manuscript beginning "Much practical and theoretical interest now attaches to high field superconductors ... ". Latest bibliographical reference 1962.
- C.146 Miscellaneous manuscript notes and calculations found with the preceding.
- C.147 "On superconductive dynamo geometries", 5pp typescript and 1p figures. Latest bibliographical reference 1963.
- C.148 Untitled 25pp manuscript beginning "There should not be much doubt regarding the substantial correctness of Abrikosov's theory of type II superconductors.
- C.149 Contents of Frank's folder.
Manuscript notes, calculations etc. re superconductivity, nd.
- C.150 Manuscript notes, calculations re superconductivity, nd.
- C.151-C.154 Contents of Frank's folder divided into four for ease of reference.
Manuscript notes, drafts, calculations etc., latest bibliographical reference 1963. Includes material on dislocations.
- C.155 Correspondence and papers re patent for a dynamic-electric machine, 1963-66, 1972. Includes complete specification and assignment and agreement between Frank and the National Research Development Corporation.

- C.156-C.159 Manuscript notes and drafts etc. re geophysics research during extended visit to Institute of Geophysics and Planetary Physics, University of California, La Jolla, San Diego, 1964-65. Includes correspondence with E. Orowan September 1964, March 1965 and manuscript draft "Orowan's argument for earthquake energies and displacements". See also H.50-H.52.
- 4 folders.
- C.160 "A hypothesis for the form of island arcs and the arcuate mountain ranges", latest bibliographical reference 1964. Manuscript and typescript drafts.
- C.161 Research report for period September 1966 - March 1967, "written 26 May 1967".
- C.162-C.164 Miscellaneous manuscript notes, calculations, diagrams, 1960s.
- 3 folders.
- C.165 Manuscript calculations found with paper on "Reptation of a polymer chain in the presence of fixed obstacles" by P.G. de Gennes. Latest bibliographical reference 1970.
- C.166 Manuscript notes and drafts "Temperature changes associated with adiabatic decompression in geological processes", "temperature variation in upward flow through a pipe" (not in Frank's hand), etc; also printed matter, letter dated 14 August 1971.
- C.167-C.169 Contents of Frank's folder divided into three for ease of reference.
- C.167 "Functions, mathematical and physical", 17pp manuscript draft.
- C.168 "Unravelling double helices", 3pp manuscript draft and untitled 9pp draft, manuscript notes and calculations. One item dated February 1973.
- C.169 Miscellaneous manuscript notes, calculations.

- C.170 "Alternative rotation centres and the third dimension", 14pp manuscript draft plus tables. 1974.
- C.171 "A note on the systematics of rotation-coincidence lattices", 16pp manuscript draft, tables. 1974.
- C.172, C.173 Contents of Frank's folder divided into two for ease of reference.

Manuscript notes, calculations etc. including 3pp manuscript "Some RC ladder calculations", 28 May 1974.
- C.174 Manuscript notes, calculations including "Gear ratio calculations for Michael [Zarins] - Christmas 1976".
- C.175 Manuscript notes, drafts, calculations etc. including 8pp manuscript re "two-dimensional disclinations" and "two-dimensional analysis of three-dimensional disclinations". One item dated 3 May [1977] when Frank was on an extended visit to Université de Paris-Sud (H.109).
- C.176 Manuscript notes, calculations etc. Includes draft letters 1977.
- C.177 "The effect of mobile boundaries", latest bibliographical reference 1978. 4pp manuscript, etc.
- C.178, C.179 Contents of Frank's folder divided into two for ease of reference.
- C.178 Manuscript calculations found with draft paper by C.P. Buckley on "Theory of crystallisation rates and melting rates for polymer crystals, allowing for finite M.W." For some of his calculations Frank used the back of a Bristol University memo dated 2 October 1979.
- C.179 Manuscript notes, calculations, etc. including 2pp manuscript "Caustics of helicoid" from M. Berry 7 September 1979; also letter from A.H. Windle 3 October 1979.

- C.180 "On the distribution of gauche configurations in a layer of aliphatic chains", 5pp manuscript plus calculations on notepaper of International Liquid Crystals Conference, Bangalore, 3-8 December 1979.
- C.181-C.185 Miscellaneous manuscript notes, drafts, calculations etc., 1970s. 5 folders.
- C.186-C.195 Miscellaneous manuscript notes, drafts, calculations, etc., 1980s. 10 folders. As far as possible this material has been arranged chronologically.
- C.196-C.203 Miscellaneous notes, drafts, calculations, etc., nd. 8 folders.

SECTION D

PUBLICATIONS

D.1-D.271

D.1-D.170

DRAFTS

D.171-D.270

EDITORIAL CORRESPONDENCE

D.271

PUBLISHED PAPERS

DRAFTS

A chronological sequence of material relating to publications or to the intention to publish, ranging from fully-prepared drafts to references in editorial correspondence. Where applicable reference has been made to Frank's List of Publications (reproduced at pp.224-235) in the form *Bibliog.* ...

D.1, D.2 "Dipole induction and the solvent effect in dipole moment measurement". *Bibliog.* 1, 1935.

D.1 60pp typescript bound in soft covers.

D.2 Manuscript notes, diagrams and calculations found with preceding.

D.3 "An electrical investigation of solutions of stearanilide in paraffin wax", with W. Jackson. Not listed in *Bibliog.* but published in *Trans. Far. Soc.* 31 (1935).

16pp typescript.

D.4 "Electrical evidence on calcite imperfections". *Bibliog.* 2, 1936.

4pp typescript with manuscript corrections; related manuscript notes.

D.5 "The carbon valency angle and dipole induction in benzyl compounds". Not listed in *Bibliog.* but published in *J. Chem. Soc.* (1936).

12pp typescript with extensive manuscript annotation and correction; letter to editor dated "31/8/36" enclosing final page of proof with correction.

D.6 "On high dielectric constants". Not listed in *Bibliog.* but published in *Trans. Far. Soc.* 33 (1937).

Incomplete 12pp typescript with manuscript corrections.

- D.7, D.8 "Ordnung and Umwandlung in kondensierten Phasen", with K. Wirtz. *Bibliog.* 5, 1938.
- D.7 40pp typescript with manuscript corrections and 1p manuscript addition between pp.9 and 10.
- D.8 Chiefly correspondence from Wirtz, 1938, 1939. Frank worked with Wirtz while at the Kaiser Wilhelm Institut für Physik. Berlin, 1936-38.
- D.9 "Physical Chemistry of Surfaces Annual Meeting of the Bunsen-Gesellschaft". Not listed in *Bibliog.* but published in *Nature* 142 (1938).

Proof copy of Frank's report on the meeting of 2-3 June 1938. Further material relating to this conference may be found at A.10.
- D.10 "Transition stages between order and disorder in condensed phases". Not listed in *Bibliog.* but published in *Nature* 142 (1938).

14pp typescript.
- D.11-D.13 "Melting as a disorder phenomenon". *Bibliog.* 7, 1939.

This paper was communicated to the Royal Society by N.V. Sidgwick under the title "A new theory of melting points". At the suggestion of the paper's referee Frank rewrote the paper from p.3 and retitled it.
- D.11 8pp typescript draft of original paper; related correspondence; referee's report.
- D.12 15pp typescript draft of revised paper; proof copy of revised paper with manuscript annotation and correction.
- D.13 Miscellaneous manuscript notes, figures, references.

- D.14 Correspondence with Julius Springer Verlagsbuchhandlung, 1939. Frank agreed to revise the Table of Activity Coefficients of Strong Electrolytes for the sixth edition of "Landolt-Börnstein'schen Tabellenwerkes". Includes copy of contract dated 21 March 1939.
- D.15 "Theory of crystal growth". Nd. but latest bibliographical reference, 1945.

7pp manuscript draft.
- D.16 "The molecular structure of deeply super-cooled water". *Bibliog.* 8, 1946.

6pp manuscript draft dated "7.10.45"; related correspondence chiefly with *Nature*, K. Lonsdale and A.R.J.P. Ubbelohde.
- D.17, D.18 "A comparison of Debye's and Onsager's theories of the dielectric constants of concentrated polar media". *Bibliog.* 9, 1946.

See also D.19-D.21.
- D.17 Exercise book containing manuscript draft with loose manuscript notes at front and back.
- D.18 8pp typescript with manuscript annotation and correction; related manuscript notes.
- D.19-D.21 "Some mathematical models representing polar molecules in crystals". *Bibliog.* 10, 1946.

Frank submitted this article to *Trans. Far. Soc.* as four papers, with *Bibliog.* 9 (D.17, D.18) as a fifth. Following criticism of the first four papers on the grounds of length and age (being written in 1939) Frank revised and condensed them into one article. Criticism by E.A. Guggenheim of the fifth paper was, however, rebutted.
- D.19 Typescript of parts I-IV of "Mathematical models for crystals of polar molecules".
- D.20 Brief correspondence; proof of condensed paper.

- D.21 1945 Radio Research Board papers "The anomalous dispersion of water at very high radio frequencies in the temperature range 0°C to 40°C" by J.A. Saxton, and "The dielectric properties of water in the temperature range 0°C to 40°C for wavelengths of 1.24cm and 1.58cm" by Saxton and J.A. Lane. Found with D.17-D.20.
- D.22 "The mass of the neutrino". *Bibliog.* 12, 1947.
- 10pp typescript with extensive manuscript correction, and with manuscript and typescript revisions; correspondence, chiefly with N.F. Mott and the Physical Society 1945-47; manuscript notes and calculations.
- D.23 Card from *Nature*, 8 April 1947, acknowledging receipt of "Segregation of radioactive elements in the Earth's crust". Not listed in *Bibliog.*
- Letter from N. Feather, 4 November 1947, re "An isotopic abundance rule and its bearing on the origin of the nuclei" (*Bibliog.* 14).
- Letter from Central Office of Information, 17 December 1947, requesting permission to send Frank's paper "Hypothetical alternative energy sources for the 'second meson' events" (*Bibliog.* 13) for publication abroad.
- D.24 "A theory of the shape of growth pyramids on crystals". Nd. but latest bibliographical reference 1947. Not listed in *Bibliog.*
- 1lpp manuscript draft; manuscript notes.
- D.25 Brief correspondence, 1948, 1949, re "The Age of Lead", submitted to *Nature* 23 December 1948. Frank enquired of E.C. (later Sir Edward) Bullard whether he should seek to have it published elsewhere. Not listed in *Bibliog.*
- Covering letter to Physical Society, 31 December 1948, sent with "Sessile dislocations" (*Bibliog.* 17).
- Brief correspondence, March, June 1949, re revision and correction of "One-dimensional dislocations" by Frank and J.H. van der Merwe published in four parts in *Proc. Roy. Soc. Lond.* 1949-50 (*Bibliog.* 22, 23, 24, 27).

/D.25 continued over ..

Letter from *Research*, 12 October 1949, acknowledging receipt of "Diffraction by a screw dislocation" (*Bibliog.* 20). With Frank's reply.

Brief correspondence with L.J. Griffin, October, November 1949, re submission of papers on crystal surfaces. Frank, Griffin and N.F. Mott had each prepared a paper on this subject. It was agreed that Mott would submit his to *Nature* whilst Frank's and Griffin's were offered for publication in *Phil. Mag.* Frank's "Note on the structure of a crystal surface" immediately followed Griffin's in *Phil. Mag.* 41 (1950) (*Bibliog.* 25).

Letter from B.M. Crowther, editor of "Science Abstracts", 23 November 1949 apologising for a mistake made in the abstraction of "Role of dislocations in crystal growth" by Frank, W.K. Burton and N. Cabrera, *Nature* 168 (*Bibliog.* 18).

- D.26 Correspondence with Royal Society, 1949-50, re revision of "Radially symmetric phase growth controlled by diffusion" for publication in *Proc. Roy. Soc. Lond.* (*Bibliog.* 26).

"Multiplication processes for slow moving dislocations", with W.T. Read. *Bibliog.* 28, 1950.

4pp duplicated typescript with manuscript annotation plus correction and figures.

- D.27 "On the interpretation of the 'vapor snake' in freezing cyclohexane". Not listed in *Bibliog.* but published in *J. Chem. Phys.* 18 (1950).

6pp manuscript draft; letter accepting the paper for publication.

- D.28 "The equilibrium of linear arrays of dislocation", with J.D. Eshelby, H. Heilbronn and F.R.N. Nabarro. *Bibliog.* 29, 1951.

23pp typescript.

- D.29 "The growth of crystals and the equilibrium structures of their surfaces", with W.K. Burton and N. Cabrera. *Bibliog.* 30, 1951.

3pp typescript summary with plates for figures 3 and 4.

"Dislocations as promoters of crystal growth: Theory". The opening sentence "This section summarizes recent contributions to the theory of crystal growth by Burton, Cabrera and Frank ... " refers to work done 1949-51.

4pp manuscript draft.

- D.30, D.31 "Crystal growth and dislocations". *Bibliog.* 37, 1952.
- D.30 39pp typescript and manuscript draft.
- D.31 Plates and legends for figures; references.
- D.32 Untitled 6pp manuscript draft beginning "In this fearfully plastic subject of plasticity, one looks for something firm to hold on to." Relates to work by Frank and A.N. Stroh on kinking (*Bibliog.* 38, 1952).
- D.33 "Martensite". *Bibliog.* 41, 1953.
- Manuscript notes; plates and legends for figures. With letter from J.K. MacKenzie and J.S. Bowles, 10 April 1953, re errors in the paper, and manuscript draft of note by Frank (probably for *Acta Metallurgica*) acknowledging errors.
- D.34 Letter from R.W. Cahn, 2 March 1953 re "the ms. of your new paper on dislocation networks" (probably *Bibliog.* 45).
- "Assignment of Burgers Vectors to a hexagonal grid of dislocations in a crystal with f.c.c. Bravais Lattice". Nd. but latest bibliographical reference, 1953.
- 12pp typescript with manuscript corrections; plates for figures; manuscript notes.
- Untitled 3pp manuscript draft beginning "Hedges and Mitchell (1953) describe patterns of lines revealed by photolytic silver in the interior of silver bromide crystals", possibly related to the preceding.
- D.35, D.36 "A study of etch patterns on aluminium surfaces", with A.J. Forty. Not listed in *Bibliog.* but letter from Forty to Frank, 11 October 1954, suggests the paper be submitted to *Acta Metallurgica*.
- D.35 Letter from Forty; 20pp manuscript draft by Forty plus 3pp manuscript appendix; 5pp manuscript appendix by Frank.
- D.36 Figures, mounted on card.

- D.37, D.38 "Convection phenomena in connection with horizontal solidification". Nd. but last page of draft is dated on back 8 January 1954. Not listed in *Bibliog.*
- D.37 24pp manuscript; figures.
- D.38 Manuscript notes.
- D.39 "Chemistry of crystal dislocations". *Bibliog.* 46, 1955.

Proof copy of chapter for *Chemistry of Solid State*, ed. W.E. Garner (Butterworths, London). Folder also includes earlier letter from Butterworths, 16 June 1952, re proposed chapter on "structure of solids" for a planned book *Chemistry of Solids*.
- D.40 "Cementite morphology in pearlite", with K.E. Puttick. *Bibliog.* 49, 1956.

12pp manuscript.
- D.41 "The origin of dislocations in crystals grown from the melt". *Bibliog.* 50, 1956.

4pp typescript; manuscript notes.

"The mechanism of diffusion of copper in germanium", with D. Turnbull. *Bibliog.* 52, 1956.

4pp typescript "1st draft".
- D.42 "The growth of tobacco mosaic particles", with G.W. Sears. Not listed in *Bibliog.*

4pp typescript; letter from Sears 18 March 1957 describing it as "a rough draft of the proposed note".
- D.43 "Diffusion of Copper in Germanium". Not listed in *Bibliog.*

4pp typescript plus figures and references; duplicated typescript discussion comments; proof copy with manuscript corrections; manuscript notes and calculations. The paper was probably written shortly after *Bibliog.* 52 (D.41).

- D.44, D.45 "Complex alloy structures regarded as sphere packings", with J.S. Kasper. *Bibliog.* 57 and 67, 1958 and 1959.

This paper was published in *Acta Cryst.* in two parts: "Definitions and basic principles" and "Analysis and classification of representative structures". See also E.18, and H.28.

- D.44 22pp typescript copy of part I; manuscript notes and diagrams; letter from *Acta Cryst.*, 31 January 1958.

- D.45 37pp typescript "rough draft" of part II; manuscript notes and diagrams; brief correspondence from Kasper, 1957, 1958.

- D.46, D.47 "Etch pits and trigons in diamond", with K.E. Puttick and E.M. Wilks. *Bibliog.* 62 and 63, 1958.

This paper was published in *Phil. Mag.* in two parts.

- D.46 5pp manuscript draft of appendix to part I, with plates for figures; 13pp typescript copy of part II, with plates for figures.

- D.47 "Statistical Data on Etch Pits". Contents of an envelope so inscribed.

- D.48 "On the stability of dislocations in metal whiskers", with J.P. Hirth. Not listed in *Bibliog.* but published in *Phil. Mag.* 3 (1958).

12pp typescript plus figure.

- D.49 "On fold configurations in crystalline polyethylene". Nd. but latest bibliographical reference, 1959.

18pp manuscript draft; 11pp typescript plus figures; 5pp manuscript appendix; manuscript notes.

- D.50 "Future of the general degree in British universities. *Bibliog.* 73, 1960.

4pp typescript with covering letter to *Nature*, 17 December 1960; incomplete typescript draft of Frank's opening speech at the Home Universities Conference (first four pages missing) on which the article was based.

- D.51, D.52 "Orientation-dependent dissolution of germanium", with M.B. Ives. *Bibliog.* 75, 1960.
- D.51 11pp typescript "Draft Copy" plus figures; covering letter from Ives, 23 October 1958.
- D.52 11pp typescript "Corrected MS"; correspondence from Ives 1960.
- D.53 Untitled 5pp typescript draft by Frank and A. Keller beginning "The existence of single crystals in polymers is by now well established. Polyethylene in particular crystallizes in the form of paraffin type lozenges ... " Undated but bibliographical references suggest it was written shortly following *Bibliog.* 70, 1959. With photographs for figures.
- D.54, D.55 Correspondence, 1957, 1959, 1960, with Pergamon Press re articles for a Dictionary of Physics. Frank was asked in 1957 to write on "Crystal growth" for vol. 1, and "Dislocations" and "Frank-Read source" for vol. 2, and in 1959 for a further contribution on "Dislocation theory". None listed in *Bibliog.*
- D.54 Correspondence; proof copies of articles on "Dislocations" and "Frank-Read Source".
- D.55 21pp manuscript draft of "Crystal Growth"; manuscript notes found with it.
- D.56 "On surface bending moments and the properties of the phase boundary between superconductive and normal metal". Nd. but latest bibliographical reference, 1962.
15pp manuscript draft and 1p summary.
- D.57 "Theory of sequential processes and its application to the crystallization of high polymers", with M.P. Tosi. *Bibliog.* 78, 1962.
10pp duplicated typescript; manuscript notes found with it.

- D.58 "Linear compounds of dislocations in silver chloride with cupric ions", with A.S. Pârasnis and J.W. Mitchell. *Bibliog.* 74, 1963.

Originally a paper written by Frank on the basis of observations by Pârasnis, Mitchell was invited to become the third co-author because he had planned the experiments from which Pârasnis's observations derived. Mitchell raised a number of objections to details and prepared a revision under the title "Lozenge shaped dislocation loops in crystals of silver chloride containing cupric chloride".

14pp typescript draft plus figures of "Linear compounds ... " (not as published); 8pp typescript draft by Mitchell of "Lozenge shaped dislocation loops"; figures and photographs for the final version of the paper; correspondence, June-November 1960, between Frank, Pârasnis, Mitchell, and J.T. Bartlett, with whom Frank discussed the findings of Pârasnis.

- D.59 "Geometrical thermodynamics of surfaces". *Bibliog.* 80, 1963.

This was a contribution to a seminar on Metal Surfaces organised by the American Society of Metals, published as chapter one of *Metal Surfaces*.

24pp photocopied manuscript draft plus figures; letter from American Society of Metals enclosing proof copy (not found), 6 May 1963.

- D.60 "The strength of polymers". *Bibliog.* 82, 1964.

17pp typescript. See also F.333.

- D.61 "On seismic radiation from a slipping fault". Not listed in *Bibliog.* but written 1964-65 whilst visiting Institute of Geophysics and Planetary Physics, La Jolla (H.50-H.52).

23pp typescript plus figures.

- D.62 "On theory of fracture in relation to Earthquakes". Not listed in *Bibliog.* but written 1964-65 whilst at La Jolla.

10pp manuscript; manuscript notes.

- D.63-D.65 "On the state and evolution of the Earth's mantle". Not listed in *Bibliog.* but written 1964-65 whilst at La Jolla.
- D.63 Manuscript draft in American A4 notepad with manuscript notes interleaved.
- D.64 56pp typescript plus figures.
- D.65 Note to "George B[ackus]" asking for comments (which have been written on the back of the note) and references, with list of references from Backus.
- D.66 "On dilatancy in relation to seismic sources". *Bibliog.* 83, 1965.

46pp typescript plus references; manuscript notes; related correspondence with American Geophysical Union, 1965, and E. Orowan. See D.70, D.71.
- D.67 "On Miller-Bravais indices and four-dimensional vectors". *Bibliog.* 84, 1965.

15pp typescript.
- D.68 "Deduction of earth strains from survey data". *Bibliog.* 86, 1966.

Correspondence 1965, 1966, chiefly with Seismological Society of America. Also includes comments on paper by G. Backus.
- D.69 "A European Physical Society?". *Bibliog.* 87, 1966.

Frank attended the European meeting on collaboration in physics organised by the Italian Physical Society, Pisa, 16-17 April 1966 (H.58, H.59). His report was published by the Institute of Physics.

12pp manuscript and 14pp typescript drafts; brief correspondence with Institute of Physics.

- D.70, D.71 "A further note on dilatancy in relation to seismic sources". *Bibliog.* 88, 1966.
- D.70 10pp manuscript and 8pp typescript drafts; related correspondence with American Geophysical Union.
- D.71 Material found in folder inscribed "Prof. Frank 'A further note on dilatancy in relation to seismic sources' ". Includes "Fault displacement and energy release in shallow-focus earthquakes" by E. Orowan; miscellaneous manuscript notes and references.
- D.72-D.77 "Reflections on Sadi Carnot". *Bibliog.* 89, 1966.
- Frank's interest in Sadi Carnot, the founder of thermodynamics, first found expression in his inaugural lecture as Professor of Physics delivered 29 April 1955. This was published in 1966 in the first issue of *Physics Education*.
- D.77 relates to a planned longer work on the scientific contribution of Carnot to the study of thermodynamics (F.C.F., private communication, 9 September 1989).
- D.72 16pp typescript draft of lecture with manuscript additions and corrections for publication; plates; related correspondence.
- D.73 Correspondence with Institute of Physics, 1964-66, re publication of "Reflections ... "; correspondence arising.
- D.74 Correspondence with and background information from V.K. LaMer, Professor of Chemistry, Columbia University, author of a number of papers on Carnot, 1955. Includes reprints of four of his papers.
- D.75 Background material, including information from L. Rosenfeld, 1954.
- D.76 Exercise book used from the front and from the back for notes on Carnot. With loose manuscript notes interleaved.

- D.77 Hardback notebook intended for first draft of planned book, with first page headed "The elements of thermodynamics according to the methods of Sadi Carnot". Only "Chapter I: Glossary" has been written, space having been left for an Introduction to be added later. Loose manuscript notes inside front cover.
- D.78 Material re "Internal magnetic domain structure investigations in iron-silicon single crystals", by Frank, A.R. Lang, J. Kaczér and M. Polcarová. (*Bibliog.* 90).
- Frank's contribution to this paper arose from comments he made on a paper by Lang, Kaczér and Polcarová, "Investigation of internal magnetic domain structure of Fe-Si single crystals by x-ray diffraction topography".
- Includes "2nd draft" of "Investigation ...", Frank's comments, three photographs from envelope, inscribed "Newer (110) chevrons and lozenges", found with the material, etc.
- D.79 "Regelation: a supplementary note". *Bibliog.* 92, 1967.
- 15pp typescript.
- D.80, D.81 "On the theory of Hertzian fracture", with B.R. Lawn. *Bibliog.* 93, 1967.
- D.80 25pp typescript with photographs for figures and illustration.
- D.81 Manuscript notes and calculations found with the preceding.
- D.82 "Curvature of island arcs". *Bibliog.* 97, 1968.
- 2pp typescript; photocopy of *Times Science Report* for 30 October 1968 reporting Frank's theory of "why certain chains of islands lie on curves of a particular shape"; 4pp typescript draft "A hypothesis for the form of island arcs and arcuate mountain ranges", unpublished, latest bibliographical reference 1964.

- D.83 "Two-component flow model for convection in the Earth's upper mantle". *Bibliog.* 98, 1968.
- 8pp typescript.
- D.84 Brief correspondence from *Materials Research Bulletin*, 1969, 1970 re possible contribution to the August 1970 issue honouring Sir Nevill Mott on his 65th birthday.
- Letter of 12 January 1970 is annotated "31 July Telephoned Prof. Hirsch ... Agreed to furnish chapter, written jointly with John Steeds". This refers to Frank's contribution to the "Mottschrift" edited by P.B. Hirsch (D.120).
- D.85 "On Lyttleton's extensions of Ramsey's theory of the nature of the core of the earth". *Bibliog.* 105, 1971.
- 7pp typescript with extensive manuscript correction; brief correspondence re referee's report.
- D.86 "On the capillary bonds between grains in moist sand". *Bibliog.* 106, 1971.
- 5pp manuscript draft; 4pp duplicated typescript proof with manuscript annotation and correction; related correspondence, chiefly with British Ceramic Society, 1970, 1971.
- D.87 "Polymer chain extension produced by impinging jets and its effect on polyethylene solution", with A. Keller and M.R. Mackley. *Bibliog.* 107, 1971.
- Frank's 3pp manuscript draft annotated "For Mackley & Keller ... "
- D.88-D.93 "Biographical Memoir of Cecil Frank Powell 1903-1969", with D.H. Perkins. *Bibliog.* 108, 1971.
- The Royal Society invited Frank and Perkins to write the memoir in December 1969. Frank had written tributes to Powell for *The Times* (11, 16 August 1971), *Scientific World* (*Bibliog.* 101) and *Science Today* (December 1969).
- As joint author of the memoir Frank was asked in 1977 to write an entry on Powell for the *Dictionary of National Biography*.
- D.88 17pp manuscript draft for memoir; proof with manuscript correction.

- D.89 Appendix for memoir, by A.M. Tyndall, with related correspondence.

The appendix was Tyndall's "Early history of C.F. Powell's contribution to the study of nuclear processes by the photographic method", written following Powell's receipt of the 1950 Nobel Prize for Physics. Tyndall explained "It is probable that by the time an obituary of C.F. Powell is required, no-one will be living who watched from the beginning, as I did, the work which led to his Nobel Prize". Tyndall died in 1961.

- D.90 Correspondence, 1969-72, re memoir, including request to V.F. Weisskopf for information, and correspondence with colleagues to whom copies of the memoir were sent; background information and notes.

- D.91 Correspondence with Edizioni scientifiche e tecniche, publishers, 1972, 1973, who sought permission to reproduce a plate of a drawing by Powell.

- D.92 Correspondence with *Dictionary of National Biography*, 1977, 1978 re notice on Powell; requests for further information on Powell from Isobel Powell (widow), J. Rotblat etc; 5pp typescript draft of Frank's notice.

- D.93 "A history of the Department of Physics in Bristol, 1876-1948, with personal reminiscences", by A.M. Tyndall, August 1958, including brief account of Powell's work at Bristol leading to the Nobel Prize. 34pp duplicated typescript plus appendices.

- D.94 "R & D : the proper balance". Not listed in *Bibliog.* but dated 12 December 1971.

3pp manuscript and typescript drafts; manuscript notes and calculations. See also F.335.

"A commentary on 'Computer Models of Polyethylene Spherulites: Thornton & Predecki' ". Not listed in *Bibliog.* but dated 31 December 1971.

4pp typescript.

- D.95, D.96 Hardback notebook and material found loose at front and back.
- D.95 Notebook used from the front for "Ch.I Words, words, words", probably draft of first chapter of planned book on thermodynamics. The loose correspondence (D.96) is dated 1971 and the notebook has both decimal and pre-decimal prices inside front cover.
- D.96 Loose manuscript notes, and brief correspondence from F.R.N. Nabarro, February, April 1971.
- D.97 "On the kinematic theory of crystal growth and dissolution processes, II". *Bibliog.* 109, 1972.
- This paper, written for *Zeitschrift für Physikalische Chemie* on the occasion of I.N. Stranski's 75th birthday, was a sequel to a 1958 paper of the same title (*Bibliog.* 66).
- 19pp manuscript draft; proof with manuscript corrections; related correspondence; manuscript diagrams and notes.
- D.98 "An outline of nucleation theory". *Bibliog.* 110, 1972.
- 7pp manuscript draft and 5pp typescript proof with manuscript corrections.
- D.99 "The future of crystal growth". *Bibliog.* 111, 1972.
- 7pp manuscript draft and 5pp typescript proof with manuscript corrections.
- D.100 "Contributions to study of capillary bonds between grains in moist sand". *Bibliog.* 112, 1972.
- Following Frank's earlier paper on this subject (*Bibliog.* 106; D.86), G. Mason prepared a paper "Capillary bonds between grains in moist sand" sending a copy to Frank, who was also asked to referee it. Frank approved it for publication and wrote a short paper in response. Both were published in the same issue of *Transactions and Journal of the British Ceramic Society*.
- 2pp typescript draft of Frank's paper; copy of Mason's paper with covering letter; related correspondence.

- D.101, D.102 "A note on the reading of Kossel patterns". *Bibliog.* 113, 1972.
- This was written for W.G. Burger's 75th birthday Festschrift.
- D.101 17pp manuscript draft; proof with manuscript corrections; manuscript notes.
- D.102 Related correspondence, chiefly with A.Q. Khan, editor of the volume, 1971-72.
- D.103-D.107 "On plate tectonics, the analogy with glacier flow, and isostasy". *Bibliog.* 114, 1972.
- This was written for D.T. Grigg's 60th birthday Festschrift.
- D.103 14pp manuscript draft plus figures; 12pp typescript and manuscript draft plus figures.
- D.104 Editorial correspondence, 1971-72.
- D.105, D.106 Manuscript notes.
- 2 folders.
- D.107 17 slides illustrating aspects of plate tectonics.
- D.108 "Dislocation models for fault creep processes". *Bibliog.* 115, 1973.
- 2pp typescript synopsis; 5pp typescript with manuscript correction. See F.335.
- D.109 "The equilibrium shape of gas-filled voids in a solid". *Bibliog.* 119, 1973.
- 4pp typescript proof with manuscript corrections.

- D.110 "On the meaning of 'the direction of the molecules', or 'the director' in liquid crystals", with appendix by M.V. Berry. Not listed in *Bibliog.* but found in folder inscribed "On the meaning of ... molecules etc. 1973".

This is related to the lecture Frank gave at the International Conference on Liquid Crystals, Bangalore, 3-8 December 1978, "What is the director of a liquid crystal?" (H.126).

15pp manuscript draft, with 6pp manuscript appendix by Berry; 1p manuscript ?summary.

- D.111 "Earthquakes and the Chandler Wobble". Not listed in *Bibliog.* but published in *Nature* 245 (1973).

Frank was asked by *Nature* in July 1973 to prepare a short editorial for its "News and Views" section on the importance of two papers by D. Pines and J. Shaham on the subject of elastic energy in the Earth. Reading through the papers Frank raised a number of objections which delayed publication of the second article, and of the editorial, until 14 September.

2pp typescript; proof; correspondence with *Nature*, Pines and Shaham.

- D.112 "Descartes' observations on the Amsterdam snowfalls of 4, 5, 6 and 9 February 1635". *Bibliog.* 122, 1974.

8pp typescript; manuscript notes; transparencies.

- D.113 "The meniscus in Czochralski growth", with W. Bardsley, G.W. Green and D.T.J. Hurle. *Bibliog.* 125, 1974.

8pp typescript "Amended version" plus figure; correspondence, chiefly with Hurle; manuscript notes.

- D.114 "Nucleation-controlled growth on a one-dimensional growth front of finite length". *Bibliog.* 126, 1974.

5pp typescript draft with 2pp appendix added following a referee's report; correspondence with J.I. Lauritzen Jnr. (in response to whose paper Frank's article was written) and *Journal of Crystal Growth*.

- D.115 "On the formulation of microscopic rate equations", with D. Robertson. *Bibliog.* 128, 1974.
6pp typescript; editorial correspondence 1972-73.
- D.116, D.117 "A note on crystal growth by surface nucleation". Latest bibliographical reference, 1974.
- D.116 12pp manuscript draft; 7pp manuscript ?appendix.
- D.117 Manuscript notes and calculations found with the preceding.
- D.118, D.119 "Flow-induced extension of polymer molecules in solution using a four roll mill", with D.G. Crowley, M.R. Mackley, D.P. Pope and R.G. Stephenson. Not listed in *Bibliog.* but annotated "Submitted *J. Polym. Sci.* 10.7.75".
- D.118 22pp typescript.
- D.119 15pp figures.
- D.120 "Crystal dislocations", with J.W. Steeds. Not listed in *Bibliog.* but published as chapter two of the "Mottschrift" *The Physics of Metals : 2 Defects*, ed. P.B. Hirsch (Cambridge 1975). See D.84.
35pp typescript draft plus references and figures; correspondence with Hirsch 1969-73.
- D.121 "Localized flow birefringence of polyethylene oxide solutions in a two roll mill", with M.R. Mackley. *Bibliog.* 132, 1976.
13pp typescript plus figures; 9pp photocopied manuscript "Vortex stretching" dated April 1975 (not by Frank).

- D.122, D.123 "On Grüneisen's Gamma". Not listed in *Bibliog.*, submitted to *Nature*, September 1976.

Frank spoke "On the significance of Grüneisen's Gamma" at a Royal Astronomical Society meeting in November 1976 (H.107).

- D.122 7pp manuscript draft; 6pp typescript; editorial correspondence.

- D.123 Manuscript notes, figures and calculations, and two transparencies.

- D.124 "Thermodynamics of smectic mixtures". *Bibliog.* 134, 1977.

3pp typescript with manuscript corrections, annotated "Jacques [?Friedel]: Any comments? I have put a copy on de Gennes' desk. ?Offer to J. de Physique Lettres?"

"Crystal properties and crystal defects of magnetic domain structures". Not listed in *Bibliog.* but dated 24 March 1977.

13pp manuscript draft.

- D.125 "Sur une nouvelle classe de défauts dans les phases lamellaires", with M. Kléman. Not listed in *Bibliog.* but correspondence from Kléman is dated 1977-78.

19pp typescript draft plus figures; correspondence with Kléman; manuscript notes and calculations.

- D.126 "Airy functions in the air : a simple way with stress problems". *Bibliog.* 135, 1978.

20pp manuscript draft, draft of covering letter with letter of acceptance.

- D.127 "Nullius in Verba". Contents of an envelope so inscribed.

Drafts, correspondence, manuscript notes etc. on the motto of the Royal Society and its coat of arms, for possible publication in the Royal Society's *Notes and Records*. 1978.

- D.128 "The liquidus temperature and growth-dissolution kinetics of garnet liquid phase epitaxy", with E.A. Giess and M.M. Faktor. Not listed in *Bibliog.* but published in *Journal of Crystal Growth* 46 (1979).
- 4pp photocopied manuscript draft plus figures; correspondence with Giess; manuscript notes. Acknowledgements on p.4 of draft note that "This work was performed while ... Prof. Sir Charles Frank was a consultant at the I.B.M. T.J. Watson Res. Center" (G.117, G.118).
- Request for short piece on "Otto Hahn's experiment re atomic fission" for East German journal, 12 February 1979. With Frank's 2pp typescript contribution.
- D.129, D.130 "On definitions of supersaturation". Not listed in *Bibliog.* but draft inscribed "Rec'd 25th Sept 79".
- This was originally submitted to *Journal of Crystal Growth* in September 1979 but returned for revision in view of referee's reports and not resubmitted. "Definitions of supersaturation" was delivered as a lecture during Frank's 1980 visit to USA (G.119, H.140-H.142).
- D.129 15pp typescript; referee's reports; 3pp manuscript draft appendix.
- D.130 Manuscript notes.
- D.131 "On the possible effect of growth-layering on optical symmetry in cubic crystals". *Bibliog.* 137, 1980.
- Proof copy with manuscript correction; brief editorial correspondence.
- D.132 "Evidence of a tilted columnar structure for mesomorphic phases of benzene-hexa-n-alkanoates", with S. Chandrasekhar. *Bibliog.* 138, 1980.
- 13pp typescript plus figures; editorial correspondence, including referees' reports and amendment to paper.
- D.133 "Can knotted configurations (textures) exist as stable defects of a nematic?" Not listed in *Bibliog.* but "Sent 15 Aug 80 to Dr. M. Kléman ... I propose to send it to J. de Phys. Lettres".
- 10pp manuscript draft.

- D.134, D.135 "The Frank-Read Source". Not listed in *Bibliog.* but published in *Proc. Roy. Soc. Lond. A* **371** (1980).

This was Frank's contribution to a Royal Society meeting 30 April - 2 May 1979 on "The beginnings of solid state physics". The contributions were edited for publication by N.F. Mott.

- D.134 Correspondence, chiefly with Mott, 1978-80. Includes 5pp typescript of Frank's contribution.

- D.135 Copies of other contributions.

- D.136 Brief editorial correspondence, June 1980, re acceptance of "Edge dislocations as crystal growth sources" (*Bibliog.* 139) for publication.

- D.137, D.138 "Foreword" to *Morphology of Crystals*, ed. I. Sunagawa (Tokyo and Dordrecht, ?1982). Not listed in *Bibliog.*

- D.137 6pp manuscript draft; correspondence with Sunagawa.

- D.138 Information on morphology from D.M. Sadler; manuscript notes.

- D.139 "M. Moiré?". Not listed in *Bibliog.* but published as letter in *Phys. Bull.* **34** (1983).

2pp typescript copy; background information; correspondence arising.

- D.140 "The icosahedral orientation manifold as a model for icosahedral close-packing". *Bibliog.* 143, 1986.

Incomplete 10pp photocopied manuscript draft with manuscript abstract; 4pp typescript with manuscript corrections; manuscript notes and calculations.

- D.141-D.158 "Prince Rupert's Drops", with L. Brodsley and J.W. Steeds. *Bibliog.* 144, 1986.

Frank lectured on "Prince Rupert's Drops - a long chapter in the history of Materials Science" to Bristol University Convocation and Association of Alumni, 7 March 1978. He delivered this lecture a number of times thereafter, in India (H.130, H.132) and to visiting students from Indiana State University (D.143).

Frank's interest in this subject led to collaboration with a Bristol colleague, J.W. Steeds, and L. Brodsley, then Visiting Lecturer in the Department of English, University of California Los Angeles, who had written to the Royal Society 28 January 1983 offering an article on Prince Rupert's Drops for publication in *Notes and Records*. Sir William Paton, editor, suggested to Frank (who had also been planning an article for *Notes and Records*) that a joint paper might be in order.

- D.141-D.143 *Lecture.*

- D.141 15pp typescript and manuscript draft of 1978 lecture.

- D.142 Correspondence re lecture, January-March 1978; notice of lecture; transparencies; photographs of Drops.

- D.143 Brief correspondence from C.C. Sartain, 1979, 1981 re lecture on Drops to Indiana State University History of Physics in Great Britain class, 26 June 1979.

- D.144-D.158 *Publication.*

- D.144 47pp typescript final draft.

- D.145 Typescript and manuscript draft sections of the paper with Frank's manuscript annotation and correction.

- D.146 Brodsley's 34pp typescript first draft with Frank's manuscript corrections and 2pp manuscript comments.

D.147-D.151 Correspondence, 1978, 1979, 1983-86. That 1983-86 is chiefly with co-authors.

5 folders.

D.147 1978 January, February
D.148 1978 March, April; 1979
D.149 1983

D.150 1984
D.151 1985, 1986

D.152-D.155 Frank's manuscript notes.

4 folders.

D.156 Photographs of pages of the 1662 and 1676 editions of Marci's *Philosophia Vetus Restituta*, and of Prince Rupert's Drops.

D.157 Unidentified photographs; figures.

D.158 Background material.

1 box.

D.159, D.160 "Spontaneous breaking of chiral symmetry in the growth of crystal whiskers: an origin for giant screw dislocations". *Bibliog.* 145, 1987.

D.159 15pp manuscript.

D.160 Manuscript notes and computer printouts found with the preceding.

D.161 "Two-fluid phase separation: modified by a glass transition". *Bibliog.* 148, 1988.

7pp manuscript draft plus figures.

- D.162, D.163 "The abundance and origin of the elements". Nd.
- D.162 "I. The equilibrium theory", 23pp manuscript and 22pp typescript drafts.
- D.163 "II. The formation of the heavier nuclei", 27pp manuscript and 26pp typescript drafts.
- D.164 "On the orientation dependence of the cleavage energy of quartz", with J.W. Heavens. Nd.
10pp manuscript draft; manuscript notes.
- D.165 "Phase changes with change of thickness in nematic films which have different anchoring laws at their two surfaces". Nd.
7pp manuscript draft.
- D.166 Untitled 7pp manuscript draft beginning "We start this chapter with a small digression in order to introduce the mathematical concept of orthogonal systems". Nd.
- D.167-D.170 Manuscript drafts on "The phenomena ... which occur at the solidification surface in such processes as the growth of a single crystal at a slow controlled rate from a melt". A covering note to [K.F.] Hulme identifies the material as being for a single paper. Nd.
- D.167 "Solidification fronts in a pure melt".
- D.168 "Solidification fronts in impure melts".
- D.169 "Oscillatory deposition".
- D.170 "Summary of functions, manuscript notes and calculations.

EDITORIAL CORRESPONDENCE

Academic Press 1971

- D.171 Request for comments on plans to publish work on "The mechanical properties of metals", expressing the hope Frank "will be able to write or edit such a work", 1 March 1971.

Acta Crystallographica Various dates 1955-81

- D.172 Chiefly re refereeing.

Acta Metallurgica 1971

- D.173 Refereeing.

Adam Hilger Ltd. 1981

- D.174 Request for report on book on dolomite formation with a view to its possible UK publication, and Frank's report.

Annual Review of Materials Science 1979

- D.175 Request to write "a prefatory chapter for volume 11, which is to be published in the summer of 1981" (declined).

Applied Materials Research 1964

- D.176 Request for advice on the journal.

Butterworth & Co. (Publishers) Ltd. Various dates 1949-75

- D.177 Chiefly 1971, 1974 and 1975 letters covering payments of quarterly honoraria and travelling expenses to Frank as a member of the company's Scientific Advisory Board. Letter of 27 June 1975 is on the discontinuation of the Board following "a review of our Scientific Publishing".

Cambridge Philosophical Society 1971

D.178 Refereeing for Society's *Proceedings*.

Canadian Journal of Physics 1975

D.179 Refereeing.

Clarendon Press, Oxford 1967, 1973

D.180 Re Clarendon Press series Monographs on the Physics and Chemistry of Materials. Sir Nevill Mott sought Frank's advice on a proposed book on structure and properties of polymers, 1967. H. Fröhlich invited Frank to write for the series, 1973, but Frank replied "My retirement is due in 1976. I don't know whether I will write any book, but I am sure I won't before then."

Commission des Publications Françaises de Physique 1968-83

Frank was invited to become a member of the Commission, run jointly by the Société Française de Physique and the Centre National de la Recherche Scientifique, in June 1971. The role of the Commission, established 1967, was to uphold the quality of papers published by the *Journal de Physique* and the *Revue de Physique Appliquée*. In addition to refereeing papers for the Commission, Frank attended many of its meetings in Paris at which wider issues, such as the integration of European physics journals, were discussed.

D.181-D.190 General correspondence and papers, and papers for Commission meetings 1971-77.

D.181 1971. Includes invitation to join Commission, 23 June, and acceptance, 1 December.

D.182 1972 January. Includes material re the formulation of common scientific symbols and abbreviations in European physics journals.

D.183 1972 May-December. Frank attended the meetings on 5 June and 27 November.

- D.184 1973.
- D.185 1974 February-June. Frank attended the 25 February meeting.
- D.186 1974 September, October. Frank attended the 14 October meeting.
- D.187 1975 February, March. Frank attended the 11 March meeting. Includes letter, 17 March, re "the problems of any journal in Applied Physics". Frank concluded "there is room in Europe for one, and only one, journal of general applied physics".
- D.188 1975 September, October. Frank attended the 10 November meeting at which a proposal to create a section of applied physics was considered.
- D.189 1976.
- D.190 1977. Frank attended his last Commission meeting 7 March. He was replaced from September by R.S. Pease.
- D.191-D.194 Correspondence re refereeing.
4 folders.
- | | | | |
|-------|---------|-------|-----------------|
| D.191 | 1968-71 | D.193 | 1976-80 |
| D.192 | 1972-75 | D.194 | 1982, 1983, nd. |

Contemporary Physics

1978-85

Frank was invited to join the Editorial Board of *Contemporary Physics* as a consultant editor in May 1978. Owing to the pressure of other commitments Frank felt unable to join the Board until February 1979.

The material is chiefly papers for Board meetings and correspondence re papers offered for publication.

D.195 General editorial correspondence including initial invitation to join Editorial Board 19 May 1978 and letter welcoming Frank to Board 13 March 1979. Also signed dinner menu for "twenty-first birthday of *Contemporary Physics* and tribute to the editor, G.R. Noakes", 1 April 1980. Signatories include Frank, Noakes, B.R. Coles, H.B.G. Casimir, J.A. Lee, J. Bentley, G.W. Series, Sir Nevill Mott and Sir Arthur Vick.

D.196-D.201 Papers for Board meetings.

6 folders.

D.196	1979 3 May	D.199	1980 2 October
D.197	1979 11 October	D.200	1981
D.198	1980 1 April	D.201	1985

D.202-D.206 Correspondence re papers submitted to *Contemporary Physics*. Includes correspondence re refereeing by Frank.

5 folders.

D.202	1979, 1980	D.205	1981 May-November
D.203	1980 December	D.206	1982-86
D.204	1981 January-April		

Éditions de Physique

1977-78

The Advisory Board of the Société Française de Physique established a committee to oversee the launch of a series of monographs on fundamental and applied physics to be published by Editions de Physique. Frank was invited to join the committee on 9 December 1977. The project was abandoned, owing to financial difficulties, in October 1978.

D.207 Includes correspondence re proposed monograph reviewing synchrotron radiations, and papers for committee meetings 1978.

Dirasat

1982

D.208 Refereeing.

Egyptian Journal of Physics

1977, 1978

D.209 Refereeing.

Electronics Letters

1973, 1974

D.210 Refereeing.

Endeavour

1978

D.211 Request to review book (declined).

Engineering Synopses

1976-78

Frank was invited to serve as Royal Society representative on a British Library funded Bath University Library Advisory Committee for "the evaluation of an experiment in synoptic publishing" by the Institution of Mechanical Engineers. The Project Head was J.H. Lambie. The committee met from 1976-78, and a Final Report was produced in 1979.

D.212 Invitation to serve, 5 August 1976; preliminary correspondence.

D.213 Copy of original proposal as sent to the British Library in support of the application for a grant.

D.214-D.218 Correspondence and papers, including papers for Advisory Committee meetings.

Much of the material is concerned with the form and content of the evaluation questionnaire and assessment of the information gathered therefrom.

5 folders.

D.214 1977 (1)

D.217 1978 (2)

D.215 1977 (2)

D.218 1978 (3)

D.216 1978 (1)

Industrial Diamond Review

?1979

D.219 2pp typescript and proof copies of Frank's review of *The Properties of Diamond* by J.E. Field.

Institute of Physics Publishing Division

1978, 1979

- D.220 Invitation to act "as compiler for the title 'Dislocations' " for a series Keynote Reprints in Physics to be published in association with Adam Hilger Ltd., 10 August 1978, and correspondence arising.

Frank agreed to act as joint compiler with J.D. Eshelby but the project was abandoned in 1979.

International Journal of Fracture Mechanics

1972

- D.221 Refereeing.

International journal on the texture of crystalline solids

1971, 1972

- D.222 Brief correspondence re the launch of the proposed journal including invitation to Frank to join the Editorial Advisory Board as an honorary member (accepted).

IPC Science and Technology Press Ltd.

1971

- D.223 1p typescript of Frank's review of *Liquid Crystals and Their Applications*, ed. T. Kallard.

Journal of Chemical Physics

1969-74

- D.224 Refereeing.

Journal of Computational Physics

1981

- D.225 Refereeing.

Journal of Glaciology

1969, 1971

- D.226 Correspondence re Frank's review of *Physics of Ice*, ed. N. Riehl et al.

Journal of Materials Science

1965-86

Frank became an Advisory Editor in 1967, a year after its launch.

- D.227, D.228 General correspondence, chiefly with R.W. Cahn, Chairman of Editorial Board, and W. Bonfield, Executive Editor. Includes minutes of Board meetings sent to Advisory Editors.
- 2 folders.

- D.229 Refereeing.

Journal of Mechanics and Physics of Solids

1955, 1969-74

- D.230 1955 letter is request for Frank to review *Physical Properties of Solid Materials* by C. Zwikker. 1969-74 correspondence is re refereeing.

Journal of Molecular Structure

1980

- D.231 Request for Frank to review *The Solid-Liquid Interface* by D.P. Woodruff (declined).

(International) Journal of Physics and Chemistry of Solids

Various dates 1972-87

- D.232 1986 correspondence is re Frank's contribution to the 30th Anniversary Issue in honour of Harvey Brooks. Includes 2pp typescript copy of Frank's tribute.

Journal of Polymer Science

1974

- D.233 Refereeing.

Journal of Statistical Physics

1982

- D.234 Circular letters from R. Landauer re "guest column section" for the Journal.

Macromolecular Reviews

1971

- D.235 Request for Frank to write a review article "on the theory of liquid crystals".

Mineralogical Society

1976

- D.236 Refereeing for Society's Magazine.

Nature

Various dates 1948-85

- D.237 General correspondence. Includes request to review *Crystal Defects and Crystalline Interfaces* by W. Bollmann, 28 April 1971; proof copy of Frank's review of *The Molten State of Matter : Melting and Crystal Structure* by A.R.J.P. Ubbelohde; photocopy of "News and Views" section of *Nature* **306**, 3 November 1983, p.13, referring to "the late F.C. Franck (who died last year)".

- D.238-D.242 Refereeing.

5 folders.

D.238 1967-72
D.239 1973
D.240 1974 (1)

D.241 1974 (2)
D.242 1975, 1976, 1981

New Scientist

1965

- D.243 Request for article "about your ideas on materials and earthquakes".

Nuovo Cimento

1968

- D.244 Refereeing.

Oxford University Press

1957, 1961

- D.245 Material re The Oxford Library of the Physical Sciences series.

Philosophical Magazine

Various dates 1956-86

D.246-D.248 Refereeing.

3 folders.

D.246 1956, 1968, 1969

D.247 1972-76

D.248 1983, 1985, 1986

Physical Review Letters

1973

D.249 Refereeing.

Physics Letters A

1975

D.250 Refereeing.

Physics of the Earth and Planetary Interiors

1977, 1978, 1983

D.251 Refereeing.

Physics Today

1982

D.252 Request for Frank to write on "solitons" (declined).

Polymer

1980, 1982

D.253 Refereeing.

Research

1951

D.254 Re request for Frank to write "review article on crystal growth".

Royal Astronomical Society

1975-77, 1985

D.255 Refereeing.

Royal Meteorological Society

1949

D.256 Refereeing for Society's *Quarterly Journal*.

Science

1977

D.257 Refereeing.

Society of Chemical Industry

Nd.

D.258 Refereeing.

Solid State Physics

1955

D.259 Request to contribute.

Solid State Science Reports

1978, 1979

D.260 Correspondence with M.B. Gordon of Gordon & Breach, J.B. Goodenough, J. Friedel and G.J. Dienes re *Solid State Science Reports*, a series of review monographs on materials science. Frank agreed to act as joint editor.

Surface Science

1973

D.261 Refereeing.

Tectonophysics

1971

D.262 Refereeing.

Times Newspapers Ltd.

Various dates 1971-85 and nd.

Material in D.263 and D.264 relates to letters to the editor of *The Times* from Frank on a variety of scientific and non-scientific subjects.

D.263 23 June 1971, "Four letter words".

15 April 1972, "Aubrieta".

31 July 1975, nuclear emulsion techniques.

D.264 25 April 1980, "Wit as a weapon".

? November 1985, computer error.

Nd., "Three Lane Roads".

D.265 Request to Frank to write review article on major physics journals for *The Times Higher Educational Supplement*, 26 October 1978 (declined).

Trans Tech Publications 1984

D.266 Letter suggesting the publication of Frank's "complete works".

Veneda Publishing Company Ltd. 1964

D.267 Invitation to contribute a book to a "popular science series".

Wiley Series on the Science and Technology of Materials 1956

D.268 Invitation from J.H. Hollomon, advisory editor, to write a book on "the structure of polymers" for the series.

D.269 Book reviews of:

Naturforschung und Medizin in Deutschland, 1939-1946, vols. 8 and 9: *Physik der festen Körper*, ed. G. Joos.

The Atmospheres of the Earth and Planets, ed. G.P. Kuiper (report of a 1947 symposium).

Elasticity and Anelasticity of Metals by C.M. Zener (1948).

Radiative Transfer by S. Chandrasekhar (1949).

D.270 Miscellaneous referee's reports and comments.

PUBLISHED PAPERS

- D.271 Published papers 1935-86. Not a complete set. Includes a few items not listed in Frank's List of Publications.
- 1 box.

SECTION E**LECTURES AND BROADCASTS****E.1-E.90**

E.1-E.70

LECTURES

E.71-E.90

BROADCASTS

LECTURES

- E.1 "The chemistry of dielectric loss", Alembic Club, Oxford, 20 January 1936.
4pp manuscript notes.
- E.2 "Dielectric constants of liquids", Colloid Science Laboratory colloquium, Cambridge, 19 February 1940.
10pp manuscript draft plus 1p manuscript addition.
- E.3 Invitation from W.E. Salt, Secretary, Regional Committee on Education for H.M. Forces, 5 February 1948, to participate in "Brains Trust", Royal Naval Petty Officers' School, Corsham. Frank agreed.
- E.4 Untitled 6pp manuscript draft beginning "Willard Gibbs recognised in 1878 that the growth of a perfect crystal could involve nucleation of each new crystal layer." Reference to "the subsequent 70 years" dates it to c.1948.
- E.5 Letter from W.E. Salt, 3 February 1949, thanking Frank for his readiness to lecture at H.M.S. Osprey, Portland, but stating that since the invitation "a practising Astronomer" resident in Dorset had been found who might be willing to give the lectures.
- E.6 Untitled 9pp manuscript draft beginning "In this lecture I do not propose to give instruction on design of furnaces or anything of that sort ... On this occasion I am concentrating on the subject of growth from the melt". Latest bibliographical reference, 1951.
- E.7 Untitled 6pp manuscript draft beginning "I have to tell you this evening about some work that Burton and Cabrera and I did theoretically a couple of years ago ... ". Refers to research 1949-51.

- E.8 "Direct observation of dislocation networks in metals", 1954.
2pp typescript plus 1 figure and 3 photographs.
- E.9, E.10 "The nature of the real crystal", Institute of Metals 45th Annual May Lecture, 29 March 1955, *Bibliog.* 60. See also F.80.
- E.9 19pp manuscript draft with 1p note on topics covered.
- E.10 17pp typescript; correspondence; manuscript notes.
- E.11 Letter of thanks, 7 March 1956, for lecture on "Atomic Energy in Industry" to Bristol Business and Professional Women's Club.
- E.12-E.17 Course of seven lectures on "Dislocations" delivered at Società Italiana di Fisica Physics Summer School, Varenna, 14 July - 3 August 1957.
- E.12-E.15 Manuscript and typescript drafts of Frank's lectures.
- | | | | |
|------|------|------|------|
| E.12 | 1 | E.14 | 4, 5 |
| E.13 | 2, 3 | E.15 | 6, 7 |
- E.16 36pp typescript copy of the complete course.
- E.17 Miscellaneous material including Frank's speech thanking the organisers of the summer school.
- E.18 Correspondence, January 1958, re invitation to speak on "Complex alloy structures considered as packings of spheres", National Physical Laboratory, 13 March 1958. *Bibliog.* 57 and 67. See D.44, D.45.
- E.19 "Lucretius", Bristol Latinists, 25 July 1961.
1p manuscript "peroration".

- E.20 "Lecture for the Holweck prizegiving", 1963.
- The Holweck prize was awarded jointly by the Physical Society and the Société Française de Physique. In 1963 Frank was the recipient.
- 6pp typescript draft (in French).
- E.21-E.27 "The Earth as a ceramic body", contribution by Frank to Accademia Nazionale dei Lincei 1st International Course on Material Science: Ceramic Science and Technology, Tremezzo, Italy, 8-20 September 1968.
- The course was published as *Chemical and Mechanical Behaviour of Inorganic Materials*, ed. A.W. Searcy, D.V. Ragone and U. Colombo (New York, 1970).
- E.21 18pp typescript draft of Frank's paper with manuscript correction and annotation.
- E.22 Correspondence re arrangements, 1968, 1970. Includes letter from Frank to Searcy, Course Director, regretting that his manuscript was not yet ready, a delay caused in part by "the necessity to get my mother-in-law out of occupied Czechoslovakia".
- E.23 Programmes.
- E.24, E.25 Outline of topics covered by lecturers and summaries of papers presented.
- 2 folders.
- E.26, E.27 Contents of folder inscribed "The Earth as a Ceramic Body": miscellaneous manuscript notes, calculations, figures.
- 2 folders.
- E.28 "Talk for Extramural Science Teachers". 23 March 1970.
- 3pp typescript and manuscript draft.

- E.29 Correspondence, 1971, 1972, re "The mechanics of the Earth's crust", lecture to Manchester and District Branch, Institute of Physics, 24 January 1972.
- E.30, E.31 "Crystals", Institution of Electrical Engineers Kelvin Lecture, 27 April 1972.
- E.30 19pp typescript and manuscript draft.
- E.31 Correspondence re arrangements; manuscript notes.
- E.32 Correspondence, 1972, 1973, re "When is a crystal not a crystal?", lecture to Royal Radar Establishment, 5 April 1973.
- Frank considered this as a trial run for his Presidential Address to the British Association for the Advancement of Science (E.35).
- E.33, E.34 "Crystals Imperfect", Royal Society Bakerian Lecture, 14 June 1973.
- E.33 20pp typescript draft with manuscript corrections and 4pp references.
- E.34 Notice of lecture; list of invitees; bibliographical notes etc.
- E.35 "When is a crystal not a crystal", British Association Section A, Presidential Address, August 1973.
- 24pp manuscript draft; list of slides. See also E.32.
- E.36, E.37 "Snow Crystals", Royal Institution Discourse, 21 February 1975.
- E.36 Correspondence; summary of Discourse; manuscript figures.
- E.37 Slides.

E.38-E.40 "The Laws of Thermodynamics", recording made for Audio Learning Ltd., October 1975.

Frank, J.M. Gregory, D.H. Everett and D.R. Wilkie collaborated in a taped discussion on thermodynamics for sixth-form and undergraduate students.

The material is principally correspondence between the participants and Audio Learning but includes photocopies of material drafted for the discussion, December 1974 and October 1975, and other notes.

E.38 1974 May-September

E.40 1975, 1978.

E.39 1974 October, December

E.41-E.44 "Persistently extensional flow and the flow alignment of long chain molecules", lecture to the Pulp and Paper Research Institute of Canada on its 50th Jubilee, McGill University, Montreal, 5 November 1975. *Bibliog.* 129.

E.41 20pp manuscript draft; reprint.

E.42 Correspondence, 1975, chiefly with S.G. Mason, Director of Applied Chemistry Division of Pulp and Paper Research Institute, re arrangements.

E.43 Summer 1975 and Spring 1976 issues of *Trend*, the Research Institute's house journal, featuring Frank's lecture.

E.44 Miscellaneous background material.

E.45 Correspondence, 1975, re "The growth of snow crystals", lecture to South West Branch, Institute of Physics, Exeter, 3 May 1976.

E.46-E.50 Course on polymers, Consiglio Nazionale delle Ricerche Gruppo Nazionale della Materia Summer School on Microstructure and Mechanical Properties of Metals and Polymers, Perugia, 24 August - 11 September 1976.

Frank declined to present the course, recommending A. Keller instead. He offered advice to the organisers and chaired a discussion on 6 September.

E.46, E.47 Correspondence re arrangements; information.

2 folders.

- E.48-E.50 Lecturers' summaries and course notes, with associated material.

3 folders.
- E.51-E.55 "Effects of pressure change in the Earth due to differentiation in the mantle", Cambridge Philosophical Society G.I. Taylor Memorial Lecture, 23 January 1978.

Frank was the first Taylorian lecturer.
- E.51 25pp manuscript draft with 1p manuscript introduction.
- E.52 16pp typescript draft.
- E.53 Correspondence, chiefly with Sir Brian Pippard and J.A. Jacobs, 1977-78, re arrangements.
- E.54, E.55 Manuscript notes.

2 folders.
- E.56 "Air Intelligence", South Western Branch, Institute of Physics, Bristol, 9 October 1980.

9pp manuscript notes for lecture; letter of thanks.
- E.57-E.63 "Snow Crystals", Royal Swedish Academy of Sciences, Stockholm, 3 June 1981.

Frank delivered the lecture on the occasion of the award of the Academy's Gregori Aminoff Medal for his work on crystallography. It was published in *Contemporary Physics* (*Bibliog.* 140).
- E.57 19pp manuscript and 9pp typescript drafts.
- E.58 Lists of slides; references.
- E.59 Correspondence with Royal Swedish Academy re arrangements; itinerary.

- E.60 Correspondence with editor of *Contemporary Physics*, re publication of the lecture.
- E.61 Transparencies.
- E.62, E.63 Slides.
2 folders.
- E.64 Correspondence re "Crystal growth without dislocations", William James Dunning Memorial Lecture, School of Chemistry, Bristol University, 17 November 1981.
- E.65 "Orientation Mapping", American Institute of Metals Lecture, ICOTOM-8, Santa Fe, September 1987. (*Bibliog.* 146).
33pp manuscript draft.
- E.66 "Phase change", nd.
24pp manuscript draft.
- E.67 "Shear transformations", nd.
10pp manuscript draft.
- E.68 Untitled 3pp manuscript draft beginning "Je veux discuter en cette conférence la supraconductibilité du point de vue d'un qui s'intéresse en premier ligne du géométrie des défauts des cristaux", nd.
- E.69 Untitled 13pp manuscript draft beginning "Monsieur Professeur Bauer, Mesdames et Messieurs ... Je parle sur le sujet de la croissance des cristaux", nd. With 1p manuscript notes in English.
- E.70 Invitation to lecture on "Air Scientific Intelligence" to Bristol University Chemical Physics Society, nd.

BROADCASTS

E.71, E.72 "Cosmic Rays".

Frank's report on the 1948 Colston Research Society symposium on Cosmic Rays (H.2) was broadcast on the BBC's West of England Home Service on 21 September, General Overseas Service on 11 October and London Home Service on 18 November. The broadcast was published by the Central Office of Information in *Głos Anglii* (Poland) and *British Ally* (USSR).

E.71 Draft script; 3pp typescript draft "Cosmic Ray Conference in Bristol" summarising the programme.

E.72 Correspondence from BBC, CIO and listeners to broadcast of 18 November.

E.73 Invitation to give interview for BBC European/English Service, 25 September 1948.

E.74 Scripts of broadcasts for BBC radio Science Review series by N.F. Mott ("Physics") and C.F. Powell ("Mesons"), 1948.

E.75 "Physics Talks".

Frank gave a series of seven talks for the BBC Latin American Service in 1949.

Correspondence from BBC; typescript and manuscript drafts of talks III ("The age of the earth"), VI ("How does a crystal grow?") and VII (report on recent progress in nuclear physics).

E.76 "The Dissemination of Physics".

Although a "Physics Talk" dated 1949 and numbered "2", it does not appear to be part of the preceding series.

3pp typescript.

- E.77 Letter, 20 September 1949, from listener to talk on "the formation of the Earth", a Forces Educational Broadcast by Frank 31 August, requesting further references.
- E.78 "The magic of crystals".
- Frank appeared with J.H. Hollomon as a guest scientist on Science in Action television programme, Station KRON-TV, Channel 4, San Francisco, 24 September 1954.
- Script only.
- E.79, E.80 "New materials".
- Frank took part in a BBC television programme on new materials, probably broadcast in February 1964.
- E.79 Third draft of script entitled "The Solid State".
- E.80 Letter from BBC, 3 December 1963, enclosing the draft script; 3pp typescript draft of Frank's summing up.
- E.81-E.84 "Crystals and their imperfections".
- Frank gave this broadcast in the BBC radio "Growing Points in Physics" series B, transmitted 9 February 1967, and wrote a short article for the booklet accompanying the series.
- E.81 16pp manuscript draft; script as broadcast.
- E.82 Correspondence, 1966, including manuscript and typescript copies of Frank's contribution to the series booklet.
- E.83 Correspondence, 1967.
- E.84 Tape recording of Frank's broadcast, with covering letter.
- E.85 Brief correspondence re advice given to BBC television "Horizon" team for a programme on crystals, 1970. The project was shelved because of lack of time.

- E.86 Invitation to attend BBC-2 television programme in "Controversy" series on nuclear power, 18 August 1973.
- E.87 Copy of October 1975 issue of *Huna London*, the BBC's Arabic service magazine, with article (in Arabic) re Bristol University's "Sun Energy Machine" with which Frank was involved.
- E.88 Questions on physics prepared by Frank and A.F. Devonshire for BBC television quiz "Mastermind". With correspondence arising 1976-77.
- E.89 Correspondence, 1978, re Frank's suggestion that Sergei Kapitza, the Soviet physicist, be invited to deliver Bristol University's E.H. Young Memorial Lecture, and that the BBC might be interested in view of the popularity of Kapitza's science programmes on Soviet television.
- E.90 Brief correspondence with G. Howard, Chairman of the BBC, re reporting of Her Majesty's 1980 Christmas Day Address.
- Letter from Yorkshire Television, 9 January 1985.

SECTION F

SOCIETIES AND ORGANISATIONS

F.1-F.380

The material is presented in an alphabetical sequence and covers both British and overseas organisations.

While some entries are relatively slight, dealing with membership, invitations to meetings and the like, others are more substantial both in their time-span and in the matters covered. Of particular importance is the material on the Institute of Physics, the International Organisation of Crystal Growth, the Pugwash Conferences on Science and World Affairs, the Royal Society and the Science Research Council.

Also of interest is the material on Bristol institutions with which Frank was involved, including Badminton School, the Bristol Municipal Charities and Queen Elizabeth's Hospital School.

ACADEMIC COUNCIL FOR PEACE AND FREEDOM (ACPF)	F.1-F.3
ATOMIC SCIENTISTS ASSOCIATION	F.4-F.7
BADMINTON SCHOOL BRISTOL	F.8-F.21
BRISTOL MUNICIPAL CHARITIES	F.22-F.35
BRISTOL NUCLEAR FREEZE COUNCIL	F.36
BRITISH ASSOCIATION FOR CRYSTAL GROWTH (BACG)	F.37-F.44
CHELSEA COLLEGE LONDON	F.45-F.47
CHEMICAL SOCIETY (see FARADAY SOCIETY)	
COMITÉ DE DIRECTION DU LABORATOIRE DE PHYSIQUE DES SOLIDES, UNIVERSITÉ DE PARIS-SUD	F.48-F.53
DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH	F.54
ELECTRONICS RESEARCH COUNCIL	F.55
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ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION (ESSA)	F.57, F.58
EUROPEAN PHYSICAL SOCIETY	F.59

FARADAY SOCIETY/CHEMICAL SOCIETY	F.60-F.72
FOREIGN OFFICE	F.73, F.74
GOVERNING BODIES ASSOCIATION	F.75
GREENLAND CLUB	F.76
GREENPEACE	F.77
HOME OFFICE	F.78
INSTITUTE OF METALS/METALS SOCIETY	F.79-F.85
INSTITUTE OF PHYSICS	F.86-F.115
INTERNATIONAL ORGANISATION OF CRYSTAL GROWTH (IOCG)	F.116-F.175
INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS (IUGG)	F.176, F.177
INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS (IUPAP)	F.178-F.184
KING'S COLLEGE LONDON	F.185
MATERIALS SCIENCE CLUB	F.186, F.187
METALS SOCIETY (see INSTITUTE OF METALS)	
MINISTRY OF DEFENCE	F.188-F.191
MINISTRY OF SUPPLY	F.192
MOLECULAR CRYSTALS DISCUSSION GROUP	F.193
NATIONAL ACADEMY OF ENGINEERING	F.194
NATIONAL PHYSICAL LABORATORY	F.195-F.203
PHYSICAL SOCIETY	F.204
PUGWASH CONFERENCES ON SCIENCE AND WORLD AFFAIRS	F.205-F.250
QUEEN ELIZABETH'S HOSPITAL BRISTOL	F.251-F.296
RED MAIDS SCHOOL BRISTOL	F.297
ROYAL RADAR ESTABLISHMENT MALVERN	F.298
ROYAL SOCIETY	F.299-F.343
ROYAL SOCIETY OF ARTS	F.344
SCIENCE RESEARCH COUNCIL (SRC)	F.345-F.375
STANDING CONFERENCE OF PROFESSORS OF PHYSICS	F.376-F.378
WEST OF ENGLAND METALS AND MATERIALS ASSOCIATION	F.379, F.380

F.1-F.3 ACADEMIC COUNCIL FOR PEACE AND FREEDOM (ACPF) 1983-84

The Council was established to support and publicise the case for NATO and to counter unilateralist arguments in institutions of higher education.

Most of the material relates to an ACPF sponsored "Open Letter" published in *THES* 21 October 1983 declaring opposition to CND signed by 48 Bristol academics including Frank, and the response which this letter produced.

F.1 Correspondence re meeting in House of Lords, 4 May 1983, chaired by Lord Chalfont following which the ACPF was launched.

F.2 Material re the "Open Letter", including a copy, and correspondence arising.

F.3 Newspaper cuttings and other background information on NATO and nuclear weapons.

F.4-F.7 ATOMIC SCIENTISTS ASSOCIATION 1948-50

The Atomic Scientists Association existed to promote the controlled peaceful use of Atomic Energy. Frank was Honorary Secretary of his area branch.

F.4 General correspondence and papers, 1948-50. Includes note from F.R.N. Nabarro inviting Frank to become branch secretary.

F.5 Article "Need We Drift to War?" *Port Talbot Express*, 31 March 1950 by Miss A.J. Greenwood. With accompanying letter inviting the Association to send a speaker to a meeting of the Port Talbot Peace Movement.

The material was passed on to Frank as area branch secretary.

F.6 Index cards of members of Frank's branch of the Association.

F.7 "Safety" film "Atomic Energy and the United Nations" dated 24 September 1948.

- F.8-F.21 BADMINTON SCHOOL BRISTOL 1969-81
- Frank was a Trustee of this independent Bristol girls school from 1969.
- F.8 General correspondence, various dates 1972-80, and nd.
- F.9 Correspondence re Working Party on Sixth Formers at Badminton School, 1970-71.
- F.10-F.19 Agenda, papers and minutes of Board of Governors meetings and AGMs of Badminton School Ltd., 1969-80.
- 10 folders.
- | | | | |
|------|---------|------|----------|
| F.10 | 1969-70 | F.15 | 1978 |
| F.11 | 1971-72 | F.16 | 1979 (1) |
| F.12 | 1973-74 | F.17 | 1979 (2) |
| F.13 | 1975-76 | F.18 | 1980 (1) |
| F.14 | 1977 | F.19 | 1980 (2) |
- F.20 Minutes of meetings of governors and staff 1977-80 (formalised as the Badminton School Consultative Committee in January 1978).
- These meetings were initiated so that the governors could "meet the staff" and "discuss any points of concern".
- F.21 Miscellaneous material. Includes Headmistress's Notes and Letters to parents of pupils, 1976-80.

F.22-F.35 BRISTOL MUNICIPAL CHARITIES 1973, 1982-87

The Trustees of the Bristol Municipal Charities administer charitable funds acquired from Bristol City Corporation following the Municipal Law Reform Act of 1836. The Trustees own Queen Elizabeth's Hospital (of which Frank was a Governor from 1961, and Chairman of Governors 1982-1984), Bristol Grammar School and Red Maids School.

F.22 Note recording Frank's appointment as Trustee for 6 years expiring 21 December 1979.

Letter of appointment as a Trustee, with papers sent with it, 26 February 1982.

F.23 Miscellaneous correspondence, 1982-87.

F.24-F.35 Agenda, papers and minutes of meetings of Trustees, 1982-83, 1986-87.

12 folders.

F.24	1982 (1)	F.30	1986 (1)
F.25	1982 (2)	F.31	1986 (2)
F.26	1982 (3)	F.32	1986 (3)
F.27	1983 (1)	F.33	1987 (1)
F.28	1983 (2)	F.34	1987 (2)
F.29	1983 (3)	F.35	1987 (3)

F.36 BRISTOL NUCLEAR FREEZE COUNCIL 1986

Letter inviting Frank to support the Freeze campaign, with information on the campaign and its patrons. The letter is annotated by Frank "sent cheque for £10 and said I could be registered as a FREEZE member".

- F.37-F.44 BRITISH ASSOCIATION FOR CRYSTAL GROWTH (BACG) 1970-85
- The BACG was founded at the 1968 Birmingham International conference on Crystal Growth (F.135-F.141). Frank was Honorary President 1981-86.
- See also International Organisation of Crystal Growth (F.116-F.175).
- F.37 General correspondence, 1971, 1981.
- F.38 Correspondence and papers re 1970 Conference on Crystal Growth, Bristol University, 9-11 September. Frank helped organise the conference.
- F.39 Correspondence and papers re 1984 BACG Annual Conference, Lancaster University, 18-21 September. Frank presented a paper on "Growth kinetics of dislocation-free crystals".
- F.40 Material re other BACG meetings, various dates 1970-85.
- Includes brief correspondence re 1983 Annual Conference, Chester, at which Frank planned to give a lecture on "The kinetics of crystal growth without dislocations". Owing to illness Frank withdrew and delivered his lecture under a new title at the 1984 Conference instead (see F.39).
- F.41-F.44 BACG Newsletters July 1978 - May 1985. Not a complete sequence.
- 4 folders.
- F.45-F.47 CHELSEA COLLEGE LONDON 1981, 1982
- Faced with the threat of closure Chelsea College approached a number of academics and asked them to produce independent assessments of the various departments of the college. Frank agreed to validate the Physics Department, making a visit on 2 November 1981.
- F.45 Correspondence re arrangements and background material on Physics Department.

- F.46 Manuscript and typescript copies of report on Physics Department with covering letters.
- F.47 Correspondence arising, including correspondence with De Beers, November, December 1981, re "technique for registering the absorption spectrum of powders" for which the Chelsea College Physics Department required diamond dust.
- F.48-F.53 COMITÉ DE DIRECTION DU LABORATOIRE DE 1973-78, 1983
PHYSIQUE DES SOLIDES, UNIVERSITÉ DE PARIS-SUD
- The Comité de Direction was established in 1973 by the Université de Paris-Sud and the Centre National de la Recherche Scientifique to coordinate the scientific control of the laboratory. Frank was invited to become a member in March 1973 and served until December 1977. In 1983 Frank rejoined the Comité for a further two years.
- F.48 Invitation to join Comité de Direction; correspondence and papers re meeting, 4 June 1973; Frank's manuscript notes of proceedings.
- F.49 Correspondence and papers re meeting, 22 May 1974.
- F.50 Report on scientific activity at the laboratory, 1 July 1973 - 1 May 1974.
- F.51 Report of the Comité for 1974.
- F.52 Correspondence and papers re meeting, 22-23 April 1976.
- F.53 Letter re expiry of terms of service of Comité members, 6 December 1978.
- Correspondence and papers re meeting, 8-9 March 1983. Includes confirmation of renewal of Frank's membership of Comité to December 1985.

- F.54 DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH 1962
- Contents of a folder imprinted "This folder contains all papers relating to item 4 on the agenda for the meeting of the Metallurgy and Materials Sub-Committee held at State House on Tuesday 4th December at 10.30 A.M.". The papers relate to brittle fracture and the use of non-metallic materials in engineering.
- F.55 ELECTRONICS RESEARCH COUNCIL 1964, 1966, 1968
- Frank served on the Council 1965-68.
- Miscellaneous material. Includes invitation to serve and "Notes of a meeting held at the Ministry of Technology ... 20th October 1966 to discuss a proposal to set up a Single Crystal Production Unit at [Royal Radar Establishment] Malvern", with related correspondence.
- F.56 ENGLISH-SPEAKING UNION 1964
- Letter informing Frank that he and his wife have been elected to membership of the Union.
- F.57, F.58 ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION 1966, 1967
(ESSA)
- F.57 Correspondence re possibility of Frank visiting ESSA's Institute for Earth Sciences, Boulder, CO, Summer 1966 "to review the part geodetic methods should play in the earthquake prediction problem". Frank declined.
- F.58 Correspondence and notes re visit to Institutes for Environmental Research, Boulder. Frank visited the Institutes on an ESSA contract with the Colorado School of Mines, Golden, mid-July - mid-September 1967.

F.59 EUROPEAN PHYSICAL SOCIETY 1976

Brief correspondence with W.J. Merz, chairman of Condensed Matter Division, re the need for "a European coordinated program for meetings, discussions etc." on the area of "Liquids/Liquid Crystals/Glasses/Amorphous Materials" which Merz felt the Division was neglecting.

Further material relating to the European Physical Society may be found at H.59, H.66 and H.72, and at D.69.

F.60-F.72 FARADAY SOCIETY/CHEMICAL SOCIETY 1938, 1946-85

On 1 January 1972 the Faraday Society amalgamated with the Chemical Society, the Royal Institute of Chemistry and the Society for Analytical Chemistry to form a new Chemical Society. The Faraday Division covered the field of physical chemistry within the amalgamated society, publishing the *Faraday Transactions* (formerly *Transactions of the Faraday Society*) and organising symposia and discussions.

The material is arranged as follows:

F.60, F.61	General correspondence and papers
F.62, F.63	<i>Faraday Transactions</i>
F.64-F.72	Symposia and discussion meetings.

General correspondence and papers

F.60 Various dates 1938-71. 1969-71 correspondence is re the future of the Faraday Society.

F.61 1972-73, 1977.

Faraday Transactions

F.62 Editorial correspondence, 1948, 1949, 1965-71.

F.63 Editorial correspondence, 1971-74.

Symposia and discussion meetings

- F.64 Typescript and manuscript drafts of Frank's contributions to Faraday Society symposium, 1946. With letter from E.M. Wright and notes re the printing of scientific symbols.
- F.65 Correspondence re Faraday Society Symposium on Crystal Growth, Bristol, Easter 1949. Frank helped organise the symposium.
- F.66 Letter from G.L. Kington re "Possible Faraday Society discussion on physico-chemical aspects of composite materials", 19 June 1970.
- Programme, order of papers, list of participants for Faraday Society Symposium on Liquid Crystals, Royal Institution, 13-14 December 1971.
- F.67-F.70 Faraday Discussion on Organisation of Macromolecules in the Condensed Phase, Cambridge, 25-27 September 1979. Frank gave the Introduction.
- F.67 Invitation; correspondence re arrangements; programmes; list of participants; etc.
- F.68 Correspondence re papers and discussion remarks with participants and Faraday Division.
- F.69 Papers sent to Frank by A. Keller for comment.
- F.70 16pp manuscript draft of Frank's "General Introduction", with related manuscript notes. *Bibliog.* 136.
- F.71, F.72 Faraday Discussion on Polymer Liquid Crystals, Cambridge, 1-3 April 1985. Frank was the guest of the Faraday Division at the discussion dinner.
- F.71 Invitations; programmes; abstracts; list of participants etc.
- F.72 Correspondence re papers and discussion remarks with participants and *Faraday Transactions*.
- Manuscript notes on "Lines of confluence"; manuscript drafts of Frank's discussion remarks.

- F.73, F.74 FOREIGN OFFICE 1950, 1951
- In October 1950 Frank and A.C. Menzies visited Germany on behalf of the German General Economic Department of the Foreign Office's German Section to consider changes in the administration of laws governing scientific research in occupied Germany.
- F.73 S.O. notepad taken on visit. First 7 pages used, 1p loose manuscript notes.
- F.74 Correspondence arising from visit with R.V. Jones, Menzies and others; copies of the laws.
- F.75 GOVERNING BODIES ASSOCIATION 1982
- Papers re the threat to independent schools posed by the Labour Party. As Chairman of Governors of Queen Elizabeth's Hospital Frank attended a special meeting of the Association, London, 14 October.
- F.76 GREENLAND CLUB 1978-83
- The Greenland Club "exists to foster the spirit of exploration in Greenland and the offshore continental shelf".
- Invitation to Frank to become an Honorary Member of the Bristol Greenland Club; notices of annual dinners 1978-80, 1983.
- F.77 GREENPEACE 1981
- Appeal to Frank to support the campaign opposing the testing of nuclear weapons. The letter requests that Frank add his signature to a "statement of concern" and is annotated "sent 9 Nov. 81".

F.78 HOME OFFICE 1959-72

Frank served as a Regional Scientific Adviser in the South West Civil Defence Region until 1972.

Miscellaneous correspondence and papers, including HMSO Exercise Book with notes on proceedings of Conference of Regional Scientific Advisers for Civil Defence, Civil Defence Staff College, Sunningdale, Berks., 12-14 May 1964.

F.79-F.85 INSTITUTE OF METALS/METAL SOCIETY 1951-85

The Institute of Metals merged with the Iron and Steel Institute to form the Metals Society on 1 January 1974.

F.79 Metal Physics Committee papers and correspondence 1951-53. Frank joined the committee in 1951.

F.80 Agenda for Spring Meeting, London, 29 March - 1 April 1955. Frank delivered the May Lecture on "The nature of the real crystal" (E.9, E.10). *Bibliog.* 60.

F.81 "Timetable and abstracts of contributions" for discussion on the metallurgy of high-field superconductors, Institute of Metals, 17-18 March 1964.

F.82 General correspondence and papers 1964-70. Includes 1p typescript "Discussion: the relation between grain section and grain size", submitted to the *J. Inst. Metals* as a reply to contributions by J.H. Hensler 12 June 1968.

F.83 Programme and notepad with Frank's notes on proceedings of Institute of Metals Conference on Modern Metallography in Metallurgy, Bristol University, 23-25 September 1969. Frank welcomed the conference.

F.84 Correspondence and papers, 1971, 1972, chiefly re proposed merger with the Iron and Steel Institute.

F.85 Metals Society correspondence and papers, 1971-83.

F.86-F.115 INSTITUTE OF PHYSICS 1964-87

F.86 -F.94	Editorial Boards
F.95 -F.110	Conferences
F.111	Awards
F.112-F.115	Groups

Editorial Boards

F.86 Correspondence, November, December 1965, arising from complaint made by Frank "about the lack of information in the *British Journal of Applied Physics* about the coverage of the journal".

Correspondence and papers re IUPAP/UNESCO conference for editors of primary journals in physics, Paris, 10-12 May 1967. Frank attended on behalf of the *British Journal of Applied Physics*.

F.87 Editorial correspondence with *Journal of Physics D: Applied Physics* and *C: Solid State Physics*, various dates 1975-85.

Includes manuscript draft of letter Frank sent to the Editorial Board of *D* outlining areas of growth in applied physics.

F.88-F.93 *Reports on Progress in Physics*

F.88 Invitations to join the Editorial Board 1977, and remain on it for a further year 1979; information on *Reports on Progress in Physics*.

F.89-F.92 Papers for meetings of the Editorial Board of *Reports on Progress in Physics*.

4 folders.

F.89	1977
F.90	1978

F.91	1979
F.92	1980

F.93 Correspondence re review articles for *Reports on Progress in Physics*, 1977-80, including Frank's comments on article outlines sent to him for consideration.

Invitation to write a *Report on Progress* article on "Ideas in crystal growth", September 1985. Frank declined, stating he was insufficiently knowledgeable of recent work in the area.

- F.94 Correspondence with *Physics Bulletin*, 1978-1986. Includes Frank's 2pp review of R.V. Jones's *Most Secret War*, and other reviews.

Conferences

- F.95 Solid-State Physics Conference, Bristol University, 1-4 January 1964. Frank was invited to chair a session.
- Invitation; lists of participants and provisional session chairmen; conference handbook.
- F.96 4th Annual Solid-State Physics Conference, Manchester University, 4-7 January 1967. Frank spoke on "Current trends in polymer physics".
- Correspondence; notice.
- F.97-F.106 International Conference on Thermodynamics, University College Cardiff, 1-4 April. Frank served on the organising committee and chaired the first session.
- F.97 Correspondence with P.T. Landsberg re suggested conference on thermodynamics, December 1966.
- "A refresher course in thermodynamics", undated 7pp manuscript draft by Frank found with the preceding.
- F.98-F.103 Agenda, papers and minutes of organising committee meetings.
- | | | | |
|-------|--------------------|-------|--------------------|
| F.98 | 11 November 1968 | F.101 | 3 October 1969 (2) |
| F.99 | 28 April 1969 | F.102 | 29 November 1969 |
| F.100 | 3 October 1969 (1) | F.103 | 28 February 1970 |
- F.104 "The Einstein-Podolsky-Rosen class of paradoxes as an illustration of time symmetry in elementary processes" by O. Costa de Beauregard, sent to Frank for possible inclusion in the conference.
- F.105 Conference handbook; list of participants; letter from N. Kurti asking Frank to "say a few words of welcome as a IUPAP delegate".

- F.106 "Provocative statements to give focus" to discussions.
- Photocopies of letters of Lord Kelvin, with covering letter from D.J. Morgan. Copies of Lord Kelvin's correspondence were made for the conference.
- F.107 9th Annual Solid-State Physics Conference, UMIST, 4-6 January 1972. Frank spoke on "Strength and stiffness of polymers" (see *Bibliog.* 103).
- Invitation; conference handbook; list of participants; itinerary for 3-7 January (includes 7 January British Association for the Advancement of Science meeting).
- F.108, F.109 10th Annual Solid-State Physics Conference, Manchester University, 3-5 January 1973.
- F.108 Notices; general information; list of participants.
- F.109 Conference handbook.
- F.110 Solid-State Physics Conference, December 1984.
- Invitation to Frank to give "a light-hearted after-dinner talk" on the history of dislocations.

Awards

- F.111 Various dates 1979-87.

Groups

- F.112 History of Physics Group.
- Includes material re formation of Group, 1984, and first AGM, 3 July 1986.

F.113, F.114 Polymer Physics Group.

The Polymer Physics Group was jointly sponsored by the Institute of Physics and the Royal Society of Chemistry (previously the Chemical Society). The Institute handled the Group's administration.

Material re biennial meetings, various dates 1971-85.

2 folders.

F.115 Tuning Fork Group.

Notice for "Tuning Fork Group".

F.116-F.175 INTERNATIONAL ORGANISATION OF CRYSTAL GROWTH (IOCG) 1967-86

The IOCG was established following the 1st International Conference on Crystal Growth (ICCG) held in Boston, MA, in 1966. The advisory committee of the conference became a permanent Comité International de la Croissance Cristalline (CICC), which was renamed IOCG at ICCG-3, Marseilles, 1971. IOCG was formed principally to organise and sponsor crystal growth conferences. It also took responsibility for sponsoring the *Journal of Crystal Growth* (JCG).

Frank was President of CICC 1968-71, succeeding W. Bardsley, and of IOCG 1971-74 and 1974-77. He served on the Executive Committee for six more years thereafter as Past President.

A short history of the IOCG to 1975 by M.M. Schieber, with a brief note by Frank, may be found at F.161.

The material is arranged as follows:

F.116-F.133	CICC/IOCG
F.134-F.166	Conferences
F.167-F.175	<i>Journal of Crystal Growth</i> .

CICC/IOCG

F.116 Correspondence 1967 re establishment of CICC.

Includes statement announcing foundation of "a new interdisciplinary and international organisation for crystal growth", brief correspondence re the Crystal Growth Committee of the International Union of Crystallography established at the same time, and copy of CICC's Charter in which Frank is named as a General Policy Advisor.

F.117 Correspondence and papers re meeting of CICC, Zürich, 25 September 1970, to consider the arrangements for ICCG-3 (Marseilles) and the proposed IOCG constitution (see below). Frank chaired this meeting, held during the Conference on Crystal Growth and Epitaxy from the Vapour Phase (see F.142).

F.118-F.121 Correspondence and papers re constitution of CICC/IOCG 1970-73.

In 1970 the CICC became divided over the question of a new constitution for the proposed IOCG. Two versions were produced, a European and a more complex American. It was decided to resolve the matter by ballot at ICCG-3, Marseilles, 1971, and at the conference the American version won more votes. So narrow was the margin of victory, however, and so sharply polarised the American and European views, that a compromise solution was sought. A Constitution Committee chaired by Frank was therefore established whilst an interim constitution remained in force. The Committee's version was placed before the membership of the IOCG in September 1973 and overwhelmingly approved.

The material is predominantly correspondence between officers of CICC/IOCG. There are also copies of the various constitutions including those proposed in 1971, the interim constitution and the Constitution Committee's final version.

4 folders.

F.118	1970	F.120	1972
F.119	1971	F.121	1973

F.122-F.125 Correspondence and papers re nominations and elections for IOCG offices and Council 1971-83.

4 folders.

F.122	1971	F.124	1974 (2)
F.123	1974 (1)	F.125	1977, 1980, 1983

F.126-F.130 Correspondence and papers re IOCG relations with the International Unions of Pure and Applied Chemistry (IUPAC), Pure and Applied Physics (IUPAP) and Crystallography (IUCr), 1972-80.

M.M. Schieber, Secretary of IOCG, in a letter of 3 December 1973, set out the four options open to IOCG: to press for full scientific Union status for IOCG, to become an InterUnion commission of IUPAC, IUPAP and IUCr, to create separate links with one or more of the Unions, or to remain without formal ties.

After considerable debate it was decided at the 1974 Tokyo IOCG to seek Associate Organisation status with each of the three Unions. IUPAC gave IOCG this status in September 1975, and IUCr elected it a Scientific Associate organisation August 1978.

5 folders.

F.126	1972	F.129	1975
F.127	1973	F.130	1976-78, 1980
F.128	1974		

F.131 Correspondence and papers re meetings of IOCG Executive Council, Tokyo, 26 and 29 March 1974, held during IOCG-4 (F.146-F.151).

F.132 Correspondence re amendments to IOCG constitution and by-laws 1972-78, 1983.

These amendments were made to allow Soviet colleagues interested in crystal growth "to formally adhere to IOCG". See also F.158.

F.133 Miscellaneous correspondence, 1969-77.

1973 correspondence chiefly concerns excess funds in the IOCG treasury.

Conferences

F.134 IOCG-1, Boston, MA, 20-24 June 1966. Frank was a member of the advisory committee and was invited to give a paper, but declined owing to prior commitments.

List of conference organisers; invitations; etc.

- F.135-F.141 ICCG-2, Birmingham, 15-19 July 1968. Frank was on the organising committee as chairman of the programme committee. He was also Editor-in-Chief of the Conference Proceedings to be published in JCG and wrote a preface to the Proceedings. At the conference Frank was elected President of CICC 1968-71.
- F.135, F.136 Correspondence and papers re meetings of organising committee, July 1966 - September 1969.
- 2 folders.
- F.137, F.138 Correspondence and papers re programme committee business, September 1966 - June 1968.
- 2 folders.
- F.139 Miscellaneous correspondence re arrangements.
- F.140 Information; programme; list of participants; typescript copy of minutes of ICCG Business Meeting.
- F.141 6pp manuscript draft and 3pp typescript copy of Frank's "Preface" to Conference Proceedings.
- F.142 1st Conference on Crystal Growth and Epitaxy from the Vapour Phase, Zürich, 23-25 September 1970. The CICC sponsored this conference, organised by the Crystal Growth Section of the Swiss Crystallographic Society, and held a plenary meeting of officers and advisors of CICC during the conference (see F.117).
- Correspondence re CICC support for conference; invitation to Frank and correspondence re arrangements; abstracts; etc.

F.143-F.145 ICCG-3, Marseilles, 5-9 July 1971. Frank sat on the consultative committee and gave papers on "Philosophy and future of crystal growth" (*Bibliog.* 111) and "About diamond".

F.143, F.144 Correspondence re arrangements, November 1969 - July 1973.
2 folders.

F.145 Brochure; information; manuscript lists of slides for Frank's second contribution; etc.

"Report on the Activities of the ICCG-3 General Assembly Marseilles and the IOCG", a News Item approved by Frank. This records the difficulties over the constitution (see F.119) and the election of Frank to the presidency of IOCG 1971-74.

F.146-F.151 ICCG-4, Tokyo, 24-29 March 1974. Frank was a member of the advisory committee and spoke on "Japanese work on snow crystals" (*Bibliog.* 123).

A meeting of the Executive Committee of IOCG was held during this conference (F.151) and Frank was re-elected President.

F.146-F.148 Correspondence re arrangements, December 1969 - May 1974 and nd.

3 folders.

F.146 1969-72 F.148 1974
F.147 1973

F.149 Correspondence re Royal Society travel and study grants for the conference.

F.150 Two different typescript copies of "Japanese work on snow crystals"; one 19pp photocopy, the other 5pp (incomplete) with extensive manuscript annotation and correction. With lists of slides, manuscript notes and photographs found with them.

2pp manuscript draft of brief address delivered by Frank at conclusion of conference.

F.151 Brief correspondence re publication of Japanese translation of Frank's lecture in journal *Shizen*. With copy of *Shizen* '74-12 with Frank's contribution at pp.28-38.

F.152 2nd International Spring School on Crystal Growth (ISSCG-2), Fuji View Hotel, Mt. Fuji District, Japan, 31 March - 7 April 1974. Frank gave a special lecture "Comments on nucleation theory".

This School was linked to ICCG-4, held the week before.

Correspondence re arrangements and publication of proceedings; 4pp typescript draft of Frank's contribution; etc.

F.153-F.157 ICCG-5, Boston, MA, 17-22 July 1977. The executive of IOCG was faced by rival bids to hold ICCG-5 from Poland and the USA. Although the final vote was close, the unhappy events surrounding the 11th International Conference on the Physics of Semiconductors held in Warsaw in July 1972, decided the members in favour of the USA.

Correspondence and papers re arrangements, 1971-77. 1971-73 material relates to the debate on the best location for ICCG-5.

5 folders.

F.153	1971	F.156	1972 Nov-Dec, 1973
F.154	1972 Feb-May	F.157	1974-77
F.155	1972 Jun-Oct		

F.158, F.159 ICCG-6, Moscow, 10-16 September 1980. Frank was on the Advisory Committee but did not attend.

F.158 Correspondence and papers re arrangements, 1974-81. Includes brief correspondence re Soviet membership of IOCG (see also F.132). It was decided that the USSR did not need to join IOCG in order to be eligible to host ICCG-6.

F.159 List of participants.

F.160 ICCG-7, Stuttgart, 1983.

Proposals from Swiss and German Crystal Growth associations to host ICCG-7. The German bid was successful, the Swiss hosting the associated Crystal Growth summer school.

F.161 ICCG-8, York, 13-18 July 1986. Frank felt unable to attend following a hip-operation.

Invitation and notice. Send with the invitation was a 12pp typescript copy of "The various institutions for crystal growth. How did they all start?" by M.M. Schieber. With it are Frank's 2pp typescript corrections and 1p note "Early days of IOCG".

F.162 ICCG-9, 1989.

Offer from Japanese Association of Crystal Growth to host the conference.

F.163-F.166 IOCG sponsored conferences.

The material consists chiefly of correspondence with organisers of conferences.

F.163, F.164 2nd International Conference on Vapour Growth and Epitaxy, Jerusalem, 21-25 May 1972.

2 folders.

F.165 3rd International Conference on Vapour Growth and Epitaxy, Amsterdam, 18-21 August 1975.

F.166 4th International Conference on Vapour Growth and Epitaxy, Nagoya, Japan, 10-13 July 1978.

Summer School on Crystal Growth, Suzdal, USSR, 17-25 September 1980.

International Meeting on Crystal Growth Processes in Sedimentary Environments, Madrid, January 1982.

Journal of Crystal Growth (JCG)

Frank was a co-founder of the JCG with B. Chalmers and N. Cabrera. He served as an editor from 1968 until 1980 and refereed many papers for the Journal both whilst an editor and thereafter.

F.167-F.169 General editorial correspondence.

3 folders.

F.167 1967, 1970-73
F.168 1974-77

F.169 1978-81 and nd.

F.170, F.171 *Crystallization of Polymers*. Correspondence 1978-80 re special volume of JCG edited by B. Wunderlich. Frank helped reassess all the papers submitted.

2 folders.

F.172-F.175 Correspondence with editors and authors re papers submitted to JCG, with Frank's referee's reports.

4 folders.

F.172 1970-1974 April

F.173 1974 May - 1977

F.174 1978, 1979

F.175 1980-84

F.176, F.177 INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS (IUGG) 1967

Correspondence between L.R. Alldredge, General Secretary of the International Association of Geomagnetism and Aeronomy, and those sending him papers for the Association's session of the 14th IUGG General Assembly, St. Gall, Switzerland, September, after the deadline had passed.

Alldredge was Director of the Institute for Earth Services which Frank visited while working for the US Environmental Science Services Administration (F.58).

2 folders.

F.178-F.184 INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS 1959-69
(IUPAP)

Frank served as Royal Society representative on IUPAP's Solid State Commission for the period covered by the papers. In a private communication (9 September 1989) he writes "I served for one period ... nominally, but that period was totally inactive. The second period was somewhat active. I was invited to serve for a third period, but then told that was a mistake, because 3 periods of service were not permissible".

The material is chiefly correspondence and papers re IUPAP sponsorship of conferences.

7 folders.

F.178 1959-61

F.179 1962

F.180 1963-64

F.181 1965

F.182 1966

F.183 1967

F.184 1968-69

- F.185 KING'S COLLEGE LONDON 1975
- Brief correspondence re "luncheon discussion on the future of the Physics Department at King's", March. Frank was approached by Sir Hermann Bondi to advise the working party (Bondi, V. Gold and M.H.F. Wilkins) of his views on the future of the department following the retirement of Professor W.C. Price.
- F.186, F.187 MATERIALS SCIENCE CLUB 1967, 1971-73
- F.186 Brief correspondence, programme of 1967 AGM and Conference on Materials in Archaeology, Banbury, 22-23 September. Frank was awarded the Club's A.A. Griffith Medal. With copy of Frank's speech.
- Brief correspondence with J.W. White, Griffith Medallist for 1971, with copy of his speech.
- F.187 Brief correspondence and papers, March 1972. Frank was a member of the Awards Sub-Committee which selected the Griffith medallist for 1972.
- Correspondence, programme of 10th Anniversary meeting, Great Malvern, 24-26 October 1973.
- F.188-F.191 MINISTRY OF DEFENCE 1956-58
- Department of Scientific Intelligence translations of information re higher education and scientific and engineering research in the Soviet Union, with covering letters.
- 4 folders.

F.192 MINISTRY OF SUPPLY 1949-53

Offer of consultancy with Atomic Energy Research Establishment, Harwell, initially for one year from 21 February 1952. With copies of form "Estasecret" (for Official Secrets Act) and of memorandum re patents, initialled by Frank indicating acceptance.

Correspondence re visit to Division of Atomic Energy Metallurgical Laboratories, Culcheth, Lancs., 17 March 1953, to assist in a theoretical study of "the problem of diffusion of inert gases through certain metals".

Correspondence and papers re service on committees of the Advisory Council on Scientific Research and Technical Development, 1949 (Liquid Fuels Committee), 1952 (Propellants Committee), 1953 (High Explosives Committee).

F.193 MOLECULAR CRYSTALS DISCUSSION GROUP 1975-84

Circular re possibility of forming "a U.K. Discussion Group on Molecular Crystals" with photocopy of Frank's request for further information dated "17/10/75"; newsletters 3, 8, 9 and 14.

F.194 NATIONAL ACADEMY OF ENGINEERING 1982-86

Frank was elected a Foreign Associate Member of the US National Academy of Engineering in 1980. See A.27.

Correspondence re election of Foreign Associate Members 1982, 1984, and re London meetings of British Members 1983, 1986.

F.195-F.203 NATIONAL PHYSICAL LABORATORY (NPL) 1966-68

Frank was a member of the NPL's Morgan Committee, an advisory committee assisting the NPL Steering Committee, 1966-68. It was dissolved after its meeting on 5 December 1968 (F.200).

F.195-F.200 Correspondence and papers for Morgan Committee meetings 1968.
6 folders.

F.195 18 January (1)
F.196 18 January (2)
F.197 18 January (3)

F.198 4 July (1)
F.199 4 July (2)
F.200 5 December

- F.201 Correspondence and papers re Morgan Committee "Working Party to consider the future role of the Materials area of the NPL in the field of Plastics and Polymers".

Frank was a member of the Working Party which was chaired by G. Gee. It met on 16 November 1967 and reported to the fourth meeting of the Morgan Committee, 18 January 1968. Its final report is at F.195.

- F.202 Claims for fees and expenses, 1966-68.

- F.203 Miscellaneous later correspondence with NPL colleagues, 1969, 1970.

- F.204 PHYSICAL SOCIETY 1949-58

General and editorial correspondence. Includes notification of Frank's election to Fellowship, May 1949, and to Council, May 1956.

- F.205-F.250 PUGWASH CONFERENCES ON SCIENCE AND WORLD AFFAIRS 1968-86

The Pugwash Conferences on Science and World Affairs originated in a meeting of scientists held in Pugwash, Nova Scotia in 1957 following an appeal from Bertrand Russell and Albert Einstein against the further use of nuclear weapons. Although nuclear disarmament remained the Pugwash movement's main concern, Pugwash conferences were not devoted exclusively to this issue.

Initially the movement was organised by a Continuing Committee of representatives from each geo-political bloc, to which Frank was elected as a UK representative in 1974 succeeding R.E. (later Sir Rudolf) Peierls. In 1975 the Continuing Committee was replaced by the Pugwash Council on which Frank continued to serve.

In a letter of 10 December 1974 to the Executive Secretary of the Royal Society (F.244) Frank commented that prior to his election to the Continuing Committee Pugwash "was not ... one of my activities, though Cecil Powell got me to one previous full meeting of Pugwash, in 1968 [F.213-F.218]".

The material is arranged as follows:

- | | |
|-------------|---|
| F.205-F.212 | Continuing Committee/Council |
| F.213-F.240 | Pugwash conferences, symposia and workshops |
| F.241-F.244 | British Pugwash Group |
| F.245-F.250 | Miscellaneous material |

Continuing Committee/Council

- F.205 1974 January-July. Includes letter, 22 April, from B.T. Feld, Pugwash Secretary-General, notifying Frank of his election to the Continuing Committee.
- F.206 1974 September-December. Includes material re the "de facto expulsion of Israel from UNESCO" which Frank condemned.
- F.207-F.209 1975 April. Papers for meeting of Continuing Committee, Budapest, 14-16 April, held prior to 23rd Symposium (F.223-F.225). 15 April was set aside to consider item 9 on the agenda, "The Future of Pugwash", and most of the material relates to this and to item 10 "UNESCO and Israel".
- 3 folders.
- F.210 1976 January, May.
- F.211 1976 August. Agenda and papers for meeting of Council, Mühlhausen, GDR, 24-25 August, held prior to 26th Conference (F.227, F.228).
- F.212 Various dates, 1977-82. Includes letter, 3 June 1977, from W.F. Gutteridge of the British Pugwash Group enquiring whether Frank was "interested in standing [for the Pugwash Council] for a further period."

Pugwash Conferences, Symposia and Workshops

- F.213-F.218 18th Pugwash Conference, Nice, 11-16 September 1968. Frank was a member of Working Group 4 "Scientific and Technological Man-Power Problems in Developing Countries".
- F.213 Programmes; list of participants; general information; background information on A. Sakharov.
- F.214 Agenda for and lists of members of Working Groups; annotated and final reports of Working Groups.

- F.215-F.218 Working Papers
4 folders.
- F.219 1st Pugwash Symposium on Control of the Peaceful Uses of Atomic Energy, London, April 1968.

Frank's manuscript notes on proceedings.
- F.220 20th Pugwash Symposium on the need for, and terms of reference of, an International Institution of World Energy Problems, Arc-et-Senans, France, 4-8 July 1974.

Reports of symposia A and B; 2pp manuscript note by Frank beginning "The primary needs of mankind are water, food, shelter, communication and organizational control".
- F.221, F.222 24th Pugwash Conference on Disarmament, Energy Problems and International Collaboration, Baden, Austria, 28 August - 2 September 1974.
- F.221 Invitation; correspondence and notes re arrangements; list of participants; reports of Working Groups.
- F.222 Working Papers 1-6, 11, 12.
- F.223-F.225 23rd Pugwash Symposium on Scientific, Technological and Cultural Cooperation in Europe, Budapest, 17-20 April 1975.
- F.223 Brief correspondence re arrangements; programme; lists of invitees and lectures etc.
- F.224, F.225 Working Papers.
2 folders.
- F.226 25th Pugwash Conference on Development, Resources and World Security, Madras, 13-19 January 1976.

Statement from Pugwash Council; reports of Working Groups.

- F.227, F.228 26th Pugwash Conference on Disarmament, Security and Development, Mühlhausen, GDR, 26-31 August 1976. See also F.211
- F.227 Brief correspondence re arrangements; lists of participants and papers.
- F.228 Miscellaneous papers and reports, including reports of Working Groups.
- F.229 "Proceedings of the Thirtieth Pugwash Conference on Science and World Affairs" on Arms Limitations, Security and Development, Breukelen, Netherlands, 20-25 August 1980. Frank was a member of Working Group 4 "Changing Concepts of Security: Current Conflicts". He and Sir Rudolf Peierls submitted reports to the British Pugwash Group (F.244).
- F.230-F.238 31st Pugwash Conference on The Search for Peace in a World in Crisis, Banff, Canada, 28 August - 2 September 1981. Frank was in Working Group 2 on "Avoiding Conventional War". For group photograph of participants see A.97.
- F.230 Invitation; notes and correspondence re arrangements; programmes and circulars; lists of participants and papers.
- F.231 Frank's manuscript notes on proceedings; draft reports of Working Groups (Group 2 report annotated by Frank); *New York Times* report on conference.
- F.232 Miscellaneous papers, includes copy of "Salutation" delivered by G.F. Kennan on receipt of Einstein Peace Prize, 19 May and of "Opening Address" for Pugwash Conference by William Epstein.
- F.233-F.238 Working Papers.

6 folders.
- F.239 32nd Pugwash Conference, Warsaw, 26-31 August 1982.

Correspondence and papers. Much of the material relates to the opposition of the US Pugwash Committee to holding the Conference in Poland following the imposition of martial law on 13 December 1981.

- F.240 Material re other Pugwash Conferences, Symposia and Workshops, various dates, 1970-86.

British Pugwash Group (BPG)

Frank was invited to join the Executive Committee of BPG in January 1974 following his nomination as a UK representative to the Pugwash Continuing Committee (F.205).

- F.241, F.242 Papers for BPG Executive Committee meetings.

- F.241 1974, 1975.

- F.242 1976, 1979-81. Includes list of BPG members at January 1977.

- F.243 Papers for BPG annual meetings 1974-76, 1980-85.

- F.244 General correspondence and papers 1974-77, 1980-86. Includes 1974-77 correspondence re relations between BPG and the Royal Society.

Miscellaneous material

- F.245, F.246 Papers for AGMs of Pugwash Limited, various dates 1976-86. Chiefly Directors' Reports and Accounts.

2 folders.

- F.247-F.249 Miscellaneous correspondence and papers.

3 folders.

F.247 1974, 1975

F.248 1976

F.249 1980, 1982, 1983

- F.250 *Pugwash Newsletters*. Vol 12 no 3 (1975); vol 18 nos 1-3 (1980-81); vol 19 nos 1,2 (1981); vol 20 nos 1,3 (1982-83); vol 22 no 4 (1985); vol 24 no 3 (1987).

F.251-F.296 QUEEN ELIZABETH'S HOSPITAL BRISTOL 1967-86

Frank was a governor of Queen Elizabeth's Hospital, an independent school for boys in Bristol, from December 1961. From 1982 he was Chairman of the Board of Governors for two years.

The material is chiefly papers for Board of Governors and School Committee meetings from 1971.

F.251-F.281 Agenda and papers for School Committee and Board meetings 1971-83, 1986.

31 folders.

F.251	1971	F.267	1979 (2)
F.252	1972 (1)	F.268	1979 (3)
F.253	1972 (2)	F.269	1979 (4)
F.254	1973 (1)	F.270	1980 (1)
F.255	1973 (2)	F.271	1980 (2)
F.256	1974 (1)	F.272	1981 (1)
F.257	1974 (2)	F.273	1981 (2)
F.258	1975 (1)	F.274	1982 (1)
F.259	1975 (2)	F.275	1982 (2)
F.260	1976 (1)	F.276	1983 (1)
F.261	1976 (2)	F.277	1983 (2)
F.262	1977 (1)	F.278	1983 (3)
F.263	1977 (2)	F.279	1986 (1)
F.264	1978 (1)	F.280	1986 (2)
F.265	1978 (2)	F.281	1986 (3)
F.266	1979 (1)		

F.282 Correspondence re membership of Board, various dates 1975-83.

Includes correspondence re offer of chairmanship to Frank and his acceptance, January-February 1982.

F.283-F.288 Correspondence re staffing (appointments, retirements etc.).

6 folders.

F.283	1967 (1)	F.286	1976-78
F.284	1967 (2)	F.287	1979, 1980
F.285	1967 (3)	F.288	1982, 1983, 1986

F.289 Correspondence with parents, 1982, 1983.

- F.290 Material re prizegivings, various dates 1970-83.
- With Frank's "Opening words for QEH Prizegiving" for 1982 and 1983, delivered as Chairman of the Governors.
- F.291-F.296 Miscellaneous correspondence and papers.
- F.291 1967, 1970-75. Includes "Report by HM Inspectors on Queen Elizabeth Hospital School, Bristol" (inspected 22-26 October 1973).
- F.292 1976-80. Includes invitation, May 1979, from R.N. Pittman, headmaster, to Frank to give a talk to the second year sixth-formers on his wartime experiences. Frank accepted, suggesting the title "Some recollections of scientific intelligence in World War II".
- F.293 1981-82.
- F.294 1983 January, March.
- F.295 1983 May-November. Includes correspondence re benefaction from J. James for scholarships 1983-92.
- F.296 1986, nd.
- F.297 RED MAIDS' SCHOOL, BRISTOL 1981
- This was the third independent Bristol school with which Frank was associated.
- Correspondence re invitation to open the school's new laboratories on 15 October; 4pp typescript draft of Frank's address with manuscript corrections; statistics of Red Maids' educational achievements.

F.298 ROYAL RADAR ESTABLISHMENT MALVERN 1968

Correspondence and papers re visit to Royal Radar Establishment by Optics and Infra-Red Committee, 27 March, and re meeting of Gallium Arsenide and Gallium Phosphide working party, 18 November.

"The R.R.E. Electronic Materials Unit - An Interim Review", sent to Frank by D.H. Parkinson, c.1968.

F.299-F.343 ROYAL SOCIETY 1963-86

Frank was elected a Fellow in 1954. He served on the Council 1967-69 and was elected a Vice-President of the Royal Society at his first Council meeting. Frank delivered the Bakerian Lecture in 1973 (see E.33, E.34) and was awarded the Society's Royal Medal in 1979 (A.26).

The material is arranged as follows:

F.299-F.315	Council and Committees
F.316-F.323	Publications
F.324, F.325	Sectional Committee 2
F.326-F.332	Elections, research appointments and awards
F.333-F.340	Miscellaneous correspondence and papers
F.341-F.343	Royal Society Club

Council and Committees

For papers re the Paul Instrument Fund Committee, for which Frank served as an assessor 1970-72 and 1975-81, see J.129-J.143.

F.299 Council, 1967-69.

Miscellaneous correspondence and papers.

F.300 Armourers and Braziers' Company Research Fellowship Committee, 1971, 1975, 1984.

Chiefly papers for meeting 10 June 1975. Letter of 14 August 1984 is about the dissolution of the committee, which had been redundant since 1976 through lack of funds with which to finance the Fellowship.

F.301-F.303 British National Committee for the History of Science, Medicine and Technology, 1975-77.

Frank was a member of the committee for the period covered by the surviving papers.

F.301 1975 correspondence re proposal for a biography of J.B. Hannay and related grant application.

F.302 Agenda and papers for committee meeting, 12 December 1975.

F.303 1976 correspondence and papers arising from request from the History of Science Division of the International Union for the History and Philosophy of Science for "a brief report on national activities".

Minutes of Committee meeting, 19 December 1977.

F.304 British National Committee for Physics, various dates 1970-76.

Frank was a member of this committee for a period ending in 1973 and again 1976-81.

Correspondence and papers. Includes 1973 "certificate" thanking Frank for his service on the committee.

F.305 Symbols Joint Committee, various dates 1968-84.

Frank was a member of this committee from 1975. It met infrequently, in 1974, 1980 and 1984, to consider amendments and additions to the Society's handbook *Quantities, Units and Symbols*.

Miscellaneous correspondence and papers. 1979-80 material includes correspondence re "typographical question" whether the two letters designating a vector in the Thompson notation should be in bold print.

F.306-F.315 Travelling Expenses Committee, 1968-84.

Frank was a member of the committee 1967-69.

F.306-F.309 Committee papers and related correspondence, 1968-69.

4 folders.

F.306 1968 January-May
F.307 1968 July-December

F.308 1969 March
F.309 1969 July-October

F.310-F.312 Correspondence and papers re ad hoc committees to award travel grants for conferences.

3 folders.

F.310 1968
F.311 1969

F.312 1971-74

F.313, F.314 Correspondence and papers re applications for individual travel grants supported or assessed by Frank.

2 folders.

F.313 1968-74

F.314 1975-77, 1980, 1984

F.315 Correspondence and papers re Frank's applications for travel grants.

Publications

F.316 Invitations to Frank to contribute to Royal Society publications, various dates 1975-86.

F.317 Correspondence re Associate Editorship, 1976, 1977.

Frank was an Associate Editor for the mathematical and physical sciences 1973-77.

F.318-F.323 Correspondence and reports re papers submitted to the Royal Society communicated or refereed by Frank.

6 folders.

F.318	Various dates 1969-77	F.321	1978 (3)
F.319	1978 (1)	F.322	1979, 1980
F.320	1978 (2)	F.323	1981-87 and nd.

Sectional Committee 2

Frank was a member of Sectional Committee 2 (for Physics) for the period covered by the papers.

F.324, F.325 Correspondence and papers, 1970-72.

2 folders.

Elections, research appointments and awards

F.326-F.332 7 folders.

F.326	1963-65, 1968-70	F.330	1981
F.327	1972-75	F.331	1982
F.328	1976-79	F.332	1983-87
F.329	1980-81		

Miscellaneous correspondence and papers

F.333 1963. Material re Royal Society Discussion Meeting on New Materials, 6-7 June. Frank was an organiser and gave the "Introductory talk on strength of polymers", *Bibliog.* 82 (see D.60).

F.334 1967, 1969, 1970. Chiefly 1969-70 correspondence re Royal Society/Science Research Council (SRC) cooperation on science education in schools, arising from a suggestion made by Frank that financial support could be offered to the more ambitious school science projects.

- F.335 1971, 1972. Includes correspondence re Royal Society discussion on Green Paper Cmnd.4814 "A Framework for Government R. and D." (Dainton/Rothschild reports). Frank commented on the proposals in a letter of 31 December 1971. See also his draft at D.94, probably related to this. Folder also includes material re Royal Society Discussion Meeting on the measurement and interpretation of changes of strain in the Earth, 10-12 May 1972. Frank was a chairman and gave a paper on "Dislocation models for fault creep processes", *Bibliog.* 115 (D.108).
- F.336 1974, 1975. Chiefly correspondence re 1975 Royal Society Soirée at which Frank and K.H.G. Ashbee exhibited their "low temperature mechanical memory engine". (See J.2).
- F.337 1976. Includes correspondence re planned Royal Society discussion meetings on British participation in "Spacelab". Frank was approached "to suggest the name of a scientist ... whom we might approach to ask to help organize the scientific programme of the discussion meeting [on material behaviour in low gravity conditions]".
- F.338 1977-79. 1977 material is chiefly re report of the Committee on the Future of Broadcasting chaired by Lord Annan, including manuscript draft of Frank's letter commenting on the report. 1978 material is re visit of delegation from the Chinese Academy of Sciences.
- F.339 1980-83. 1982-83 material is re Royal Society Discussion Meeting on Thermotropic Liquid Crystals: physics, chemistry and applications, 27-28 October. Frank chaired the first session and gave the "Introduction", *Bibliog.* 141. Includes 7pp typescript draft of Frank's contribution with manuscript correction.
- F.340 1984, 1986.

Royal Society Club

Frank was elected a member of the Club in June 1973.

- F.341-F.343 Correspondence and papers for meetings.

3 folders.

F.341 1973, 1975-79
F.342 1980-82

F.343 1983-86

F.344 ROYAL SOCIETY OF ARTS 1970

Frank was elected a Fellow in December 1970.

Material re election. Includes copy of Frank's application form.

F.345-F.375 SCIENCE RESEARCH COUNCIL (SRC) 1967-79

Frank attended SRC meetings in 1968 as Royal Society assessor. He also served on the Liquid Crystals Panel of the Physics Committee and refereed grant applications for the SRC.

The material is presented as follows:

F.345-F.352	Council
F.353-F.360	Liquid Crystals Panel
F.361-F.371	Grant Applications
F.372-F.375	Miscellaneous correspondence and papers.

Council

Papers for meetings April-December 1968 in original covers, with related correspondence, notes and papers found with them.

8 folders.

F.345	17 April	F.349	27 September
F.346	15 May	F.350	16 October
F.347	19 June	F.351	20 November
F.348	17 July	F.352	18 December

Liquid Crystals Panel

The Liquid Crystals Panel of the SRC Physics Committee was established in 1973 after consultation with Frank. The Panel, of which Frank was a member, held its first meeting 22 June at which it was agreed to send out a letter of enquiry on research in the field of liquid crystals being undertaken by universities, commercial companies and individual researchers.

F.353 Correspondence 1972-73, principally with Sir Brian (later Lord) Flowers re establishment of Panel; invitation to serve.

F.354 Correspondence, notes and papers 1973, including 3pp typescript draft of Frank's "Introduction for liquid crystals report", with later 1p typescript amendment, February 1974.

F.355 Draft reports on aspects of liquid crystal research prepared by Panel members.

F.356-F.360 Papers for Panel meetings 1973-74. In original folders (except F.360).

5 folders.

F.356	22 June 1973	F.359	12 February 1974 (1)
F.357	23 October 1973 (1)	F.360	12 February 1974 (2)
F.358	23 October 1973 (2)		

Grant Applications

11 folders.

F.361	1969-71	F.367	1975 (3)
F.362	1972	F.368	1975 (4)
F.363	1973-74	F.369	1975 (5)
F.364	1974	F.370	1976
F.365	1975 (1)	F.371	1977-79
F.366	1975 (2)		

Miscellaneous correspondence and papers

F.372 1966, 1967, 1971-73.

F.373 1973. Correspondence and papers re SRC Vacation Courses. Frank lectured on "Properties of dislocations and their role in equilibration" for the course on Perfect and Imperfect Crystals, Reading University, 10-28 September.

F.374 1974. Includes correspondence re proposed regrouping of activities of SRC laboratories.

F.375 1975, 1976.

F.376-F.378 STANDING CONFERENCE OF PROFESSORS OF PHYSICS 1974-76

Papers for meetings.

3 folders.

F.376 1974 Nov, 1975 Mar

F.378 1975 Nov, 1976 Mar

F.377 1975 June

F.379, F.380 WEST OF ENGLAND METALS AND MATERIALS ASSOCIATION 1973-74

Frank served as President of the Association 1973-74, giving the 1974 Presidential Address on "Crystals imperfect".

F.379 Correspondence 1973-74. Includes invitation to Frank to accept nomination for the Presidency and letter confirming his election.

F.380 Papers for Council meetings, 1973-74.

Catalogue of the papers and correspondence of

SIR FREDERICK CHARLES FRANK Kt, OBE, FRS

(b. 1911)

Compiled by Timothy E. Powell and Peter Harper

Volume II

Sections G - K

Bibliography

Index of correspondents and organisations

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SECTION G

CONSULTANCIES

G.1-G.130

This section contains material relating to Frank's work for British and overseas commercial organisations only. He also acted as consultant for a number of governmental agencies and departments. Material of this nature is to be found in Section F.

BRITISH AIRCRAFT CORPORATION (BAC)	G.1
BRITISH RAILWAYS (BR)	G.2-G.23
DE BEERS	G.24-G.99
GENERAL ELECTRIC (GE)	G.100-G.113
IMPERIAL CHEMICAL INDUSTRIES (ICI)	G.114
INTERNATIONAL BUSINESS MACHINES CORPORATION (IBM)	G.115-G.122
PCI DISPLAYS LTD	G.123
J.A. RADLEY (LABORATORIES) LTD	G.124-G.130

G.1 BRITISH AIRCRAFT CORPORATION (BAC) 1964

Correspondence re offer of consultancy in Guided Weapons Division. BAC's letter of 8 May 1964 is annotated by Frank "Answered, accepting but asking for further copy of original letter, 24 July 1964".

G.2-G.23 BRITISH RAILWAYS (BR) 1949-51

Frank was invited to serve as "an independent scientific adviser" to the Water Treatment Committee, 23 September 1949, on the recommendation of R.V. Jones. This Committee was established to study the problems "in the provision and use of softened water" used in steam locomotive boilers. It first met on 2 December 1949 and held a further thirteen meetings before issuing its report in February 1951.

The Committee considered the problems and costs associated with the various systems of softening the water fed to locomotives to reduce scaling (with its deleterious effect on the costs of boiler maintenance). While allowing for regional diversity (due to differing water hardnesses and to the pre-nationalisation practices of the four great railway companies) the Committee recommended "that further extensions of water treatment should be made as far as possible by internal treatment on the locomotive" rather than by large-scale water treatment plants.

The material, predominantly committee papers and background information, is arranged in a chronological sequence.

G.2 Invitation to become a consultant and Frank's letter of acceptance; Frank's 4pp manuscript notes and references headed "Notes on water treatment", written 28 November 1949; list of committee members, sent 29 November.

G.3 "Questions for Enginemen, &c", London Midland and Scottish Railway's Handbook for Enginemen, December 1931. Sent to Frank 28 November 1949 (see covering note at G.2).

- G.4-G.8 First committee meeting, Derby, 2 December 1949. Frank was present.
- G.4 Papers and minutes of meeting. With Frank's "Memorandum to the Chairman" recording the views he expressed at the meeting, 2pp typescript.
- G.5-G.8 Reports on water treatment submitted by BR Regions. The reports are retained in their original folders.
- G.5 East and North East Region.
- G.6 London Midland Region.
- G.7 Southern Region.
- G.8 Western Region.
- G.9 Correspondence with S. Bairstow, Divisional Chemist, London Midland Region, December 1949, January 1950, re L.O. Gunderson and W.L. Denman's paper "Polyamide Foam Inhibitors - Mechanism of Foam Inhibition in Steam Generators", *Industrial and Engineering Chemistry* 40 (1948). Includes reprint of paper for ease of reference.
- G.10 Second committee meeting, Doncaster, 17 January 1950. Frank was absent.
- Agenda, papers and minutes of meeting.
- G.11 Report on "The Toton-Brent Experiment" by J.S. Hancock, January 1950. In original folder.
- Hancock was a water softening chemist with London Midland Region. He reported for the committee on the Toton-Brent experiment, designed to find whether a "continuous supply of correctly conditioned water" for locomotives on the Toton-Brent section of track resulted in "clean, corrosion-free locomotive boilers". The experiment suggested it did, but also highlighted the inefficiency of the water softening plants.

- G.12 Committee meetings 3-11, January-August 1950. Frank was absent from all these meetings.
- Minutes only.
- G.13 Letter and Frank's manuscript notes of a meeting with J.S. Hancock, S. Bairstow and T.F.B. Simpson (Committee Chairman), Derby, 24 February 1950.
- Letter to R.V. Jones complaining about BR's "complete lack of acquaintance with research", 4 April 1950.
- G.14 Memorandum on visit to France by representatives of Water Treatment Committee, April 1950. In original stiff cover binding.
- The Committee representatives (not including Frank) visited France to inspect locomotive boilers and the water treatment system on French railways.
- G.15 Twelfth committee meeting, Derby, 4 October 1950. Frank was present.
- Agenda, papers and minutes of meeting. Includes report "Water softening on the London Midland Region" by J.S. Hancock.
- G.16 Correspondence from T.F.B. Simpson re tests on the effect of dirty boilers on fuel consumption, August, October 1950.
- G.17 Thirteenth committee meeting, Derby, 9-10 January 1951. Frank was absent.
- Correspondence, agenda, papers and draft minutes of meeting.
- Fourteenth committee meeting, Derby, 20 February. Frank was present.
- Draft minutes only.

- G.18-G.20 Committee Report, completed February 1951.
- G.18 Frank's manuscript corrections to first draft of Report.
- G.19 Second "Draft Report", December 1950. With Frank's manuscript corrections and related correspondence.
- G.20 Final "Report on Treatment of Water used for Locomotive Purposes", February 1951. Frank's bound copy.
- G.21-G.23 Miscellaneous background material.
- G.21 Chief Mechanical Engineer's Department, London and North Eastern Railway, "Report on Comparative Evaporation Tests on Locomotive Boilers", August 1931. 8pp typescript plus photographs, graphs, table.
- With Frank's manuscript calculations and diagrams found with it.
- G.22 Information on T.I.A. (Traitement Interne Integral Armand) system of water treatment.
- The T.I.A. system was widely used in France and was of much interest to the Committee (see G.14). It combined external treatment of the "feed water" with dosage of water in the tender with a special alkali-tannin solution.
- G.23 Manuscript notes by Frank.
- G.24-G.99 DE BEERS 1949-86
- Frank's association with De Beers, the South African mining company, began in 1949 when, at the suggestion of F.E. (later Sir Francis) Simon, a De Beers subsidiary, Industrial Distributors Ltd., invited Frank to serve as a consultant on diamond research, initially for three years but renewed thereafter. Frank's other formal connections with De Beers were through the Diamond Conferences and the Diamond Research Committee, which the company funded, and through a series of patent cases in the early 1960s in which he gave evidence in his capacity as consultant.

According to Frank's account, given to the 1975 Diamond Dinner (G.95), the Diamond Conferences were initiated by Simon, who persuaded Sir Ernest Oppenheimer, Chairman of De Beers "that at the comparatively small cost of funding an annual conference he could be in touch with a hundred scientists, who would have cost him one or two million a year to put on his payroll." The first was held in 1950.

Shortly after Simon's death in 1956 the Diamond Research Committee was formed, under the chairmanship of the Reading physicist R.W. Ditchburn, both to organise the Diamond Conferences, and to allocate funding from De Beers for diamond research projects in the UK. Frank was a member of the committee from its foundation.

Frank's consultancy with De Beers led to his involvement in a series of cases brought against the American company General Electric's attempt to patent its method of synthesising diamond in South Africa. Frank gave affidavits for the Transvaal and Orange Free State Chamber of Mines who represented De Beers' interests.

In connection with his work for De Beers, whether as a consultant on diamonds or as a member of the Diamond Research Committee, Frank made a number of visits to South Africa.

The material is arranged as follows:

G.24-G.27	Industrial Distributors
G.28-G.55	Diamond Conferences
G.56-G.75	Diamond Research Committee
G.76-G.86	Patent Cases
	With an introductory note
G.87-G.99	Miscellaneous

Industrial Distributors

- G.24 Correspondence with F.E. Simon and Industrial Distributors, 1949-57.

Includes brief exchanges re offer of consultancy and its renewal in 1952; "Memorandum on growth of diamonds", 12pp manuscript, 16 December 1951; letter from Simon, 13 May 1954, re "continuing the contract" in view of Frank's lecture on "Tin whiskers" to the 1953 Diamond Conference (G.29) which some "thought a little remote".

- G.25 Brief correspondence, July 1954, with P. Grodzinski of Industrial Distributors' Diamond Research Department re paper "Über die synthese des Diamanten" by A. Neuhaus.

Includes "original" typescript draft of Neuhaus's paper with Frank's manuscript notes on Grodzinski's translation of Part III of the paper.

G.26 Correspondence, 1957-60.

Includes correspondence re diamonds required for research at Bristol University, 1957-60; typescript record of cable sent to J.F.H. Custers, Director of Research, 24 November 1959, congratulating him on the successful synthesis of diamond; press-cutting recording Frank's condemnation of apartheid in South African universities.

G.27 Visit to South Africa, 1961.

Frank was invited to help Industrial Distributors' Adamant (later Diamond) Research Laboratory, Johannesburg, "start a programme aiming at the production of synthetic diamonds considerably larger than the ones we now make every day".

The invitation mentions the success of General Electric in this field and expresses the hope that Frank's work on diamonds for G.E. will not prevent his assisting Industrial Distributors.

Invitation; memorabilia.

Diamond Conferences

Further material relating to the organisation of the conferences may be found under the Diamond Research Committee, G.56-G.75.

G.28 Oxford, July 1952.

Frank's manuscript notes on proceedings.

G.29 Oxford, 9-11 July 1953. Frank spoke on "An explanation of the formation of tin whiskers" (see G.25).

Correspondence re arrangements; lecture list; manuscript notes on proceedings; manuscript notes on "Whiskers".

G.30 Caius College Cambridge, 1-3 July 1954. Frank spoke on "Necessary conditions for the growth of diamonds".

Provisional programme; manuscript notes on proceedings.

G.31 Oxford, 30 June - 2 July 1955. Frank spoke on "Martensitic transformations".

Provisional lecture list; manuscript notes on proceedings.

- G.32 Reading, 18-19 July 1961. Frank had recently returned from South Africa (G.27) and did not feel able to give a paper.
- Brief correspondence; annotated provisional programme; list of participants.
- G.33 Cambridge, 25-26 June 1962.
- Annotated programme and list of participants.
- Reading, July 1965.
- Includes Frank's after-dinner "words of thanks".
- Cambridge, 10-11 July 1967.
- Lists of participants.
- G.34 Bristol, 8-9 July 1968. Frank helped organise the conference and presented a paper jointly with M. Moore and A.R. Lang on "Simulation of solution forms of diamond".
- Letter re arrangements.
- G.35 Reading, 24-27 September 1969.
- List of participants; letter from E. Gerryts, 19 September, with "Comment on 'Defect in Diamond'" by D.R. Grantham. Before his death Grantham sent Gerryts this "Comment" on a paper delivered by Frank at the 1966 International Industrial Diamond Conference (G.90-G.92), asking that it be submitted to the Reading conference.
- G.36, G.37 Brasenose College Oxford, 12-15 July 1970.
- G.36 Correspondence re Soviet participation; lists of participants and papers; manuscript notes on proceedings etc.
- G.37 Guidebook for "A Kimberlite Exhibition" organised by J.W. Harris and H.J. Milledge.

- G.38 Cambridge, 14-17 July 1971.
Correspondence re arrangements, including correspondence from R.W. Ditchburn re Soviet participation; list of participants; heavily annotated programme; brief manuscript notes.
- G.39 Bristol, 13-15 July 1972. Frank spoke on "Kinematic theory of dissolution shapes".
Correspondence re arrangements; annotated lists of papers.
- G.40 Reading, 15-18 July 1973.
Lists of papers submitted and participants.
- G.41 Oxford, 3-6 July 1974.
Correspondence re Soviet participation; lists of participants.
- G.42 Churchill College Cambridge, 6-9 July 1975.
List of participants; miscellaneous correspondence including letter from the Industrial Diamond Information Bureau inviting Frank to write on the future of diamond research for *Diamond Research*, and typescript draft of Frank's contribution.
- G.43 Kimberlite Symposium, St. John's College Cambridge, 10-11 July 1975. This was held immediately following the Diamond Conference.
Invitation; information; lists of participants; provisional programme.
- G.44 Bristol, 12-14 July 1976.
Includes brief manuscript notes on programme for 1976 and finance for 1977 conference.
- G.45 Reading, 6-9 July 1977.
Information; list of participants; programme; Frank's manuscript notes on proceedings.

- G.46 St. Catharine's College Oxford, 9-12 July 1978.
- Letter from R.W. Ditchburn re Soviet participation; programme;
list of participants.
- G.47 Newnham College Cambridge, 8-11 July 1979.
- Conference information; abstracts; "Diamond: properties and
definitions" by J.E. Field compiled for the conference.
- G.48 Kimberlite Symposium II, Cambridge, 11-14 July 1979. This was
held immediately following the Diamond Conference.
- Brief correspondence arising from a discussion in which Frank
participated; "summary" of discussion.
- G.49 Bristol, 7-9 July 1980.
- Programme; list of participants.
- Reading, 8-11 July 1981.
- Brief correspondence only.
- G.50 Oxford, 5-7 July 1982.
- Includes annotated programme.
- G.51 Newnham College Cambridge, 6-9 July 1983. Frank led a
discussion.
- Conference information; abstracts; programme; list of
participants.
- G.52 Bristol, 9-11 July 1984. Frank led a discussion.
- Annotated programme; list of participants.
- G.53 Reading, 10-13 July 1985. Frank led a discussion.
- Programme; list of participants; abstract.

- G.54 Royal Holloway and Bedford New College London, 7-9 July 1986.
Brief correspondence including reference to current unrest in South Africa.
- G.55 Oxford, nd. Frank spoke on "Plastic deformation in diamond".
Lecture list; manuscript and typescript drafts on plastic deformation; manuscript notes on proceedings.

Diamond Research Committee

The material is principally papers for Committee meetings to consider research proposals, half yearly reports on research, and correspondence, chiefly with R.W. Ditchburn, re diamond conferences, research proposals and patenting.

R.W. Ditchburn was chairman of the Committee until July 1982 when he was succeeded by E.W.J. Mitchell.

20 folders.

G.56	1964-66	G.66	1979
G.57	1967-68	G.67	1980
G.58	1969	G.68	1981
G.59	1970-71	G.69	1982
G.60	1972	G.70	1983
G.61	1973	G.71	1984 (1)
G.62	1974	G.72	1984 (2)
G.63	1975	G.73	1985 (1)
G.64	1976-77	G.74	1985 (2)
G.65	1978	G.75	1986

Patent Cases

In February 1955 the American company General Electric (GE) announced it had found a method of synthesising diamonds. This was immediately placed under a US government secrecy order as it was judged to be of strategic significance.

The order was lifted on 8 September 1959 and the next day GE filed five patent applications in South Africa to protect its inventions. Three were opposed by the Transvaal and Orange Free State Chamber of Mines, on behalf of De Beers (3550/59, 3551/59 and 3547/59). A further patent application was made on 7 December (4878/59) and this too was challenged. Frank was asked by the lawyers acting for the Chamber of Mines to provide affidavits on its behalf.

As GE also occasionally employed Frank as a consultant, there was a potential clash of interests. This was resolved by GE providing a contract in which work on diamonds was excluded from its provisions (see G.110). Frank duly testified for the objector.

The basic patent (3550) was for a method of synthesising non-diamond carbon into diamond by subjecting it to a pressure of 80,000-110,000 atmospheres and a temperature of 1400-1800°C in the presence of a metallic solvent or catalyst. The molten metal dissolves the carbon which is distributed through the metal until saturated. Upon cooling the solution becomes super-saturated and carbon is shed as solid crystals - diamonds. The other patents referred to improvements on this process. 3551 related to using an alloy as the catalyst (lowering the temperature and, more importantly, the pressure required for the conversion of carbon to diamond), 3547 to a way of eliminating the need to determine the temperature at which conversion occurs by providing a method of observing changes in electrical resistance, and 4878 to a method of creating better artificial diamonds by arranging the carbon and catalyst in alternate laminae or layers.

Various grounds for objection were raised but only two were used in court, the "obviousness" and the "inutility" of the alleged inventions. The first maintained that no inventive step was required beyond what was common knowledge in the area, the second that within the terms of the patent application the invention would not necessarily work. Frank's affidavits mainly supported the objection of "obviousness" and the related "lack of novelty" charge (which was, however, dropped, partly because as Frank himself stated GE were correct in claiming the natural processes for the formation of diamond were "not assuredly known").

The first judgement, delivered on 30 November 1964 by the Commissioner for Patents Sir John Clayden, dismissed the objections. The chief "inutility" argument, based on whether the GE term "carboneous material" might not also refer to forms of carbon for which the process would be ineffective, was rejected because the objectors could not come up with any reasonable such material for which the process would not work. Frank had in fact argued against another objection on these grounds, which claimed that the patent specification included metals which would not melt at the temperatures specified, and felt that the "inutility" case was rather weak. The "obviousness" case was also dismissed. According to Clayden the "common knowledge in the art at the effective date of the application" did not include the precise forms of the carbon and catalyst to be used in the GE process, or the right pressure and temperature required. He ruled that it was not common knowledge that graphite would be the form of carbon used, and that following K. Lonsdale's analysis of the GE diamonds it would be assumed Nickel (or a Nickel-based substance) must be the catalyst.

Most importantly the judge found that an attempt to create synthetic diamonds by the GE method in September 1959 would have failed because of mistakes in the calculation of pressure. In their work GE had relied upon experiment to determine the pressures and temperatures needed for success, but soon afterwards R. Berman and Sir Francis Simon produced their "curve" which became accepted as the theoretical guide to the correct thermodynamic conditions for diamond synthesis. The accepted Bridgman Electrical Resistance method of calibrating pressure, however, which Clayden ruled was "common

knowledge" in 1959, was faulty. In 1961 it was found to be 30% out at high pressures. Therefore in 1959 anyone following the Berman-Simon curve to reach the right pressure and temperature to create diamonds by the GE method would fail, they would not be calculating pressure accurately.

Frank criticised the judgement noting "The odd outcome is the following: GE placed too much reliance on Bridgman. This is taken as cogent evidence that everyone would place too much reliance on Bridgman ... so that GE succeeds because of this mistake on its part." He felt that there were "good grounds" for challenging this judgement.

The Chamber of Mines went to the Court of Appeal. Here too, on 16 June 1966, the "inutility" arguments were rejected. But that on the grounds of "obviousness" was sustained. J. Galgut presiding found that GE itself had revealed most of the facts behind the processes and the rest were "obvious" to any competent diamond-synthesiser. As Frank had stated in his affidavit, the only novelty with the GE process was its "excellent apparatus" which could sustain the high pressures and temperatures which were commonly known to be required.

According to Galgut Graphite was obviously the most likely form of carbon to be used (being easily obtained in a pure form which could be broken down). Furthermore, it was not likely that Nickel would be thought of as the only catalyst. Frank had argued that it was well-known that a number of molten metals from group VIII of the periodic table (and not just Nickel, which has a high melting point) would "dissolve substantial quantities of carbon in an atomically dispersed form", including iron. Finally he rejected the ruling that the undetected flaw in the Bridgman Electrical Resistance calculation of pressure would have effectively prevented synthesis, pointing out that the alternative (and accurate) Bridgman volume method was well-known, and that using the Berman-Simon curve with the uncorrected electrical resistance calculation of pressure, it was possible to achieve diamond synthesis.

In 1961 GE applied for two more related patents, 2117/61, which was for the "production of electrically conductive diamonds" by adding boron or aluminium to the melt, and 1218/61 referring to the etching of diamond surfaces. Both were contested, Frank producing affidavits to the effect that in both cases the process was obvious and no more than an imitation of known natural occurrences.

The material is chiefly copies of the affidavits and other evidence presented at the hearings, together with copies of the two judgements, correspondence from Spoor & Fisher representing the Chamber of Mines, and manuscript drafts of Frank's affidavits. There are also copies of affidavits presented in respect of a rival De Beers patent application (3974/58) to which GE objected. The applicants claimed that whereas the GE process for synthesising diamond operated, according to their application, by catalytic process, theirs operated purely by a "solvent" process. As it was accepted in the cases brought against GE that, if broadly defined, a "catalyst could also be a solvent", case 3974 was dropped in 1962.

- G.76 Correspondence with Spoor & Fisher and notes re the case, chiefly on diamond synthesis, 1962.
- G.77 Correspondence with Spoor & Fisher, Frank's notes on the case etc., 1963.
- G.78 "Summarised Report on Experimental Work Carried Out at Adamant Research Laboratory in Connection with General Electric Company Affidavits", 12 June 1963, 11pp duplicated typescript and table. With two envelopes of photographs inscribed "Diamonds grown in metal" (9 photographs) and "Diamond dissolution by metals" (7 photographs).
- G.79 Correspondence with Spoor & Fisher 1964. Includes manuscript draft of Frank's letter, dated 19 December, criticising Sir John Clayden's Judgement (G.82).
- G.80 Frank's manuscript draft affidavits.
- G.81 Frank's manuscript draft "Replies to Applicant's evidence".
- G.82 Original Judgement, 30 November 1964.
- G.83 Appeal Court Judgement, 16 June 1966.
- G.84-G.86 Evidence presented.
3 boxes.
- G.84 Box 1 Patent applications, letters of demands and notices of opposition; memorandum on evidence; exhibits.
- G.85 Box 2 Affidavits for 3550/59.
- G.86 Box 3 Affidavits for 3974/58, 3547/59, 3551/59, 4878/59, 1218/61 and 2117/61.

Miscellaneous

- G.87 Visit to South Africa, 1959. Frank was invited to South Africa by the Students' Visiting Lecturers Trust Fund of the University of the Witwatersrand, at the suggestion of F.R.N. Nabarro.
- Invitation; letters from W.F. Cotty of the Diamond Producers Association London Committee introducing Frank to the Secretary and the Chief Diamond Valuator of De Beers.
- G.88 Report by E.W.J. Mitchell on High Pressure Conference, Le Creusot, France, 2-6 August 1965, with reference to the implications for diamond research.
- G.89 Visit to South Africa, August-September 1965. Frank was invited by the Students' Visiting Lecturers Trust Fund Committee of the University of Natal, 12 June 1964. While in South Africa Frank visited the universities of Port Elizabeth and the Witwatersrand and worked at the Diamond Research Laboratory.
- Invitation; correspondence re arrangements.
- G.90-G.92 International Industrial Diamond Conference, Oxford, 19-22 September 1966. Frank spoke on "Defects in diamonds" (*Bibliog.* 91). The conference was sponsored by De Beers.
- G.90 Conference brochure; background information etc.
- G.91 33pp manuscript and 28pp typescript drafts of Frank's contribution; 1p manuscript list of references. D.R. Grantham's comments on Frank's contribution were submitted to the 1969 Diamond Conference. See G.35.
- G.92 Manuscript diagrams of lattices and diamonds found with the preceding.
- G.93 De Beers Industrial Diamond Division One Day Conference on Recent Developments in Production Grinding with Diamond, London, 2 July 1968.
- Invitation only.

- G.94 Correspondence, signed menu from colleagues attending dinner in honour of W.F. Cotty's promotion to Technical and Diamond Consultant with De Beers' Industrial Diamond Division, 17 March 1971. Frank was unable to attend, having to undergo an operation and the letters express the hope that he will make a swift recovery.
- G.95 Diamond Dinner, 21 March 1975.
- Invitation; Frank's speech recalling the establishment of the Diamond Conferences and early participants.
- G.96 Visit to South Africa, October-November 1977. Frank was invited by the University of the Witwatersrand in conjunction with De Beers.
- Invitation and correspondence re arrangements; programme for visit to Kimberley, 9-10 November.
- G.97 Photocopy of article on natural diamond by D.N. Robinson, annotated by Frank, 2 July 1979.
- G.98 Photograph of "man made platelets in diamonds", signed and dated "Trevor Evans 6/5/80".
- Invitation to visit Diamond Research Laboratory in January or February 1987 to discuss the results of a study on the "morphology and growth mechanism" of large synthetic diamonds.
- G.99 Note by Frank beginning "What is the magnitude of the absorption coeff[icient] of Diamond betw[een] 2000A and 3000A", 1p manuscript, nd.
- "Cutting action, wear and fracture of rounded diamond", 15pp typescript, nd. (latest bibliographical reference 1966). Author not named.

G.100-G.113 GENERAL ELECTRIC (GE) 1951-62

Frank served as occasional consultant in the Metallurgy and Ceramics Research Department of GE's Research Laboratory, Schenectady, NY, under flexible contracts that allowed him scope to attend conferences and visit colleagues in other research establishments. His 1956 consultancy specified he was an advisor on "physics of solids". Exclusion of consulting about diamonds had been informally agreed from the beginning, but in 1962 in view of the South African patents dispute between GE and de Beers, this exclusion was explicitly written into the contract (see G.76-G.86 and G.110).

"There was no formal end to this consultancy. It was put to me that it would be tactful if I deferred my next summer vacation visit (which I had been making every second year) by a year, by which time the patents dispute between GE and de Beers would doubtless be concluded. However, the dispute dragged on and by the time it was over my principal friends at Schenectady, with whom details of the next visit would have been arranged, had moved elsewhere. I did make several visits of one or two days subsequently, at which I was consulted on various scientific questions (one of which might have led to something patentable, but didn't) but never for long enough to receive payment." (F.C.F., private communication, 9 September 1989).

G.100, G.101 1956 May-September.

During this extensive consultancy with GE Frank attended a number of conferences in North America (see H.26, H.27).

G.100 Copy of consultancy contract; notice of special seminar on "Liquid crystals : (3)" given by Frank, 11 July; brief correspondence re patent for Magnetic Annealing in Rotating Magnetic Field.

G.101 Miscellaneous memorabilia. For photographs of Frank and colleagues at GE, see A.95.

G.102-G.108 1958.

As in 1956 Frank was able to combine a lengthy consultancy with GE with attendance at a number of conferences and seminars in America (see H.29-H.31).

G.102 Brief correspondence; copy of consultancy contract; notices of GE Research Laboratory seminars and colloquia etc. Frank gave seminars on 5 and 11 September on "Kinematic theory of crystal dissolution and growth" and "Coincidence Lattices - sub-boundaries and Kronberg-Wilson relationships".

- G.103 Memorabilia.
- G.104-G.108 Miscellaneous manuscript and typescript drafts and notes by Frank found with material re 1958 consultancy.
- G.104 "Layering in the higher coordination structures", 11pp typescript with manuscript corrections plus figures.
- G.105 "The geometrical basis of structures of intermetallic compounds", 2pp typescript plus figures.

 "Detailed geometry of the four special coordination shells", 5pp manuscript and 3pp typescript drafts.
- G.106 "Some definitions relating to coordination", 5pp manuscript and 2pp typescript drafts.

 "Properties of regular solids", 1p duplicated typescript plus tables.
- G.107, G.108 Manuscript notes and diagrams chiefly re lattices.
- G.109 1960.

 Correspondence from J.H. Hollomon, 1960 re possibility of Frank visiting Schenectady laboratories, etc.
- G.110-G.113 1962.
- G.110 Letter re "Consulting Agreement Between General Electric Company and F.C. Frank", 9 August 1962.

 To avoid a conflict of interests between Frank's consultancies for GE and De Beers it was agreed that the terms of the GE consultancy should exclude diamond research.
- G.111 Includes *Research Laboratory Notes* for 22 August 1962 mentioning Frank's seminar "A commentary on theorems concerning crystal surface energies".

- G.112 Includes press release, 7 September, re "A new 'direct process' for making diamonds".

According to the press release " ... it has become possible to achieve pressures and temperatures so high that the metal catalyst is no longer needed" to convert non-diamond carbon into diamond.

- G.113 Calculations by Frank found with preceding material. Includes 5pp manuscript calculation of a "Problem: Of random paths which cross a plane, how many do not re-cross it?"

- G.114 IMPERIAL CHEMICAL INDUSTRIES (ICI) 1974-75

Frank's consultancy with ICI was terminated in July 1975.

Brief correspondence includes Frank's comments on ICI's "dairy-separator version of the gas centrifuge", 1974.

- G.115-G.122 INTERNATIONAL BUSINESS MACHINES CORPORATION (IBM) 1973-82

Frank served as occasional consultant to IBM at their Thomas J. Watson Research Center, Yorktown Heights, NY, combining short spells at the Center with visits to colleagues at other research centres, and attendance at conferences, in the US and Canada.

- G.115 1973.

Invitation to serve as consultant.

- G.116 1977.

Invitation, 9 December 1976, suggesting Frank combine attendance at the 1977 International Conference on Crystal Growth, Boston, MA, with consultancy work.

G.117, G.118 1978.

G.117 Letter re arrangements etc. See also H.116.

G.118 IBM Thomas J. Watson Research Center Report "The science of crystal growth", an IBM education course. With Frank's annotations and interleaved manuscript notes.

G.119, G.120 1980 3-7 November.

Frank was invited to the Watson Research Center on the occasion of his being made a Foreign Associate of the US National Academy of Engineering (see A.27, H.140-H.142).

G.119 Correspondence re arrangements; contract; notices of Frank's Physics Colloquium "On definitions of supersaturation"; etc.

G.120 Correspondence and papers re attempt to obtain permanent US residence for Swiss IBM colleague.

G.121, G.122 1982 24-28 July

Frank was invited to the Watson Research Center in conjunction with the 1982 Gordon Research Conference (H.150, H.151).

G.121 Correspondence re arrangements; contract; itinerary; etc.

G.122 Contents of folder inscribed "Van Vechten". Includes reprints of two articles, 1977 and 1978, by J.A. Van Vechten, a member of the Research Center, with Frank's manuscript annotations and miscellaneous manuscript notes. Found with G.121.

G.123 PCI DISPLAYS PTE LTD

1981

Request from the solicitors of PCI to "review the technical arguments concerning the novelty, inventiveness or otherwise of the [Hoffman La] Roche patent" covering "the so-called Schadt-Helfrich twisted nematic liquid crystal display", 2 September. With photocopy of the patent specification.

G.124-G.130 J.A. RADLEY (LABORATORIES) LTD 1960-63
(later J.A. RADLEY RESEARCH INSTITUTE)

The Radley Laboratories were a commercial research company started "to cater for small firms ... who were, individually, not in a position to set up their own laboratories". Frank was initially asked to become a consultant in connection with work being done on metal whiskers and crystal structure in April 1960. He later became a co-opted governor of the Institute.

G.124 Correspondence re consultancy, April 1960; booklet "An introduction to Radley Industrial Research and Development Laboratories".

G.125 Notice of formation of Radley Research Institute 1961; annual reports 1959-60 and 1961-62; Chairman's interim progress report, 6 September 1961; agenda for first AGM of Board of Governors, 10 April 1962.

G.126 Letter to Frank, 23 January 1963, including list of "ideas for research proposals".

G.127-G.130 Radley Laboratories/Research Institute Final Technical Reports:

G.127 "The effect of sugars and other hydroxy compounds as inhibitors of corrosion ... ", 1958.

G.128 "General mechanism of drainage from solid surfaces", 1959.

G.129 "Mechanism of corrosion of copper and copper alloys by ammonia solutions ... ", 1959.

G.130 "Catalysis at semi-conductor surfaces", 1962.

SECTION H**VISITS AND CONFERENCES****H.1-H.169**

Not all of Frank's extensive travel and attendance at conferences is documented in this section. Frank attended conferences held by a number of Societies and Organisations, most notably the International Organisation of Crystal Growth (F.116-F.175) and the Pugwash movement (F.205-F.250), and made a number of visits to South Africa in connection with his consultancy with De Beers (G.24-G.99).

The presentation is chronological as far as possible. Material relating to invitations either declined or for which there is no evidence of acceptance is placed at the end of the sequence for each year.

1939

- H.1 ICI (Plastics) Ltd. colloquium, Billingham, Durham, 6 January. Frank spoke on "The high frequency electrical behaviour of plastics and other insulating materials".

Correspondence re arrangements; advance summary of Frank's contribution.

1948

- H.2 Colston Research Society Symposium on Cosmic Radiation, Bristol, 20-24 September.

HMSO diary for 1946 used from the front for Frank's notes on proceedings, including loose manuscript notes. At the back are unrelated notes and calculations.

Brief correspondence re publication of Frank's report on the symposium.

1949

- H.3 British Association for the Advancement of Science Meeting, Newcastle, 31 August - 7 September. Frank spoke on "Recent investigations at Bristol University".

Brief correspondence only.

Invitations for 1949

- H.4 British Rheologists' Club, 26 September.

Société Française de Métallurgie autumn meeting, Paris, 3-8 October.

1950

- H.5 Visit to Paris, January.

Brief correspondence, 1949-50, re visit of Frank and N.F. Mott.

H.6, H.7 Visit to USA, 15 April - 23 June.

Frank was initially invited to present a paper at the Office of Naval Research/Carnegie Institute of Technology Conference on the Fundamentals of the Plastic Deformation of Crystalline Solids (title later changed to Deformation of Metals), Pittsburgh, PA, 19-20 May, where he spoke on "The origin of dislocations". He also attended a conference on recrystallisation at Notre Dame and was invited to visit and speak at other research centres. See H.6 for itinerary.

H.6 Invitations; correspondence re arrangements with colleagues; itinerary for 20 April - 30 May.

H.7 Conference on Recrystallisation, Notre Dame, IN, 1-2 June.

Correspondence; programme; Frank's notes on papers presented.

Invitation for 1951

H.8 Conference on Dielectrics, Liverpool, July.

1953

H.9 Conference on Lattice Defects and the Electrical Resistivity of Metals, Birmingham, 24-25 April.

Programme with Frank's manuscript notes on back.

H.10 Symposium on Crystal Plasticity, 18 May.

Manuscript notes (not in Frank's hand) headed "Dislocation loops crossing a cluster of screw dislocations (at the Symposium on Crystal Plasticity, 5/18, 1953)".

H.11-H.22 Visit to Japan, September-October.

Frank visited Japan for the International Union of Pure and Applied Physics (IUPAP) Conference on Theoretical Physics, Kyoto and Tokyo, September, and its associated symposia and meetings. He chaired a session of the Conference and spoke on "Visual evidence of dislocations" at a pre-conference Symposium on Crystal Plasticity and Deformation, Nikko, 12-13 September. Frank also attended several informal meetings and visited a number of Japanese research centres.

H.11 Correspondence with organisers re arrangements for IUPAP conference; lists of participants; programme.

- H.12 US IUPAP National Committee information notes for the American delegation.
- H.13 Programmes for the Nikko symposium; manuscript and typescript drafts of Frank's contribution.
- H.14 Annotated programme for Informal Meeting on Crystal Dislocation, Research Institute for Iron, Steel and Other Metals, Tohoku University, 29 September, attended by Frank and N.F. Mott. With information on the Research Institute.
- H.15 Frank's manuscript notes on discussion on "Science and Peace". Participants included R.P. Feynman and several Japanese scientists.
- H.16 Material re other meetings and lectures.
- H.17, H.18 Information on Japanese research centres.
2 folders.
- H.19 Photographs (some mounted, probably used by Frank to illustrate his lectures).
- H.20 Invitations and information sent to Conference delegates re "Hiroshima", a Japanese film shown at Tokyo University during the conference.
- H.21, H.22 Miscellaneous memorabilia.
2 folders.

1954

- H.23 United Steel Companies Ltd. Conference for University Lecturers and Tutors in Science and Engineering on Iron and Steel Making, Research and Engineering, Sheffield University, 6-11 September.

Programme; lists of participants.

1955

- H.24 S.O. hardback notebook used by Frank for notes on unidentified conference [? on irradiation], July.

Participants include A.H. Cottrell, N.F. Mott, E.W.J. Mitchell, G.F.J. Garlick, H.S.W. Massey, M.H.L. Pryce.

- H.25 International Union of Theoretical and Applied Mechanics Colloquium, San Lorenzo del Escorial, Spain, September.

Signed menu and hotel bill. Not otherwise documented.

1956

- H.26, H.27 Visit to USA and Canada, May-September.

During this period Frank served as consultant to General Electric (GE) at their Research Laboratory Schenectady, NY (see G.100, G.102). Whilst in North America Frank attended a number of conferences including the International Congress on Theoretical Physics, University of Washington, Seattle, 17-21 September.

- H.26 Invitation to Seattle Congress; correspondence with organisers and Frank's manuscript notes re arrangements; list of participants; preliminary programme etc.

- H.27 Material re other engagements fulfilled by Frank.

These included Special Physics Colloquium, Brookhaven National Laboratory, 19 July; Gordon Research Conference on the Chemistry and Physics of Metals, 23-27 July; Canadian Metal Physics Conference, Edmonton, 22-24 August. Frank also appeared in a television programme on Crystals broadcast in San Francisco, 24 September (see E.78).

1957

- H.28 Birmingham University Research colloquium, 16 April. Frank spoke on "Complex alloy structures and the packing of spheres" (see D.44, D.45).

Correspondence re arrangements.

1958

H.29-H.31 Visit to USA.

Frank served as consultant to GE at their Research Laboratory, Schenectady, NY, in the summer of 1958 (see G.102-G.108). Whilst in the US Frank attended international conferences at Rochester and Cooperstown, NY, and was invited to speak at colloquia in Washington, D.C. and at the University of Maryland.

H.29 International Conference on Superconductors, University of Rochester, NY, 18-22 August.

Programme; Frank's manuscript notes.

H.30 International Conference on Crystal Growth, Cooperstown, NY, 27-29 August. Frank gave the Introductory Lecture and papers on "Theory of dissolution shapes and transient growth shapes of crystals" and "Electron microscope observations of moire patterns in single crystals of Polyethylene" (with A.W. Agar and A. Keller).

Programme; list of participants; Frank's manuscript notes; "Extemporaneous comments" by F. Seitz. For photographs of Frank and conference photograph with key, see A.96.

H.31 Invitation to Frank to speak at the Greater Washington Solid State Physics and University of Maryland Physics Department colloquia.

H.32-H.40 "Exposition Universelle et Internationale de Bruxelles".

Contents of envelope so imprinted: duplicated typescript information sheets explaining exhibits displayed at the Exposition. The material is divided into four sections entitled "Atom", "Molecule", "Crystal" and "Living Cell". Most of the information sheets are in English, but a few are in French, German or Dutch.

Frank visited the Exposition with Professor Willi de Keyser, head of the Mineralogy Department of Ghent University, who organised the crystallography exhibits. Frank had considerable research interests in common with the Mineralogy Department at Ghent and had received an honorary degree from the University three years earlier.

H.32, H.33 "Atom" section.

2 folders.

H.34-H.36 "Molecule" section.
3 folders.

H.37, H.38 "Crystal" section.
2 folders.

H.39, H.40 "Living Cell" section.
2 folders.

1961

H.41 High Polymer Research Group Conference on the Relation between Chemical Structure and Physical Properties of Elastomers with Particular Reference to the Fundamental Aspects of the Subject, Moretonhampstead, Devon, 17-21 April.

Programme with list of participants.

H.42 National Research Development Corporation Solid State Sciences Conference on The Mechanical Properties of Solids, Caius College Cambridge, 13-17 July. Frank spoke on "Polymers".

Programme; draft Conference Report; transcript of Frank's contribution.

H.43 Visit to Czechoslovakia, 18 September - 2 October.

Frank was a member of a British Council delegation to Czechoslovakia which visited universities in Prague, Bratislava, Brno and Olomouc.

Correspondence with British Council re arrangements; itineraries; reports on visit for the British Council by delegation members.

1962

H.44 Visit to USA.

Frank again served as consultant to GE at Schenectady in late summer (G.110-G.113). While in the US he attended the American Chemical Society Symposium on Crystallisation of Polymers, Atlantic City, NJ, 10-11 September.

Programme; abstracts; Frank's manuscript notes on proceedings re Atlantic City Symposium.

H.45 International Conference on Lattice Defects, Kyoto, 7-12 September.

Correspondence with organisers and Royal Society re financial arrangements. Frank had initially intended to participate in the conference but later withdrew.

1963

H.46 Conference on High Magnetic Fields, Brasenose College Oxford, 10-11 July.

Programme (with alteration by Frank); abstracts.

H.47, H.48 International Conference on the Science of Superconductivity, Colgate University, Hamilton, NY, 26-29 August.

H.47 Invitation; correspondence re arrangements.

H.48 Conference handbook.

1964

H.49 National Institute for Research in Nuclear Science meeting "to discuss the provision of a UK high flux thermal neutron source", Rutherford High Energy Laboratory, Chilton, Berks., 3 July.

Brief correspondence with Sir John Cockcroft, chairman; programme; background information.

1964-65

H.50-H.52 Visit to USA.

Frank spent nine months in California as Visiting Professor at the University of California's Institute for Geophysics and Planetary Physics, La Jolla, San Diego. In the US he visited colleagues at a number of other research establishments and attended a VESIAC conference on Shallow Seismic Events.

H.50 Correspondence with colleagues re visits; manuscript notes for lecture on "Modes of deformation of solids" to Earth Scientists, 2 March 1965.

H.51 VESIAC Special Advisory Conference on Current Status and Future Prognosis for Understanding the Source Mechanism of Shallow Seismic Events in the 3 to 5 Magnitude Range, La Jolla, 22-24 March. Frank led a discussion on "The physics of earthquake sources".

Correspondence with organisers; programme; abstracts; Frank's introduction to the discussion.

H.52 Miscellaneous background material.

1965

H.53 Centre National de la Recherche Scientifique International Colloquium on Adsorption et Croissance Cristalline, Pont-à-Mousson, Nancy, 6-12 June.

Correspondence with organisers re arrangements; programme; memorabilia.

H.54 British Ceramic Society and Netherlands Ceramic Society 3rd Joint Meeting on Science of Ceramics, Bristol University, 5-8 July.

Invitation; programme (with manuscript calculations on back).

1966

H.55 Upper Mantle Committee Symposium on Non-Elastic Processes in the Mantle, Newcastle-upon-Tyne, 21-25 February 1966 (rearranged from 13-19 October 1965).

Correspondence re arrangements; programmes; draft of Frank's contribution to discussion, etc.

- H.56, H.57 Symposium on areas for further research in polymer technology, Loughborough, 31 March - 2 April.
- H.56 Correspondence with organisers re arrangements; programme; list of participants; abstracts; transcript and "tidy version" of Frank's remarks.
- H.57 Duplicated typescript text of symposium proceedings.
- H.58, H.59 Società Italiana di Fisica meeting on European collaboration in physics, Pisa, 16-17 April.
- H.58 Correspondence re arrangements; programmes; reports of Working Groups. For Frank's report see *Bibliog.* 87 (D.69).
- H.59 Conference handbook.
- H.60 Battelle Institute colloquium on Phase Stability in Metals and Alloys, Geneva and Villars, Switzerland, May. Frank chaired a discussion on Liquids and defect solids.
- Draft of Frank's remarks; for photographs of Frank taken during discussion and group photograph of colloquium see A.96.

1967

- H.61, H.62 NATO Advanced Study Institute on The Application of Modern Physics to the Earth and Planetary Interiors, Newcastle-upon-Tyne, 29 March - 4 April. Frank spoke on "Diamonds and deep fluids in the upper mantle" (*Bibliog.* 99).
- H.61 General information; list of participants; draft of Frank's contribution; correspondence re publication of proceedings.
- H.62 Conference handbook.
- H.63 Royal Astronomical Society discussion on Earthquake Mechanism, London, 28 April. Frank spoke on "Fracture mechanics of the earthquake source".
- Correspondence re arrangements.

H.64 Visit to USA, July-September.

Frank visited the USA as consultant to the Colorado School of Mines, Golden, CO. While in the US Frank visited several research centres including the Institute of Geophysics and Planetary Physics, Los Angeles and the Earthquake Mechanisms Laboratory, San Francisco. He also attended the 16th Annual Denver X-ray Conference on Applications of X-ray Analysis.

Correspondence and manuscript notes re arrangements; itinerary; programme for Denver conference.

Invitation for 1967

H.65 Invitation to spend a school year at Northwestern University, IL.

1968

H.66 Official Founding Ceremony of the European Physical Society, Geneva, 26 September.

Correspondence re arrangements. Frank combined a holiday in Czechoslovakia, Austria and northern Italy with attendance at the Ceremony. He also briefly attended the Trezzano course on ceramic science and technology (E.21-E.27).

1969

H.67-H.71 Conference on Industry and the Science Graduate, Bristol, 25-27 March.

The conference was proposed by Frank and organised with the Department of Extra-Mural Studies. Frank was a joint chairman and spoke on "What industry desires from the universities".

H.67 Correspondence with possible participants, 1968.

H.68 Correspondence with G. Cunliffe, Director of Extra-Mural Department, 1968-69.

H.69 Draft programme and conference handbook.

H.70 Correspondence re publication of proceedings. Includes extensively corrected draft of C.F. Powell's summing-up.

- H.71 Conference Report.
- H.72 European Physical Society Inaugural Conference on The Growth Points of Physics, Florence, 8-12 April.
- Notice; addendum to list of participants; letter from *Czechoslovak Journal of Physics* re interview during the conference.
- H.73 Société Française de Physique Colloquium on Liquid Crystals, Montpellier, 5-7 June.
- Provisional programme annotated by Frank with train times between Paris and Montpellier.
- H.74-H.76 International Union of Pure and Applied Chemistry Microsymposium on Rheology of Polymer Solids and Concentrated Solutions, Prague, 1-4 September. Frank chaired a session.
- H.74 Symposium handbook.
- H.75 Information re Czechoslovak Academy of Sciences Institute of Macromolecular Chemistry.
- H.76 Miscellaneous memorabilia.
- H.77 Symposium on the Hydrology of Glaciers, Cambridge, 7-13 September. Frank spoke on "The hydrology of the intergranular veins in a temperate glacier" (with J.F. Nye).
- Letter from organisers; photocopy of Frank and Nye's paper; transcript of Frank's contribution to the general discussion.

Invitations for 1969

- H.78 Conference on The Chemistry of Extended Defects in Non-Metallic Solids, Phoenix, AZ, 20-25 April.
- Conference on Fundamental Aspects of Dislocation Theory, Spring 1967 (subsequently rearranged for 28 April - 2 May 1969).
- International Conference on Growth and Characterization of Electronic Materials, Chania, Crete, 1-14 June.
- Gordon Conference on Physical Metallurgy, Seattle, WA, 7-11 July.
- International Conference on Quantitative Relations between Properties and Microstructure, Haifa, Israel, 27 July - 1 August.
- AEI Scientific Apparatus Ltd. Symposium on New Techniques in Materials Analysis, National Physical Laboratory, Teddington, 1 October.

1970

- H.79, H.80 British Polymer Physics Group Conference on Polymer Chain Flexibility, Colchester, 7-9 January.
- H.79 Programmes; list of participants; information; correspondence re Soviet participation.
- H.80 Abstracts, some annotated by Frank; Frank's manuscript notes on proceedings.
- H.81 High Polymer Research Group Conference on Relaxation Phenomena in Polymers, Moretonhampstead, Devon, 4-8 May.
- Invitation with letter of acceptance; programme; information.
- H.82-H.85 Visit to USA and Canada, August-September.
- Frank was invited to attend the Gordon Research Conference on Physical Metallurgy, Tilton, NH, 24-28 August. In advance of the conference he visited Bell Telephone Laboratories at Murray Hill, NJ and GE's laboratory at Schenectady, and was invited to IBM's Thomas J. Watson Research Center.
- Following the conference Frank spent a week at the Institute for Materials Research, McMaster University, Hamilton, Ontario as Visiting Lecturer.
- H.82 Itineraries; lists of addresses.

H.83 Correspondence re arrangements; programmes; list of participants etc. for Gordon conference. Frank spoke on "The Earth - the largest accessible specimen for the solid-state physicist".

H.84 Correspondence with colleagues at other US research centres.

H.85 Correspondence with colleagues at McMaster University re Visiting Lectureship; schedule; notice of Frank's lectures "The mechanics of the Earth's crust" and "Processes for aligning polymer molecules".

Invitations for 1970

H.86 Conference on the Yield Deformation and Fracture of Polymers, Churchill College Cambridge, March/April.

NATO Advanced Study Institute on the Moon and Planets, Newcastle-upon-Tyne, 9-16 April.

Conference on Law, Science and Politics : Water Pollution and its Effects considered as a World Problem, Aberystwyth, 11-12 July.

International Conference on the Science and Technology of Iron and Steel, Tokyo, 7-11 September.

1971

H.87 Colloquium on Liquid Crystals, Pont-à-Mousson, Nancy, 27 June - 3 July. Frank chaired the first session.

Correspondence with organisers; programmes; lists of participants; Frank's manuscript notes on proceedings.

H.88 International Symposium on X-ray Topography, Bristol, 29 September - 1 October. Frank delivered the Opening Address.

Information; draft of Address.

Invitations for 1971

- H.89 Institute of Science Technology meetings, Bristol, April-May.
- Society of Metals Science Japan, International Conference on the Mechanical Behaviour of Materials, Kyoto, 15-20 August.
- Exeter University discussion meeting on Indentation Hardness of Solids, 23-24 September.

1972

- H.90-H.94 Europhysics Conference on Disclinations, Aussois, France, 21-23 June. Frank was joint organiser with M. Kléman and chaired the first session.
- H.90-H.92 Correspondence with Kléman and possible participants, and with institutions and companies re funding, 1971-72.
- 3 folders.
- H.93 Programme; list of participants; disclination bibliographies; Frank's manuscript notes.
- H.94 Abstracts.

Invitations for 1972

- H.95 Gordon Research Conference on Polymer Plastics, Andover, NH, 26-30 June.
- [Soviet] All-Union Conference on Crystal Growth, Tsakhkadzor, Armenia, 16-23 September.

1973

- H.96 Plastics Institute 2nd International Conference on Yield, Deformation and Fracture of Polymers, Churchill College Cambridge, 26-29 March.
- Press notice; invitations to sum up proceedings. The notice is annotated by Frank "I want to go. I don't expect to offer a paper".

Invitations for 1973

- H.97 Israel Association of Growth of Crystals and Thin Films 4th Annual Meeting, Bar Ilan University, 4 January.
- International Summer School on Point Defects and their Interaction with the other kind of Lattice Imperfections, Zakopane, Poland, 18-30 June.
- 1st European Crystallographic Meeting, Bordeaux, 5-8 September.

1974

- H.98, H.99 Symposium on Dissociation of Dislocations and Associated Two-dimensional Defects, with emphasis on their effects on Mechanical Properties, Beaune, France, 9-12 September. Frank was a member of the Advisory Committee.
- H.98 Correspondence with organisers; information circular; list of participants.
- H.99 Abstracts.

1975

- H.100 International Union of Geodesy and Geophysics 16th General Assembly, Grenoble, 25 August - 6 September. Frank delivered a review paper on "Snow Crystals" to the International Symposium on Snow and Ice Crystals held under the auspices of the General Assembly.
- Circulars; abstract of Frank's contribution.
- H.101-H.105 NATO Advanced Study Institute on Surface Effects in Crystal Plasticity, Hohegeiss, FRG, 5-14 September. Frank delivered the concluding Summary Lecture (*Bibliog.* 133).
- H.101 Invitation; correspondence re arrangements.
- H.102 Information; programme; list of participants.
- H.103 Abstracts.

- H.104 A4 notepad used by Frank for notes on proceedings.
- H.105 Manuscript and typescript drafts of Frank's lecture.

Invitations for 1975

- H.106 2nd Liquid Crystal Forum, Leeds, 5-6 April.
- L'Association Bourguignonne des Sociétés Savantes annual conference, Beaune, France, 25-27 May.
- Institution of Metallurgists autumn review course on Innovation Management in Metallurgy, Bristol, 31 October - 2 November.
- European Conference on Physics of Smectics and their Applications, Les Arcs, France, 15-18 December.

1976

- H.107 Royal Astronomical Society Discussion Meeting on Solid State Physics and Geophysics, London, 12 November. Frank spoke "On the significance of Grüneisen's Gamma". See D.122, D.123.
- Programme and brief correspondence.

Invitation for 1976

- H.108 First European Conference on Crystal Growth, Zürich, 12-18 September.

1977

- H.109 Visit to Paris, 15 February - 15 July.
- In 1975 J. Friedel invited Frank to spend a few months after his retirement working at the Laboratoire de Physique des Solides, Université de Paris-Sud. Whilst in France Frank gave lectures to Association Française de Cristallographie ("Consequences of pressure changes in the interior of the Earth caused by differentiation of the upper mantle"), Paris, 4 May; Centre de Recherches sur les Macromolécules, Strasbourg, 24 May; Laboratoire de Physique des Solides ("Some examples of new phase states: domains in magnetic bubble plates and nematic thin films"), 2 June.
- Correspondence and papers re visit; material re lectures.

- H.110 Royal Astronomical Society UK Geophysical Assembly, Edinburgh, 12-15 April.
- Advance notices; copy of registration form filled in by Frank "If in UK I would wish to attend".
- H.111 University of Newcastle-upon-Tyne Geophysics Colloquium, 22 June. Frank spoke on coupling between mantle and core.
- Brief correspondence only. Frank was visiting Newcastle as External Examiner (K.11-K.17).
- H.112, H.113 6th Europhysics Conference on Macromolecular Physics: Phase Transitions in Bulk Polymers, Varna, Bulgaria, 26-29 September. Frank was on the Scientific Committee and spoke on "Phase transitions".
- H.112 Invitation; correspondence with organisers; draft of Frank's paper "Corrected: as delivered Varna 26 Sept. 1977"; related correspondence.
- H.113 Conference handbook.

Invitations for 1977

- H.114 Dielectrics Society meeting on Anisotropic Dielectrics, Cambridge, 29-31 March.
- Symposium on Crystallinity Control and Polymer Mechanics, Chicago, 28 August - 2 September.
- International Glaciological Society symposium on the Physics and Chemistry of Ice, Cambridge, 11-16 September.
- 5th [Soviet] All-Union Meeting on Crystal Growth, Tbilisi, 16-20 September.
- Meeting on physical aspects of polymer science, Lyons, 27-28 October.
- International Conference on Metaphor, Melbourne, 15-19 December.

1978

- H.115 7th International Liquid Crystal Congress, Bordeaux, 3-7 July.
Frank was on the Scientific Committee of the Congress.

Brief correspondence re meetings of the Scientific Committee.

- H.116 Visit to USA, July-August.

Frank was invited to IBM's Thomas J. Watson Research Center, NJ, for consultancy work (see G.117, G.118). While in the US he attended the 4th American Conference on Crystal Growth, Gaithersburg, MD, 16-20 July to receive the first Crystal Growth Award of the American Association for Crystal Growth.

Annotated conference brochure; press release announcing the award; brief correspondence from American colleagues.

- H.117 8th Europhysics Conference on Macromolecular Physics: Structural Aspects common to Synthetic and Biological Macromolecules (including methods of examination), Bristol, 19-22 September.

Information; programme; booking form "sent 6/1/78".

- H.118 Sektion für Kristallwachstum der Schweizer Gesellschaft für Kristallographie meeting, Brig, Switzerland, 5-8 October.
Frank spoke on "Theory of the growth of snow crystals".

Correspondence and notes re arrangements; programme; unidentified photographs and graphs. For photographs of Frank taken during meeting see A.97.

Invitations for 1978

- H.119 Conference on Physics and Applications of Smectic and Lyotropic Liquid Crystals, Madonna di Campiglio, Italy, 9-13 January.

NATO Advanced Study Institute on the Mechanism of Continental Drift and Plate Tectonics, Newcastle-upon-Tyne, 29 March - 7 April.

1979

- H.120 Gordon Research Conference on Crystal Growth, Santa Barbara, CA, 15-19 January. Frank chaired the guest presentation.
- Invitation; correspondence with organisers and colleagues; programme; list of participants; draft of "Introductory remarks for evening session ... in particular, introducing Dr. Mandell"; manuscript notes etc.
- H.121 NATO Advanced Study Institute on Mechanism of Continental Drift and Plate Tectonics, Newcastle-upon-Tyne, 27 March - 10 April. Frank spoke on "The effect of anisotropy on conduction in the mantle".
- Preliminary programme; brief correspondence re publication of proceedings; draft of Frank's paper; manuscript notes and calculations.
- H.122 Royal Astronomical Society meeting, University College Durham, 10-11 April.
- Programme and menu only. Not otherwise documented.
- H.123 2nd European Conference on Crystal Growth, Lancaster, 10-15 September.
- Initial invitation, annotated "Answered 'Yes'"; invitation to be Guest of Honour and to chair a session.
- H.124 Seminar, Institut de Physique du Globe, Paris, 8 November.
- Letter and telegrams re arrangements; letter arising.

1979-80

H.125-H.138 Visit to India, December-February.

The Indian Academy of Sciences originally invited Frank to India as Raman Visiting Professor for 1978 when Dorothy Hodgkin, who had declined the Academy's 1977 invitation, was thought to be again unavailable. Subsequently Hodgkin indicated her willingness to visit India and Frank's visit was postponed for a year.

Although as Visiting Professor he was based at the Raman Research Institute, Bangalore, Frank was able to visit Indian research centres and colleagues in Madras, Kalpakkam, Delhi, New Delhi, Kanpur and Mysore. Frank also attended a liquid crystals conference arranged to coincide with his arrival at which he gave the opening lecture.

H.125 Correspondence and Frank's notes re arrangements for visit (including postponement), 1978-79.

H.126, H.127 International Conference on Liquid Crystals, Raman Research Institute, 3-8 December. Frank spoke on "What is the director of a liquid crystal?"

H.126 Correspondence with S. Chandrasekhar re arrangements; copy of Frank's contribution; copy of paper by W. Helfrich delivered at the conference with letter from Frank suggesting amendments.

H.127 Conference handbook.

H.128 Raman Research Institute, Bangalore.

Information on Institute activities.

H.129 Indian Institute of Science, Bangalore.

Brief correspondence re visit to Physics Department; Frank's criticisms of an article by Institute members, with their rebuttals; material re total solar eclipse, 16 February, including accounts by Frank and his wife; invitation to the Inauguration of the International Winter School on Crystallographic Computing by Sir John Kendrew.

H.130 Madras, 9-11 January.

Frank visited the Reactor Research Centre, Kalpakkam, where he gave a seminar on "Personal reminiscences of the history of crystal defects", the British Centre where he spoke on "Prince Rupert's Drops", and the Institute of Mathematical Sciences.

Brief correspondence; notices for Frank's talks.

H.131 National Physical Laboratory, New Delhi, 13-20 January.

Frank delivered the 14th Krishnan Memorial Lecture on "Interaction between scientific disciplines: can study of liquid crystals teach anything of importance for Geophysics?"

Correspondence re lecture; manuscript and typescript drafts of lecture with calculations and lists of references found with them.

H.132 Indian Institute of Technology, Kanpur, 20-27 January.

Frank spoke at a colloquium on "Consequences of pressure change in Earth's interior resulting from the differentiation of the Upper Mantle" and gave an Institute Lecture on "Prince Rupert's Drops: a long chapter in the history of materials science".

Correspondence re arrangements; programme for Frank's visit.

H.133 Solid-State Physics Laboratory, Delhi, January.

Frank offered to speak on "Recollections of the history of crystal defect studies".

Brief correspondence only.

H.134 Invitations to visit Physical Research Laboratory, Ahmedabad and the Physical Society, Sir Theagaraya College, Madras.

H.135 Photographs and slides of the charnockite margins at Kabbaldurga, visited 25 February (F.C.F., private communication, 9 September 1989).

H.136-H.138 Miscellaneous memorabilia.

3 folders.

1980

- H.139 NATO Advanced Study Institute on Physics of Defects, Les Houches, France, 28 July - 30 August. Frank gave a short course on the history of defects and organised an informal session on smectics.

Correspondence with organisers re arrangements; programmes; background material; manuscript notes and figures.

- H.140-H.142 Visit to USA, 17 October - 15 November.

Frank was initially invited to attend the Annual Meeting of the US National Academy of Engineering to receive formal recognition as a Foreign Associate Member (A.27, F.194).

In the US Frank also served as consultant for IBM at the Thomas J. Watson Research Center, Yorktown Heights, NY (see G.119, G.120) and visited research centres in New York, Massachusetts and Colorado.

- H.140 Frank's manuscript notes re arrangements, including itineraries.

- H.141 National Academy of Engineering 16th Annual Meeting, Washington, DC, 29-30 October.

Correspondence re arrangements; programme, etc.

- H.142 Correspondence with colleagues re visits to National Bureau of Standards, Washington, DC, 31 October; National Center for Weather Research, Boulder, CO, 8-12 November; Harvard University, 12-15 November. At each Frank spoke on "Definitions of supersaturation".

Invitations for 1980

- H.143 Reading University Physics Department colloquium, February.

Post Office Research Centre, Martlesham Heath, Ipswich, April or May.

Gordon Research Conference on Crystal Growth, Holderness, NH, 14-18 July.

4th International Conference on Magnetic Bubbles, Tokyo, 24-27 September.

1981

- H.144 United Nations Association seminar on the need for disarmament, Bristol, 17 October. Frank was chairman.

Brief correspondence re arrangements.

Invitations for 1981

- H.145 Workshop on Nucleation, Les Houches, France, 18-28 February.
- Conference on High Temperature Plasticity, Les Houches, 19-27 March.
- NATO Advanced Study Institute on Early Evolution of the Planets and their Atmospheres, Newcastle-upon-Tyne, 23 March - 3 April.
- Gordon Conference on Liquid Crystals, New London, NH, 6-10 July.
- International Association of Seismology and Physics of the Earth's Interior symposium on the Properties of Materials at High Pressures and Temperatures, London, Ontario, July.

1982

- H.146, H.147 2nd General Conference of the Condensed Matter Division of the European Physical Society, Manchester, 22-25 March. Frank spoke at the conference dinner.
- H.146 Invitation; programme; list of participants; general information.
- H.147 Correspondence re publication of Frank's contribution in *Physica Scripta* including proof with Frank's corrections. Not listed in *Bibliog*.
- H.148, H.149 Visit to Spain 13 April - 3 May.
- Frank visited Spain at the invitation of the Instituto di Fisica del Estado Solido of the Autonomous University of Madrid, supported by the Royal Society European Programme. He also visited the Complutense University Madrid, the Universities of Seville and Saragossa, and the University of the Basque Countries, Bilbao.
- H.148 Invitation; correspondence re arrangements; autobiographical note by Frank introducing a paper on "Crystal growth without dislocations"; itineraries.

H.149 Frank's "Report on an R.S.E.P. visit to Spain" and correspondence arising from the visit.

H.150, H.151 Visit to USA, July.

Frank attended a Gordon Research Conference and served as a consultant for IBM (G.121, G.122). He also visited friends in Vermont.

H.150 Gordon Research Conference on Crystal Growth, Plymouth, NH, 12-16 July. Frank spoke on "Crystal growth without dislocations".

Correspondence re arrangements; programme; list of participants; background information. For group photograph of participants with key, see A.97.

H.151 Correspondence with H. Brooks, Bread Loaf, VT, re visit, 7-11 July.

Invitation for 1982

H.152 Lecture course on Polymer Science, University of Massachusetts.

1983

H.153 Cambridge University Department of Metallurgy and Materials Science colloquium, 28 February.

Brief correspondence re arrangements.

H.154 Maison Française d'Oxford Colloquium on Technical Terms in French and English, 28-29 March.

Correspondence re arrangements; programme; background information.

Invitations for 1983

H.155 Workshop on Clays and the Origin of Life, Glasgow, 18-24 July.

6th International Summer Institute in Surface Science, University of Wisconsin-Milwaukee, 22-26 August.

2nd International Seminar on the Living State, New Delhi, November.

1984

- H.156-H.158 Eshelby Memorial Symposium on Fundamentals of Deformation and Fracture, Sheffield, 2-5 April. Frank was a General Consultant to the Symposium's Advisory Board.

Correspondence, and material sent to Frank as Consultant (programme, abstracts etc.).

3 folders.

- H.159 10th International Liquid Crystal Conference, York, 15-21 July. Frank gave the Introduction.

Draft of first paragraphs of the Introduction; extensively annotated reprint of Frank's "Introductory remarks" made at a 1983 Royal Society meeting on Liquid Crystals (not otherwise documented); International Liquid Crystal Song.

- H.160 European Workshop on NDE of Polymers and Polymer Matrix Composites, Termas de Vimeiro, Portugal, 4-5 September. Frank spoke on "Orientation mapping", *Bibliog.* 142.

Correspondence re arrangements; programme; list of participants; list of references from C. Upstill "for the atmospheric optics we were discussing in Portugal".

Invitation for 1984

- H.161 Workshop on Colloidal Crystals, Les Houches, France, 13-24 February.

1985

- H.162 International Discussion Meeting on Polymer Science and Technology, Rolduc Abbey, Limburg, Holland, 14-18 April. Frank was a member of the Meeting's Advisory Committee.

Correspondence from A. Keller and organisers.

- H.163 Visit to Paris, 27-30 June.

Itinerary only.

- H.164 Symposium in Honour of David Turnbull on Phase Transitions in Condensed Systems - Experiments and Theory, Boston, MA, 5-6 December. Frank was co-chairman of the session on Crystal growth and solid state transitions.

Invitation; correspondence re arrangements; programme; abstracts.

Invitation for 1985

- H.165 Indian Academy of Sciences Golden Jubilee Meeting, Bangalore, 6-8 February.

1986

- H.166 Visit to Canada, 6-23 August.

Travel documents only.

Invitation for 1986

- H.167 4th Hungarian Conference on Crystal Growth/1st International Symposium on Shaped Crystal Growth.

1987

- H.168 International Conference to celebrate the 40th Anniversary of the Discovery of the Pion, Bristol, 22-24 July. Frank participated in a Round Table Discussion with H. Fröhlich, C.M.G. Lattes, B. Marshak and others.

Invitation; poster; preliminary programme.

Invitations for 1987

- H.169 Gordon Research Conference on Liquid Crystals, Wolfeboro, NH, 22-26 June.

International Workshop on Quasicrystals, Peking, 30 August - 5 September.

SECTION J

CORRESPONDENCE

J.1-J.266

J.1-J.228

GENERAL SCIENTIFIC CORRESPONDENCE

Correspondence with individuals. In alphabetical order with an indication of information of particular biographical, historical or scientific interest.

J.229-J.266

SHORTER SCIENTIFIC CORRESPONDENCE

In chronological order.

Models of snow crystals.

- | | | |
|------------|---|-----------------------|
| J.10 | Bilby, B.A. | 1955, 1957, 1982 |
| | 1982 correspondence is re J.D. Eshelby Memorial Fund and Bilby's Royal Society memoir of Eshelby. | |
| J.11 | Blackman, M. | 1975, 1976, 1983 |
| J.12-J.14 | Braun, E. | ?1984 |
| | "First draft" of Braun's chapter "Mechanical properties of solids" sent to Frank for comments. | |
| | 3 folders. | |
| J.15 | Buckingham, A.D. | 1976-78 |
| | Isotropic segregation effects. | |
| J.16, J.17 | Bunn, C.W. | 1961 |
| | Draft of Bunn's paper on melting points sent to Frank for comments. | |
| | 2 folders. | |
| J.18 | Burch, C.R. | 1960-83, nd. |
| J.19-J.21 | Cabrera, N. | 1970-82 |
| J.19 | 1970-71. | Proposed visit to UK. |
| J.20 | 1974-76. | Proposed visit to UK. |
| J.21 | 1981-82. "Celebration" of 1951 paper by Frank, Cabrera and W.K. Burton "The growth of crystals and the equilibrium structure of their surfaces" (<i>Bibliog.</i> 30) during British Association of Crystal Growth meeting, September 1981. | |

- | | | |
|-----------|--|---|
| J.22 | Cahn, J.W. | 1982-85 |
| | 1982 correspondence is re Cahn's paper "Transitions and phase equilibria among grain boundary structures". | |
| J.23 | Candler, C. | 1952-53 |
| | Spectrographic analysis of diamond dust. | |
| J.24 | Chandrasekhar, S. | 1981, 1983 |
| | Visits to Bristol. | |
| J.25-J.27 | Cherian, K.A. | 1977-85 |
| J.25 | 1977-79. | Chiefly re overgrowths on diamond. |
| J.26 | 1980. | Metastable growth of diamond at low pressure. |
| J.27 | 1981, 1985. | 1981 material is re Cherian's paper "Crystallization of diamond at atmospheric pressure". |
| J.28-J.30 | Cladis, P.E. | 1974-83 |
| J.28 | 1974, 1976. | |
| J.29 | 1981-82. | Chiefly re cholesteric blue phases. |
| J.30 | 1983. | |
| J.31 | Davies, M. | 1983-84 |
| | Chiefly re Davies's tribute to P. Debye published in <i>Phys. Bull.</i> 35 (1984). | |
| J.32 | Decker, P. | 1973 |
| | Crystal growth. | |

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|------------|---|------------|
| J.33 | De Gennes, P.G. | 1972-77 |
| | 1977 material is letter to Frank from De Gennes entitled "Difference between random walk probabilities and statistical weights for ideal chains near a wall", with drafts of Frank's reply and manuscript notes and calculations. | |
| J.34 | Dew-Hughes, D. | 1963 |
| | Visit to Bristol to discuss superconductivity. | |
| J.35, J.36 | DiMarzio, E.A. | 1979 |
| | 2 folders. | |
| J.37 | Domb, C. | 1975, 1977 |
| | 1975 material is re paper "Cluster shapes in lattice gases and percolation" by Domb et al. | |
| J.38 | re Eades, J.A. | 1973 |
| J.39 | Eisner, E. | 1967 |
| J.40-J.44 | Elton, Margaret Ann, Lady, and others | 1972-76 |
| | Correspondence and papers re the future of the Sir Arthur Elton Collection of historical material on the Industrial Revolution. After Sir Arthur Elton's death in 1973 the Treasury accepted the Collection in lieu of death duties. It is now held by the Ironbridge Gorge Museum. | |
| J.40 | 1972, 1973. | |
| J.41 | 1974, 1975. | |
| J.42 | 1976. | |
| J.43 | Obituaries 1973. | |
| J.44 | Background material. | |

- J.45-J.49 Eshelby, J.D. 1960-79, nd.
- J.45 1960. Comments on paper by J.P. Hirth and J. Lothe (*Phys. Rev.* 115).
- J.46 1965, 1966.
- J.47 1968.
- J.48 1970-79.
- J.49 Nd.
- J.50, J.51 Evans, T. 1962-81
- Evans studied for his B.Sc. and Ph.D. at Bristol University.
- J.50 1962, 1975.
- J.51 1981. Includes Frank's comments on Evans and Z. Qi's paper "The kinetics of the aggregation of nitrogen atoms in diamond".
- J.52 Evison, F.F. 1965-66
- Earthquake sources.
- J.53-J.55 Fisher, J.C. 1960-82
- J.53 1960-73. Includes calculation of relative fuel consumption per passenger-mile of Concorde and the Queen Mary.
- J.54 1975-76. Includes correspondence re Fisher's paper "Elementary particle model based on a non-linear 8-component Fermion field.
- J.55 1980-82.
- J.56 Flory, P.J. 1962
- re Flory's paper "On the morphology of crystalline state in polymers".

- J.57-J.59 Forty, A.J. 1953-83
- Forty was Frank's first research student at Bristol.
- J.57 1953. Includes draft of Forty's paper "Some evidence for the existence of dislocations in crystals" with Frank's comments.
- J.58 1964-65.
- J.59 1982-83.
-
- J.60 Freeman, G.P. 1952
- Slip-bands in diamond.
-
- J.61-J.64 Friedel, J. 1972-80
- J.61 1972-75, 1980. 1975 correspondence is re surface diffusion on ice.
- J.62-J.64 1977. Drafts of papers on dislocations by Friedel with comments by Frank and M. Kléman. 3 folders.
-
- J.65 Geach, G.A. 1949
- Furrow structure on aluminium.
-
- J.66 Gibbs, D.F. 1973-81
- 1980-81 correspondence is re Physics Teachers' Forum.
-
- J.67, J.68 Giess, E.A. 1980-83
- J.67 1980-81. 1981 correspondence is re paper by Giess et al "Gadolinium gallium garnet liquid phase epitaxy and the physical chemistry of garnet molten solutions".
- J.68 1982-83. Chiefly re paper by K. Watanabe and Giess.

1976 correspondence is re the "Merton Calculators".

- J.86-J.88 Hoffman, J.D. 1959-86
- J.86 1959, 1960, 1962. Polymer crystals, spherulitic growth.
- J.87 1975, 1976, 1979. 1979 correspondence is re fibrils formed by flow-induced crystallisation.
- J.88 1981-86.
- J.89 Holland, W.P. 1980, 1984
- 1984 correspondence is re "eutectic" phase in liquid (or "fluid") crystals.
- J.90-J.92 Holt, D.B. 1965-80
- J.90 1965, 1968. 1968 material is draft of Holt's paper "Antiphase boundaries in semiconducting compounds" with Frank's comments.
- J.91 1974-75.
- J.92 1980. Draft of Holt's paper "Polarity reversal and symmetry in the sphalerite structure" with Frank's comments.
- J.93 Hoyle, F. 1947
- Hydrogen-helium ratio in stars.
- J.94 James, A.N. 1977-79
- Crystal growth pressures.
- J.95-J.122 Jones, R.V. 1949-84
- Jones was a contemporary of Frank's at Oxford, graduating in 1932. They became close friends as postgraduates while Jones was studying infra-red radiation.
- At the outbreak of war Jones was working in scientific intelligence for the Air Ministry. Frank joined his team, at Jones's request, in November 1940. The wartime activities of Jones and his colleagues are documented in Jones's book *Most Secret War* (1978).
- After the war Jones was appointed Professor of Natural Philosophy at Aberdeen University.
- The material is scientific and non-scientific correspondence and drafts sent to Frank for comment.

- J.95 1949-51, 1956, 1957. 1949 correspondence is chiefly re lithium fluoride crystals.
- J.96 1960-64. 1960 correspondence is chiefly re proposed crystal growth conference. 1961 material is re Jones's articles in *The Times* on "Scientists at War".
- J.97 1968-70.
- J.98 1971. Includes copies of Jones's correspondence with R.E. Peierls re momentum.
- J.99 1972.
- J.100 1973. Chiefly re Royal Society meeting on the effect of the world wars on British science.
- J.101 1974 February, May.
- J.102 1974 June-December. Includes copy of Jones's "Epilogue" to Royal Society meeting on science and the world wars (J.100).
- J.103 1975.
- J.104 1976. Includes letter of 8 October enclosing Jones's first draft of *Most Secret War* sent to Frank for comments, and Frank's reply of 15 November.
- J.105-J.111 Draft of *Most Secret War*. The draft is incomplete because Jones only sent the later sections and because Frank returned those pages he had annotated. 7 folders.
- J.112 Press-cutting re and reviews of *Most Secret War*, including Frank's.
- J.113 1977. Chiefly correspondence with D.G. Kendall re "number problem" first put to Kendall by Jones in 1975.
- J.114 1978. Includes copy of tribute to Jones by N.E. Butcher.
- J.115 1979. Includes copy of tribute to Jones by L.R.B. Elton.
- J.116 1980. Includes letter of 21 August enclosing Jones's "draft of the bulk of the paper on technology and conflict" sent to Frank for comments, and Frank's reply of 11 September.
- J.117, J.118 Draft of "Some impacts of new technology on conflict". 2 folders.

- J.119 1981-83.
- J.120 1984 March-June. Chiefly correspondence with Jones and P.L. Rose, a historian of science, re the German attempts to harness atomic power during the Second World War.
- J.121 1984 November. Draft of "Heisenberg, German morality and the atomic bomb 1939-1945" by Rose.
- J.122 Nd. Includes untitled draft by Jones beginning "The devices of Archimedes in the defence of Syracuse gave an earnest of what would happen in warfare as scientific knowledge expanded".
- J.123 Kay, H.F. 1964-69
- J.124 Keith, H.D. 1976-83
- J.125, J.126 Keller, A. 1960-83, nd.
Keller was a colleague in the Bristol Physics Department.
- J.125 1960, 1965, 1970. 1970 material is copy of Keller's inaugural lecture as Research Professor in Polymer Science.
- J.126 1974-77, 1983, nd. 1974 material is research proposal; 1976 correspondence with Keller and D.S. Oliver re discussion on fibre reinforced plastics; 1977 correspondence chiefly re research on elongational flow.
- J.127 Kelly, A. 1969-72
Includes draft of Kelly's paper "The core of the earth - a conjecture", with Frank's comments.
- J.128 Kern, R. 1968-71

J.129-J.143 King, G.C.P., and others 1970-81

King applied for Royal Society Paul Instrument Fund grants for 1970-72 for the construction of a wire strain gauge, and 1975-81 for building geophysical tiltmeters. Frank on both occasions consented to act as assessor.

J.129	1970	J.137	1977 (3)
J.130	1971	J.138	1978
J.131	1972 (1)	J.139	1979 (1)
J.132	1972 (2)	J.140	1979 (2)
J.133	1974, 1975	J.141	1979 (3)
J.134	1976	J.142	1980
J.135	1977 (1)	J.143	1981
J.136	1977 (2)		

J.144, J.145 Kléman, M. 1975-85

J.144 1975-78.

J.145 1979-85. Includes 1983-84 material re Kléman and P. Oswald's paper "Experimental evidence for helical instabilities of screw dislocation lines in Sm A phases".

J.146 Knight, C.A. 1971-80

J.147, J.148 Landauer, R. 1978, 1980-81

J.147 1978. Notes on overdamped soliton motion etc. by Landauer.

J.148 1980-81. Solitons.

J.149-J.153 Lang, A.R. 1962-87, nd.

Lang was a colleague in the Bristol Physics Department.

J.149 1962-65. 1965 material is Frank's comments on Lang and H.H. Schlössin's paper "A study of repeated twinning, lattice imperfections and impurity distribution in amethyst".

J.150 1966-68. Letter of 10 October 1967 is re proposed research on crystals.

J.151 1977, 1979, 1983

J.152 1987. Cold fusion. Includes copy of Lang's letter to *The Times* drawing attention to Frank's 1947 article in *Nature* (*Bibliog.* 13) which first introduced the idea of meson-catalysed fusion. With a photocopy of the article and other background material.

J.153 Nd.

J.154 Laves, F. 1964, 1975

J.155-J.157 Lawn, B.R. 1966-80

Lawn was Postdoctoral Fellow in the Bristol Physics Department 1963-66.

J.155 1966. Lawn's paper "Hertzian fracture in single crystals, with special reference to diamond".

J.156 1967-73.

J.157 1975, 1980.

J.158 re Levich, V.G. 1972

Soviet Academician Levich was expelled from his Chair at Moscow University for seeking permission to emigrate to Israel. The material relates to the campaign in the West on his behalf in which Frank was involved.

J.159 Lewis, B. 1971-72

Chiefly re nucleation theory.

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|--------------|---|------------------|
| J.160 | Lothe, J. | 1958-59 |
| J.161 | McGregor, A.G. | 1967 |
| J.162, J.163 | Mackley, M.R. | 1976-83 |
| J.162 | 1976. Includes Mackley and M.V. Berry's paper "The six-roll mill: unfolding an unstable persistently extensional flow" with Frank's brief comments. | |
| J.163 | 1977-83. 1982-83 correspondence re disclination loops. | |
| J.164 | Mevrel, R. | 1974-75 |
| J.165 | Meyer, R.B. | 1968-77 |
| | 1968 material re Meyer's paper "Effects of electric and magnetic fields on the structure of cholesteric liquid crystals". | |
| J.166 | Miles, M.J. | 1981 |
| | Material on slackness elements and calculation of velocity profiles sent to Frank by Miles, retained in original envelopes. | |
| J.167 | Mitchell, J.W. | ?1951 |
| | Mitchell was a colleague in the Bristol Physics Department. | |
| | Duplicated typescript papers by Mitchell. | |
| J.168 | Moore, A.M. | 1969, 1972, 1974 |
| | Moore studied for his M.Sc. and Ph.D. at Bristol. | |

J.169-J.172 Mott, N.F. 1946-83, nd.

Mott was Professor of Theoretical Physics at Bristol when Frank joined the Physics Department in 1946 and held the H.O. Wills Chair of Physics 1948-54. In 1954 he was appointed Cavendish Professor of Experimental Physics at Cambridge.

J.169 1946, 1948-50. Much of the early correspondence is letters received by Mott and passed on to Frank.

J.170 1950. Translations from Soviet periodicals dealing with the relationship between science and the Soviet State, sent to Mott by the Foreign Office and passed on to Frank.

J.171 ?1952, 1954-56.

J.172 1966, 1983, nd.

J.173 Munk, W.H. 1981

J.174-J.176 Nabarro, F.R.N. 1949-87

Nabarro was Royal Society Warren Research Fellow in the Bristol Physics Department from 1945. In 1949 he took up a post in the University of the Witwatersrand, returning to Bristol as Visiting Professor 1959-60.

J.174 1949-64.

J.175 1965-74.

J.176 1975-87. 1975 material chiefly re proposed visit to UK.

J.177-J.180 Nicolaysen, L.O. 1980-81

Correspondence re drafts of papers by Nicolaysen on theory of the Earth's core.

4 folders.

J.181 Owen, H.G. 1976

re Owen's paper on "The expanding earth".

- J.182 Pamplin, B.R. 1974-75, 1979
1974-75 correspondence re Paul Instrument Fund support for Accelerated Crucible Rotation Crystal Growth.
- J.183-J.185 Pârasnis, A.S. 1969, 1980-84
Pârasnis studied for his Ph.D. at Bristol as Research Fellow 1958-59.
- J.183 1969. Growth of sodium chloride crystals from vapour.
- J.184 1980. Draft of Pârasnis and K. Rao's paper "Dislocation dipoles and charged dislocations in Magnesium Oxide" with Frank's comments.
- J.185 1981-84. Visits, research.
- J.186-J.192 Parkin, D.W. 1967-81
Correspondence and papers re work submitted for publication by Parkin.
- J.186 1967, 1969, 1971-72 J.190 1978 (2)
- J.187 1973 J.191 1978 (3)
- J.188 1974-75 J.192 1979-81
- J.189 1978 (1)
- J.193 Pennings, A.J. 1969-71
Crystallisation phenomena.
- J.194-J.198 Plumley, G.A.K. 1978-83
Theory of thermodynamics.
- J.194 1978 J.197 1982
- J.195 1979 J.198 1983
- J.196 1980-81

J.199	Pond, R.C.	1976-86
	Research on crystals, 1976 material chiefly re coincidence boundaries.	
J.200	Pound, G.M.	1956-66
J.201	re Powell, C.F.	1969, 1974, 1982
	Powell won the Nobel Prize for Physics in 1950 and was Frank's predecessor as Director of the H.H. Wills Physics Laboratory. Powell died in 1969.	
J.202, J.203	Powers, H.E.C.	1949-81
J.202	1949, 1956, 1970, 1972.	
J.203	1979-81. Chiefly re Powers' paper "An alphabet of sucrose nucleation".	
J.204	Pryce, M.H.L.	1949, 1956, 1961
	Letter of 18 May 1956 is re diamond spikes.	
J.205-J.207	Puttick, K.E.	1966-79
	Puttick held the Royal Society Armourers and Brasiers' Research Fellowship at Bristol 1954-57.	
J.205	1966, 1969. 1969 correspondence re research project on epitaxial growth on diamond.	
J.206	1972-74. Puttick's paper "Stress and strain fields round indentations in Poly (methyl methacrylate)".	
J.207	1975, 1978-79. Polymer indentation, energy scaling of Hertzian stress fields.	
J.208	Rault, J.	1975, 1977, nd.
J.209	Read, W.T.	1950-78

- J.210 Richardson, M.J. 1965

re Frank's comments on Richardson's paper "Thermodynamic properties of polyethylene single crystals".
- J.211 Rossi, G. 1969

Crystal surfaces.
- J.212-J.214 Sadler, D.M. 1982-87, nd.

Sadler was a colleague in the Bristol Physics Department.
- J.212 1982-84.
- J.213 ?1986. Draft of Sadler's paper "On the growth of two dimensional crystals" with Frank's comments.
- J.214 ?1987, nd. Includes drafts of Sadler's papers "A new explanation of chain folding" and "Kinetic theories of crystallization" with Frank's comments.
- J.215 Sciama, D.W. 1974.

Funds for gravitational wave detector.
- J.216 Simon, F.E. 1949, 1950, 1955
- J.217 Small, P.A. 1948-49

Dissociation pressure of polymethyl methacrylate.
- J.218 Surek, T. 1975

Direction of growth on crystal surface.
- J.219 Suzuki, T. 1956, 1959
- J.220 Tabor, D. 1949, 1971, 1977, 1980

- J.221 Thomas, J.M. 1973, 1975, 1976
1976 material includes draft of Thomas, S.E. Morsi and J.O. Williams's paper "Stacking sequences and partial dislocations as interpretative frameworks for solid state reactions in organic molecular crystals" sent to Frank for comment.
- J.222 Tolansky, S. 1948-49
Triangular pits on diamond, inflected fringes, thin films.
- J.223 Vadilo, P.S. 1961-62, 1976
1976 material includes draft of Vadilo's paper "Sculpture of diamond and its significance" sent to Frank for comment.
- J.224 Wells, P.N.T. 1981
Measurement of pressure changes in the bladder. Frank suggested a means of calculation involving the measurement of the resonant frequency of a small air-bubble injected into the bladder.
- J.225 Whiffen, D.H. 1981
Scientific symbols.
- J.226 Wirtz, K. 1945-50, 1960
- J.227 Wylie, R.G. 1949, 1959, 1969, 1977
1959 material re dissolution properties of crystal surfaces.
- J.228 Young, P.H.J. 1979-82
Letter of 25 February 1981 re "The Jet Engine".

SHORTER SCIENTIFIC CORRESPONDENCE

J.229	1936-43	J.248	1975 January-June
J.230	1944, 1947, 1948	J.249	1975 July-November
J.231	1949	J.250	1976 January-June
J.232	1950	J.251	1976 July-December
J.233	1952-54	J.252	1977 February-June
J.234	1955	J.253	1977 July-November
J.235	1956	J.254	1978
J.236	1957-59	J.255	1979 January-April
J.237	1960-61	J.256	1979 June-November
J.238	1962-63	J.257	1980
J.239	1964-66	J.258	1981 January-May
J.240	1967-68	J.259	1981 June-November
J.241	1969	J.260	1982
J.242	1970	J.261	1983
J.243	1971	J.262	1984 January-March
J.244	1972 January-June	J.263	1984 April-October
J.245	1972 August-December	J.264	1985, 1986
J.246	1973	J.265	1987
J.247	1974	J.266	Nd.

SECTION K**REFERENCES AND APPOINTMENTS****K.1-K.62**

K.1-K.22

EXAMINING

K.23-K.43

APPOINTMENTS

K.44-K.51

GRANT APPLICATIONS

K.52-K.55

HONOURS AND AWARDS

K.56-K.62

MISCELLANEOUS

MATERIAL IN THIS SECTION IS SUBJECT TO RESTRICTION

EXAMINING**Higher Degrees**

K.1	1952, 1956	K.6	1975-78
K.2	1967, 1968	K.7	1979
K.3	1970, 1971	K.8	1980, 1981
K.4	1972	K.9	1982
K.5	1973, 1974	K.10	1983

Aberdeen

Frank served as External Examiner for Aberdeen University Department of Natural Philosophy from 1948.

K.11	1948 (1)	K.15	1950
K.12	1948 (2)	K.16	1955
K.13	1949 (1)	K.17	Examination papers 1941-47
K.14	1949 (2)		

Newcastle

Frank served as External Examiner for Newcastle University School of Physics 1976-78.

K.18	1975-76	K.21	1977 (2)
K.19	1976	K.22	1978
K.20	1977 (1)		

APPOINTMENTS

K.23	1954, 1960	K.34	1976-77
K.24	1964	K.35	1977 (1)
K.25	1965	K.36	1977 (2)
K.26	1966	K.37	1977 (3)
K.27	1967	K.38	1978-80
K.28	1968	K.39	1981
K.29	1969	K.40	1982
K.30	1970	K.41	1983
K.31	1971, 1972	K.42	1984, 1987
K.32	1973	K.43	Nd.
K.33	1974, 1975		

GRANT APPLICATIONS

K.44	1957, 1959, 1966-68	K.48	1972, 1975
K.45	1968-69	K.49	1976
K.46	1969-70	K.50	1977, 1979
K.47	1971	K.51	1982

HONOURS AND AWARDS

K.52	1967, 1968	K.54	1977, 1978
K.53	1972, 1975	K.55	1980, 1982-84

MISCELLANEOUS**Cambridge University Committee for Geodesy and Geophysics**

Frank was invited to serve on the Committee as Royal Society representative on 10 December 1974. The Committee met annually to receive a report from the Head of the Department of Geodesy and Geophysics and to advise on Departmental activities. Frank served until its dissolution in 1980 when the Department was merged with those of Geology, and Mineralogy and Petrology in the new Department of Earth Sciences.

The material consists principally of correspondence and committee papers.

K.56	1974, 1975	K.59	1978
K.57	1976	K.60	1979, 1980
K.58	1977		

NATO Advanced Study Institutes

Frank gave advice to the Advisory Panel on the Advanced Study Institutes Programme between 1974 and 1986.

K.61 Correspondence and papers.

United Bristol Hospitals Advisory Appointments Committee

K.62 Frank served as Bristol University representative 1967.

LIST OF PUBLICATIONS

The following bibliography of 148 items was supplied to the cataloguers by Sir Charles Frank as the most complete list of his publications. References in the catalogue are to this list in the form *Bibliog. ...*

1935

- 1 "Dipole induction and the solvent effect in dipole moment measurements", *Proc. Roy. Soc. Lond.* **A152**, 171.

1936

- 2 "Electrical evidence on calcite imperfections", *Nature* **137**, 656.
- 3 "Chemical kinetics of dielectric relaxation", *Trans. Faraday Soc.* **32**, 1634.

1937

- 4 with L.E. Sutton. "A possible explanation of some anomalous electric dipole moments", *Trans. Faraday Soc.* **33**, 1307.

1938

- 5 with K. Wirtz. "Ordnung and Umwandlung in kondensierten Phasen", *Naturwiss.* **26**, 687-97.
6. "Quasi-kristalline und kristalline Flüssigkeiten", *Phys. Zeitschr.* **39**, 530.

1939

- 7 "Melting as a disorder phenomenon", *Proc. Roy. Soc. Lond.* **A170**, 182.

1946

- 8 "Molecular structure of deeply supercooled water", *Nature* **157**, 267.
- 9 "A comparison of Debye's and Onsager's theories of the dielectric constants of concentrated polar media", *Trans. Faraday Soc.* **42A**, 19-24.
- 10 "Some mathematical models representing polar molecules in crystals", *Trans. Faraday Soc.* **42A**, 24-35.
- 11 "Communication to Dielectrics Discussion", *Trans. Faraday Soc.* **42A**, 250-252.

1947

- 12 "The mass of the neutrino", *Proc. Phys. Soc.* **59**, 408-412.
- 13 "Hypothetical alternative energy sources for the 'second meson' events", *Nature* **160**, 525-527.

1948

- 14 "An isotopic abundance rule and its bearing on the origin of the nuclei", *Proc. Phys. Soc.* **60**, 211.
- 15 "On slip bands as a consequence of the dynamic behaviour of dislocations", in *Strength of Solids*, Phys. Soc. Bristol Conference Report, 46-51.

1949

- 16 "On the equations of motion of crystal dislocations", *Proc. Phys. Soc.* **A62**, 131-134.
- 17 "Sessile dislocations", *Proc. Phys. Soc.* **A62**, 202-203.
- 18 with W.K. Burton & N. Cabrera. "Role of dislocations in crystal growth", *Nature* **168**, 398-399.
- 19 with J.H. van der Merwe. "Misfitting monolayers". *Proc. Phys. Soc.* **A62**, 315-316.
- 20 "Diffraction by a screw dislocation", *Research* **2**, 552.
- 21 "The influence of Dislocations on Crystal Growth", *Discussions of the Faraday Soc.* **5**, 48-54.
- 22 with J.H. van der Merwe. "One-dimensional dislocations. I. Static theory", *Proc. Roy. Soc. Lond.* **A198**, 205.

23 with J.H. van der Merwe. "One-dimensional dislocations. II. Misfitting monolayers and oriented overgrowth", *Proc. Roy. Soc. Lond.* **A198**, 216.

24 with J.H. van der Merwe. "One-dimensional dislocations. III. Influence of the second harmonic term in the potential representation on the properties of the model", *Proc. Roy. Soc. Lond.* **A200**, 125.

1950

25 "Note on the Structure of a Crystal Surface", *Phil. Mag.* **41**, 200.

26 "Radially symmetric phase growth controlled by diffusion", *Proc. Roy. Soc. Lond.* **A201**, 586.

27 with J.H. van der Merwe. "One-dimensional dislocations. IV. Dynamics", *Proc. Roy. Soc. Lond.* **A201**, 261.

28 with W.T. Read. "Multiplication processes for slow moving dislocations", *Phys. Rev.* **79**, 722.

28a "Lattice sums for ionic crystals", *Phil. Mag.* **41**, 1287.

1951

29 with J.D. Eshelby & F.R.N. Nabarro. "Equilibrium of linear arrays of dislocations", *Phil. Mag.* **42**, 351.

30 with W.K. Burton & N. Cabrera. "The growth of crystals and the equilibrium structure of their surfaces", *Phil. Trans. Roy. Soc. Lond.* **A143**, 299-358.

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