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Catalogue of the papers and correspondence of

**Muhammad Abdus Salam KBE FRS**

(1926-1996)

Volume 1

General introduction

Section A: Biographical

Section B: Research

Section C: Imperial College, London

by Lizzie Richmond, Paul Newman and Peter Harper

NCUACS catalogue no. 99/4/01

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JOURNAL OF  
THE  
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OF GREAT BRITAIN AND IRELAND  
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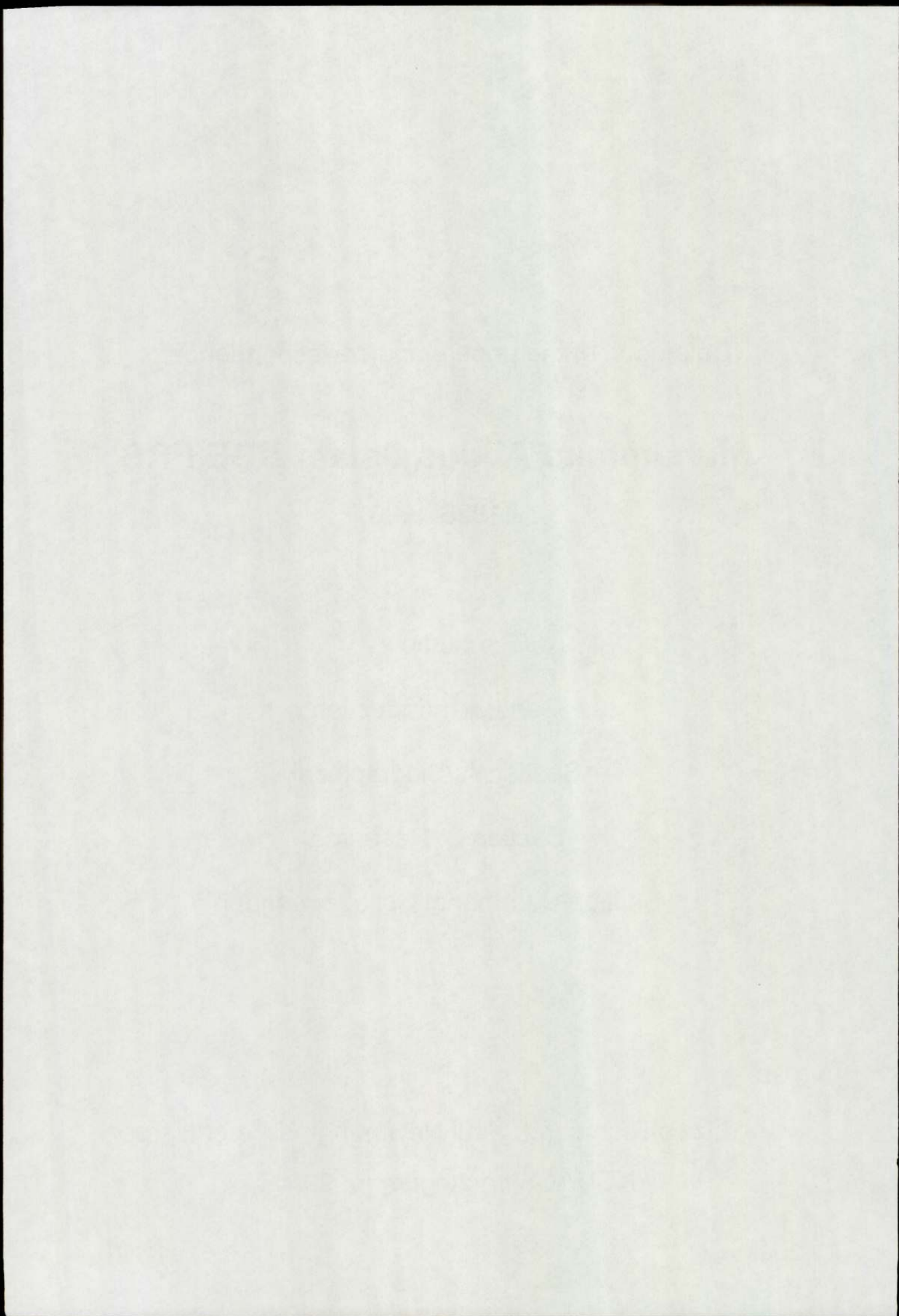
Section A: Biographical

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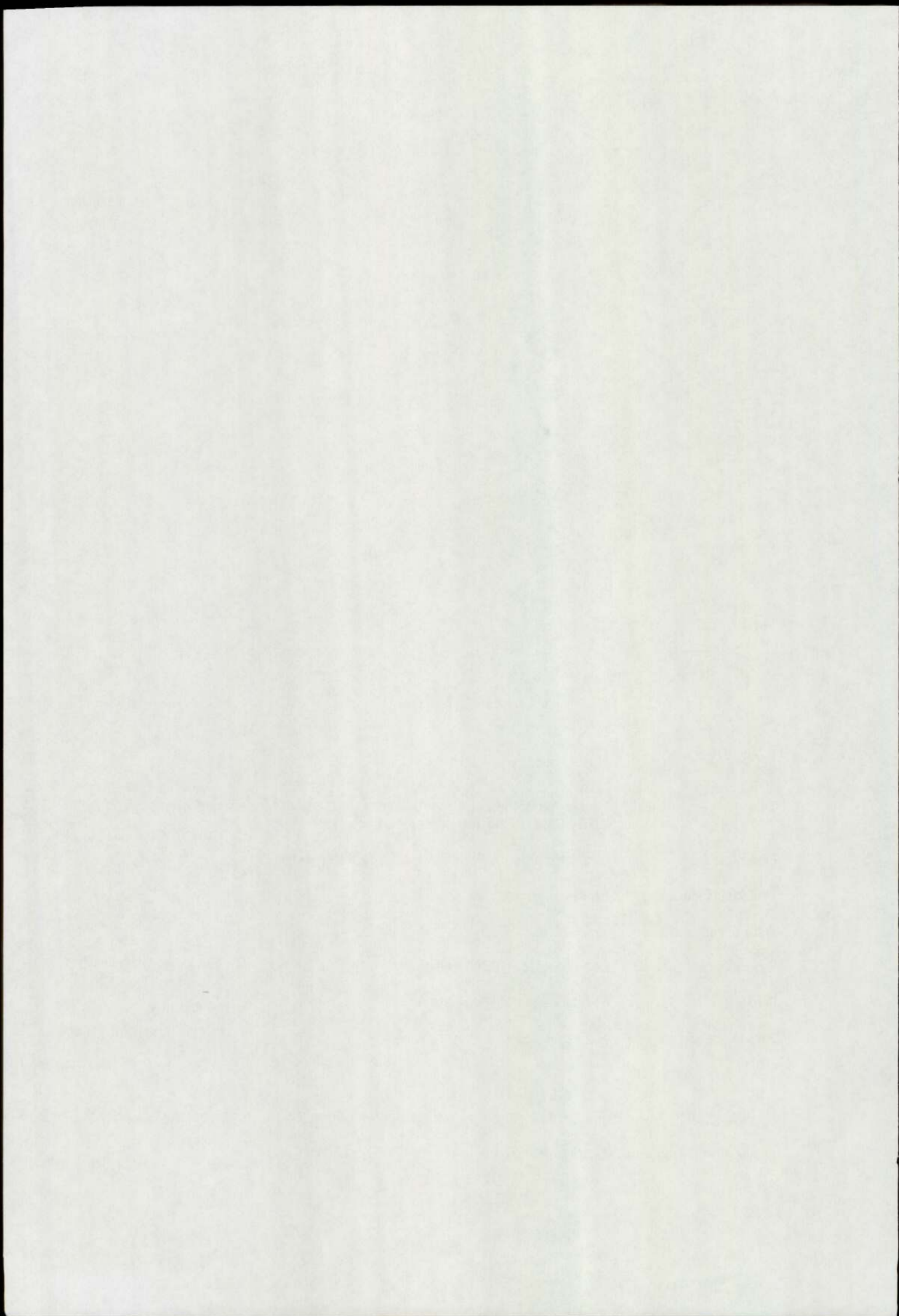




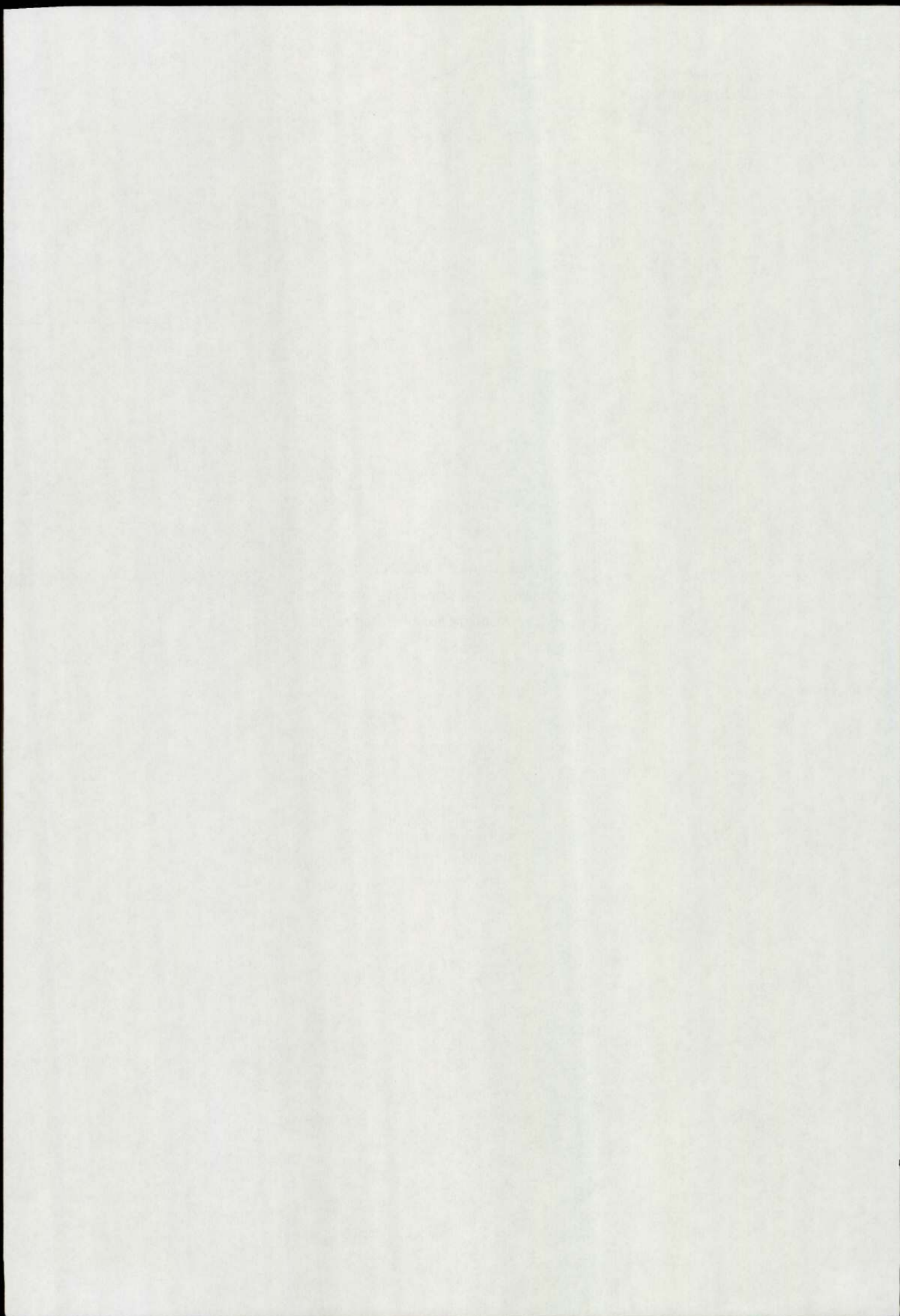
Title:	Catalogue of the papers and correspondence of Muhammad Abdus Salam, KBE FRS (1926-1996), theoretical physicist
Compiled by:	Lizzie Richmond, Paul Newman and Peter Harper
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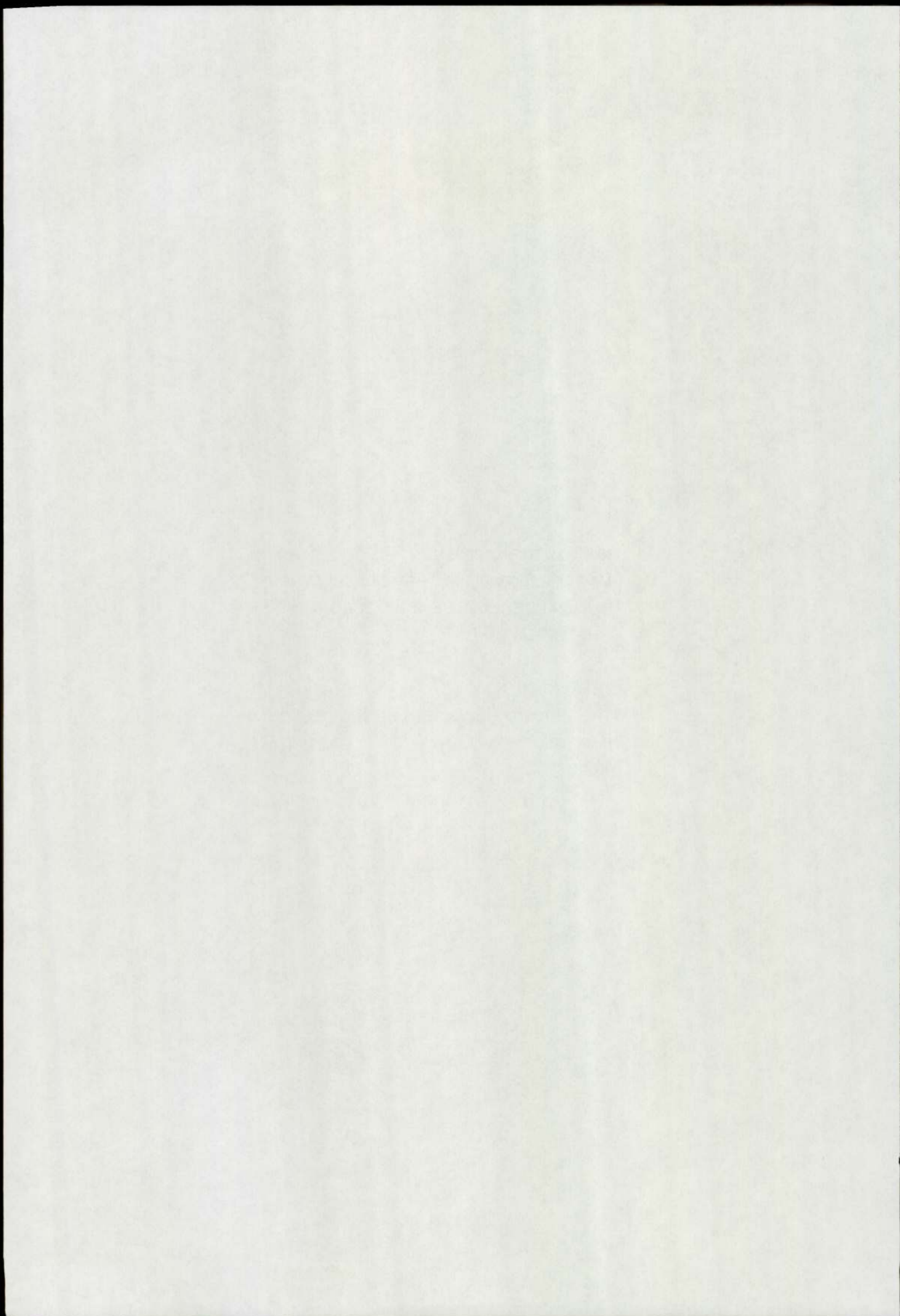
The compilation and production of this  
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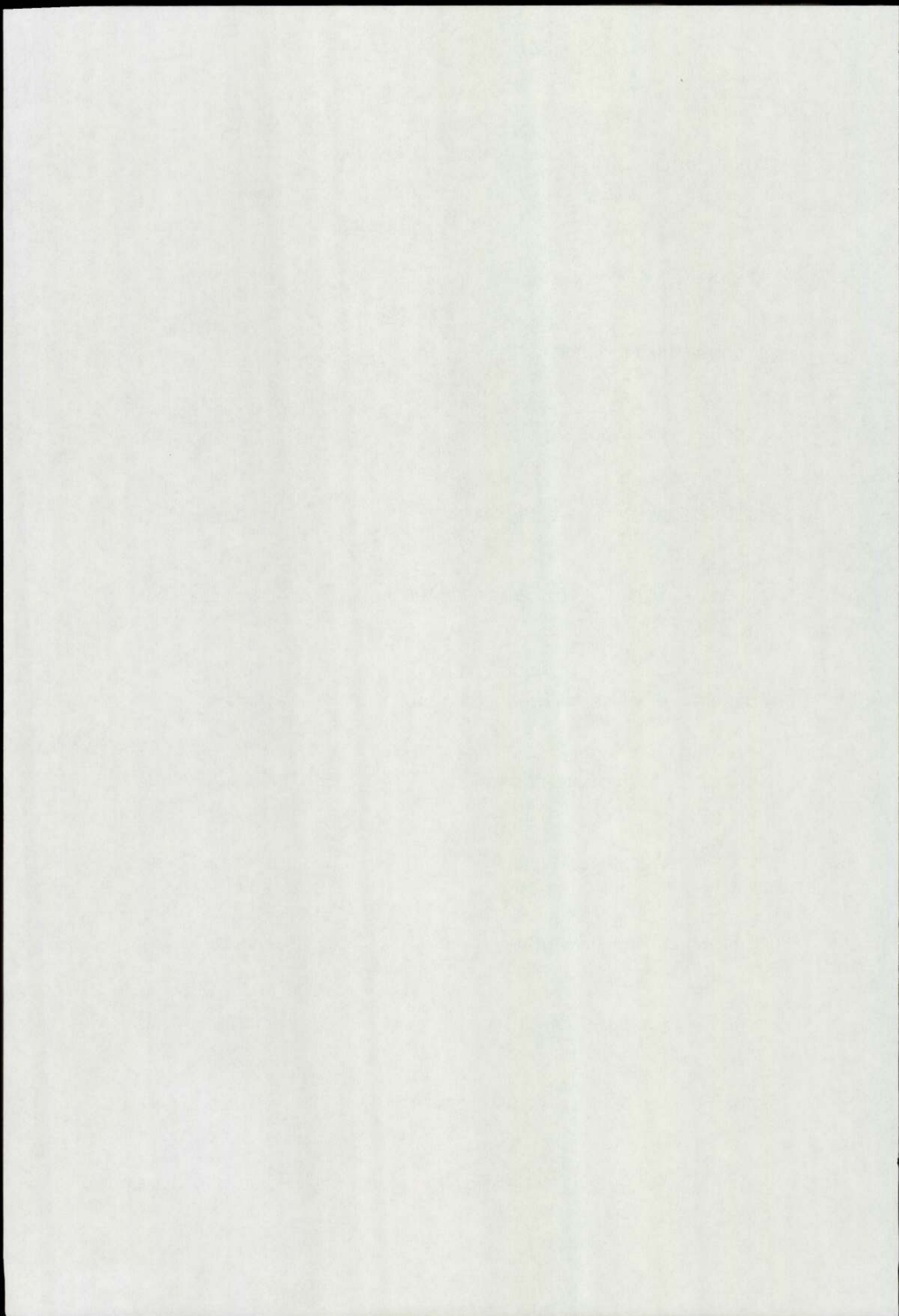
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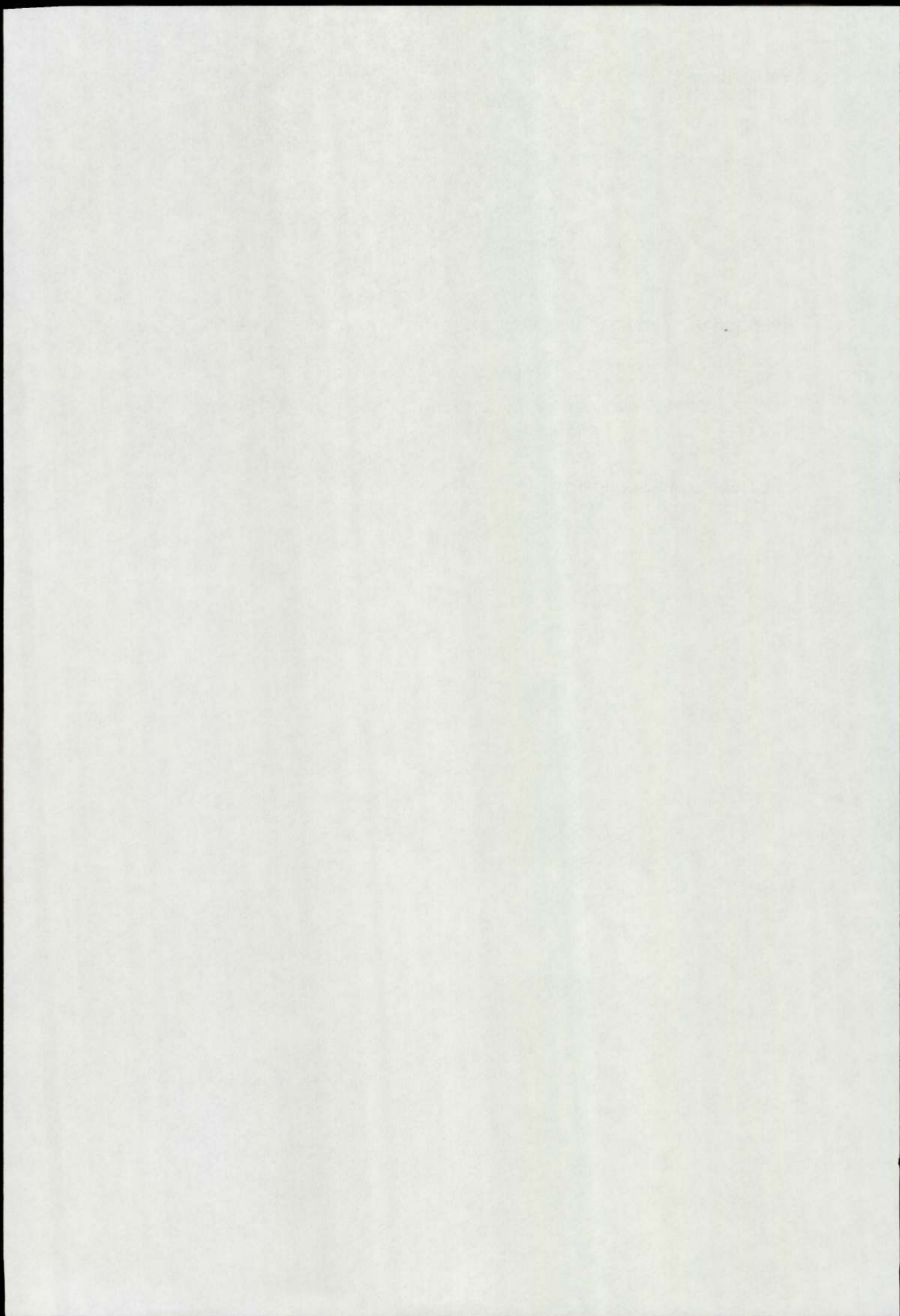
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## GENERAL INTRODUCTION

### PROVENANCE

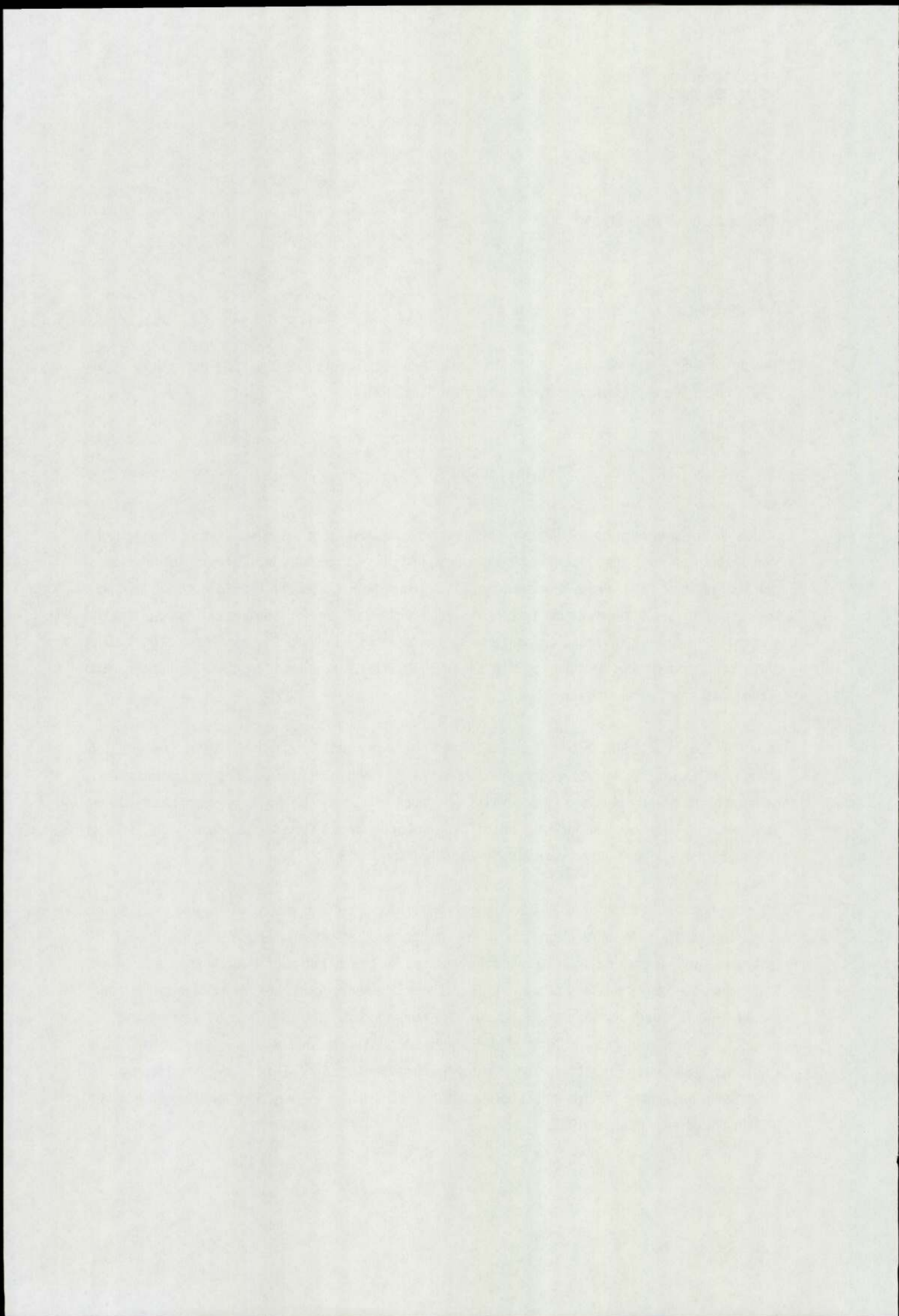
The papers were received from the International Centre for Theoretical Physics, Trieste, Italy in July 1996 with additions on various dates between 1997 and 2001.

### OUTLINE OF THE CAREER OF ABDUS SALAM

Abdus Salam was born on 29 January 1926. He was brought up in the small town of Jhang, in the Punjab, then part of British India, now in Pakistan. His father, Choudhary Muhammad Hussain, was a teacher and minor educational official whose family (Salam had one sister and six brothers) lived in a two-room house with no electricity or running water. Salam's talent for learning and original thought showed at an early age. When he was fourteen he won a scholarship to Government College, Lahore and his first paper, on the solution of a set of simultaneous non-linear algebraic equations, was published during his fourth year of study.

In 1946 Salam was awarded a special Punjab Government scholarship to the University of Cambridge. During his first two years at St John's College he studied mathematics but he had already decided to go into theoretical physics and on the advice of his tutor, F. Hoyle, he spent his remaining year studying physics. Although he found experimental physics, under the supervision of D. H. Wilkinson, more difficult, he graduated with a double first in 1949.

After a short visit to Pakistan Salam approached N. Kemmer and asked to be taken on as his research student in theoretical physics. Kemmer had another research student at the time, P. T. Matthews, and suggested that he might have some problems left over that Salam could tackle. Matthews asked Salam to look at a gap in F. J. Dyson's recently formulated proof of renormalization theory. Salam found a solution very quickly and consequently won the Smith's Prize for the best predoctoral work in physics at Cambridge. He joined Matthews at the Institute of Advanced Studies, Princeton, USA, where they continued to study renormalization theory. Their work helped to establish Salam as a physicist of international importance and resulted in a friendly collaboration which was to last until Matthews' death in 1987.

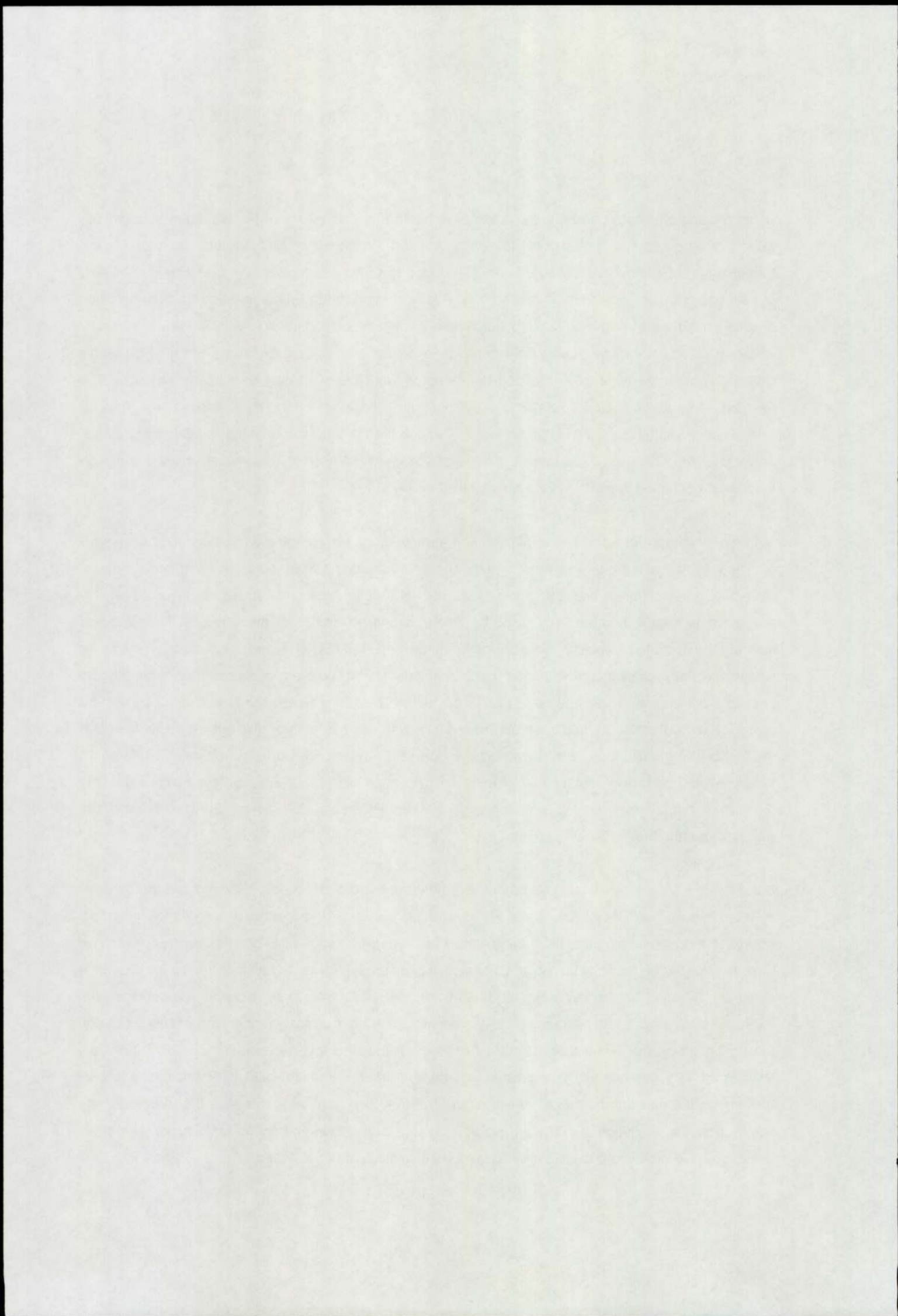




Despite being offered a permanent position at Princeton, on the expiry of his extended scholarship, Salam returned to Pakistan where he was appointed Professor of Mathematics at both Punjab University and Government College, Lahore. By the end of 1953, however, the practical impossibility of conducting advanced scientific research in a developing country and worsening political agitation against the Ahmadiyya sect of Islam to which he belonged had combined to make Salam increasingly unhappy. In January 1954 he left Pakistan to take up the post of Lecturer and Fellow of St John's College, Cambridge where he resumed his research work concentrating particularly on dispersion relations. In January 1957 Salam joined Imperial College, London, as Professor of Applied Mathematics and by doing so became the first Asian to hold a chair in a science faculty at any British university. He transferred departments in 1960 to become Professor of Theoretical Physics and, with Matthews, continued to work on fundamental field theory.

Salam maintained close links with Pakistan and remained convinced that the successful development of Third World countries was largely dependent on fostering their scientific and technological capacity. In 1961 Salam was appointed (part-time) Scientific Adviser to President Ayub Khan. He subsequently established the Space and Upper Atmosphere Research Committee (SUPARCO) and founded the Institute of Nuclear Science and Technology (PINSTECH) as well as research centres for wheat and rice. His attempts to tackle the increasingly urgent problem of salinity and waterlogging caused by irrigation were, however, less successful. The government rejected the measures he proposed as too costly to implement and after 1965, with the outbreak of war between Pakistan and India, it became difficult to get governmental support for any scientific project not linked to defence. When Ayub Khan was replaced as President by Yahya Khan in 1968, Salam's influence was diminished but he retained his post until 1974 when President Zulfikar Ali Bhutto declared the Ahmadiyya non-Muslim. Salam resigned in protest.

Salam's experiences in Pakistan had made him determined to do all he could to improve the position of scientists in Third World countries. He conceived the idea of a centre of excellence to which scientists from developing nations could come on a regular basis for visits of a few weeks or months in order to stay in touch with current research while remaining for most of the year in their own countries. Through persuasiveness and persistence Salam eventually won the support of the International Atomic Energy Agency (IAEA) and, with the additional financial backing of UNESCO and the Italian government and the assistance of P. Budinich, the International Centre for Theoretical Physics (ICTP) was officially inaugurated in Trieste, Italy, in 1964. In 1968 ICTP moved to a new building on the outskirts of the city which offered room for expansion. Salam was the director of the Centre from its foundation until 1993, dividing his time equally between London and Trieste. Under his guidance ICTP survived financial hardship and political crisis, and flourished.





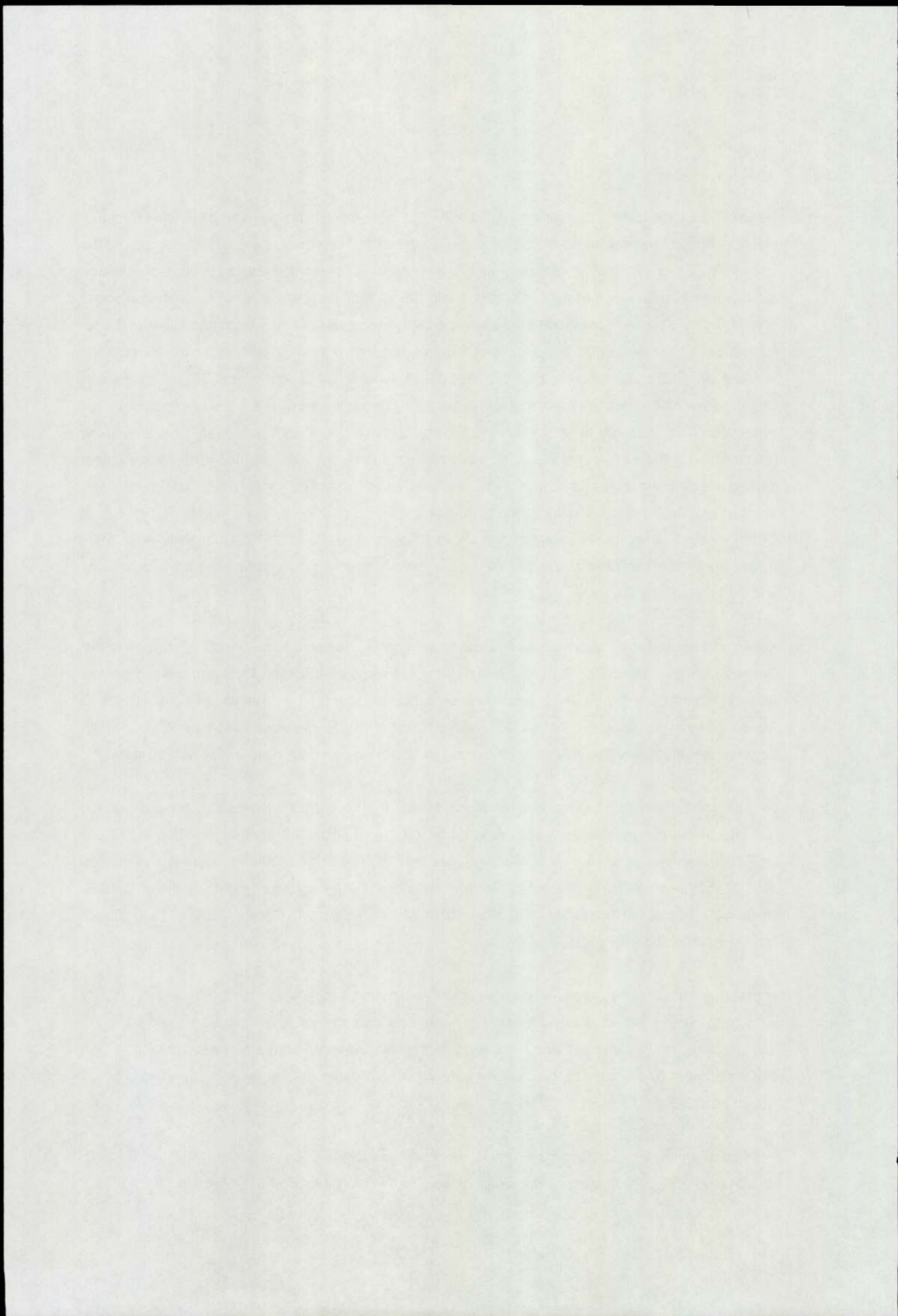
Salam's doctoral thesis, submitted in 1952, set out his early original work on quantum electrodynamics and served as the basis for his later scientific career. At Imperial College, during the late 1950s, Salam and Matthews superintended the creation of one of the leading centres of research in fundamental theoretical physics. Quantum field theory with particular emphasis on the long-term goal of finding a unified approach to the fundamental forces at work in the worlds of nuclear and sub-nuclear physics remained the main focus of Salam's research work. In the 1960s Salam was closely involved with attempts to construct a theoretically coherent account of the 'strong' interactions that bind together the constituents of nuclei. A sustained programme of research culminated in his construction of a theory that unified the electromagnetic force with the 'weak' nuclear force responsible for the radioactive decay of elementary particles. This critical theoretical development formed the central component of what became known as the 'standard model' of the electromagnetic and nuclear forces. For his contribution to this discovery, confirmed by experiments carried out at CERN in 1973, Salam was awarded the Nobel Prize for Physics in 1979. During his final years Salam's research branched out in new directions to encompass condensed-matter physics, biology and the origin of chirality.

Salam was a member of numerous international committees. He served as Scientific Secretary of the Geneva Conferences on the Peaceful Uses of Atomic Energy in 1955 and 1958 and chaired the UN Advisory Committee on Science and Technology in 1971-1972. He also chaired the UNESCO Advisory Panel on Science, Technology and Society in 1981. He was a member of the South Commission and of the Scientific Council of the Stockholm International Peace Research Institute.

Salam received forty-five honorary degrees from twenty-eight countries and was a member of twenty-four academies and institutes. He received a huge number of prizes and awards including the Atoms for Peace Award in 1968, the first Edinburgh Medal in 1989 and the Catalunya International Prize in 1990. Salam was elected as the Royal Society's youngest Fellow, at the age of thirty-three, in 1959. He won the Society's Hughes Medal in 1964, Royal Medal in 1978 and Copley Medal in 1990. Salam was awarded an honorary KBE in 1989.

In the mid-1980s Salam developed a degenerative neuronal disease which made his life increasingly difficult but which did not finally prevent him from working and travelling until the early 1990s. He married twice. He had one son and three daughters by his first wife, Amtul Hafeez Begum, and a son and a daughter by his second wife, Louise Johnson FRS. Salam died at his home in Oxford on 21 November 1996.

For further information on Salam's scientific work see 'Muhammad Abdus Salam, KBE' by T. W. B. Kibble, *Biographical Memoirs of the Fellows of the Royal Society* **44**, 385-401 (1998).





## DESCRIPTION OF THE COLLECTION

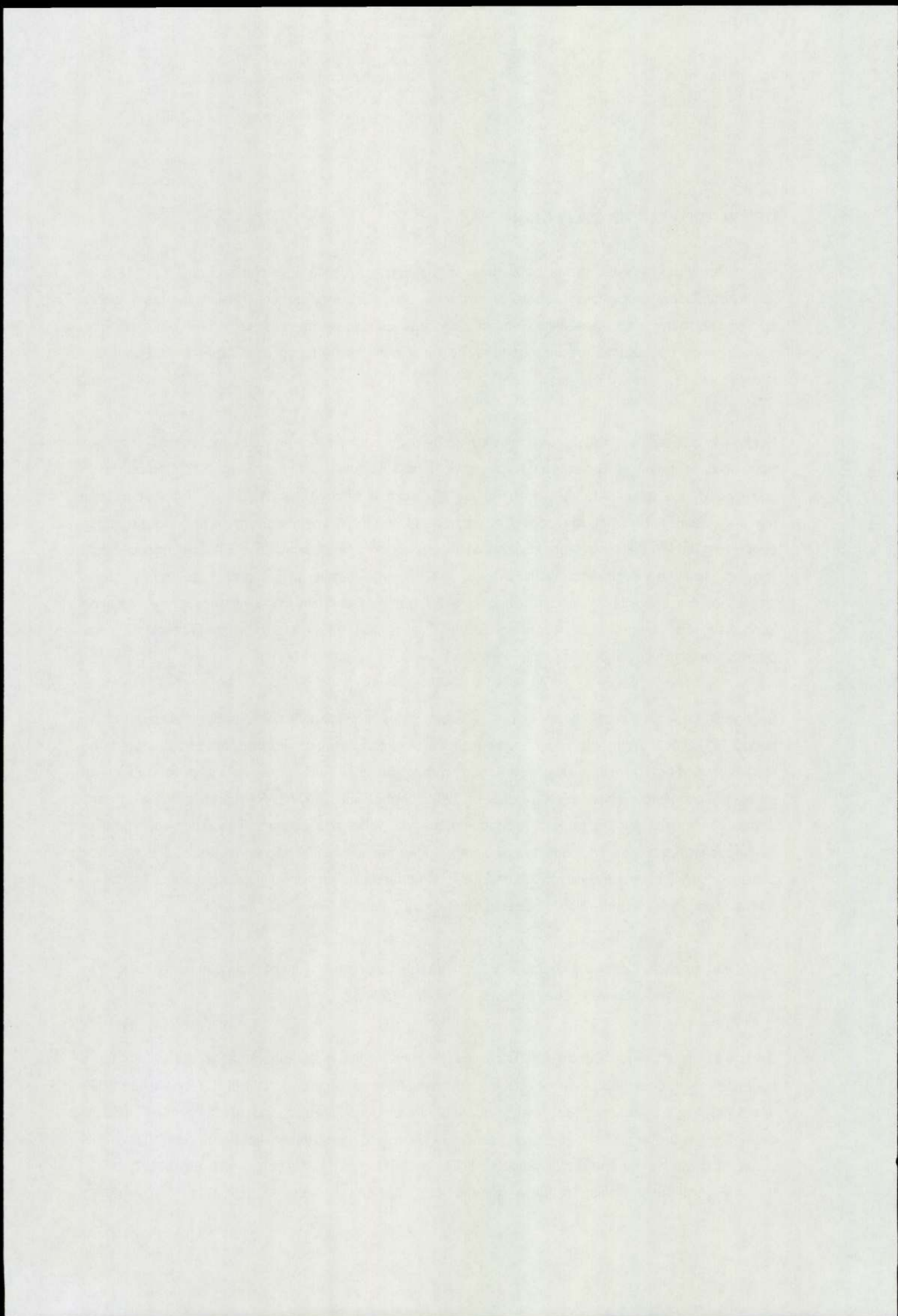
The material is presented in the order given in the contents list. It covers the period from 1939 to 2000. Additional explanatory notes, information and cross-references are appended where appropriate to the separate sections, sub-sections and individual entries in the body of the catalogue. The following paragraphs are intended only to draw attention to items which may be of particular interest.

Section A, Biographical, is extensive in its coverage of Salam's career, honours and awards. It ranges from documentation of Salam's first appointment as a lecturer at the University of Cambridge to correspondence relating to the award of his KBE. Most of the awards, prizes, fellowships and honorary degrees that Salam received between 1954 and 1996 are represented. Important material concerning the Nobel Prize appears here. There is also material relating to Salam's unsuccessful candidacy for the Directorship of UNESCO in 1987. A large number of press cuttings and magazine articles on Salam collected and retained at ICTP are presented in this section. Carefully drafted 'proposals' and memoranda recording Salam's (personal) views on international scientific co-operation and the development of the Third World can also be found here.

Section B, Research, presents notebooks, research notes and scientific correspondence covering the period 1939-1993. The notebooks document Salam's research from undergraduate and postgraduate studies undertaken at Cambridge and Princeton through notes for lectures delivered to students at Imperial College to less structured notes on work carried out at ICTP. Research notes and early drafts of scientific papers form a separate sequence within this section. These include material relating to work on chirality conducted by Salam during the late 1980s and early 1990s. The scientific correspondence covers the period 1950-1992. It comprises exchanges with colleagues and friends on a broad range of research-related subjects retained by Salam as 'Physicists' Letters'.

Section C, Imperial College, London, is very slight. It contains a small amount of material relating to Salam's administrative and academic duties at Imperial College.

Section D, International Centre for Theoretical Physics, is the most substantial in the catalogue. It contains material relating to all aspects of the organisation and management of ICTP between 1960 and 1996. Papers documenting Salam's duties and career as Director, and subsequently President, of the Centre are grouped together. A useful collection of papers, publications and reference works concerning the history and development of ICTP is included in this section. There are sequences of material documenting Salam's official communications with the International Atomic Energy Agency





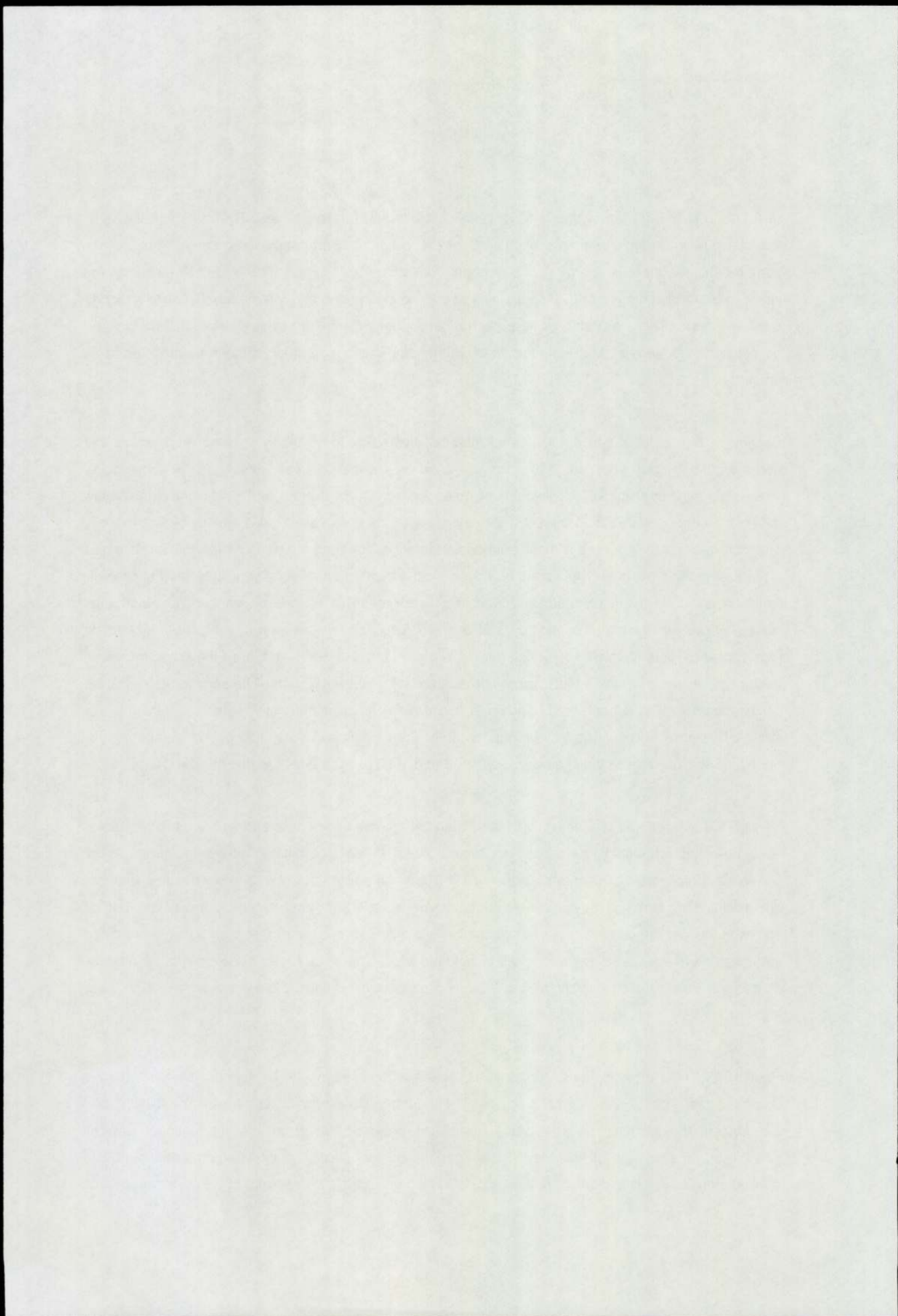
(IAEA) and UNESCO, and general ICTP administrative and funding issues. The material relating to the design and implementation of the Centre's scientific programmes is useful though not comprehensive. There is a large group of papers described at ICTP as 'Country Files' relating to the initiation and maintenance of ICTP links with academic institutions and international centres of study outside Trieste. There are also papers and correspondence relating to the Centre's fellowship and associateship schemes. Material documenting meetings and conferences held at the Centre is presented here.

Section E, Manuscripts and publications, presents diverse documentation of Salam's scientific and non-scientific output. The largest component of this material was described by Salam as 'manuscripts'. It consists of a collection of notes and drafts by Salam and publications by others dating from the early 1950s to 1989 which may relate to the preparation of Salam's published papers and lectures. In addition there is significant documentation, covering the period 1975-1995, relating to a number of Salam's major published works on both scientific and Third World development topics which is arranged by title. *Ideals and Realities*, a collection of essays on various developmental issues, *Notes on Science, Technology and Science Education in the Development of the South*, a report for the South Commission widely distributed as 'The Red Book', and the First Dirac Memorial Lecture published by Cambridge University Press are all represented here. The section also contains correspondence with journals and periodicals concerning Salam's contributions and the translation of some of Salam's publications into languages other than English. Two sequences of numbered off-prints of Salam's papers published between 1943 and 1993 are presented in this section.

Section F, Lectures and broadcasts, contains material relating to scientific and non-scientific lectures, speeches and broadcasts delivered by Salam. There is an incomplete numbered chronological sequence of speeches covering the period 1961-1993 and some additional and overlapping material documenting Salam's lectures and broadcasts between 1951 and 1989. A small amount of correspondence concerning the administrative work associated with the distribution of printed versions of some lectures and speeches is included here. The section also contains a large number of transparencies which appear to have been produced by Salam to illustrate some of his later lectures.

Section G, UN organisations, documents Salam's association with various United Nations organisations. These include UNESCO, the UN Industrial Development Organisation (UNIDO) and the United Nations University (UNU). There are papers relating to the international centres specialising in branches of science such as genetic engineering and biotechnology, and pure and applied chemistry which Salam helped to establish with UNIDO support. In 1974 a number of





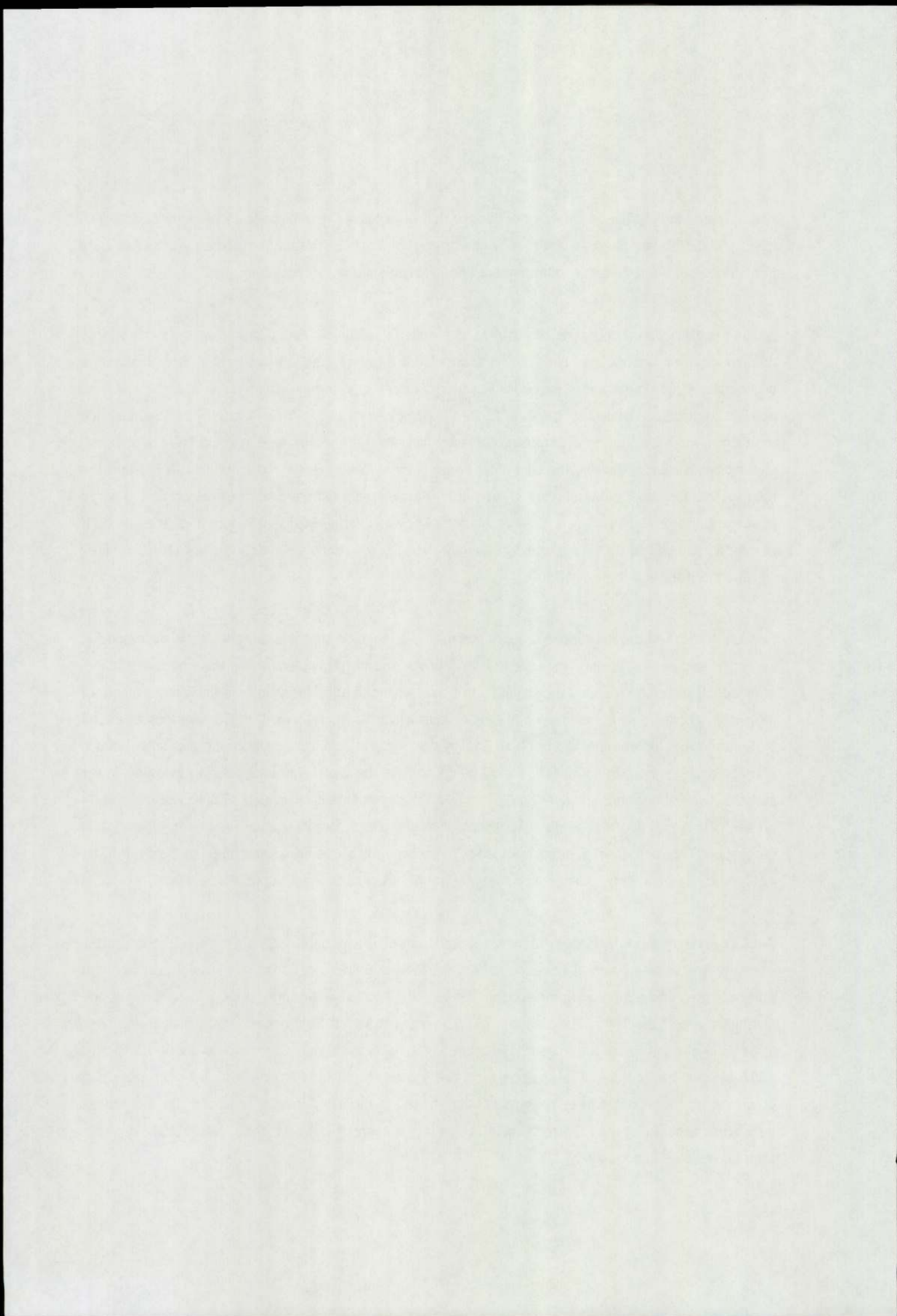
prominent scientists joined an international protest against anti-Israeli policies recently adopted by UNESCO. ICTP was effected by the resulting boycott of all UNESCO-funded bodies. A small amount of material relating to Salam's management of this difficult situation is included here.

Section H, Societies and organisations, presents material relating to Salam's involvement with a large number of international, national, regional and local organisations and societies. Some of these organisations, such as the European Physical Society are purely scientific in their scope and activities. In addition many, such as the African Union of Physics, the Arab Academy of Sciences and the Centro Internacional de Fisica, Bogotá, reflect Salam's strong connections with the Third World. Other organisations, such as the Stockholm International Peace Research Institute (SIPRI) and the International Federation of Institutes of Advanced Studies demonstrate Salam's commitment to world peace and the promotion of science as a means of advancing development. There is a small amount of material relating to Salam's interest in the UK High Energy Particle Physics Review Group chaired by Sir John Kendrew.

Section J, Visits and conferences, covers the period 1956-1997 and is substantial. It is presented in two main sequences, invitations accepted and invitations not accepted. It contains documentation, often consisting of correspondence relating to travel arrangements, programmes and proceedings, of most of the conferences, meetings and seminars to which Salam was invited. Conferences attended by Salam cover topics ranging from high energy physics and science education to alternative energy sources and religious freedom. They took place all over the world. Material relating to many of the numerous meetings on science and Third World development to which Salam contributed is presented here. There is also documentation of longer visits, sometimes involving extended trips to several different countries. A small number of miscellaneous conferences attended by Salam but not included in the main sequence of such material are grouped separately within this section.

Section K, Third world and development, comprises documentation of Salam's deep interest in the scientific and developmental advance of Third World countries. It contains material relating to a number of international organisations. There are some important papers concerning the establishment of the Third World Academy of Sciences of which Salam was President from 1983 to 1994. There is also material relating to Salam's work with the South Commission during the period 1987-1996. Correspondence and papers concerning the Fund for Physics, which Salam set up to provide financial assistance to young scientists based in the Third World, appear in this section. A very small amount of material relating to the administration of Salam's Third World science prizes after his death is included here.







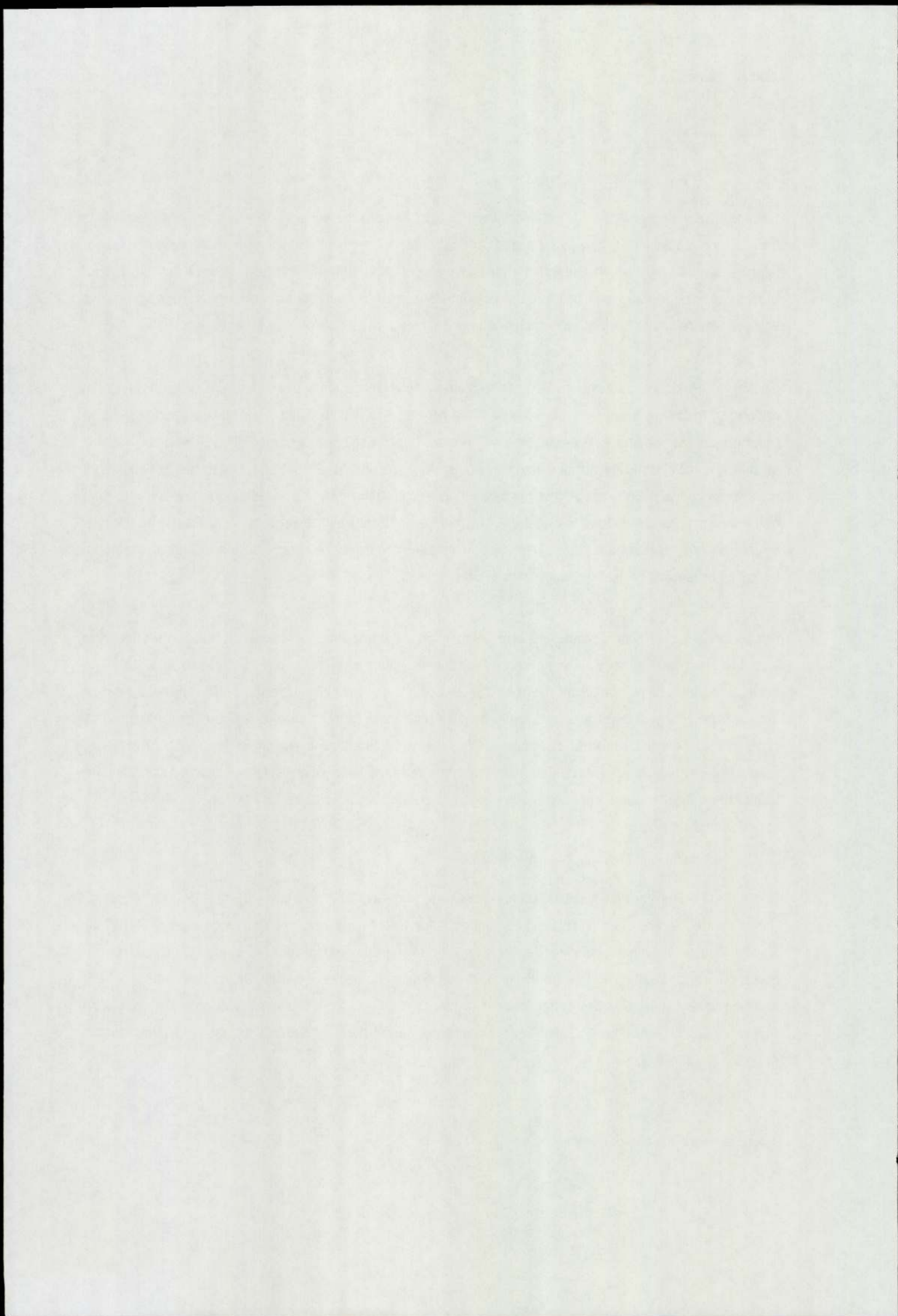
Section L, Science and the Arabic and Islamic world, is not extensive. It contains material relating to the various societies, organisations and educational bodies working for scientific advance in an Islamic context with which Salam, as an advocate of development through science and a devout Muslim, was connected. A small number of conferences and meetings concerning Islam, religion and science and religious freedom to which Salam was invited are documented in this section.

Section M, Pakistan, documents Salam's relations and interactions with Pakistan. It contains material relating to the numerous Pakistan societies and organisations with which Salam was associated in a personal or, as Scientific Adviser to the President, professional capacity. There is also a small amount of official correspondence with the Pakistani government. Salam's efforts to tackle Pakistan's waterlogging and salinity problems, his interest in a scientific approach to achieving improvements in national agriculture and food production, and his commitment to the promotion of Pakistan science education are represented here. The section includes material relating to Salam's Iqbal Memorial Lectures broadcast on Radio Pakistan in 1965.

Section N, Private correspondence and invitations, is composed of various correspondence and invitations addressed to Salam personally and differentiated in his filing system as 'private'. The correspondence covers a broad range of topics but consists mainly of requests for financial help or advice from young scientists based in developing countries. Many of the letters are accompanied by draft papers sent to Salam for comment or assessment. There is a separate sequence of material relating to correspondence received from Pakistani students and scientists. Invitations asking Salam to attend events, lend his support to campaigns or serve on committees and editorial boards are also included in this section.

Section O, References and recommendations, covers the period 1964-1994. It contains correspondence and papers relating to requests for references and recommendations received by Salam. These range from informal petitions for help from individuals hoping to study science to formal correspondence relating to the suitability of a certain candidate for a particular academic post. There is a separate sequence of material relating to letters received from students and scientists based in Pakistan. Documentation of Salam's nomination of candidates for various prizes and awards also appears in this section.

There is also an index of correspondents.





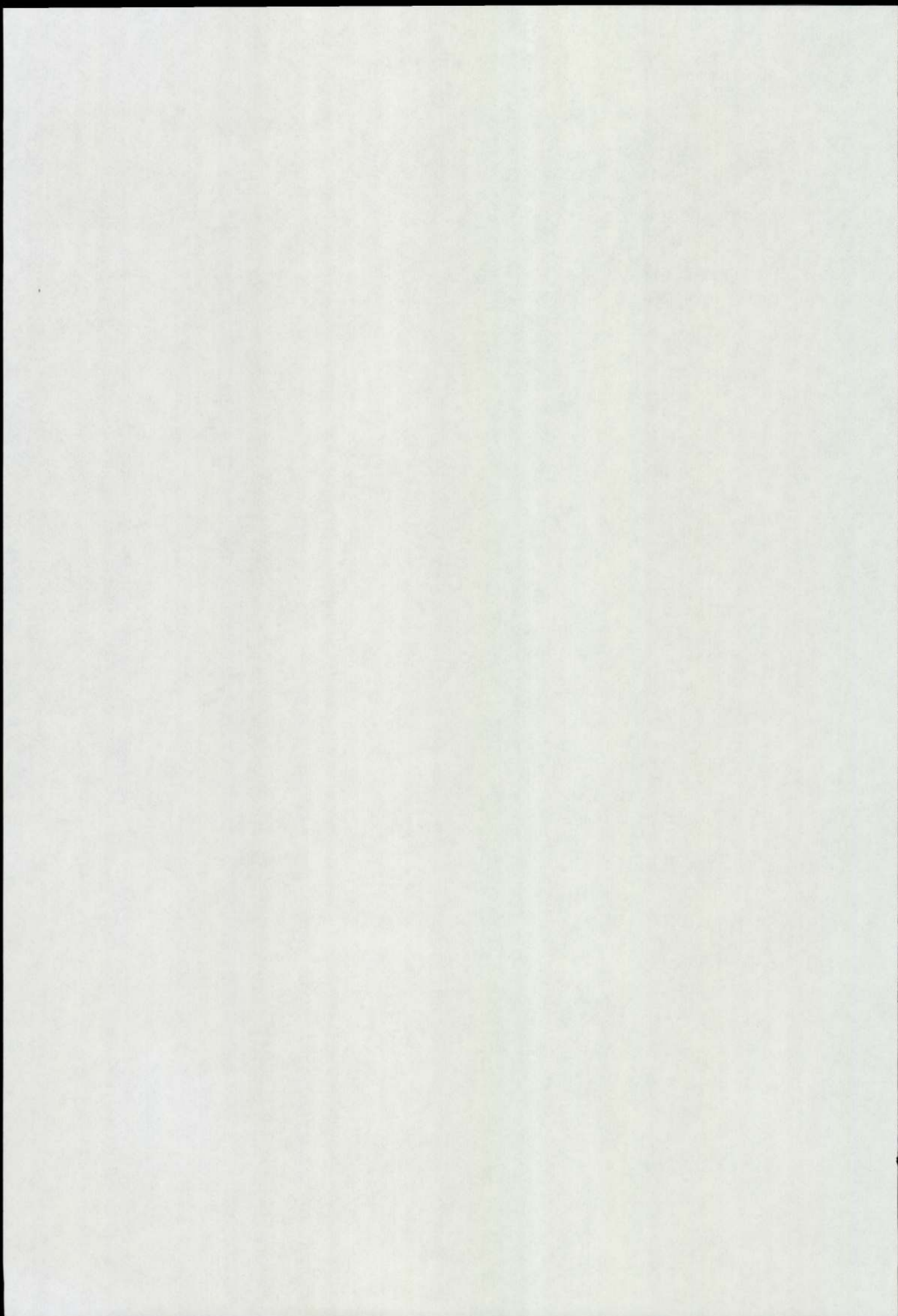
#### ACKNOWLEDGEMENTS

We are very grateful to Mrs Anne Gatti, Director's Office, ICTP, for her help and assistance throughout this long and important project.

L. Richmond

Bath 2001



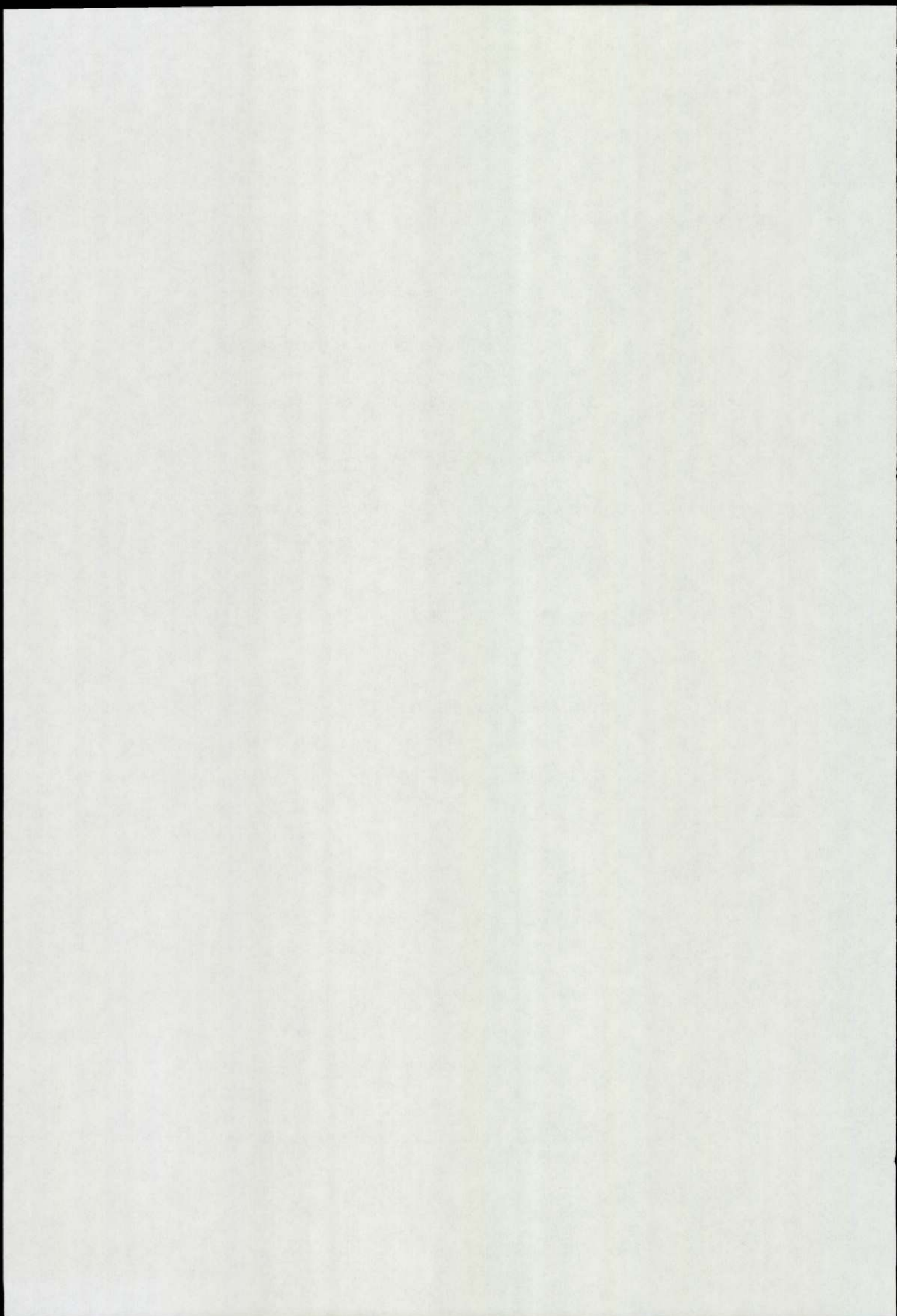


SECTION A	BIOGRAPHICAL	A.1-A.871
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A.8-A.26	BIOGRAPHICAL AND BIBLIOGRAPHICAL
A.27-A.468	CAREER, HONOURS AND AWARDS
A.469-A.607	'PERSONAL DOCUMENTS'
A.608-A.854	PRESS CUTTINGS AND ARTICLES
A.855-A.865	'PROPOSALS'
A.866-A.871	APPENDIX

A.1-A.7	OBITUARIES AND TRIBUTES	1996-1998
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A.1	'Muhammad Abdus Salam, KBE' by T. W. B. Kibble, <i>Biographical Memoirs of Fellows of the Royal Society</i> <b>44</b> , 385-401 (1998).
A.2-A.4	Obituaries.
A.2	<i>The Guardian</i> , 22 November 1996.
A.3	<i>The Times</i> , 26 November 1996.
A.4	<i>The Independent</i> , 29 November 1996.
A.5	Announcement of Salam's death, < <a href="http://www.ictp.trieste.it/ProfSalam/">http://www.ictp.trieste.it/ProfSalam/</a> >, 28 July 1997.





## Biographical

A.6 Papers re Abdus Salam Memorial Meeting, ICTP, Trieste, Italy, 21 November 1997.

A.7 'A Tribute to Abdus Salam' by M. J. Duff, <<http://physics.tamu.edu/~hoxha/salam.html>>, 28 July 1997.

A.8-A.26

### BIOGRAPHICAL AND BIBLIOGRAPHICAL

1978-1992

This sub-section contains a small amount of biographical and bibliographical material compiled at various stages in Salam's career.

A more complete sequence of biographical writings, in the form of interviews given by Salam to various journalists and authors, appears in the press cuttings sub-section. See A.765-A.837.

For papers and correspondence relating to a biography of Salam by N. Calder see A.870, A.871.

A.8-A.10 Curriculum vitae and bio data.

A.8 1p typescript curriculum vitae, nd, latest bibliographical reference 1979.

A.9 1p typescript bio data, nd, latest bibliographical reference 1990.

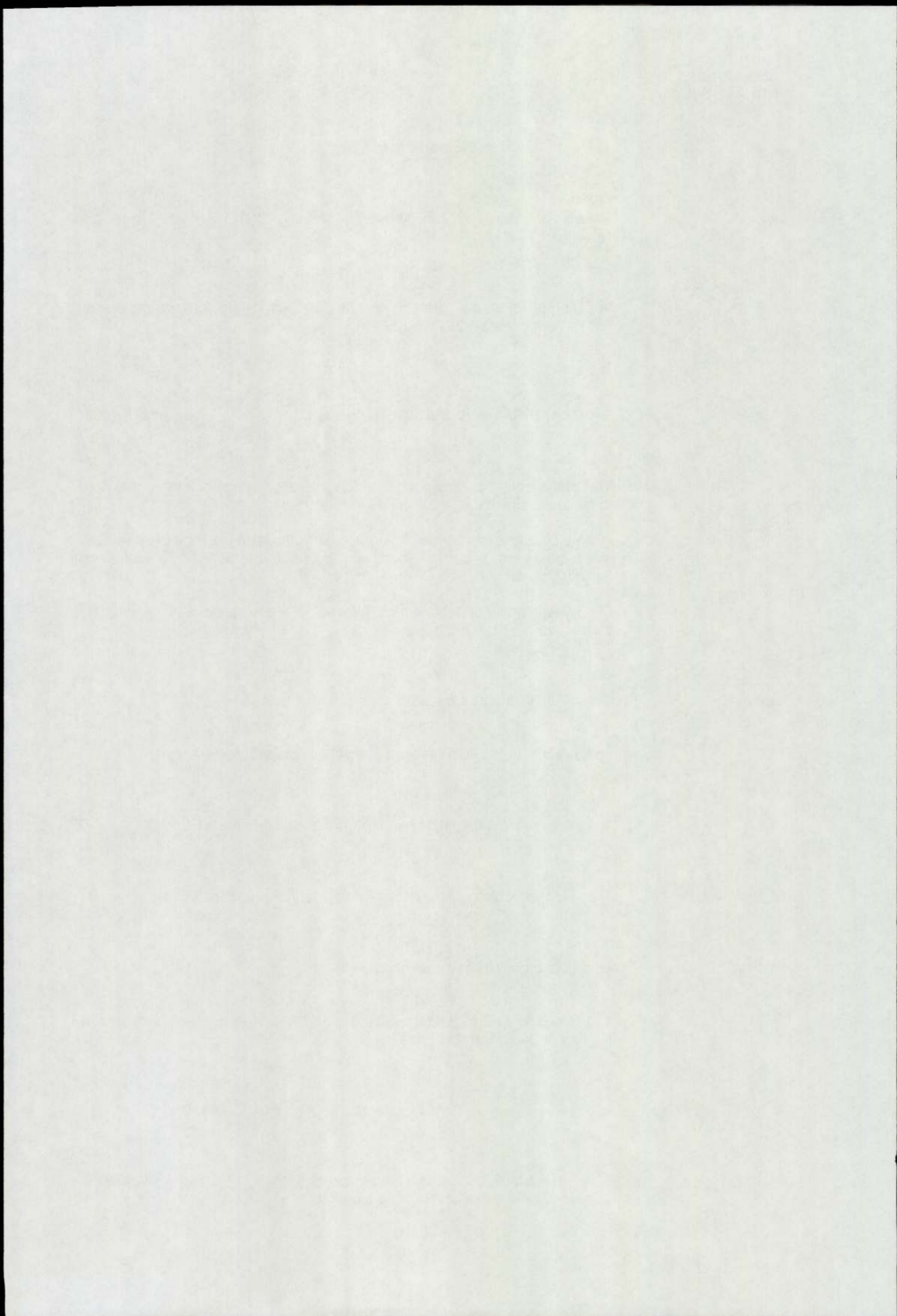
A.10 18pp typescript bio data, nd, latest bibliographical reference 1995.

A.11-A.15 Lists of publications and speeches.

A.11 12pp typescript list of Salam's publications, 1943-1973, possibly prepared in support of Salam's Nobel Prize nomination.

A.12 30pp typescript list of Salam's scientific publications, 1943-1993.

A.13 20pp typescript list of Salam's publications, 1950-1978, possibly prepared in support of Salam's Nobel Prize nomination.

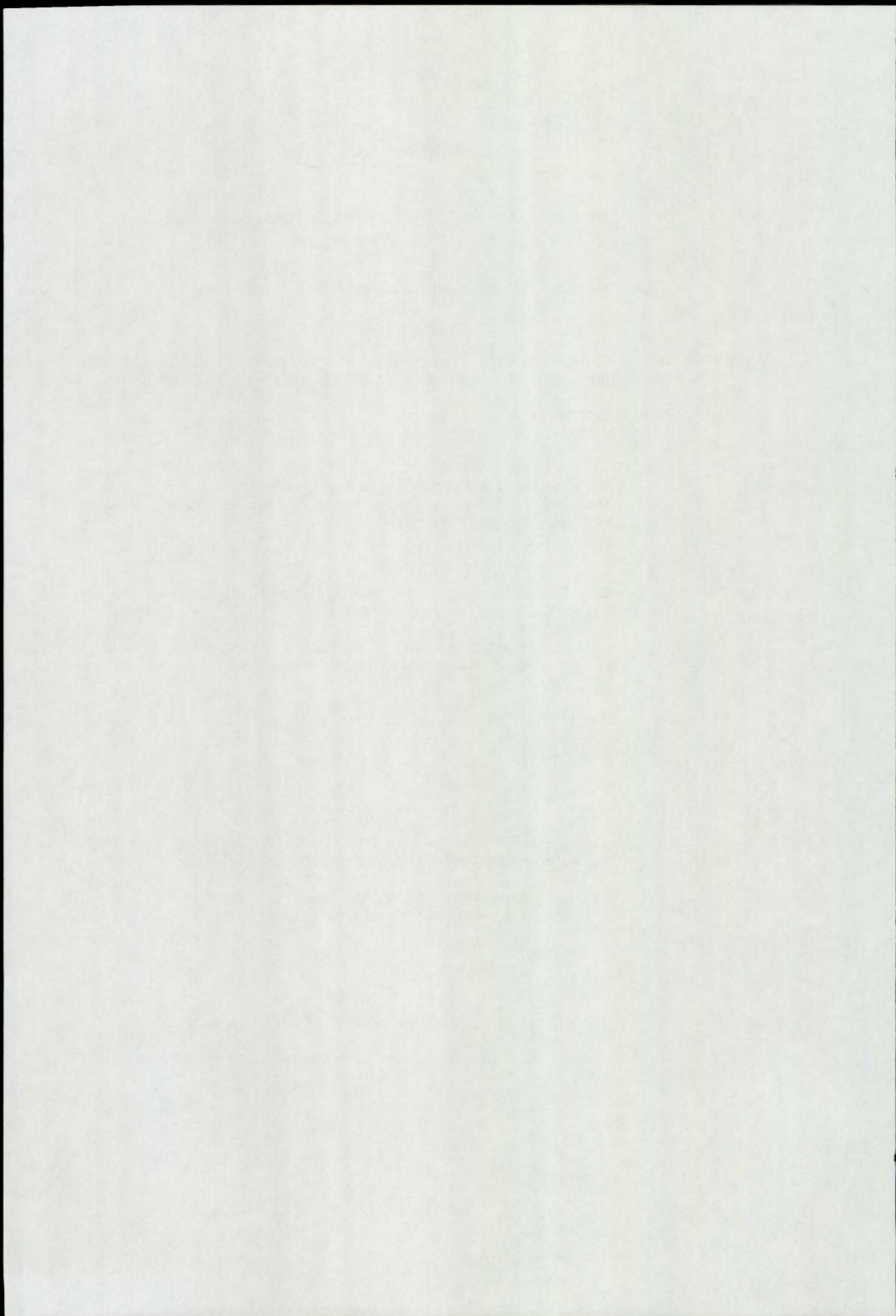




### Biographical

- A.14                      14pp typescript list of Salam's speeches and lectures, 1961-1993.
- A.15                      3pp typescript entitled 'Articles by Abdus Salam', 1963-1991.
- A.16, A.17              Correspondence with A. R. Ghani, Lahore, Pakistan, *re* the compilation and proposed publication of a bibliography of Salam's works, 1978-1988.
- Two folders.
- A.18                      Correspondence and papers *re* a photograph which appeared in an issue of the German periodical, *Der Spiegel*, bearing a caption considered misleading and defamatory by Salam, 1980.
- A.19-A.23              Correspondence with A. Ghani, Karachi, Pakistan, *re* the publication of his biographical writings on Salam, 1980-1985.
- Includes various typescript draft sections and correspondence *re* a proposed research project on physics and the development of weapons to be conducted by Ghani.
- See also A.757-764.
- Five folders.
- A.24, A.25              11pp typescript of an interview with Salam conducted by K. Tahir Shah entitled 'Science in the Third World: A Struggle to Regain Past Glory', 1988.
- Includes correspondence arising *re* a proposal to organise an advanced technology group in the field of knowledge science.
- Two folders.
- A.26                      *Abdus Salam As We Know Him*, ed. S. M. W. Ahmad, June 1992.
- Contains contributions *re* Salam's life and career by his colleagues and friends.
- Published text.





## Biographical

A.27-A.467

### CAREER, HONOURS AND AWARDS

1954-1996

This sub-section contains a wide range of material relating to the numerous honours and awards received by Salam during his career. It also includes documentation relating to a variety of posts which Salam held or was interested in holding.

The presentation is chronological.

A.27-A.31

Lectureship in Mathematics, University of Cambridge, 1954-1956.

At the time of the appointment Salam was employed as a professor at Government College and Punjab University, Lahore, Pakistan. Before he could take up his new position it was necessary and desirable that he obtain the formal approval of his current employer, the Government of Pakistan.

Salam continued to receive special payments from the Pakistan Government as a member of their staff 'on deputation' to Cambridge.

A.27

Correspondence and papers *re* appointment.

A.28

2pp typescript 'testimonial' by N. Kemmer, Tait Professor of Natural Philosophy, University of Edinburgh *re* Salam's appointment to the University of Cambridge.

A.29

Correspondence *re* financial arrangements in Pakistan as a result of Salam's employment in the UK.

A.30

Letter from N. F. Mott *re* the possibility of Salam spending part of the academic year in Pakistan and offering advice on Salam's contemplated move to Imperial College, London, 20 March 1956.

A.31

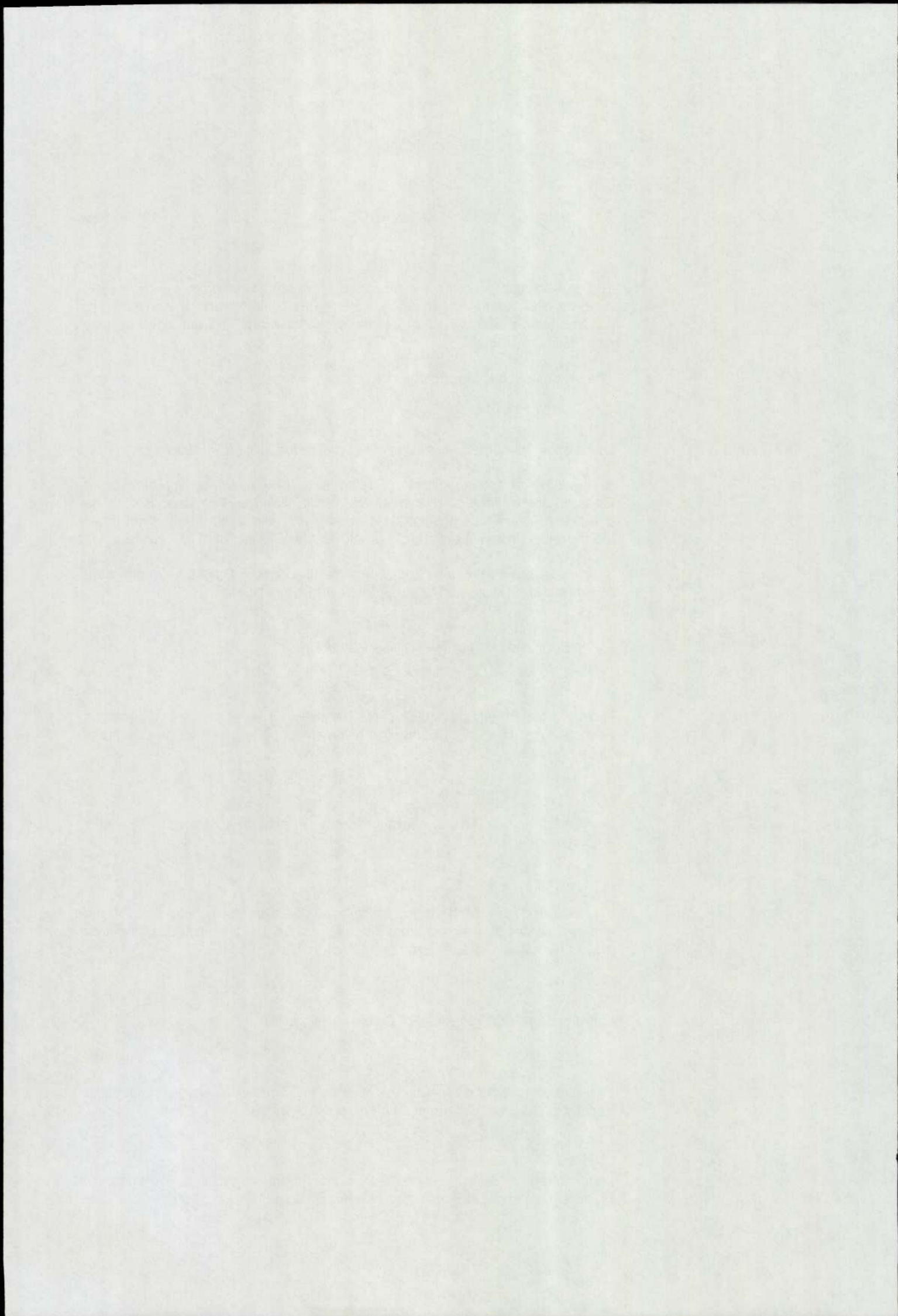
Letter acknowledging receipt of Salam's resignation.

A.32

Letter offering Salam the post of Reader in Theoretical Physics within the Faculty of Science, University of Liverpool, 1 April 1956.

A.33

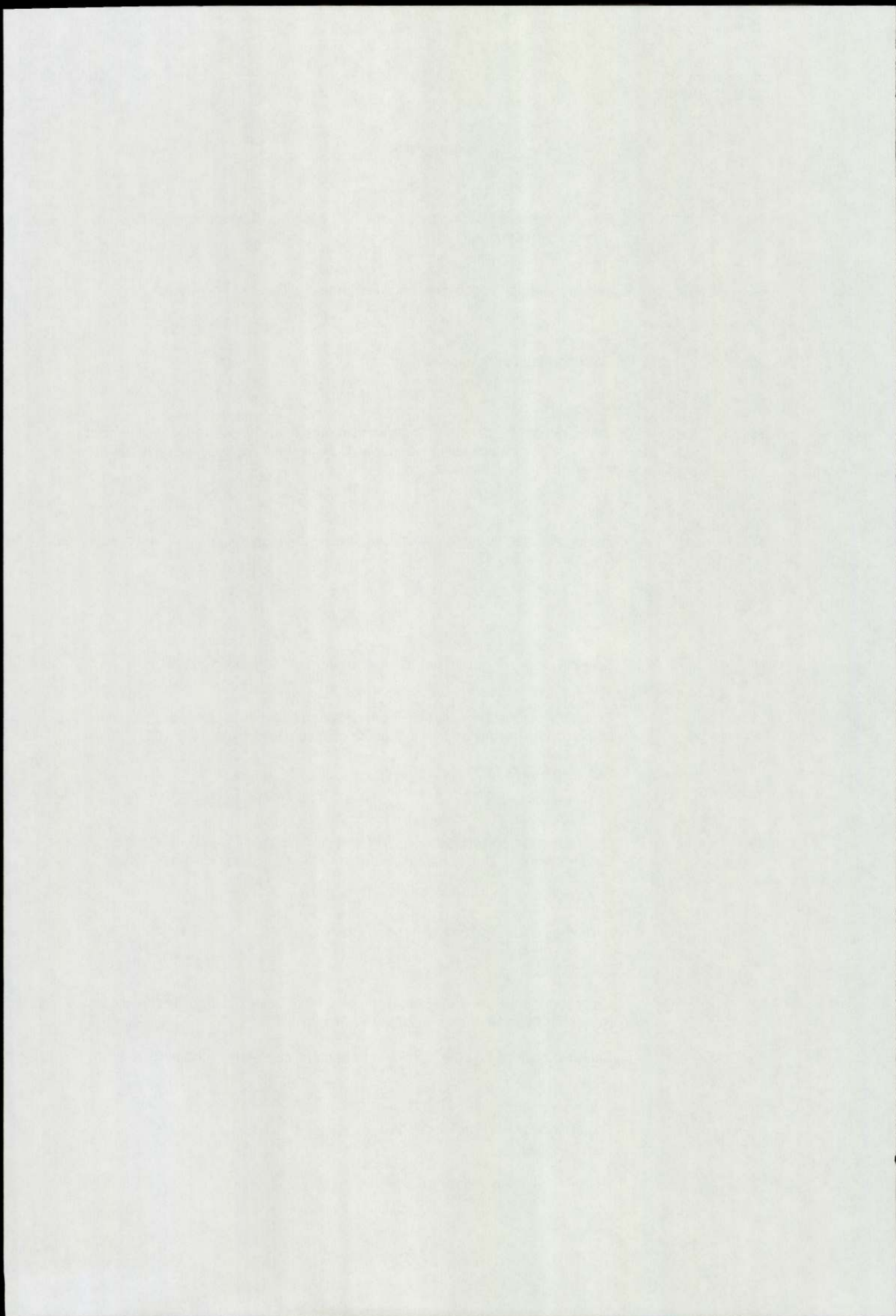
Letter offering Salam a one year appointment as visiting Professor of Physics, University of Rochester, New York, USA, 13 April 1956.





### Biographical

- A.34-A.37      Chair in Applied Mathematics, Imperial College of Science and Technology, University of London, 1957-1960.
- A.34      Letter of appointment and acknowledgement of Salam's acceptance.
- A.35      Correspondence *re* appointment and terms of employment.
- A.36      • Correspondence between Salam and representatives of the Government of Pakistan *re* his position at Imperial College and his resignation from the government education service.
- A.37      2pp typescript address introducing Salam's inaugural lecture at Imperial College, [14 May 1957].  
  
See also E.15, F.155.
- A.38-A.41      Scientific Adviser (part-time) to the President of Pakistan, 1961-1974.
- A.38      Communications from the President *re* Salam's efforts to tackle the problems of increasing salinity and waterlogging caused by irrigation, May 1962.  
  
See also M.377-M.390.
- A.39      Miscellaneous correspondence *re* Pakistan and science possibly relating to Salam's work as Chief Scientific Adviser to the President, 1971-1974.
- A.40      Examples of unused official headed stationery.
- A.41      Correspondence *re* the establishment of the Scientific and Technological Research Division of the Pakistan Government, 1964.  
  
Salam was invited by the President to become secretary of the new Division.
- A.42-A.44      Royal Society Hughes Medal, 1964.
- A.42      Copy of notification of award and citation.

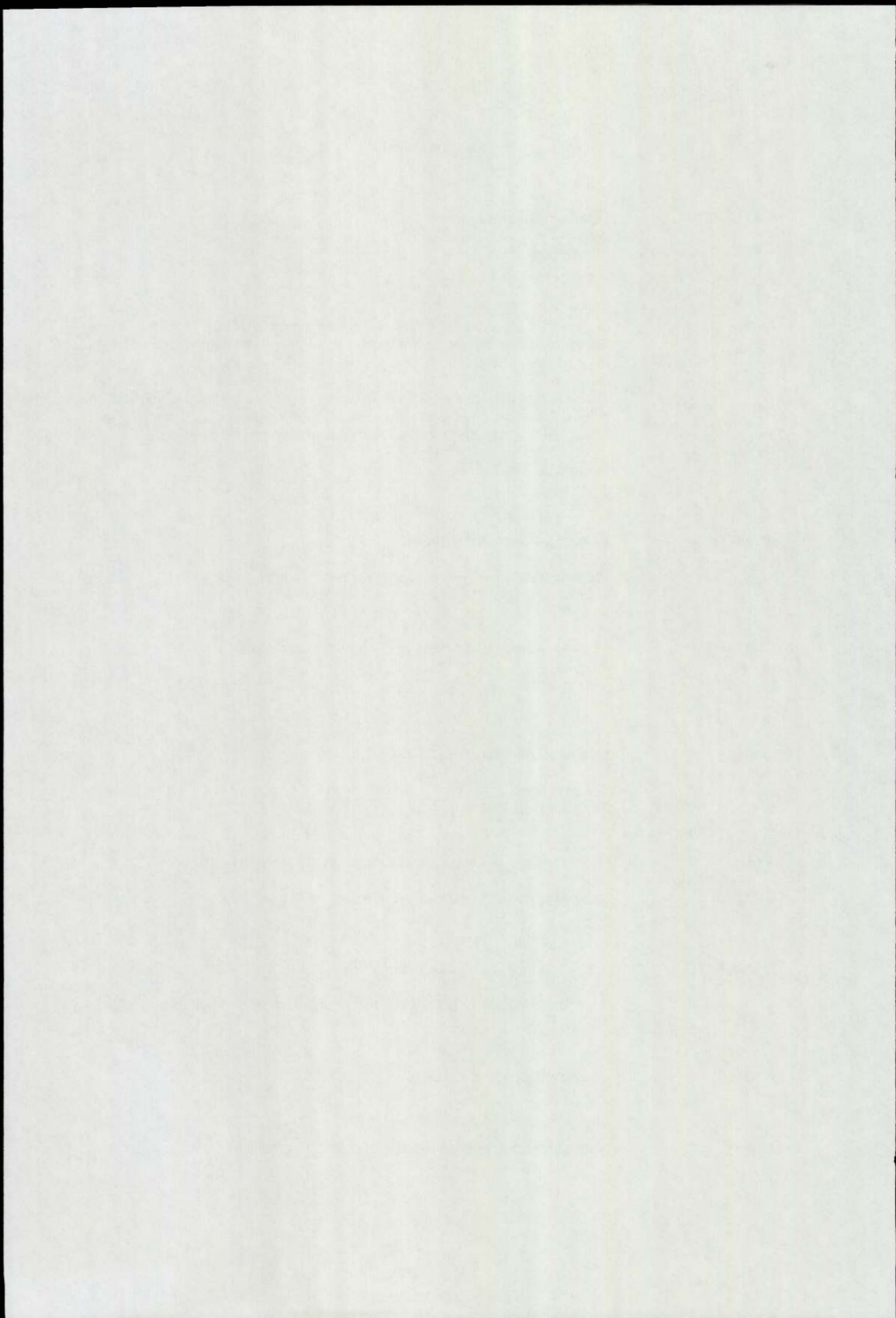




### Biographical

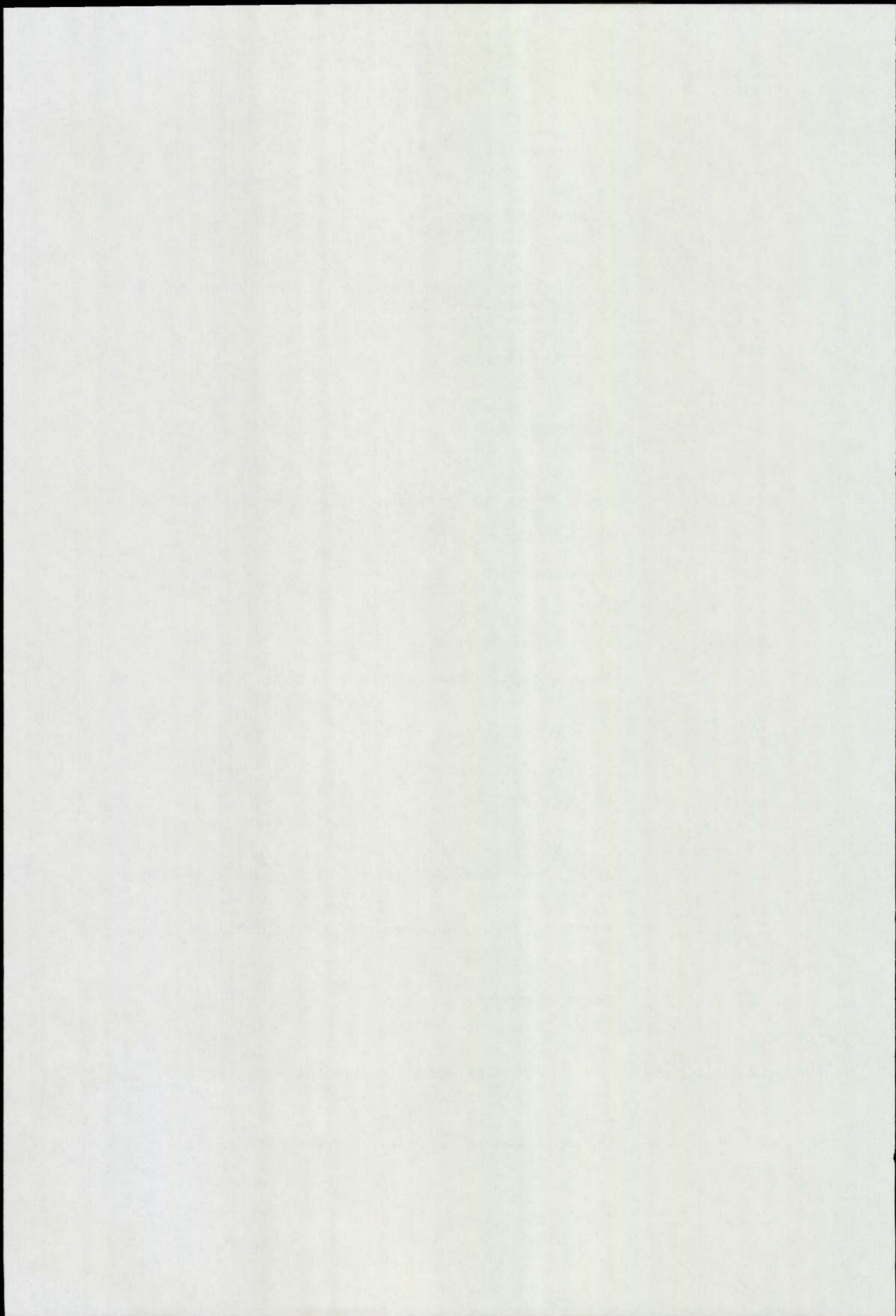
- A.43, A.44      Letters of congratulation.  
  
Two folders.
- A.45      Letters of congratulation prompted by an article published in *The Sunday Times* re Salam's recent contribution to a 'very important discovery in the nuclear field', 1965.  
  
These letters may relate to Salam's work on U(12) symmetry which was the subject of a paper co-authored with R. Delbourgo, M. A. Rashid and J. Strathdee and published by the International Atomic Energy Agency.  
  
See also E.34-E.36.
- A.46-A.54      Atoms for Peace Prize, 1968.  
  
Presented jointly to S. Eklund, Abdus Salam and H. D. Smyth at a ceremony in New York, USA, 14 October 1968.
- A.46, A.47      Correspondence and papers re presentation ceremony.  
  
Two folders.
- A.48-A.54      Letters of congratulations.  
  
Seven folders.
- A.55      Honorary Degree, University of Edinburgh, 27 November 1971.  
  
Copy of citation and laureation address.
- A.56-A.58      J. Robert Oppenheimer Memorial Prize, 1971.  
  
Awarded to Salam for his contribution to quantum electrodynamics
- A.56      Copy of citation press release.
- A.57      Correspondence re possible date of award ceremony.





### Biographical

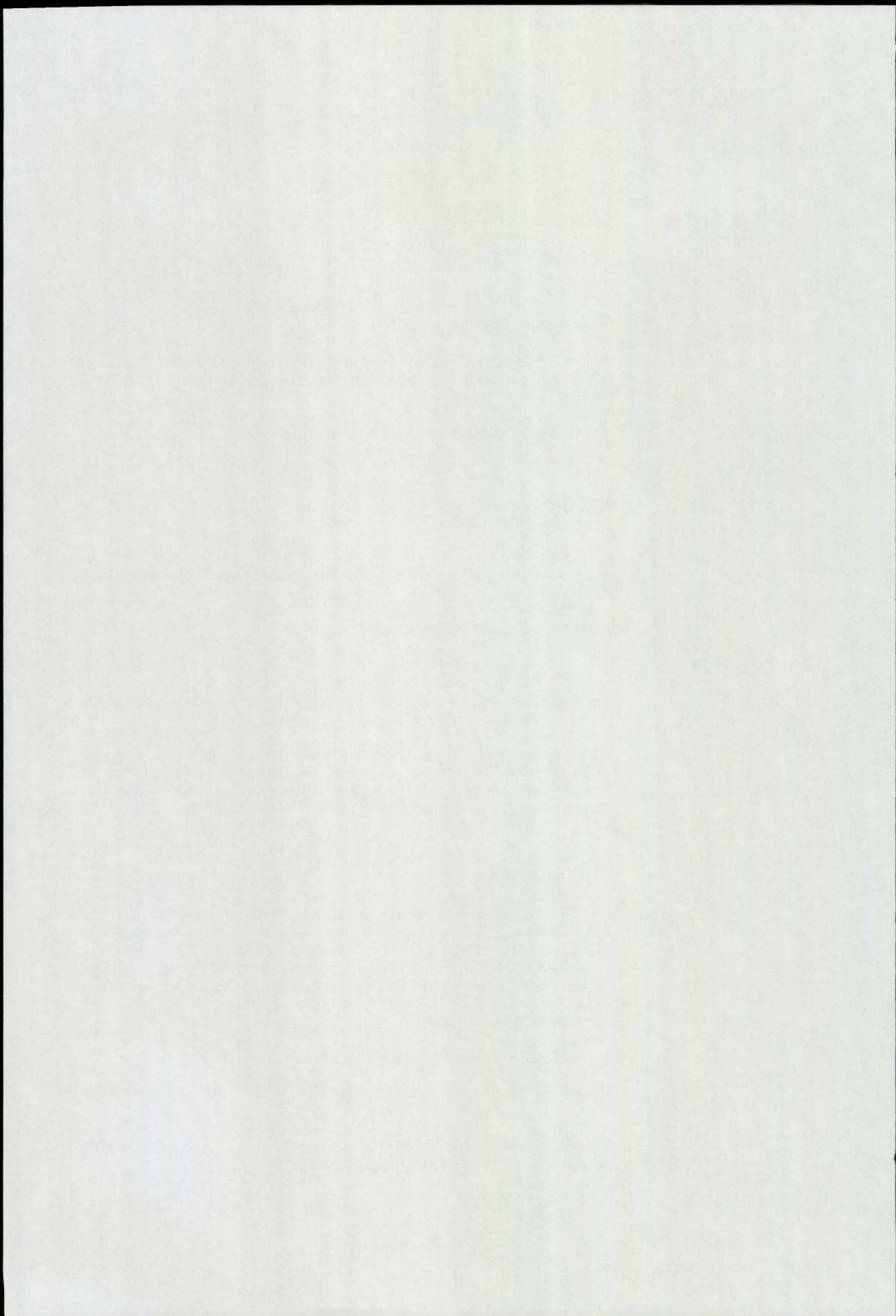
- A.58 Letters of congratulation.
- A.59, A.60 Foreign Honorary Member, American Academy of Arts and Sciences, Boston, Massachusetts, USA, 1971.
- A.59 Notification of election.
- A.60 Letter of congratulation.
- A.61, A.62 Foreign Member, USSR Academy of Sciences, Moscow, USSR, 1971.  
Letters of congratulation.  
Two folders.
- A.63, A.64 Matteucci Medal for Physics, 1978.  
Presented to Salam at a ceremony in Rome, 10 March 1978.
- A.63 Correspondence *re* award ceremony.
- A.64 Messages of congratulation.
- A.65-A.69 John T. Tate International Medal for Distinguished Service to the Profession of Physics, 1978.  
Presented to Salam at a ceremony in Columbus, Ohio, USA, 28 September 1978.
- A.65 Copy of citation and press release.
- A.66 Correspondence and papers *re* presentation ceremony.
- A.67 7pp untitled typescript ?acceptance address.





### Biographical

- A.68, A.69                      Letters of congratulation.  
  
Two folders.
- A.70, A.71                      Royal Society Royal Medal, 1978.  
  
Salam received the Medal, awarded for his research in theoretical elementary particle physics, at a ceremony in London, 30 November 1978.
- A.70                              Correspondence *re* notification and award ceremony.
- A.71                              Letters of congratulation.
- A.72                              Honorary Fellow, Tata Institute of Fundamental Research, Bombay, India, 1978.  
  
Notification and letter of congratulation.
- A.73                              Correspondence *re* awards and honours received by Salam from various countries between 1978 and 1980.  
  
As an employee of IAEA Salam was officially obliged to obtain the approval of the Director General before accepting awards from 'external' sources. In practice this regulation does not appear to have been enforced strictly. This correspondence represents Salam's fulfilment of that obligation.
- A.74-A.256                      Nobel Prize, 1979.  
  
In 1979 Abdus Salam, S. Weinberg and S. L. Glashow received the Nobel Prize for Physics 'for their contribution to the theory of the unified weak and electromagnetic interaction between elementary particles'. Salam was nominated for the Prize on several occasions prior to this date. Official documentation relating to all Salam's candidacies and to the Nobel Prize in general is presented here. Material prepared by Salam in support of his nominations is also included.  
  
The material is presented in chronological order, 1957-1979.  
  
For press cuttings *re* the Nobel Prize 1979 see A.838-A.848.
- A.74                              Correspondence *re* Salam's recent scientific discoveries and the possibility of winning the Nobel Prize for Physics, 1957.

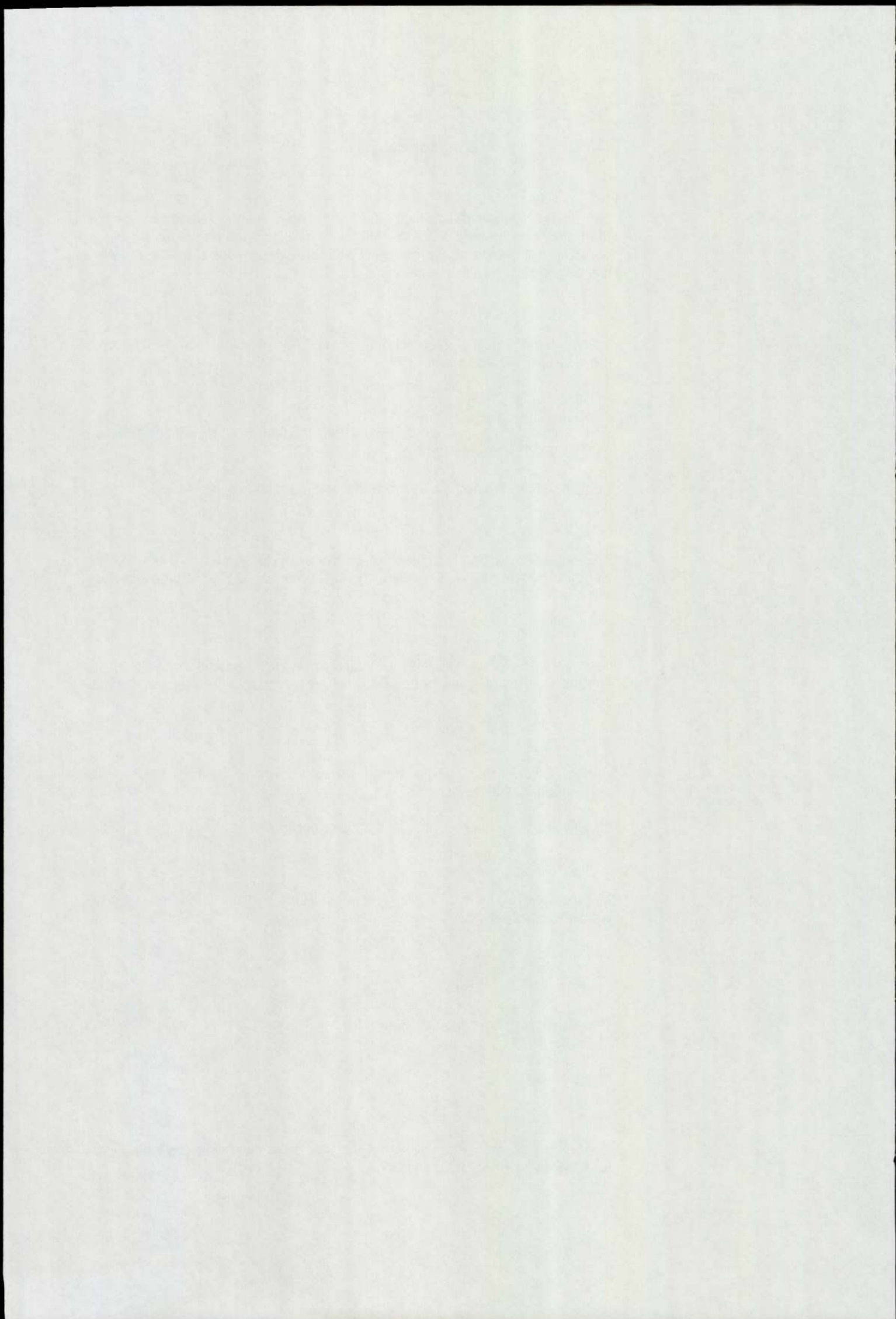




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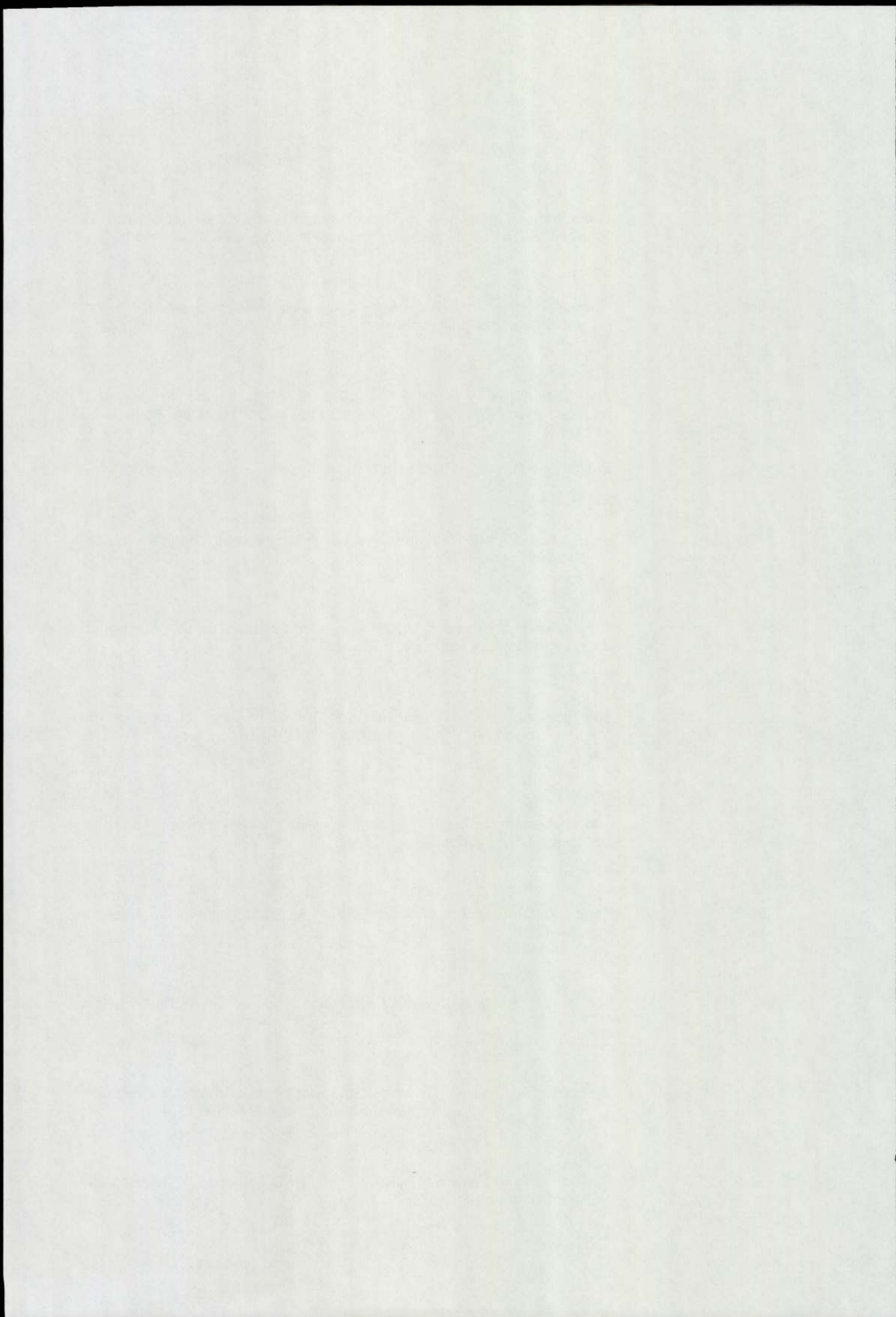
- A.75                      3pp untitled typescript in which Salam describes his discoveries concerning the reflection-symmetry principle in November 1956 accompanied by a copy of a letter (and translation) from W. Pauli to V. Weisskopf in which reference is made to Salam's discovery.
- A.76                      1p typescript with manuscript notes entitled 'Development of the Theory of the Neutrino', nd ?ca 1957.
- A.77                      'The Sociology of the Nobel Prizes', H. Zuckerman, *Scientific American* **217**(5) 25-33, November 1967.
- Published text retained by Salam with documentation *re* the Nobel Prize.
- A.78                      3pp typescript entitled 'Experimental Evidence for Salam's Theory of the Neutrino and of the Weak Interaction of Leptons', nd, latest bibliographical reference 1967.
- A.79                      Two versions of a letter to I. Waller in which Salam sets down his contributions to neutrino and weak interactions theory, September-October 1969.
- A.80                      Papers and correspondence found with materials *re* Salam's Nobel Prize nominations, 1969-1978.
- Letters and report *re* recent scientific developments.
- A.81                      Manuscript draft letter to P. T. Matthews composed by Salam in support of his own possible Nobel candidacy, [1971].
- See also B.187.
- A.82                      Papers *re* the nomination of Salam for the Nobel Prize for Physics by P. A. M. Dirac, 1971.
- See also B.187.
- A.83                      Papers and correspondence *re* the nomination of Salam for the Nobel Prize for Physics by P. A. M. Dirac, 1972.





### Biographical

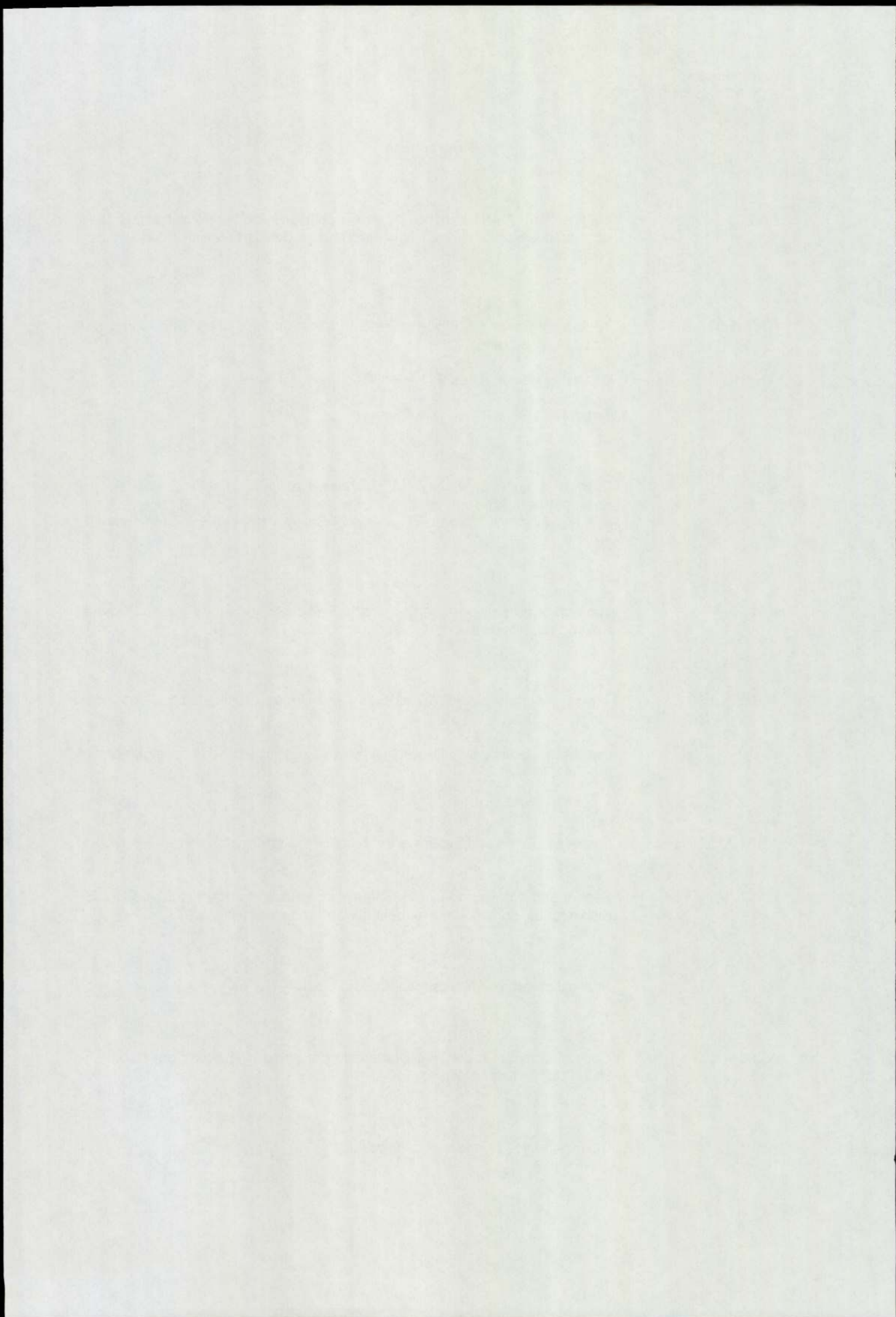
- A.84 Letter from G. [Feldman] *re* Salam's nomination for the Nobel Prize for Physics 1972 with documentation prepared in support of the nomination.
- A.85 Correspondence with B. W. Lee *re* Salam's contribution to scientific theory and the ethics of scientific references, June 1972.
- A.86 *The Nobel Prize in Physics 1901-1970*, M. Siegbahn and K. Siegbahn, reprinted from *Nobel, the Man and his Prizes* ed. The Nobel Foundation, 1972.
- Published text retained by Salam with documentation *re* the Nobel Prize.
- A.87 8pp typescript entitled 'Salam's Contribution to Elementary Particle Physics', nd, latest bibliographical reference 1972.
- A.88 13pp typescript entitled 'A Report on Abdus Salam's Scientific Work', nd, latest bibliographical reference 1973.
- A.89 2pp typescript entitled 'Contributions to Theory of Weak and Particularly Neutrino Interactions' with appendices, nd, latest bibliographical reference 1973.
- A.90 10pp typescript (annotated) entitled 'Professor Abdus Salam', nd, latest bibliographical reference 1973.
- A.91 Paper *re* the nomination of Salam by P. A. M. Dirac for the Nobel Prize for Physics 1974.
- A.92 8pp typescript entitled 'Salam's Contribution to Elementary Particle Physics (1974)'.
- A.93 9pp typescript entitled 'Abdus Salam's Contribution to Weak Interaction Theory' with appendices, nd, latest bibliographical reference 1974.
- A.94 Papers *re* the nomination of Salam by P. A. M. Dirac and H. A. Bethe for the Nobel Prize for Physics 1975.





### Biographical

- A.95 Letters from J. [Nilsson] *re* Salam's candidacy for the Nobel Prize 1975 accompanied by a cartoon strip referring to Salam taken from a Swedish newspaper.
- A.96, A.97 'Neutral Currents + Parity'. Contents of folders so inscribed divided into two for ease of reference.
- Correspondence, notes and scientific papers, 1974-1978.
- Two folders.
- A.98 Copy of a letter in which P. T. Matthews confirms that he heard Salam describe the unified gauge theory of weak and electromagnetic interactions in a lecture in 1967 written in support of Salam's Nobel Prize candidacy, 26 July 1976.
- A.99 5pp typescript entitled 'Contributions to Particle Physics by Professor Abdus Salam', nd, latest bibliographical reference 1977.
- A.100 11pp typescript entitled 'Abdus Salam' by Professor Riazuddin, September 1979.
- Describes Salam's scientific achievements and his work for development in the Third World.
- A.101-A.256 Correspondence and papers *re* the Nobel Prize for Physics 1979.
- A.101 Papers and correspondence *re* Salam's nomination for the Prize by T. W. B. Kibble for his contributions to the theory of weak interactions.
- A.102 Notification of award, press release and publicity.
- A.103 Copy of communication of congratulation received by Salam from M. Zia-ul-Haq, President of Pakistan.
- A.104 Salam's replies to letters of congratulation.

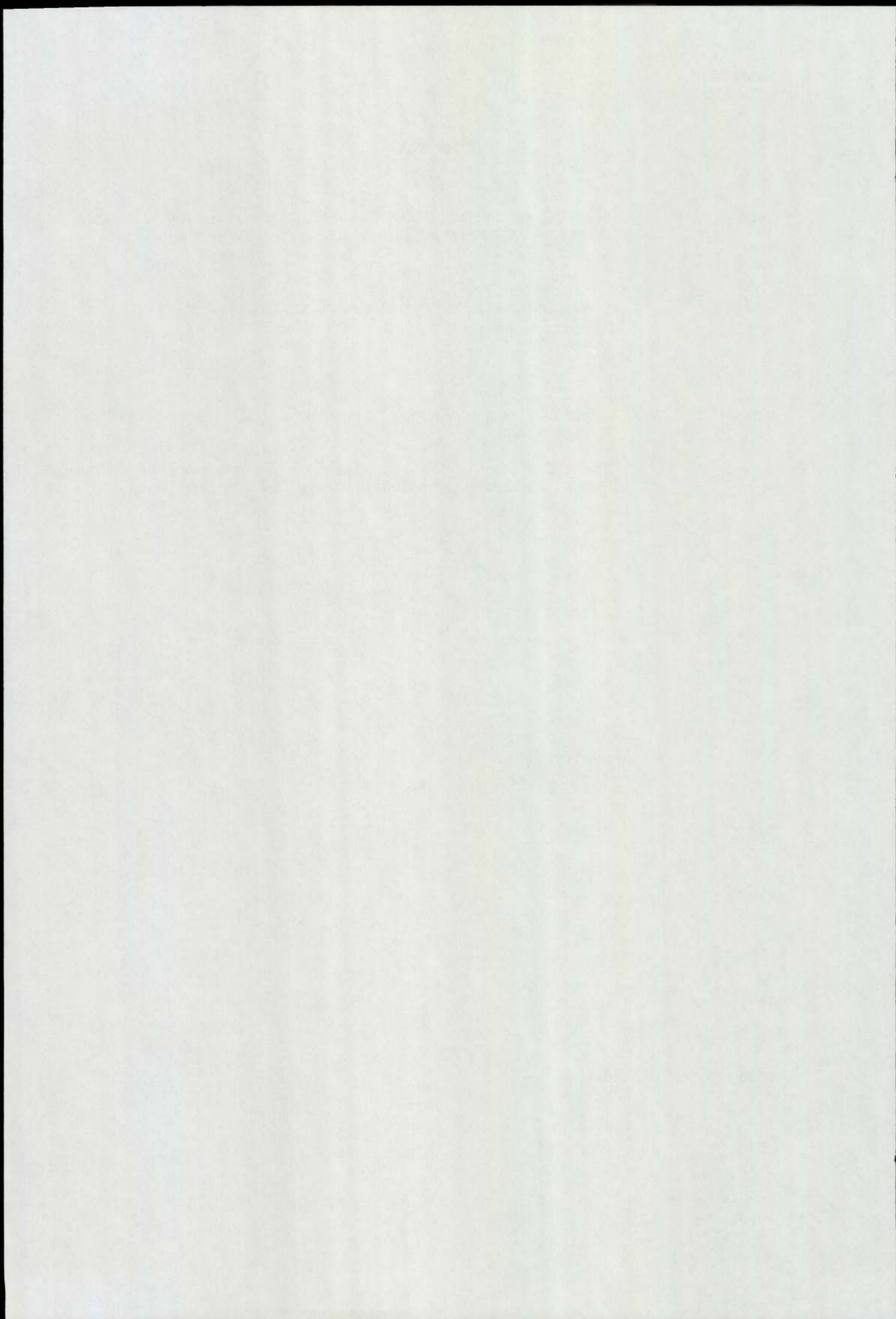




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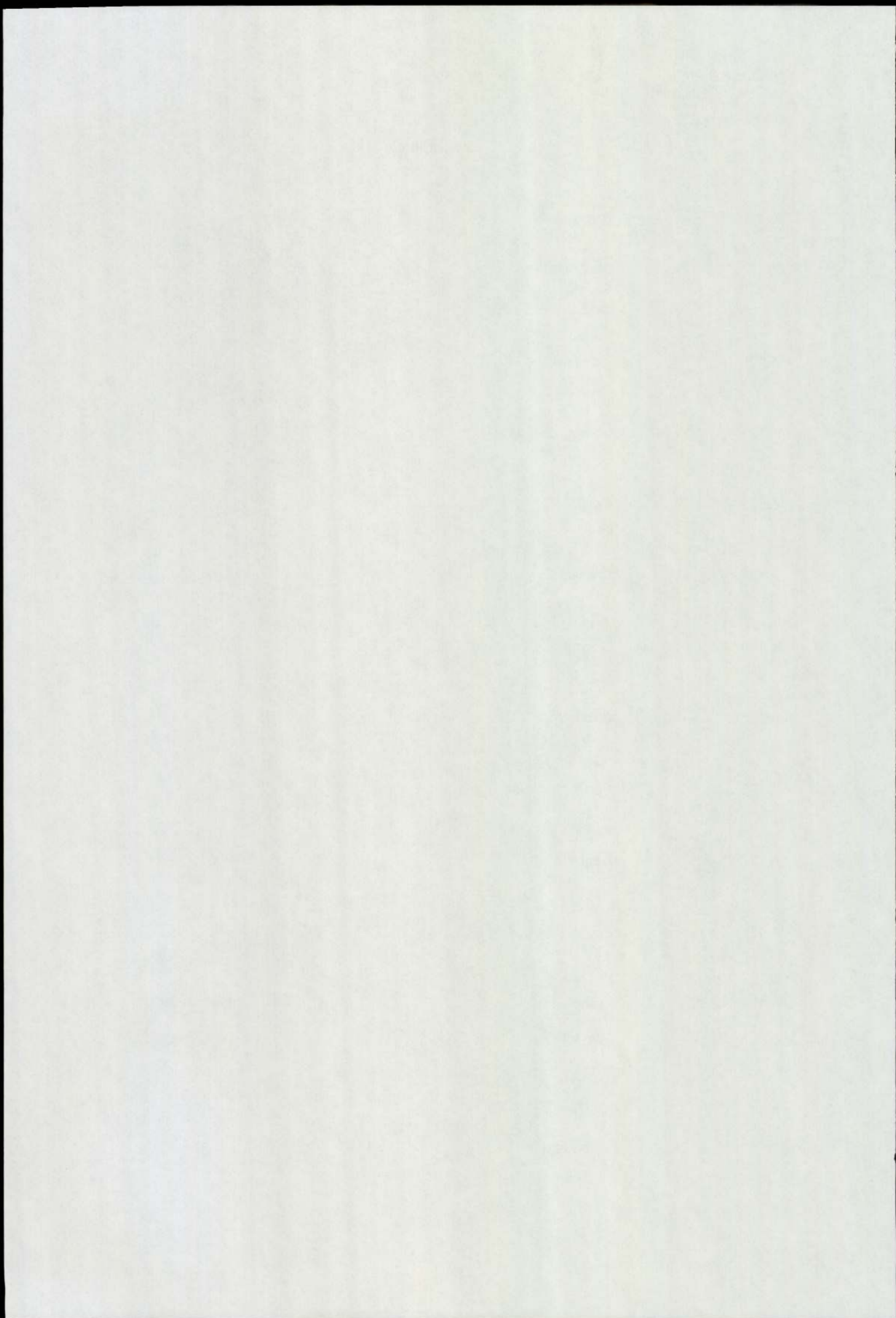
- A.105                      5pp typescript with illustrative figures entitled 'Unification - The 1979 Nobel Prize' by T. W. B. Kibble prepared for publication by the Institute of Physics.
- A.106                      Correspondence *re* arrangements concerning Salam's Nobel Lecture.  
  
See also F.26.
- A.107-A.256              Letters of congratulations received by Salam after winning the Nobel Prize for Physics 1979.  
  
The original order, sorted alphabetically into two sequences, by country (A.107-A.248) and by organisation (A.249-A.256), has been preserved.
- A.107                      Algeria.
- A.108                      Argentina.
- A.109                      Australia.
- A.110                      Austria.
- A.111                      Abu Dhabi.
- A.112-A.114              Bangladesh.  
  
Three folders.
- A.115                      Belgium.
- A.116                      Bolivia.
- A.117                      Brazil.





**Biographical**

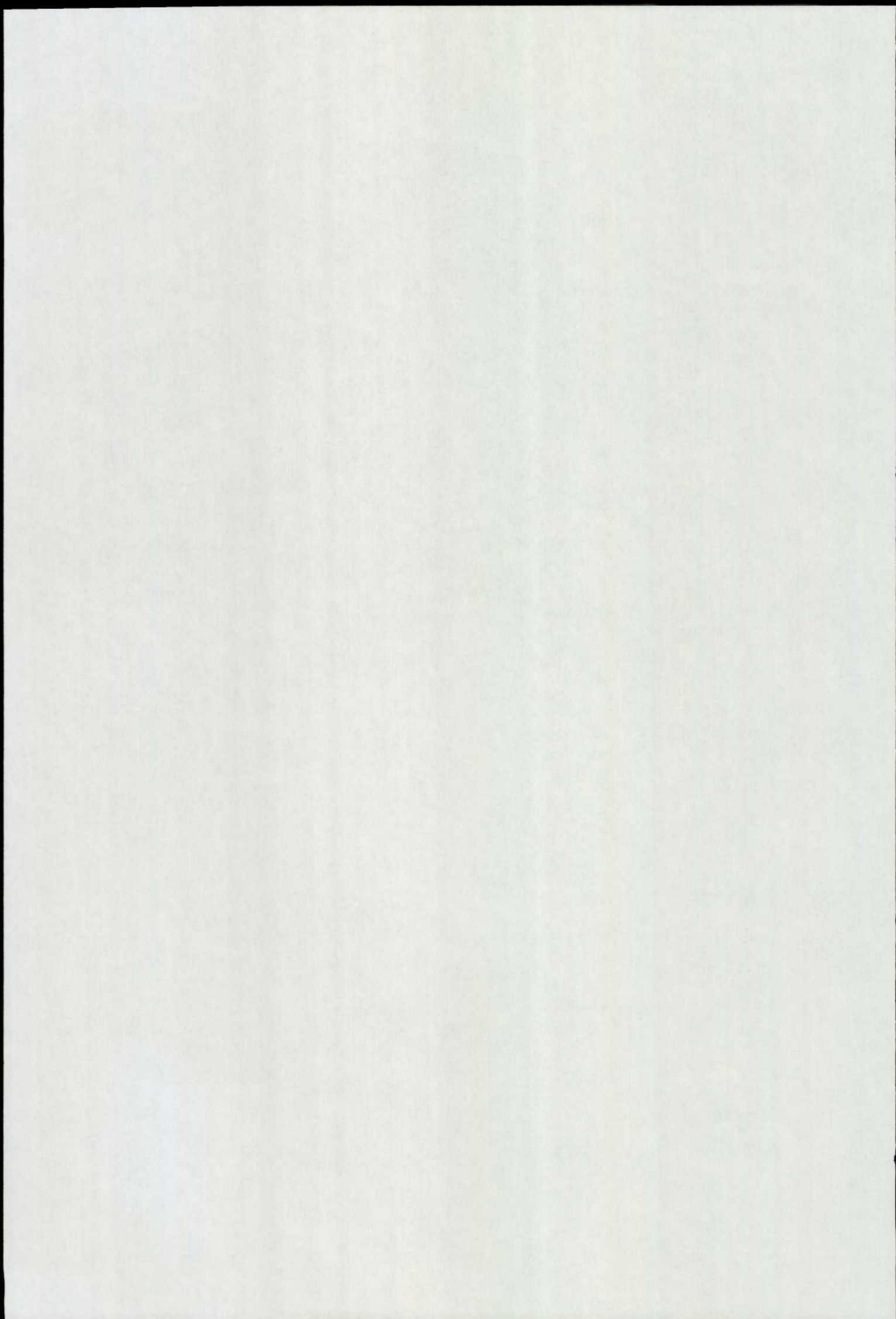
A.118	Bulgaria.
A.119	Burma.
A.120	Canada.
A.121	Canary Islands.
A.122	Chile.
A.123	China.
A.124	Colombia.
A.125	Cuba.
A.126	Czechoslovakia.
A.127	Denmark.
A.128	Egypt.
A.129, A.130	France. Two folders.
A.131-A.133	Germany. Three folders.





**Biographical**

A.134	Ghana.
A.135	Greece.
A.136	Hong Kong.
A.137	Hungary.
A.138-A.155	India. Eighteen folders.
A.156	Indonesia.
A.157	Iran.
A.158	Iraq.
A.159	Israel.
A.160-A.166	Italy. Seven folders.
A.167	Jamaica.
A.168	Japan.
A.169	Jeddah.



**Biographical**

A.170	Jordan.
A.171	Kenya.
A.172	Korea.
A.173	Kuwait.
A.174	Lebanon.
A.175	Libya.
A.176	Malaysia.
A.177	Mauritius.
A.178	Mexico.
A.179	Nepal.
A.180	Netherlands.
A.181	New Zealand.
A.182	Niger.
A.183	Nigeria.



**Biographical**

A.184	Norway.
A.185-A.196	Pakistan. Twelve folders.
A.197	Panama
A.198	Papua New Guinea.
A.199	Poland.
A.200	Portugal.
A.201	Puerto Rico.
A.202	Romania.
A.203	Saudi Arabia.
A.204	Sierra Leone.
A.205	Singapore.
A.206	South Africa.
A.207	Spain.
A.208	Sri Lanka.

**Biographical**

A.209	Sudan.
A.210, A.211	Sweden. Two folders.
A.212	Switzerland.
A.213	Syria.
A.214	Thailand.
A.215	Tunisia.
A.216	Turkey.
A.217-A.227	UK. Eleven folders.
A.228-A.241	USA. Fourteen folders.
A.242, A.243	USSR. Two folders.
A.244	Venezuela.
A.245	Vietnam.

**Biographical**

- |              |  |
|--------------|--|
| A.246        | Yemen.   |
| A.247        | Yugoslavia.  |
| A.248        | Zaire.   |
| A.249        | European Organisation for Nuclear Research (CERN).                         |
| A.250, A.251 | International Atomic Energy Agency (IAEA).<br>Two folders.                 |
| A.252        | International Centre for Theoretical Physics(ICTP), Trieste, Italy.        |
| A.253        | International Institute for Applied Systems Analysis, Austria.             |
| A.254        | United Nations (UN).   |
| A.255        | United Nations Educational, Scientific and Cultural Organization (UNESCO). |
| A.256        | World Food Programme.  |
| A.257, A.258 | Honorary Degree, University of Trieste, Italy, 6 November 1979.            |
| A.257        | Correspondence <i>re</i> arrangements.                                     |
| A.258        | Message (telex) of congratulation and 3pp typescript acceptance speech.    |



### Biographical

- A.259                      Honorary Degree, Quaid-I-Azam University, Islamabad, Pakistan, 20 December 1979.  
  
Messages (including telexes) of congratulation.
- A.260                      Academico Ordinario Tiberino, Rome, Italy, 1979.  
  
Correspondence *re* election.
- A.261                      Foreign Member, Accademia Nazionale dei Lincei, Rome, Italy, 1979.  
  
Letters of congratulation and correspondence arising.
- A.262                      Foreign Associate, National Academy of Sciences, USA, 1979.  
  
Letters of congratulation.
- A.263                      Honorary Degree, Universidad Nacional Mayor de San Marcos, Lima, Peru, 23 January 1980.  
  
Programme, itinerary and copy of 4pp citation by J. W. Vásquez.
- A.264-A.266              Honorary Citizenship of Trieste, Italy, 6 March 1980.
- A.264                      Correspondence *re* conferral ceremony.
- A.265                      3pp typescript citation with Italian translation.
- A.266                      Communications of congratulation.
- A.267                      Associate Member, Academy of the Kingdom of Morocco, 11 March 1980.  
  
3pp citation with translation.
- A.268                      Honorary Degree, University of Yarmouk, Irbid, Jordan, 28 June 1980.  
  
Correspondence *re* arrangements.

### Biographical

- A.269 Associate Member, Iraqi Academy, Baghdad, 1980.  
Correspondence *re* election.
- A.270 Foreign Member, Accademia Nazionale delle Scienze, Rome, 1980.  
Correspondence *re* election.
- A.271 Gold Medal, Czechoslovak Academy of Sciences, 1980.  
Correspondence *re* notification of award.
- A.272 Member, European Academy of Arts, Sciences and Humanities, 1980.  
Notification of election.
- A.273-A.275 Honorary Degree, University of Wroclaw, Poland, May 1981.
- A.273 Correspondence *re* Salam's trip to Poland.
- A.274 11pp typescript presentation oration given by J. Lopuszanski and 1p typescript acceptance speech.
- A.275 Correspondence arising.
- A.276 Honorary Degree, University of Bristol, UK, 2 July 1981.  
Correspondence and copy of 6pp citation address delivered by J. M. Ziman.
- A.277 Honorary Degree, Istanbul University, Turkey, 9 September 1981.  
Correspondence and papers *re* Salam's trip to Turkey.
- A.278-A.280 Honorary Degree, University of Maiduguri, Nigeria, 19 December 1981.
- A.278 Correspondence *re* arrangements.



### Biographical

- A.279 Copy of Vice-Chancellor, J. Aminu's address and citation address delivered by C. M. B. Brann.
- A.280 Correspondence and papers arising. Includes 8pp typescript acceptance speech prepared for publication.
- A.281 Foreign Fellow, Indian National Science Academy, 1981.  
Correspondence *re* election.
- A.282 Member, Academia das Ciências de Lisboa, Portugal, 1981.  
Correspondence *re* election.
- A.283, A.284 Member, Pontificia Academia Scientiarum, Rome, 1981.
- A.283 Correspondence *re* appointment.
- A.284 Correspondence arising and papers sent to Salam for information.
- A.285 Third World Prize, 1982-1988.  
Correspondence and papers *re* nominations of ICTP and Salam for the prize.
- A.286-A.288 Lomonsov Gold Medal, 1983.  
Salam received the medal at a presentation ceremony in Moscow, USSR, 26 December 1984.
- A.286 Correspondence *re* arrangements.
- A.287 Messages (including telexes) of congratulation.
- A.288 Correspondence arising.



**Biographical**

- A.289 Foreign Member, Yugoslav Academy of Sciences, 1983.  
Correspondence *re* nomination and election.
- A.290 'Ad Honorem', Gold Mercury International Award, 1983.  
Correspondence *re* arrangements.
- A.291, A.292 Honorary Degree, University of Khartoum, Sudan, 1983.
- A.291 Correspondence *re* arrangements and messages of congratulation.
- A.292 Letters of thanks and correspondence arising.
- A.293-A.295 Honorary Degree, Universidad Complutense de Madrid, Spain, 1983.
- A.293 Correspondence *re* arrangements.
- A.294 Copy of citation address and 8pp typescript acceptance speech.
- A.295 Correspondence arising.
- A.296, A.297 King Faisal International Prize in Physics, 1983.  
  
Papers and correspondence *re* Salam's nomination for the Prize by N. E. Eissa, Al-Azhar University, Cairo, Egypt.  
  
Two folders.  
  
See also A.401.
- A.298, A.299 Honorary Degree, City University of New York, New York, USA, 24 May 1984.
- A.298 Correspondence *re* arrangements and programme.

### Biographical

- A.299 Letters of thanks.
- A.300 Honorary Degree, University of Nairobi, Kenya, 17 December 1984.  
Correspondence *re* arrangements.
- A.301 Honorary Fellow, Ghana Academy of Sciences, 1984.  
Correspondence *re* election and citation.
- A.302-A.304 External Examiner, University of Singapore, 1984-1986.  
Correspondence and papers *re* Salam's appointment and duties.  
Three folders.
- A.305 Honorary Degree, Universidad Nacional de Cuyo, Argentina, May 1985.  
Citation.
- A.306 Honorary Degree, Universidad Nacional de la Plata, Argentina, May 1985.  
Citation addresses, programme and letter of thanks.
- A.307 Honorary Degree, University of Cambridge, 13 June 1985.  
Correspondence and papers *re* arrangements.
- A.308 Honorary Member, Polish Academy of Sciences, August 1985.  
Correspondence *re* election.
- A.309, A.310 Honorary Degree, University of Göteborg, Sweden, 9 November 1985.
- A.309 Notification of award and programmes.
- A.310 Messages of congratulation and press cuttings.



### Biographical

- A.311 Fiera di Milano Medal, 1986.
- Salam was awarded the medal for his contribution to the foundation of the Third World Academy of Science at a ceremony in Milan, Italy, 16 April 1986.
- Correspondence *re* arrangements.
- A.312, A.313 Premio Umberto Biancamano, 1986.
- Salam received the prize at a ceremony in Rome, Italy, 26 April 1986.
- Correspondence and papers *re* award ceremony. Includes photographs.
- See also F.83, F.84.
- Two folders.
- A.314, A.315 Honorary Degree, University of Sofia, Bulgaria, 5 May 1986.
- Correspondence *re* arrangements.
- Two folders.
- A.316, A.317 Honorary Degree, University of Glasgow, 18 June 1986.
- Correspondence *re* arrangements.
- Two folders.
- A.318, A.319 Honorary Degree, The City University, London, 1 December 1986.
- A.318 Correspondence *re* arrangements.
- A.319 Letters of thanks and correspondence arising.
- A.320 Corresponding Member, Academia de Ciencias Medicas, Fisicas y Naturales de Guatemala, 1986.
- Correspondence *re* election.



### Biographical

- A.321                      Dayemi Complex Award, 1986.  
  
Correspondence *re* award.
- A.322                      Fellow, World Academy of Science, 1986.  
  
Correspondence *re* election and papers sent to Salam for information.
- A.323-A.382              Director General, UNESCO, 1987.  
  
Salam's candidacy for the position received widespread unofficial support, especially in Third World countries, but failed to find a formal sponsor. Material relating to Salam's interest in the post and his attempts to consolidate support for his candidacy are presented here.  
  
For press cuttings *re* Salam's UNESCO candidacy see A.849-A.854.
- A.323-A.359              Letters, both personal and governmental, written in response to requests for support made on Salam's behalf.  
  
Sorted alphabetically by country.
- A.323                      Argentina.
- A.324                      Bangladesh.
- A.325                      Benin.
- A.326                      Brazil.
- A.327                      Cameroon.
- A.328                      China.
- A.329                      Colombia.

**Biographical**

A.330	Congo.
A.331	Egypt.
A.332	Ethiopia.
A.333	France.
A.334	Federal Republic of Germany.
A.335	Ghana.
A.336	Iceland.
A.337	India.
A.338	Indonesia.
A.339	Italy.
A.340	Ivory Coast.
A.341	Japan.
A.342	Jordan.
A.343	Madagascar.

**Biographical**

A.344	Mali.
A.345	Mexico.
A.346	Morocco.
A.347	Netherlands.
A.348	Nigeria.
A.349, A.350	Pakistan. Two folders.
A.351	Senegal.
A.352	Syria.
A.353	Thailand.
A.354	Tunisia.
A.355	UK.
A.356	USA.
A.357	USSR.
A.358	Venezuela.



### Biographical

A.359	Zimbabwe.
A.360-A.372	Correspondence <i>re</i> Salam's eligibility for the position of Director General, publicity concerning his possible nomination by the UK and support for his candidacy.  Sorted alphabetically by name of individual.
A.360	N. Ahmed.
A.361	F. K. A. Allotey.
A.362	E. A. Ash.
A.363	M. Baghdadi.
A.364	S. Eklund.
A.365	S. Islam.
A.366	J. Marton-Lefèvre.
A.367	P. T. Matthews.
A.368	M. J. Moravcsik.
A.369	T. R. Odhiambo.
A.370	C. Ponnampерuma.
A.371	I. H. Usmani.

### Biographical

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| A.372        | L. Violini.  |
| A.373, A.374 | Lists of names and addresses of contacts whose support was sought.<br><br>Two folders.   |
| A.375        | 10pp typescript 'UNESCO Manifesto' entitled 'Towards New Directions at UNESCO' by Salam with French and Italian versions.                              |
| A.376        | 9pp typescript entitled 'Specialisation in Building of Third World Science in Education' by Salam.   |
| A.377        | 13pp typescript curriculum vitae of Salam in French.   |
| A.378        | Various typescript notes and papers <i>re</i> UNESCO organisation, activities and personnel.   |
| A.379-A.381  | Miscellaneous correspondence and papers <i>re</i> Salam's UNESCO candidacy.<br><br>Three folders   |
| A.382        | Typescript notes (English and French) on the goals and objectives of UNESCO.   |
| A.383        | Honorary Degree, Panjab University, Chandigarh, India, 7 March 1987.<br><br>Salam graduated in absentia.<br><br>Correspondence <i>re</i> arrangements. |
| A.384-A.386  | Honorary Degree, University of Exeter, 17 July 1987.   |
| A.384        | Correspondence <i>re</i> arrangements.   |
| A.385        | Copy of citation and 5pp typescript acceptance address.  |



### Biographical

- A.386 Letters of thanks and correspondence arising.
- A.387 Foreign Fellow, African Academy of Sciences, 1987.  
Correspondence *re* election.
- A.388 Fellow, Pakistan Academy of Medical Sciences, 1987.  
Notification of election and papers sent to Salam for information.
- A.389 Honorary Degree, Medicina Alternativa, Colombo, Sri Lanka, 1987.  
Salam was not able to attend the presentation ceremony.  
Notification of award and correspondence *re* arrangements.
- A.390 Honorary Degree, Université Nationale du Bénin, 1987.  
Notification of award.
- A.391 Corresponding Member, Academia de Ciencias Fisicas, Matematicas y Naturales de Venezuela, 1987.  
Correspondence *re* election.
- A.392 Honorary Fellow, Indian Academy of Sciences, Bangalore, India, January 1988.  
Correspondence *re* notification of election.
- A.393-A.396 Honorary Degree, Ghent State University, Belgium, 18 March 1988.  
See also F.121.
- A.393 Correspondence *re* arrangements.
- A.394 Copy of citation address given by M. de Boodt and covering correspondence.



### Biographical

- A.395, A.396      Letters of thanks and correspondence arising. Includes black and white photographs of the presentation ceremony.  
  
Two folders.
- A.397, A.398      International Development of Peoples Prize, 1988.  
  
Salam was presented the award at a ceremony in Genoa, Italy, 28 October 1988.
- A.397      Correspondence *re* arrangements.
- A.398      Two versions (Italian and English) of 7pp typescript acceptance speech.
- A.399      Distinguished International Fellow, Sigma Xi, The Scientific Research Society, USA, October 1988.  
  
Correspondence *re* notification.
- A.400      Deshikttam Award, Viva-Bharati University, Santiniketan, India, 1988.  
  
Correspondence *re* award.
- A.401      King Faisal International Prize for Science, 1988.  
  
Correspondence and papers *re* Salam's nomination for the Prize.  
  
See also A.296, A.297.
- A.402-A.406      Edinburgh Medal, 1989.  
  
Salam was awarded the First Edinburgh Medal at a ceremony in Edinburgh, 8 April 1989.
- A.402, A.403      Correspondence *re* arrangements.  
  
Two folders.

### Biographical

- A.404-A.406      Correspondence and papers arising. Includes photograph, 21pp typescript address by Salam and letters of congratulation.
- Three folders.
- A.407-A.410      Honorary Knight Commander of the Order of the British Empire (KBE), 1989.
- Salam received the honour at a ceremony in London, 12 June 1989.
- Letters of congratulation and correspondence arising.
- Four folders.
- A.411      Honorary Membership, Brazilian Mathematical Society, June 1989.
- Correspondence *re* notification of award.
- A.412      Honorary Diploma, 'Creation' International Association of Scientists and Intelligentsia, 15 August 1989.
- Correspondence *re* award.
- A.413      Honorary Degree, University of Buenos Aires, 14 October 1989.
- Salam's trip to Argentina to receive his degree had to be postponed due to illness.
- Correspondence *re* arrangements.
- A.414      Honorary Degree, Bendel State University, Nigeria, 29 March 1990.
- Salam was unable to attend the convocation ceremony.
- Correspondence *re* award.



### Biographical

- A.415-A.420      Catalunya Prize, 1990.
- Salam received the prize at a ceremony in Barcelona, Spain, 29 May 1990. During his stay in Spain he was invited to visit various institutions and establishments.
- See also F.143.
- A.415, A.416      Correspondence *re* arrangements.
- Two folders.
- A.417      Papers, principally publicity material, *re* award ceremony.
- A.418      Various typescript versions of Salam's acceptance speech.
- A.419      Letters of congratulation and correspondence arising.
- A.420      Press cuttings.
- A.421      Honorary Membership, Hungarian Academy of Sciences, May 1990.
- Correspondence *re* election and presentation of diploma of membership.
- A.422      Honorary Degree, University of Ghana, 12 July 1990.
- Salam received the award from A. Sawyerr, Vice-Chancellor, University of Ghana, at a ceremony held at ICTP, Trieste, Italy.
- Correspondence *re* arrangements.
- A.423, A.424      Royal Society Copley Medal, 1990.
- Salam received the medal in recognition of his work on the symmetry laws of nature and the unification of the electromagnetic and weak forces.
- A.423      Correspondence *re* award and Salam's wish to donate his prize money to institute a new lectureship.



### Biographical

- A.424 Letters of congratulation.
- A.425 National Association of Centres of Social Initiatives (ANCIS) International Prize for Science, 1990.  
Letter of notification.
- A.426-A.439 Salam's 65th Birthday, 29 January 1991.  
A ceremony was held at ICTP, Trieste, Italy, to mark the occasion.
- A.426 Correspondence and papers *re* arrangements.
- A.427-A.432 Letters of congratulation and best wishes.
- A.427 'Heads of State'.
- A.428 'Directors General'.
- A.429, A.430 'Academies and Councils'.  
Two folders.
- A.431 'Embassies'.
- A.432 'Politicians'.
- A.433-A.438 'Others'. Sorted alphabetically by name of individual.
- A.433 A.
- A.434 B.

### Biographical

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| A.435 | C-G.   |
| A.436 | H-M.   |
| A.437 | N-S.   |
| A.438 | T-Z.   |
| A.439 | Presentation booklet containing messages of congratulation and birthday greetings.   |
| A.440 | Honorary Degree, University of Tucuman, Argentina, 27 May 1991.<br>Salam received his degree at a ceremony held at ICTP, Trieste, Italy.<br>Correspondence <i>re</i> arrangements. |
| A.441 | Honorary Degree, University of Warwick, 11 July 1991.<br>Correspondence <i>re</i> degree congregation ceremony.  |
| A.442 | 260th Anniversary Medal, University of Havana, Cuba, 1991.<br>Notification of award.   |
| A.443 | Full Member (Academician), Academy of Creativity, USSR, 1991.<br>Notification of election.   |
| A.444 | Honorary Degree, Université de Dakar, Senegal, 1991.<br>Correspondence <i>re</i> award.  |
| A.445 | Honorary Degree, University of Lagos, Nigeria, February 1992.<br>Correspondence <i>re</i> award.   |



### Biographical

- A.446                      Honorary Degree, University of the West Indies, Kingston, Jamaica, 14 November 1992.
- Correspondence *re* arrangements.
- A.447                      Emeritus Scientist, Centro Brasileiro de Pesquisas Fisicas (CBPF), Rio de Janeiro, Brazil, November 1992.
- Notification of award.
- A.448                      Gold Medal, Slovak Academy of Sciences, 1992.
- Salam was presented with the medal by delegates of the Academy at a ceremony held at ICTP, 3 December 1992.
- Correspondence *re* arrangements.
- A.449, A.450              Honorary Degree, University of South Carolina, USA, 20 December 1992.
- A.449                      Correspondence *re* arrangements.
- A.450                      Correspondence arising.
- A.451                      Seoul Peace Prize, 1992.
- Correspondence and papers *re* Salam's nomination.
- A.452                      Cristoforo Colombo Prize, Brazil, 1992.
- Notification of award.
- A.453                      Foreign Member, American Philosophical Society, 1992.
- Notification of election and papers sent to Salam for information.
- A.454                      Foreign Member (Academician), Russian Academy of Creative Endeavours, 1992.
- Notification of election.



### Biographical

- A.455, A.456      Mazhar-Ali Applied Science Medal, 1992.
- A.455      Correspondence *re* award and presentation ceremony in New York, USA.
- A.456      Correspondence arising.
- A.457      Honorary Degree, Gulbarga University, India, 31 January 1993.  
Correspondence *re* arrangements.
- A.458      Honorary Degree, St Petersburg University, Russia, 10 March 1993.  
Correspondence *re* arrangements and 3pp typescript citation.
- A.459      Honorary Degree, University of Dhaka, Bangladesh, May 1993.  
Correspondence *re* award.
- A.460      Fellow, American Physical Society, November 1993.  
Correspondence *re* election and fellowship.
- A.461      Honorary Member, Academia Nacional de Ciencia y Tecnologia, Lima, Peru, November 1993.  
Correspondence *re* membership.
- A.462, A.463      Leoncino D'Oro, 1993.  
Correspondence *re* presentation ceremony in Pistoia, Italy, 19 December 1993.  
Two folders.
- A.464      Mother India International Award, 1993.  
Correspondence *re* award.

### Biographical

A.465                      Orddem Nacional do Mérito Científico (Grã-Cruz), Brazil, September 1994.  
Correspondence *re* award.

A.466-A.468              King Baudouin International Development Prize, 1996.  
Correspondence and papers *re* Salam's nomination. Includes biodata and supporting documentation.  
Three folders.

**A.469-A.607              'PERSONAL DOCUMENTS'                      1971-1995**

A.469-A.502      Correspondence  
A.503-A.556      Finances  
A.557-A.593      Health  
A.594-A.607      Miscellaneous

**A.469-A.502              Correspondence                      1971-1994**

Correspondence designated 'personal' by Salam and his colleagues which consists principally of letters of thanks for help and hospitality received during overseas visits and correspondence relating to domestic matters.

The presentation is chronological.

A.469                      1971.  
Includes a letter *re* Salam's purchase of science equipment for schools and colleges in Pakistan affected by recent cyclones.

A.470                      1972.  
Includes correspondence *re* a UN General Assembly resolution to establish a United Nations University.



### Biographical

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| A.471 | 1973.<br><br>Includes letter <i>re</i> the current political situation in Pakistan from Parliamentary Secretary A. Shahi and correspondence and papers <i>re</i> the foundation of the UN University.   |
| A.472 | 1974.<br><br>Includes correspondence <i>re</i> membership of the UN University Council.   |
| A.473 | 1975.<br><br>Includes copy of a letter from H. Harari declining an invitation to attend the ICTP Conference on the Physics of the New Particles in protest against UNESCO's policy towards Israel.  |
| A.474 | 1977.<br><br>Includes letter of thanks <i>re</i> Salam's contribution to the Ahmadiyya Muslim Secondary School, Boajibu, Sierra Leone, physics laboratory with black and white photographs.   |
| A.475 | 1978.<br><br>Includes cartoon drawing by H. H. Kunaish and letter <i>re</i> the Tait Chair of Mathematical Physics, University of Edinburgh.  |
| A.476 | 1979.   |
| A.477 | 1980.<br><br>Includes correspondence <i>re</i> Salam's accommodation in Trieste.  |
| A.478 | 1981.<br><br>Includes a letter from I. Gandhi, Prime Minister of India, <i>re</i> a recent visit by Salam during which he highlighted the importance of science education and an invitation to become patron of the new Society of Muslim Scientists of ICTP. |



### Biographical

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| A.479        | 1982. |  |
|              |       | Includes a letter inviting Salam to accept the Samuel Weiner Distinguished Visitor Award, University of Manitoba, Canada.  |
| A.480        | 1983. |  |
| A.481        | 1984. |  |
| A.482        | 1985. |  |
| A.483, A.484 | 1986. |  |
|              |       | Includes a letter <i>re</i> P. A. M. Dirac, the Royal Society memoir of Dirac and Nobel nominations by him.  |
|              |       | Two folders.   |
| A.485, A.486 | 1987. |  |
|              |       | Includes correspondence <i>re</i> possible award of a knighthood to Salam.   |
|              |       | Two folders.   |
| A.487, A.488 | 1988. |  |
|              |       | Two folders.   |
| A.489-A.492  | 1989. |  |
|              |       | Includes correspondence <i>re</i> the theft of Salam's baggage at Los Angeles airport and 3pp typescript entitled 'Points Discussed at a Meeting held on 1 December 1989 with Professor Abdus Salam, Professor C. Ponnampuruma and Professor M. H. A. Hassan'. |
|              |       | Four folders.  |

### Biographical

A.493-A.495	1990.  Includes letter to U. Salam <i>re</i> science and philosophy.  Three folders.	
A.496-A.498	1991.  Three folders.	
A.499, A.500	1992.  Includes correspondence and papers <i>re</i> the theft of Salam's Nobel medal from his home in Miramare, Trieste.  Two folders.	
A.501	1993.	
A.502	1994.  Includes papers and photograph <i>re</i> award of the 1989 Ettore Majorana, Erice Science for Peace Prize.	
<b>A.503-A.556</b>	<b>Finances</b>	<b>1978-1994</b>
A.503-A.552	Correspondence and papers, 1985-1994.  Sorted alphabetically by name of institution.  Fifty folders.	
A.553-A.556	Miscellaneous correspondence <i>re</i> financial matters with various organisations, 1978-1987.  Four folders.	



**Biographical**

<b>A.557-A.593</b>	<b>Health</b>	<b>1984-1995</b>
A.557-A.560	Correspondence <i>re</i> Salam's health and medication, 1989-1995. Four folders.	
A.561-A.567	Correspondence <i>re</i> Salam's health and medication, 1989-1995. Sorted alphabetically by name of consultant. Seven folders.	
A.568-A.572	Correspondence and papers <i>re</i> medical expenses incurred during Salam's trip to the USA to consult neurological experts, September-October 1989. Five folders.	
A.573-A.593	Correspondence and papers <i>re</i> health insurance claims, 1984-1995. Twenty-one folders.	
<b>A.594-A.607</b>	<b>Miscellaneous</b>	<b>1980-1997</b>
A.594-A.599	'Insurance, pension etc.' Contents of folder so inscribed divided into six for ease of reference, 1980-1997.	
A.600-A.607	'Personal Docs: Passport details, Tel., Travel, House (Pak).' Contents of folders so inscribed divided into eight for ease of reference.	
A.600	Correspondence <i>re</i> property formerly owned by Salam and his family in Jhang, Pakistan, 1984-1992.	
A.601	Correspondence <i>re</i> problems encountered by Salam on entering the UK when returning from abroad, 1985-1986.	



**Biographical**

A.602-A.607      Correspondence and papers *re* Salam's passport, 1986-1992.  
Six folders.

**A.608-A.854      PRESS CUTTINGS AND ARTICLES      1965-1996**

A.608-A.686      By country  
A.687-A.717      Pakistan  
A.718-A.739      Italy  
A.740-A.751      International magazines  
A.752-A.764      'Articles and publications'  
A.765-A.837      Interviews  
A.838-A.848      Nobel Prize 1979  
A.849-A.854      UNESCO candidacy

**A.608-A.686      By country      1979-1995**

Press cuttings *re* Salam's work and career sorted alphabetically by country into three chronological sequences.

A.608-A.634      1979-1985  
A.635-A.667      1986-1988  
A.668-A.686      1989-1995

A.608-A.634      1979-1985.

A.608      France.

A.609      Germany.

A.610      Ghana.

**Biographical**

A.611-A.615	India.  Five folders.
A.616	Japan.
A.617	Jordan.
A.618	Kuwait.
A.619	Lebanon.
A.620	Libya.
A.621	Mexico.
A.622	Peru.
A.623	Philippines.
A.624	Portugal.
A.625	Singapore.
A.626	Spain.
A.627	Sudan.
A.628	Sweden.

**Biographical**

A.629	Turkey.
A.630	United Arab Emirates.
A.631	UK.
A.632	USA.
A.633	USSR.
A.634	Venezuela.
A.635-A.667	1986-1988.
A.635	Argentina.
A.636	Bangladesh.
A.637	Brazil.
A.638	Bulgaria.
A.639	Cameroon.
A.640	China.
A.641	Colombia.
A.642	Costa Rica.



**Biographical**

A.643 Czechoslovakia.

A.644 Denmark.

A.645 France.

A.646 Germany.

A.647 India.

A.648 Iran.

A.649 Jordan.

A.650 Kuwait.

A.651 Malaysia.

A.652 Morocco.

A.653 Netherlands.

A.654 Norway.

A.655 Romania.

A.656 Saudi Arabia.

**Biographical**

A.657	Spain.
A.658	Sri Lanka.
A.659	Sweden.
A.660	Switzerland.
A.661	Syria.
A.662	Turkey.
A.663	United Arab Emirates.
A.664	UK.
A.665	USA.
A.666	USSR.
A.667	Venezuela.
A.668-A.686	1989-1995.
A.668	Bangladesh.
A.669	Brazil.
A.670	China.

**Biographical**

A.671-A.673	India.  Three folders.
A.674	Iran.
A.675	Nepal.
A.676	Norway.
A.677	Sri Lanka.
A.678	Syria.
A.679	Tanzania.
A.680	Trinidad and Tobago.
A.681	Turkey.
A.682, A.683	UK.  Two folders.
A.684	USA.
A.685	Venezuela.
A.686	Yugoslavia.



**Biographical**

<b>A.687-A.717</b>	<b>Pakistan</b>	<b>1979-1996</b>
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Cuttings from Pakistani newspapers and journals *re* Salam's work and career.

A.687-A.691	1979.  Five folders.
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A.692, A.693	1980.  Two folders.
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A.694, A.695	1981.  Two folders.
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A.696, A.697	1982.  Two folders.
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A.698-A.700	1983.  Three folders.
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A.701, A.702	1984.  Two folders.
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A.703	1985.
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A.704	1986.
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A.705, A.706	1987.  Two folders.
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## Biographical

A.707-A.709 1988.  
Three folders.

A.710, A.711 1989.  
Two folders.

A.712, A.713 1990.  
Two folders.

A.714 1991.

A.715 1992.

A.716 1993.

A.717 1994-1996.

A.718-A.739	Italy	1979-1995
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Cuttings from Italian newspapers and journals re Salam's work and career.

A.718-A.720 1979.  
Three folders.

A.721, A.722 1980.  
Two folders.

A.723 1981.

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A.724	1982.
A.725	1983.
A.726	1984.
A.727	1985.
A.728	1986.
A.729	1987.
A.730	1988.
A.731	1989.
A.732	1990.
A.733-A.735	1992. Three folders.
A.736	1992.
A.737	1993.
A.738	1994.
A.739	1995.



**Biographical**

<b>A.740-A.751</b>	<b>International magazines</b>	<b>1971-1995</b>
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Cuttings and extracts from international magazines and publications *re* Salam's work and career.

Twelve folders.

<b>A.752-A.764</b>	<b>'Articles and publications'</b>	<b>1965-1993</b>
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A.752-A.756	Articles and press cuttings <i>re</i> Salam's scientific work, 1965-1993.
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A.752	1965-1978.
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A.753	1979.
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A.754	1980.
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A.755	1981-1983.
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A.756	1984-1993.
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A.757-A.764	Correspondence and papers <i>re</i> biographical writings about Salam, 1988-1994.
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Includes correspondence *re* *Abdus Salam*, J. Singh (Penguin Books) 1992.

Sorted alphabetically by name of correspondent.

See also A.19-A.23.

Eight folders.

**Biographical**

<b>A.765-A.837</b>	<b>Interviews</b>	<b>1964-1994</b>
	Interviews given by Salam to various newspapers, television programmes and radio broadcasts.	
A.765	<i>International Science and Technology</i> , pp 66-71, December 1974.	
A.766, A.767	Correspondence and papers <i>re</i> an interview published in <i>Science Year</i> 1967 and copy of 17pp typescript draft.  Two folders.	
A.768	<i>Impact of Science on Society</i> , <b>XXV(1)</b> pp 51-57, 1975.	
A.769	<i>New Scientist</i> , pp 1-3, 26 August 1976.	
A.770	Correspondence <i>re</i> tape-recorded interview conducted by A. Pickering, 1977.	
A.771	<i>Europhysics News</i> , <b>10(1/2)</b> , January/February 1979.	
A.772	<i>8 Days</i> , <b>2(13)</b> pp 20-22, 29 March 1980.	
A.773, A.774	<i>Illustrated Weekly of India</i> , 1 February 1981.	
A.773	26pp typescript entitled 'A Genius Called Abdus Salam' by V. S. Venkatavaradan and V. C. Nadkarni with amendments by Salam.	
A.774	Copy of published interview.	
A.775	<i>South</i> , pp 37-39, October 1981.	



### Biographical

- A.776                      *International Foundation for Development Alternatives (IFDA) Dossier 29*, pp 3-14, May/June 1982.
- A.777                      *The Listener*, 25 March 1982.
- A.778                      *Imagined Worlds: Stories of Scientific Discovery*, P. Anderson and D. Cadbury (British Broadcasting Corporation) 1985.
- A.779                      *The Middle East*, **40**, June 1986.
- A.780                      *The Christian Science Monitor*, 15-21 December 1986.
- A.781-A.783              *The Second Creation: Makers of the Revolution in 20th-Century Physics*, R. P. Crease and C. C. Mann, 1986.
- Correspondence and papers *re* Salam's contribution.
- Three folders.
- A.784                      *Regione Cronache* 1986.
- Correspondence and papers *re* Salam's contribution.
- A.785                      Correspondence and papers *re* an interview conducted on behalf of the Pan-African Institute of International Relations (IPRI), 14 April 1987.
- A.786                      *Il Delfino*, pp 43-45, April 1987.
- A.787                      Correspondence and transcript (Italian) *re* an interview conducted by N. Novello, October 1987.
- A.788                      'Chernobyl Referendum.' Contents of folder so inscribed.
- 2pp untitled typescript, November 1987.



**Biographical**

- A.789                      *Jeune Afrique*, **1403**, pp 57-61, 25 November 1987.
- A.790                      6pp transcript of an interview of I. H. Usmani conducted by Y. Zhou, December 1987.  
  
Includes references to Salam.
- A.791                      Correspondence *re* questions answered by Salam at the request of the Arab Union of Scientific Clubs, Tunisia, January 1988.
- A.792                      *Superstrings: A Theory of Everything?* ed. P. C. W. Davies and J. Brown (Cambridge University Press) 1988.  
  
Copy of Salam's contribution.
- A.793                      *The Scientist*, **2(3)**, 8 February 1988.  
  
Correspondence and papers *re* interview conducted by B. Dixon.
- A.794                      *A Passion for Science*, L. Wolpert and A. Richards (Oxford University Press) 1988.  
  
Correspondence and copy of Salam's contribution.
- A.795                      Correspondence *re* an interview for a children's television programme to be produced by UNESCO, November 1988.
- A.796                      *Indian Post*, 8 January 1989.
- A.797                      Correspondence *re* an interview for a British Broadcasting Corporation (BBC) television programme entitled 'A Question of Science', February 1989.
- A.798                      1p typescript questions *re* an interview for Swiss Television, 10 March 1989.
- A.799                      Correspondence *re* an interview conducted by P. Greco, journalist for *L'Unita*, March 1989.

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- A.800 Correspondence *re* an interview conducted by D. Dickson, European Correspondent, *Science Magazine*, 25 May 1989.
- A.801 *The Nation*, 26 May 1989.
- A.802 *Indian Express*, 27 May 1989.
- A.803 Correspondence *re* an interview for a German television programme entitled 'The Silent Stars', June 1989.
- A.804 Correspondence *re* photographs to accompany an interview to be published in *Asia technology*, October 1989.
- A.805 Letter *re* an interview for Anglia Television, UK, October 1989.
- A.806 Correspondence and papers *re* an interview for *Rivista Co-operazione*, October 1989.
- A.807 *The Economist*, 18 November 1989.
- A.808 *Management*, pp 134-139, November 1989.
- A.809 Correspondence *re* an interview for a BBC television programme entitled 'Antenna', November 1989.
- A.810 Correspondence *re* an interview for Radio Netherlands, 5 December 1989.
- A.811 *The Guardian*, 15 December 1989.
- A.812 Correspondence *re* an interview for the Institut Català d'Estudis Mediterranis, Barcelona, Spain, 10 January 1990.



**Biographical**

- A.813                      *New Scientist*, **1701**, 27 January 1990.
- A.814                      Correspondence *re* an interview for *El Pais*, Madrid, Spain, January 1990.
- A.815                      Correspondence *re* an interview for German radio, February 1990.
- A.816                      Correspondence and papers *re* an interview for *L'Unita*, September 1990.
- A.817                      Correspondence *re* an interview for *L'Autre Journal*, October 1990.
- A.818                      Correspondence *re* Salam's contribution to *The Nobel Century*, January 1991.
- A.819                      Correspondence and papers *re* an interview for *Trieste Oggi*, January 1991.
- A.820                      *La Stampa*, 13 March 1991.
- A.821                      Papers *re* a television interview, 28 March 1991.
- A.822                      Correspondence and papers *re* filming for a Radiotelevisione Italiana programme entitled 'Euroscienza', 13, 14 May 1991.
- A.823                      Correspondence and papers *re* an interview conducted by A. Sassone, 16 May 1991.
- A.824                      *STAND (Society for Technology and National Development) News Magazine*, **4(1)**, August-October 1991.
- A.825                      Correspondence *re* an interview for International Media Productions, Luxembourg, September 1991.



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- A.826                      3pp typescript entitled 'Interview with Dr. Foresta Martin of *Corriere della Sera*, November 1991.
- A.827                      Correspondence *re* questions answered by Salam for a film on the life of Alfred Nobel, January 1992.
- A.828                      Papers and correspondence *re* Salam's contribution to *Europes: Els Intellectuals I la Qüestió Europea*, (Spain), January 1992-May 1993.
- A.829                      *Esquire*, III(28), pp 118-123, April 1992.
- A.830                      Correspondence *re* an interview conducted by S. Naqvi for the BBC World Service, April 1992.
- A.831                      Correspondence and papers *re* an interview conducted by J. Hurley, 24 September 1992.
- A.832                      Correspondence and papers *re* Salam's answers to questions asked by S. Kumar for publication in *New Scientist*, India, September 1992.
- A.833                      Correspondence *re* filming at the International Centre for Theoretical Physics, Trieste, for a BBC television programme entitled 'Panorama', January 1993.
- A.834                      Correspondence and papers *re* Salam's response to an article published in *The Washington Post* concerning the 'Islamic Bomb', February 1993.
- A.835                      Correspondence *re* Salam's contribution to a Radiotevisão Portuguesa programme, February 1993.
- A.836                      *The Independent*, 26 January 1994.

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- A.837                      *Laboratorio dell'Immaginario Scientifico*, **19**, September/October 1994.  
Correspondence, draft answers and copy of published interview.
- A.838-A.848                      Nobel Prize 1979                      1979-1980**
- Newspaper cuttings *re* the Nobel Prize for Physics 1979.  
See also N.594, N.595.
- A.838-A.841                      Italian newspapers.
- A.838                      *Corriere della Sera* and *il Gazzettino*, 16 October 1979.
- A.839                      *il Giornale* and *Messaggero Veneto*, 16 October 1979.
- A.840                      *il Piccolo* and *Primorski Dnevnik*, 16 October 1979.
- A.841                      *La Repubblica de Nord* and *L'Unità*, 17 October 1979.
- A.842-A.844                      Newspaper cuttings taken from English language newspapers, October 1979-January 1980.  
Three folders.
- A.845-A.847                      Newspaper cuttings taken from Italian newspapers, October 1979-March 1980.  
Three folders.
- A.848                      Newspaper cuttings taken from newspapers in languages other than English and Italian.



**Biographical**

<b>A.849-A.854</b>	<b>UNESCO candidacy</b>	<b>1984-1987</b>
<p>Press cuttings taken from newspapers from all over the world <i>re</i> the Director-General of UNESCO and Salam's unsuccessful candidacy.</p> <p>Sorted alphabetically by name of publication.</p> <p>Six folders.</p>		
<b>A.855-A.865</b>	<b>'PROPOSALS'</b>	<b>1968-1987</b>
<p>This sub-section comprises the contents of a folder labelled 'Proposals'. It consists of material, mainly in the form of typescripts, concerning Salam's ideas for the promotion of science in developing countries and for the encouragement of international scientific co-operation. Between 1968 and 1980 brief statements outlining Salam's suggestions and the motives behind them appear to have been prepared for wider circulation or publication.</p> <p>The reference number given by Salam to each proposal or memorandum is given in brackets.</p>		
A.855	(P1) 2pp typescript with appendix entitled 'Islamic Science Talent Fund', nd ca 1980.	
A.856	(P2) 2pp typescript entitled 'Prestigious Awards for Sciences', nd.	
A.857	(P3) 5pp typescript entitled 'Memorandum on a World University Idea', 7 November 1968, and text as published in the <i>Bulletin of the Atomic Scientists</i> , March 1970.	
A.858	(P4) 7pp typescript with appendix entitled 'A World Federation of Institutes of Advanced Study', 1970, and text as published in the <i>Journal of the National Science Council of Sri Lanka</i> 1, pp 7-17, 1973.	
A.859	(P5) 5pp typescript entitled 'An International University', 23 April 1970.	
A.860	(P6) 5pp typescript entitled 'The United Nations University', 16 May 1973.	

### Biographical

- A.861 (P7) 7pp typescript entitled 'Islamic Science Foundation', 2 July 1973.
- A.862 (P8) 2pp typescript entitled 'Foundations for Sciences in Islam', nd.
- A.863 (P9) 1p typescript with 6pp manuscript (?Arabic) entitled 'An Arab-Islam Fund for Helping Arab-Muslim Physicists to Benefit from the Trieste Centre', nd ca 1978.
- A.864 (P10) 7pp typescript entitled 'The OPEC Science Foundation', January 1982.
- A.865 (P11) 6pp typescript entitled 'The Proposal for the Creation of an International Centre for Science', 1987.

A.866-A.871

### APPENDIX

1994-1995

This sub-section contains a small amount of miscellaneous biographical material that was received from ICTP after the main cataloguing work of the section was complete. It relates to the period after Salam resigned the directorship of ICTP.

- A.866, A.867 Correspondence and papers *re* the possible establishment of a Salam Fellowship, 1994.  
Two folders.
- A.868 Correspondence and papers *re* arrangements for a visit to ICTP by a film crew to record interviews to be used in a documentary about Salam and his work, October-November 1994.
- A.869 Correspondence and papers *re* a proposed Abdus Salam Chair at Imperial College, London, 1994-1995.



### Biographical

A.870, A.871

Correspondence and papers *re* a planned biography of Salam to be written by N. Calder, 1994-1995.

See also A.8-A.26.

Two folders.

**SECTION B**

**RESEARCH**

**B.1-B.303**

This section contains material relating to Salam's scientific work and research. It ranges from notes on quantum dynamics and electricity taken in undergraduate lectures he attended at Cambridge University to papers and drafts documenting his late interest in chirality. The section also includes correspondence between Salam and fellow scientists on a variety of research-related topics.

B.1-B.136      NOTEBOOKS

B.137-B.217    NOTES AND DRAFTS

B.218-B.295    'PHYSICISTS' LETTERS'

B.296-B.303    ANNOTATED PAPERS AND OFF-PRINTS



## Research

B.1-B.136

### NOTEBOOKS

ca 1947-1988

Salam used the notebooks and exercise books in this sub-section for a variety of purposes. Although they are predominantly scientific in their content they also contain writings relating to Salam's third world development work, notes for lectures and speeches and information concerning Salam's travel itineraries.

The notebooks take many different forms and include soft-backed pocket books, exercise books, desk diaries and hard-backed journals. They cover a long date span from Salam's days as an undergraduate at the University of Cambridge during the late 1940s to the mid 1980s.

Dating many of the notebooks is problematic. Some were dated by Salam on the first page but subsequently appear to have been used irregularly over an extended period. Some have been assigned a date (rather tentatively) by means of bibliographic references or internal evidence. Others contain no date at all. In some cases it has been possible to estimate an approximate date using the physical format and style of undated notebooks in relation to those with some form of dating.

The notebooks have been put into chronological order as far as this has been possible. Undated notebooks for which no guide to date could be discerned have been placed at the end of the sequence.

B.1                      Hardback notebook inscribed on the spine 'Nuclear Physics' containing ?notes taken during lectures, n.d. latest bibliographic reference 1947.

B.2                      Softback exercise book inscribed on the front cover 'Quantum Mechanics, Electricity: Ratcliffe' containing notes taken during lectures, dated on one page only, Lent Term 1948.

J. A. Ratcliffe (1902-1987) was a Reader in Physics at the University of Physics between 1947 and 1960.

See also B.151-B.154.

B.3                      Softback notebook inscribed on the front cover 'Heat and Thermodynamics' containing notes taken during a series of lectures by A. B. Pippard during Michaelmas and Lent terms, 1948-1949. Dated on the first page, 12 October 1948. Loose material intercalated.

Pippard started as Demonstrator in Physics at the University of Cambridge in 1946 (Cavendish Professor of Physics 1971-1982).



### Research

- B.4 Softback notebook (same format as B.3) inscribed on the front cover 'Atomic Physics' with a contents list of topics. Used for notes including 'Interaction of X-rays with Matter', 'The Absorption of Radiation' and 'Mass Spectrography', nd ca 1948.
- B.5 Softback notebook (same format as B.4) with a guide to the contents inscribed on the front cover. Used for notes including 'Statistical Mechanics', 'Planck's Radiation Law' and 'The Uncertainty Relation', nd ca 1948.
- B.6 Softback exercise book (same format as B.2) with a guide to the contents inscribed on the front cover. Used for notes including 'Infinite Integrals', 'Differential Geometry' and 'Complex Variable', nd ?ca 1948.
- B.7 Softback exercise book (same format as B.6) with a guide to the contents inscribed on the front cover. Used for notes including 'Linear Equations: Heaviside's Operator', nd ?ca 1948.
- B.8 Softback notebook inscribed on the front cover 'Group Theory Lectures. Mandl Lecture opp. side'. Used from the front for calculations and notes and from the back for notes entitled 'Mandl', nd ?ca 1948.
- B.9 Softback notebook (same format as B.8) inscribed on the front 'Dispersion Relations', nd ?ca 1948.
- B.10 Hardback notebook inscribed on the front cover 'Abdus Salam, School of Mathematics, Institute for Advanced Study. German Dict.' Used for notes entitled 'Vacuum' and for a list of German vocabulary, nd, latest bibliographical reference 1951.
- Salam spent most of 1951 at the Institute of Advanced Studies, Princeton, USA, working with P. T. Matthews on renormalization theory and related subjects.
- B.11 Hardback notebook (same format as B.10) inscribed on the front cover 'Abdus Salam, School of Mathematics, Institute for Advanced Study, Princeton' containing notes. A further series of notes appears to have been added later, nd latest bibliographical reference 1953.
- B.12 Hardback notebook (same format as B.11) inscribed on the front cover 'Reactors: A Salam' containing notes, nd ?ca 1951.



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- B.13                      Softback notebook (same format as B.5) containing grammar and vocabulary notes entitled 'German Classes', dated on the first page 8 July 1952. Used from the back for notes including 'Meson Production by Protons'. Loose material intercalated.
- B.14                      Softback notebook (same format as B.11) inscribed on the front cover 'Topology. Integral Eqn.' containing notes, nd latest bibliographic reference 15 September 1952.
- B.15                      Softback notebook inscribed on the front page 'Abdus Salam, Government College, Lahore, 20.3.53' containing transcribed poems by Lewis Carroll and Oliver Goldsmith and scientific notes.
- B.16                      Softback pocket notebook containing notes, dated on three pages 12-14 July 1954.
- B.17                      Hardback notebook used from the front for notes, nd latest bibliographic reference 1954, and from the back for notes entitled 'Bethe Course: High Energy Physics', 7 October 1955. Loose material intercalated.
- B.18                      Softback notebook inscribed on the front cover 'Rochester 1955' containing notes taken by Salam at a conference, University of Rochester, New York, USA, 31 January-2 February 1955.
- See also B.23, B.26, B.34, B.42.
- B.19                      Hardback notebook (same format as B. 17) used from the front for notes including 'Seminar: Report on Rochester Conference, 10.2.1955' and from the back for notes entitled 'Spectral Theory'. Loose material intercalated.
- B.20                      Hardback notebook containing notes including 'Interpretation of Polarization Experiments', 'Meson Theory' and 'Group Theory: Rotation', nd latest bibliographical reference 1955.
- B.21                      Softback notebook inscribed on the front cover 'Dispersion', dated on one page, 21 June 1956.

### Research

- B.22                      Softback notebook (same format as B.21) inscribed on the front cover 'Seattle Conference 1956'.
- B.23                      Softback notebook inscribed on the front cover 'Rochester 1956: Abdus Salam, St John's College, Cambridge' containing notes taken by Salam during various sessions of a conference, University of Rochester, New York, USA.
- See also B.18, B.26, B.34, B.42, J.1792-J.1802.
- B.24                      Softback notebook containing notes entitled 'Invariance Properties of Elementary Particle Physics', nd latest bibliographic reference 1956.
- B.25                      Softback notebook (same format as B.22) inscribed on the front cover 'Abdus Salam' containing notes including 'Thermonuclear Reactions' and 'Time Inversion', two pages only dated, 11 April 1957 and 31 January 1958.
- B.26                      Softback pocket notebook inscribed on the front cover 'Rochester Conference 1957: Summary, Abdus Salam' containing notes taken by Salam at a conference, University of Rochester, New York, USA.
- See also B.18, B.23, B.34, B.42, J.1803-J.1812.
- B.27                      Hardback pocket notebook, nd, latest bibliographic reference 1957.
- B.28                      Softback notebook, nd latest bibliographical reference 1957.
- B.29                      Softback notebook (same format as B.25), nd, ?ca 1957.
- B.30                      Softback notebook (same format as B.29) containing notes for a lecture entitled 'Charge Conjugation', nd ?ca 1957.
- B.31                      Softback notebook (same format as B.30) containing lectures notes, nd ?ca1957.



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- B.32                      Softback notebook (same format as B.31) containing notes entitled on the first page 'A. Salam: Scribbings', 5 February 1958.
- B.33                      Hardback notebook containing notes with a guide to the contents inscribed on the first page: 'Interaction Lagrangian' and 'Feldverein', dated on two pages only, 8, 14 August 1958.
- B.34                      Softback notebook inscribed on the front cover 'CERN Conference, 1958; Rochester 1960' containing notes including 'Strange Particle Interactions', 'Lecture Rochester, 29.7.58', 'Seminar Imperial College' and 'Lecture Dacca'.  
  
See also B.18, B.23, B.26, B.42.
- B.35                      Softback notebook (same format as B.28) inscribed on the first page 'K-D Problem', nd latest bibliographic reference 1958. Loose material intercalated.
- B.36                      Softback notebook (same format as B.35), nd latest bibliographical reference 1958.
- B.37                      Softback notebook (same format as B.36) used from the back, nd ?ca 1958.
- B.38                      Softback notebook (same format as B.37), nd ?ca 1958.
- B.39                      Softback notebook (same format as B.38), nd latest bibliographic reference 1959.
- B.40                      Softback notebook inscribed on the front cover 'Disarmament' used from the front for notes and from the back for a draft ?speech *re* P. T. Matthews, nd latest bibliographic reference 1959.
- B.41                      Hardback notebook containing notes including 'The Dualon: Seminar', dated on one page only, 16 May 1960.

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- B.42                      Softback notebook inscribed on the front cover 'Rochester 1960' containing notes taken by Salam at a conference, University of Rochester, New York, USA. Also contains pencil sketch portrait of ?Salam. Loose material intercalated.
- See also B.18, B.23, B.26, B.34.
- B.43                      Softback notebook inscribed on the front cover 'Regge Seminar', nd latest bibliographical reference 1960.
- B.44                      Hardback notebook used from the front for notes entitled on the first page 'East Pakistan', and from the back for notes entitled 'Lectures on Quantum Theory', nd latest bibliographical reference 1960.
- B.45                      Hardback notebook (same format as B.44) used for lecture notes entitled 'Statistical Mechanics', nd ?ca1960.
- B.46                      Hardback notebook containing lecture notes entitled 'Plasma Theory: W. Thomson', dated on the first page 3 February 1961.
- B.47                      Softback notebook inscribed on the front cover 'Goldstone-?Namba Theory, 8th December 1961 to 15th December 1961'.
- B.48                      Softback notebook containing notes taken at a seminar in Zurich, Switzerland, dated on the first page 18 December 1961.
- B.49                      Softback notebook (same format as B.43) containing notes entitled 'Decay in a Many-channel System' dated on the first page 21 December 1961.
- B.50                      Softback notebook (same format as B.49) containing 4pp notes and signatures, dated on one page only 9 January 1962.
- B.51                      Softback notebook (same format as B.50) with a guide to the contents inscribed on the front cover. Used for notes including 'The Vector Meson Problem' and 'Positronium Remark', dated on the cover 5 January 1962.



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- B.52                      Softback notebook (same format as B.51) inscribed on the front cover 'Goldstone, Kemmer 2nd Gauge Ideas, 20 January 1962' containing lecture notes.
- B.53                      Softback notebook (same format as B.52) with a guide to the contents inscribed on the front cover, dated on the cover 26 January 1962.
- B.54                      Softback notebook (same format as B.53) with a guide to the contents inscribed on the front cover containing notes including 'Relativity Seminar' and 'Streater Seminar', dated on one page only 22 February 1962.
- B.55                      Softback notebook (same format as B.54) with a guide to the contents inscribed on the front cover, dated on one page only 6 March 1962.
- B.56                      Softback notebook (same format as B.55) inscribed on the front cover 'Lecture, 26th March 1962' containing notes for a lecture on symmetry.  
  
See also B.57
- B.57                      Softback notebook (same format as B.56) inscribed on the front cover 'Lecture, 26th March [1962]' containing notes for a lecture on symmetry.  
  
See also B.56
- B.58                      Softback notebook (same format as B.57) inscribed on the front cover 'Cutkosky Seminar; Sachs' containing 15pp notes, dated on one page only 27 June 1962.
- B.59                      Softback notebook (same format as B.58) containing notes entitled on the first page 'Wigner (Thomas Phillips De Sitter Group)', dated on one page only 2 October 1962.
- B.60                      Softback notebook (same format as B.59) inscribed on the front cover 'Geneva Conference 1962'.  
  
See also B.61.

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- B.61                      Softback notebook (same format as B.60) inscribed on the front cover 'Geneva Conference 1962'.
- See also B.60.
- B.62                      Softback notebook (same format as B.61) inscribed on the front cover 'Lectures on Lie Groups: Lecture I' containing lecture notes, nd latest bibliographic reference 1962.
- See also B.63, B.64.
- B.63                      Softback notebook (same format as B.62) inscribed on the front cover 'Lectures on Lie Groups: Lecture II' containing lecture notes, nd ca 1962.
- See also B.62, B.64.
- B.64                      Softback notebook (same format as B.63) inscribed on the front cover 'Lie Algebras: III', containing lecture notes, nd ca 1962.
- See also B.62, B.63.
- B.65                      Softback notebook (same format as B.64) inscribed on the front cover 'Glashow May 64 Seminar' containing various notes including 1p entitled 'Glashow Seminar', latest bibliographic reference 1962.
- B.66                      Softback notebook (same format as B.65) inscribed on the front cover 'Computation of Z's for Electrodynamics' containing various notes including draft opening address for a 'summer seminar' on theoretical physics, nd ?ca 1962.
- B.67                      Softback notebook (same format as B.66) inscribed on the front cover 'Mach's Principle', nd ?ca 1962.
- B.68                      Softback notebook (same format as B.67) with a guide to the contents inscribed on the front cover containing notes including 'Weak Interaction', nd ?ca 1962.
- B.69                      Softback notebook (same format as B.68) with a guide to the contents inscribed on the front cover containing notes including 'Time Reversal' and 'Remark on the Okoku Formula', nd ?ca 1962.



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- B.70 Softback notebook (same format as B.69) inscribed on the front cover 'Vector Meson Propagation', nd ?ca 1962.
- B.71 Softback notebook (same format as B.70) inscribed on the front cover 'Mandelstam; Sakurai; Schwinger', nd ?ca 1962.
- B.72 Softback notebook (same format as B.71) inscribed on the front cover 'Auto Code Computing', nd ?ca 1962.
- B.73 Softback notebook (same format as B.72) inscribed on the front cover 'Asymptotic Condn. 2 Field Problem', nd ?ca 1962.
- B.74 Softback notebook (same format as B.73) containing notes including 'Decay Modes' and 'Peripheral Collision', nd ?ca 1962.
- B.75 Softback notebook (same format as B.74) containing ?sketch plan and 3pp untitled notes, nd ?ca 1962.
- B.76 Hardback spiral-bound notebook containing various untitled notes, nd ?dated on one page only, May 1962.
- B.77 Hardback spiral-bound notebook (same format as B.76) inscribed on the front cover 'Seminar ?Lehrmann; Notes Lüders on CTP', nd latest bibliographical reference 1957.
- B.78 Hardback spiral-bound notebook (same format as B.77), nd ?ca 1962.
- B.79 Hardback spiral-bound notebook containing various notes including 'Lie Algebras', nd ?ca 1962.
- B.80 Hardback spiral-bound notebook (same format as B.79), nd ?ca 1962.

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- B.81                      Hardback notebook containing notes including 'High Energy Machines', 'Salam-Ward Theory in Feynman Gauge' and 'Seminar CERN', dated on one page only 3 April 1963.
- B.82                      Hardback notebook (same format as B.81) notes including 'Seminar Ankara', dated on one page only 11 April 1963.
- B.83                      Hardback notebook (same format as B.82) used from the front for various notes and from the back for notes entitled 'Lecture Edinburgh, 8th August 1963: High Energy Limits of Perturbation Theory'.
- B.84                      Cover and pages extracted from a softback notebook with a guide to the contents inscribed on the front cover including 'Stanford 63 Seminar'.
- B.85                      Hardback notebook (same format as B.83) containing notes including 'Postgrad lectures: Unitary Symmetry' and 'Polkinghorne Lectures', nd latest bibliographic reference 1963.
- B.86                      Hardback notebook (same format as B.85), nd ?ca 1963.
- B.87                      Hardback 'Agenda' desk diary containing personal reminders and notes *re* travel and administration used 1964-1972. Loose material intercalated.
- B.88                      Hardback notebook inscribed on front page 'Notes for Dulena Talk' containing notes entitled 'Leptons: Possible Scheme', dated on the first page only, 8 April 1965. Loose material intercalated.
- B.89                      Softback notebook inscribed on the front cover 'Berkeley Conference' containing notes including 'Seattle Seminar', dated on the first page only 12 August 1966.
- B.90                      Softback notebook with a guide to the contents and 'Seattle Seminar' inscribed on the front cover containing notes taken by Salam ?at a seminar, dated on the first page 16 August 1966.



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- B.91                      Softback notebook (same format as B.90) inscribed on the front cover 'Berkeley Conference Sept. 1966' containing notes entitled on the first page 'Dalitz: Quark Forces (Oxford Talk)'.
- B.92                      Softback pocket notebook in grey dust jacket containing personal reminders, notes principally *re* travel and administration and lists of things to do used ?1966-1981.
- Softback pocket notebook inscribed on the front cover 'Programme' enclosed in preceding.
- B.93                      Softback pocket notebook used from the front for notes *re* development and science including 'Pakistan Nuclear Programme' and from the back for notes, personal reminders and lists of things to do, dated on the first page 28 August 1968.
- B.94                      Hardback 'Agenda' desk diary (same format as B.87) inscribed on the front page 'Lecture 1969-late 1968, Imperial College: Negative Metric Problems'.
- B.95                      Softback pocket notebook containing personal reminders, notes principally *re* travel and administration and lists of things to do, dated on the first page only 9 February 1969.
- B.96                      Hardback 'Agenda' desk diary (same format as B.94) containing lecture notes including 'Miami Lecture' and 'Austin Texas Lecture', used during 1970. Loose material intercalated.
- B.97                      Hardback 'Agenda' desk diary (same format as B.96) inscribed on the front page 'Yang Mills Theory Only', dated on one page only 24 April 1970.
- B.98                      Softback notebook, dated on one page only 7 December 1973.
- B.99                      Hardback 'Agenda' desk diary (same format as B.97) containing lecture notes and notes taken at conferences and meetings including 'Recent Developments in Particle Physics of Possible Importance for Cosmology' and 'Report on the Miami Conference 1975', used 1974-1975. Loose material intercalated.

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- B.100                      Hardback 'Agenda' desk diary (same format as B.99) inscribed on the front cover 'Log Book Centre' and on the first page 'Log Book of Centre's Problems' containing notes *re* ICTP administration, dated on the first page 25 November 1976. Loose material intercalated.
- B.101                      Hardback 'Agenda' notebook (same format as B.100), used 1981-1983.
- B.102                      Hardback notebook inscribed on the front page 'Royal Society Meeting, 29-30 April 1981' containing various notes, used 1981-?1983.
- B.103                      Hardback 'Agenda' notebook (same format as B.101) inscribed on the front cover 'Paris 1982' used from the front for notes ?taken at a conference and from the back for notes on physics and development. Loose material intercalated.
- B.104                      Hardback 'Agenda' notebook (same format as B.103), two pages only dated 9 November 1982 and 10 April 1984.
- B.105                      Hardback 'Agenda' notebook (same format as B.104) with a guide to the contents inscribed on the front page containing notes including 'Lecture at San Remo' and 'Lecture at Munich + Imperial College, 19th Sept.', used 1983.
- B.106                      Hardback 'Agenda' notebook (same format as B.105) inscribed on the front page 'Brighton Conference 27.7.1983; 1984 Speeches: notes for them' containing lecture notes.
- B.107                      Softback desk diary containing personal reminders, notes principally *re* travel and administration and lists of things to do, used 1983-1984.
- B.108                      Hardback 'Agenda' notebook (same format as B.106) containing various untitled ?seminar and lecture notes, used 1984-1985.
- B.109                      Hardback 'Agenda' notebook (same format as B.108) containing notes including 'Bari Conference', dated on one page only 15 July 1985.

See also J.318-J.320.



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- B.110                      Hardback 'Agenda' notebook (same format as B.109), dated on the first page 16 October 1985.
- B.111                      Hardback 'Agenda' notebook (same format as B.110), dated on the first page 4 April 1986.
- B.112                      Hardback 'Agenda' notebook (same format as B.111) inscribed on the front cover 'Centre', dated on the first page 6 August 1986.
- B.113                      Hardback 'Agenda' notebook (same format as B.112) inscribed on the front cover '1987', dated on the first page 13 April 1987.
- B.114                      Hardback desk diary containing personal reminders, notes principally *re* travel, administration and development and lists of things to do, used 1987.
- B.115                      Hardback 'Agenda' notebook (same format as B.113) inscribed on the front cover '1987'.
- B.116                      Hardback 'Agenda' notebook (same format as B.115), dated on one page only 19 April 1988.
- B.117                      Hardback 'Agenda' notebook (same format as B.116) inscribed on the front cover '1988'.
- B.118                      Hardback 'Agenda' notebook (same format as B.117) with a guide to the contents inscribed on the front cover containing notes including 'Fibre Bundles', nd ca 1988. Loose material intercalated.
- B.119                      Hardback desk diary containing various notes, nd ?ca 1988.
- B.120                      Softback notebook containing notes including 'Scalar Nucleons', nd.
- B.121                      Softback notebook (same format as B.120) containing untitled notes, nd.

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- B.122                      Softback notebook containing notes on aid, development and trade, nd.
- B.123                      Softback notebook inscribed on the front cover 'Schwinger (Trieste Lectures)', nd.
- B.124                      Hardback notebook containing notes entitled on the front page 'Lecture on Dispersion Rules: CERN', nd.
- B.125                      Softback notebook inscribed on the front cover 'Lecture on Parity', nd.
- B.126                      Softback notebook (same format as B.125) containing various untitled notes, nd.
- B.127                      Softback notebook inscribed on the front cover 'Kiev Conference', nd.
- B.128                      Softback notebook containing untitled notes, nd.
- B.129                      Softback notebook inscribed on the front cover 'Venice Conference' containing notes entitled on the first page 'Strange Particle Physics', nd.
- B.130                      Hardback notebook with a guide to the contents inscribed on the front cover, nd.
- B.131                      Softback notebook inscribed on the front page 'Atomic Energy Conference' containing 4pp notes, nd.
- B.132                      Softback notebook inscribed on the front cover 'Stanford: Quotations from Candide' containing notes and transcribed quotations, nd.
- B.133                      Softback notebook (same format as B.132) containing notes including 'Nuclear Form Factors', nd.



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- B.134                      Hardback notebook containing 5pp untitled notes, nd.
- B.135                      Softback notebook containing various notes including 'Elementary Particles', nd.
- B.136                      Hardback 'Agenda' notebook (same format as B.118) containing 3pp notes by Salam and notes in another hand. Principally unused, nd.

### B.137-B.217

### NOTES AND DRAFTS

1939-1971, 1986-1993

This sub-section contains material other than notebooks relating to Salam's research. It includes notes taken by Salam during lectures at Cambridge University, early drafts of papers and Salam's teaching and lecture notes. It also contains notes and background material concerning Salam's later work in the field of chirality.

For further research-related notes and drafts, particularly covering the period 1972-1985, see E.1-E.417.

The presentation is chronological. Undated material can be found at the end of the sequence.

- B.137-B.145              Sequence of manuscript notes, and problem solving calculations, ?1939-1947.
- Nine folders.
- B.146                      Manuscript notes entitled 'Mathematical Methods', dated on the first page 12 October 1946.
- B.147-B.150              Contents of untitled folder divided into four for ease of reference.
- B.147                      Manuscript notes entitled 'Statistics: Dynamics II', [1947].
- B.148                      Manuscript notes entitled 'Dynamics III: Dr. Howarth', 10 October 1947.

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- B.149, B.150      Untitled manuscript notes, 1947.  
Two folders.
- B.151      2pp typescript list entitled 'Contents of Part II Lectures on Electricity 1947/48: J. A. Ratcliffe'.  
See also B.2, B.152-B.154.
- B.152-B.154      Manuscript notes taken during lectures entitled 'Electricity: Mr. Ratcliffe', October 1948.  
Three folders.  
See also B.2, B.151.
- B.155-B.158      Contents of untitled folder divided into four for ease of reference.
- B.155      Manuscript notes taken during lectures entitled 'Algebra Operators', 1948.
- B.156      Manuscript notes taken during lectures entitled 'Relativity, General Thy.', dated on the first page 17 January 1948.
- B.157      Manuscript notes taken during lectures entitled 'Electro Dynamics', nd ca 1948.
- B.158      Untitled manuscript notes, nd ca 1948.
- B.159, B.160      Manuscript notes entitled 'Electricity and Magnetism Part I', Lent 1954.  
Two folders.
- B.161      6pp manuscript notes entitled 'Meson Theory: Prof Mott's Seminar', 23 February 1954.



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- B.162-B.165      Manuscript notes entitled 'Topics in Meson Theory and Nuclear Theory',  
Easter 1955.  
  
Four folders.
- B.166              8pp manuscript notes entitled 'Energy', nd ?ca early 1950s.
- B.167              10pp untitled manuscript notes, nd ?ca early 1950s.
- B.168-B.170      Manuscript notes entitled 'Magnetism', nd ?ca early 1950s.  
  
Three folders.
- B.171              7pp typescript entitled 'The Interaction Lagrangian for Fundamental  
Particles', nd latest bibliographic reference 1956.
- B.172              17pp untitled manuscript draft, nd latest bibliographic reference 1956.
- B.173-B.175      Contents of unlabelled folder divided into three for ease of reference.  
  
Variously paginated manuscript notes including 'Charge Conjugation',  
'Tensor Operators' and 'Decay Modes', nd latest bibliographic reference  
1956.
- B.176              25pp manuscript ?lecture notes entitled 'Course on Elementary Particles', nd  
latest bibliographic reference 1957.
- B.177              25pp manuscript draft entitled 'Recent Developments in Field Theory', nd  
latest bibliographic reference 1957.
- B.178              Various annotated typescript extracts with manuscript notes (?incomplete),  
nd latest bibliographic reference 1957.
- B.179-B.181      Untitled manuscript notes, dated on the first page 1 December 1960.  
  
Three folders.

### Research

- B.182                      9pp untitled manuscript ?lecture notes, nd latest bibliographical reference 1961.
- B.183                      12pp typescript entitled 'Renormalizability of Gauge Theories', nd latest bibliographical reference 1961.
- B.184                      4pp typescript entitled 'On  $\Delta S = -\Delta Q$ ' by Abdus Salam and J. Tiomno, nd ca 1961.
- B.185, B.186              Contents of unlabelled folder divided into two for ease of reference.
- B.185                      17pp manuscript draft entitled 'Renormalisable Electrodynamics of Vector Mesons', nd latest bibliographic reference 1962.
- B.186                      Various manuscript and typescript drafts and extracts, nd.
- B.187                      10pp untitled manuscript draft *re* developments in research on weak interactions between elementary particles highlighting Salam's own contributions, 1971.
- See also A.80, A.81.
- B.188-B.207              Notes, drafts and background material *re* Salam's interest in and research on chirality, 1986-1993.
- B.188, B.189              'Chirality (I): The British School'. Contents of folder so inscribed divided into two for ease of reference.
- B.188                      24pp typescript (annotated) with illustrative figures entitled 'Parity Violation and the Origins of Biomolecular Handedness' by G. E. Tranter, June 1986.
- B.189                      24pp typescript draft (annotated) entitled 'The Origin of Biomolecular Chirality in Nature' by S. F. Mason, nd, latest bibliographical reference 1987.



### Research

- B.190, B.191 'Chirality (II): Other Papers of Interest'. Contents of folder so inscribed divided into two for ease of reference.
- B.190 Offprint (annotated) entitled 'The Origin and Early Evolution of Life on Earth' by J. Oró, S. L. Miller and A. Lazcano, 1990.
- B.191 2pp facsimile *re* a paper on chirality by C. Ponnampерuma, Y. Honda, N. Senaratna, M. K. Hobish and J. Hang, April 1991.
- B.192-B.194 'Chirality (III): Physics Papers of Interest'. Contents of folder so inscribed divided into three for ease of reference.
- Offprints and copies of papers (annotated) *re* various aspects of chirality and symmetry.
- B.195, B.196 'Chirality (IV): Colleagues' Comments'. Contents of folder so inscribed divided into two for ease of reference.
- Letters from Salam's colleagues commenting on his papers entitled 'The Role of Chirality in the Origin of Life' and 'Chirality, the Phase Transition and their Induction in Amino Acids', 1990-1992.
- B.197-B.206 'Chirality (V): Prof Salam's Lectures and Publications'. Contents of folder so inscribed divided into ten for ease of reference.
- B.197 35pp manuscript ?lecture notes entitled 'The Role of Chirality in the Origin of Life', nd ca 1990.
- B.198, B.199 36pp transparencies entitled 'The Role of Chirality in the Origin of Life', nd.
- Two folders.
- B.200 *The Role of Chirality in the Origin of Life*, Abdus Salam, ICTP, Trieste, 1990.
- Published text.
- B.201 16pp manuscript ?lecture notes entitled 'Chirality, Phase Transitions and their Induction in Amino Acids', nd ca 1991.

### Research

- B.202, B.203      35pp transparencies entitled 'Chirality, Phase Transitions and their Induction in Amino Acids', nd.  
  
Two folders.
- B.204      13pp typescript with amendments entitled 'Chirality, Phase Transitions and their Induction in Amino Acids', April 1991.
- B.205      17pp typescript with amendments entitled 'The Origin of Chirality, the Role of Phase Transitions and their Induction in Amino Acids', nd latest bibliographical reference 1991.
- B.206      13pp typescript entitled 'Biological Macromolecules and the Phase Transitions they Bring About', lecture delivered by Abdus Salam, International Symposium on Conceptual Tools for Understanding Nature, University of Trieste, Trieste, Italy, 16-17 April 1993.
- B.207      'Chirality (VI): Notes'. Contents of folder so inscribed.  
  
7pp untitled manuscript notes, dated on the first page 26 May 1990.
- B.208      9pp manuscript draft entitled 'Dynkin's *Compact* Representation in Terms of  $\Gamma$  Matrices for Rotations in [8] Space', nd.
- B.209      3pp manuscript notes entitled 'Källen Paper', nd.
- B.210      28pp manuscript notes entitled 'Electromagnetic Mixing of Neutral Particles', nd.
- B.211      29pp manuscript notes entitled 'On the Unitary Symmetry', nd.
- B.212      Various paginated typescript entitled 'Problems in Physics' containing questions and exercises listed under different physics research topics, nd.



**Research**

B.213 6pp untitled manuscript notes, nd.

B.214 Contents of unlabelled folder. Various untitled manuscript notes, nd.

B.215 5pp untitled manuscript notes, nd.

B.216 8pp untitled manuscript notes, nd.

B.217 23pp untitled manuscript notes, nd.

**B.218-B.295 'PHYSICISTS' LETTERS'**

**1950-1992**

This sub-section contains material described and organised by Salam as 'Physicists' Letters'. It consists of correspondence between Salam and other distinguished scientists relating to current research in theoretical physics and scientific work conducted at ICTP. Although in many cases what has been retained suggests that what survives is not a complete record of Salam's correspondence with a particular scientist, the letters provide a useful indication of Salam's interaction with his colleagues and their exchange of ideas.

The original order of material, sorted alphabetically by name of correspondent has been preserved.

B.218	<b>Abashian, A.</b>	1980
	<b>Adair, R.</b>	nd
	<b>Adams, J.</b>	nd
	<b>Adawi, I.</b>	1985

Research

B.219	Altarelli, G.	1979
	Alvarez, L. W.	1974
	Appelquist, T.	1985
B.220	Arnowitt, R.	1975-1978
	Covering correspondence and preprint papers co-authored by Arnowitt and P. Nath sent to Salam for information and comment.	
B.221	Auger, P.	nd
	Atkinson, D.	1970
	Avilez, C.	1979
B.222	Barut, A.	1971
	Becker, W.	1975
	Bég, M. A. B.	1973
	Bell, J.	nd
B.223	Bender, I.	1975
	Bernstein, J.	1975
	Bethe, H. A.	1973
	Bludman, S. A.	1979
	Breitenlohner, P.	1968



Research

B.224	Brink, L.	1983
	Broda, E.	1979
	Brodsky, S.	1976
	Brosche, P.	1989
	Brout, R.	1975
B.225	Carruthers, P.	1973
	Chandrasekhar, S.	1983
	Chang, Shau-Jin	1966
B.226	<i>re</i> Charap, J.	1975
	Cheng, K. W.	1976
B.227	Cline, D. B.	1976, 1980
	Correspondence and draft paper <i>re</i> antiproton decay.	
B.228	Coleman, S. R.	1969-1989
	Correspondence <i>re</i> Salam's scientific work and draft of Coleman's paper on Salam and the Nobel Prize, 1979, for publication in <i>Science</i> .	
B.229	Consoli, M.	nd
	Crease, R.	1984

**Research**

B.230	<b>Dalitz, R. H.</b>	1961, 1967, 1985
	<b>Davidson, A.</b>	1981
	<b>Debus, A. G.</b>	1987
B.231	<b>Delbourgo, R.</b>	1969-1970, 1977
	Manuscript notes and calculations with covering correspondence.	
B.232	<b>De Witt, Bryce</b>	1970
	<b>de Witt, Bernard</b>	1975
B.233	<b>Dirac, P. A. M.</b>	1981-1983
	Correspondence <i>re</i> a possible visit to Trieste.	
	<b>Dolan, L.</b>	1983
	<b>Dombey, N.</b>	1978
	<b>Domokos, G.</b>	1967
B.234	Correspondence <i>re</i> Salam's paper entitled 'Partial Wave Analysis in Terms of the Homogeneous Lorentz Group'.	
	<b>Duff, M.</b>	1978-1988
	<b>Dyson, F.</b>	1950-1951



Research

- |       |  |           |
|-------|--|-----------|
| B.235 | <b>Ebel, M. E.</b>   | 1961      |
|       | <b>Eberhard, P.</b>  | 1970      |
|       | Correspondence <i>re</i> Salam's paper entitled 'Magnetic Monopole and Two Photon Theories of C-Violation' <i>Physics Letters</i> <b>22(683)</b> 1966. |           |
|       | <b>Edmonds, J.</b>   | 1973-1974 |
| B.236 | <b>Ekspong, G.</b>   | 1974-1982 |
|       | Correspondence <i>re</i> recent developments in physics, CERN and ICTP.  |           |
| B.237 | <b>Elias, V.</b>   | 1979-1984 |
|       | Correspondence <i>re</i> papers on Higgs Coupling co-authored by Salam and Elias   |           |
| B.238 | <b>Eliezer, S.</b>   | 1974      |
|       | <b>Ellis, P. G.</b>  | 1974      |
| B.239 | <b>Faddeev, L. D.</b>  | 1968-1972 |
|       | <b>Fayet, P.</b>   | nd, 1984  |
|       | Includes copies of manuscript drafts by Fayet entitled 'Higgs Model and Supersymmetry' and 'Self Interacting Vector Multiplet'.                        |           |
|       | <b>Feldman, G.</b>   | 1965-1976 |
|       | <b>Ferrara, S.</b>   | 1979-1986 |

Research

B.240	<b>Ferris, T.</b>	1982
	<b>Fierz, M.</b>	1958
	Manuscript notes with covering correspondence.	
	<b>Filippov, A. T.</b>	1985
B.241	<b>Fischbach, E.</b>	1985
	<b>Fowler, E. C.</b>	1974
	<b>Fowler, W. A.</b>	1987
	<b>Freedman, D. Z.</b>	1976, 1978
	<b>Freund, P. G. O.</b>	1972, 1976
	<b>Friee, E.</b>	1983
	<b>Fritzsche, H.</b>	1974
B.242	<b>Gabor, D.</b>	1972
	<b>Gates, S. J.</b>	1989
	<b>Gell-Mann, M.</b>	1955-1985
	Correspondence and papers <i>re</i> developments in physics and ICTP research programmes.	



Research

B.243	Ghassib, H. B.	1984
	Giler, M.	1974
	Glashow, S. L.	1972-1988
	Correspondence <i>re</i> the correction of references.	
	Glück, M.	1973
B.244	Goldberger, M. L.	1955-1978
	Goldhaber, M.	1980, 1985
	Goldwasser, E. L.	1978
	Goodall, M.	1973
B.245	Greenberg, O. W.	1973
	Gross, D.	1974
	Gunn, J. C.	1980
	Gursey, F.	1961-1982

Research

- |       |   |            |
|-------|---|------------|
| B.246 | <b>Hamilton, J.</b>   | nd         |
|       | 4pp manuscript notes.   |            |
|       | <b>Harari, H.</b>   | 1975-1981  |
|       | Includes a letter explaining Harari's decision not to accept Salam's invitation to give an invited talk at the ICTP Conference on Physics of the New Particles, 1975 in protest against UNESCO's policy towards Israel. |            |
|       | See also G.116-G.122.   |            |
|       | <b>Hehl, F. W.</b>  | 1983       |
|       | <b>Heisenberg, W.</b>   | 1965       |
| B.247 | <b>Heller, L.</b>   | 1970       |
|       | <b>Henley, E. M.</b>  | 1979       |
|       | <b>Herron, L. W.</b>  | 1983       |
|       | Poem composed in honour of Salam and his achievements in physics with covering note.  |            |
|       | <b>Hofstadter, R.</b>   | nd         |
|       | <b>Hosotani, Y.</b>   | 1991       |
| B.248 | <b>Hussain, Z.</b>  | 1973, 1974 |
|       | <b>Hwa, R. C.</b>   | 1968       |
| B.249 | <b>Isham, C. J.</b>   | nd         |
|       | <b>Ivanenko, D.</b>   | nd         |



Research

B.250	Jackiw, R.	1971-1990
	Jacob, M.	1969-1978
	Jarlskog, C.	1978
	Jordan, P.	1975
	Joshi, S. K.	1984
	Julve, J.	1978
B.251	Kamefuchi, S.	1963
	Kamran, M.	1984
	Kane, G.	1982, 1985
	Kemmer, N.	1961-1990
	Kim, B. R.	1976
B.252	Kirsch, M.	1982
	Kirzhnits, D.	1974, 1975
	Klein, O.	1965
	Koga, T.	1981
B.253	Królikowski, W.	1975
	Krogh, J. V.	1978
	Kursunoglu, B.	1973

Research

B.254	Lamb, W. E.	1971
	Landshoff, P.	1976
	Lederman, L. M.	1974, 1985
	Lee, B. W.	1976
	Leibbrandt, G.	1984, 1987
B.255	Leite Lopes, J.	1973, 1981
	Linde, A.	1975
	Lipkin, H. J.	1965
	Lipshitz, E.	1982
B.256	Lochak, G.	1984, 1985
	Lundqvist, S.	1975-1984
	Luthar, P. C.	1977
B.257	Mackey, G. W.	1967
	Manoukian, E. B.	1985
	Marshak, R. E.	1980
	Matthews, P. T.	1985

Includes 2pp typescript obituary of Matthews written by Salam for publication in *Physics Today*, 1987.



Research

B.258	<b>Maxwell, N.</b>	1988
	<b>Menon, M. G. K.</b>	1955
	Letter <i>re</i> recent work on $\Xi$ , $\omega$ particles and heavy mesons.	
	<b>Merrison, A. W.</b>	1985
	Letter informing Salam of his election to an Honorary Fellowship of the Institute of Physics.	
	<b>Messer, J.</b>	1974
B.259	<b>Mo, L. W.</b>	1978
	<b>Moffat, J. W.</b>	1974, 1977
	<b>Mohapatra, R. N.</b>	1972, 1977
	<b>Møller, C.</b>	1975
	<b>Mott, N. F.</b>	1984, 1985
B.260	Correspondence <i>re</i> the relationship between physics and faith.	
	<b>Motz, L.</b>	1973-1982
	<b>Mourigan, C. A.</b>	1982
	<b>Mulvey, J. H.</b>	1961
	<b>Musset, P.</b>	1979

Research

B.261	<b>Nagel, B.</b>	1978, 1979
	<b>Nanopoulos, D. V.</b>	1973
	<b>Ne'eman, Y.</b>	1964-1982
	Includes 2pp typescript draft written by Salam in response to Ne'eman's decision to boycott ICTP in protest against UNESCO policies towards Israel.  See also G.116-G.122.	
	<b>Nicolescu, B.</b>	nd
B.262	<b>O'Donnell, P. J.</b>	1969
	<b>Okubo, S.</b>	1961-1970
	<b>Oneda, S.</b>	1989
B.263	<b>Pagels, H.</b>	1976
	<b>Pais, B.</b>	1965-1985
	<b>Pakvasa, S.</b>	1969
	<b>Parthasarathy, R.</b>	1977
	<b>re Pauli, W.</b>	1962
B.264-B.267	<b>Pati, J. C.</b>	1973-1988
	Correspondence and draft papers <i>re</i> scientific work on which Salam and Pati collaborated.  Four folders.	



Research

B.268	Pegis, C.	1970
	Peierls, R. E.	1982
	Perkins, D. H.	1978, 1981
	Perl, M. L.	1971, 1980
B.269	Phillips, R.	1976
	<i>The Physical Review</i>	1965
	Letter and copy of referee's report <i>re</i> a paper entitled "U(12) and Broken SU(6) Symmetry' by Salam, R. Delbourgo and J. Strathdee.	
	See also B.284.	
	Pickering, A.	1979
	Piran, T.	1982
B.270	Plimpton, C. H.	1983
	Polkinghorne, J. C.	1974-1978
	Pradhan, T.	1979
	Prokhorov, L. V.	1974
B.271	Quayle, J. R.	1987
B.272	Rajaratnam, H. V.	1979
	Ramond, P.	1978
	Rashid, K.	1991

Research

B.273	Reines, F.	1974-1992
	Correspondence and papers <i>re</i> recent developments in physics research.	
B.274	Renner, B.	1970
	Richter, B.	1976
	Rizwi, M. N.	1986
	Rohrlich, F.	1971
	Romans, L. J.	1986
	Rosen, S. P.	1979
	Rosenfeld, L.	1970
	Ross, G.	1976
B.275	Rudbey, M.	1975, 1976
	Ruffini, R.	1972, 1975
	Ryczka, R.	nd
B.276	Sachs, M.	1983, 1985
	Sachs, R. G.	1962, 1981
	Sakurai, J. J.	1981
	Santagata, C.	nd
	Sarfatti, J.	1980-1982



Research

B.277	Schoenberg, D.	1982
	Schorr, A.	1977
	Segal, I. E.	1981
	Shefi, Z.	1983
	Shen, B. S. P.	1976
	Sher, M.	1990
B.278	Sim, J. W.	1980
	Sinha, O. P.	1984, 1985
	Sivakumar, M.	1984
	Smit, J.	1971
	Soni, A.	1974
B.279	Southworth, B.	1979
	Sreekantan, B. V.	1982
	Stafford, G. H.	1968, 1974
	Steinberg, R. I.	1975
	Stelle, K.	1978
	Strathdee, J.	1970-1985

Correspondence and notes *re* collaborative projects undertaken by Strathdee, Salam and C. Isham.

Research

B.280	Strovink, M.	1980
	Stuchlik, K.	1973
B.281	Swanton, M.	1987
	Symanzik, K.	1973
B.282	Tadic, D.	nd
	Tajima, T.	1983
	Tanaka, K	1971
	Tangherlini, F. R.	1974
	Taylor, J. C.	nd
	Taylor, J. G.	1963-1988
	Correspondence <i>re</i> $Z = 0$ gauge theories, other developments in physics and the supervision of PhD students.	
B.283	Taylor, R. E.	1978
	Tchrakian, T.	1986
	Terazawa, H.	1980
	Ting, S. C. C.	1976
	Trautman, A.	1972



B.284	<b>Trigg, G. L.</b>	1975
	Correspondence between Salam and G. L. Trigg, editor of <i>The Physical Review</i> re the publication of a paper by Salam and J. C. Pati entitled 'Why Colour Fails to Show in Electroproduction and Neutrino Scattering Experiments'.	
	See also B.269.	
	<b>Tuan, S. F.</b>	1961, 1962
	Correspondence and papers re Tuan's work on Peierls' mechanism for pion-hyperon situations.	
B.285	<b>Ursu, I.</b>	1983
	<b>re Usmani, I. H.</b>	1987
	6pp typescript transcript of an interview of Usmani conducted by Y. Zhou.	
B.286	<b>Van Beveren, E.</b>	1983
	<b>Van Hove, L.</b>	1961
B.287	<b>Van Nieuwenhuizen, P.</b>	1984
	<b>Van Vleck, J. H.</b>	1977
	<b>Veltman, M.</b>	1968
	<b>Verhaar, B. J.</b>	1973
	<b>Vigier, J. P.</b>	1976

Research

B.288	Wallemeyer, W. A.	1979
	Waller, I.	1965-1970
	Wang, J.-M.	1969
	Ward, J. C.	1974
	Weber, J.	1977
B.289, B.290	Weinberg, S.	1961-1990
	Correspondence, including <i>re</i> the 'Goldstone theorem' and the 'Higgs phenomenon', with notes, preprints and copies of papers sent to Salam for information.	
	Two folders.	
B.291	West, P.	nd
	Wheeler, J. A.	1988
	Wigner, E. P.	1970-1982
	Correspondence and 1p typescript <i>re</i> Wigner's life and work.	
B.292	Wilkinson, D. H.	1975, 1976
	Wilson, K. G.	1982
	Wilson, R. R.	1986
	Woo, C. H.	1975
	Woo, G.	1975
B.293	Xiaoyuan, L.	1980



**Research**

B.294	Yang, C. N.	1974
	Yildiz, A.	1974
	Yoügraü, W.	1978
	Yukawa, S.	1981
B.295	Zichichi, A.	1973-1975
	Zumino, B.	1970

<b>B.296-B.303</b>	<b>ANNOTATED PAPERS AND OFF-PRINTS</b>	<b>1945-1986</b>
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This sub-section contains miscellaneous duplicated papers and off-prints annotated by Salam. Some of the material was sent to Salam for information or comment and subsequently may have been retained by him for reference purposes.

For annotated papers relating to Salam's interest in chirality see B.188-B.207.

The presentation is chronological.

B.296	University of Cambridge mathematics examination papers (annotated), 1945-1952.
B.297	10pp typescript entitled 'Spectral Representations in Perturbation Theory' by R. Karplus, C. Sommerfield and E. Wichmann (annotated), nd latest bibliographical reference 1957.
B.298	Various manuscript notes and typescript drafts of a review written by Salam of <i>The Relevance of Physics</i> by S. L Jaki, 1967.

### Research

- B.299                      6pp typescript entitled 'A Relativistic Internal Symmetry Group' by A. C. Rae with covering correspondence, 1969-1970.
- B.300, B.301              135pp typescript entitled 'The Quantum Principle: Its Interpretation and Epistemology' by J. Mehra with covering correspondence, 1971.
- Two folders.
- B.302                      Duplicated papers entitled 'Superfields with Internal Symmetry' and ' $\gamma_5$ -Transformations and Supersymmetry' by P. H. Dondi with covering letter, 1975.
- B.303                      Two copies of an 11pp typescript list of the publications of P. T. Matthews (annotated), 1986.



**SECTION C**

**IMPERIAL COLLEGE, LONDON**

**C.1-C.31**

In January 1957 Salam left St John's College, Cambridge and, on the recommendation of P. M. S. Blackett, took up a position as Professor of Applied Mathematics at Imperial College, London. Salam arranged that P. T. Matthews should join him as a Reader and their subsequent work helped make Imperial College a leading centre for research in fundamental theoretical physics.

In 1960 Blackett persuaded Salam to join the Physics Department as Professor of Theoretical Physics and to move into the Department's new and more spacious building. From 1964, with the foundation of the International Centre for Theoretical Physics in Trieste, Salam divided his time between London and Italy. Salam continued to hold his Imperial College post until 1993. He was elected a Fellow of Imperial College in 1994.

Despite his long association with the College the surviving documentation is very slight consisting of the contents of a number of Salam's personal Imperial College folders. The material relates to Salam's academic and administrative duties at the College.

See also A.34-A.37, E.15, F.155.

**Imperial College, London**

- C.1-C.31      'A. Salam - Personal, Imperial College.' Contents of folders so inscribed divided into thirty-one for ease of reference.
- Correspondence and papers *re* Salam's duties and work at Imperial College of Science and Technology, London. This consists principally of material *re* departmental administration, meetings and travel arrangements between Trieste and London.
- Some more general correspondence with colleagues, both at Imperial College and at other institutions, sent to Salam at his Imperial College address, is also included.
- The presentation is chronological, 1964-1993.
- C.1              1964.
- C.2              1965.
- C.3              1966.
- C.4              1967.
- C.5              1968.
- Includes 10pp typescript (with architectural drawings) entitled 'Theoretical Physics Centre: Proposal for a Postdoctoral Theoretical Physics Centre Concentrating on Nuclear and High Energy Physics to be Set Up at Imperial College', Abdus Salam and P. T. Matthews, May 1968.
- C.6              1969.
- C.7-C.10        1970.
- Four folders.
- C.11             1971.
- C.12             1972.



**Imperial College, London**

C.13	1973.
C.14	1974.
C.15	1975.
C.16	1976, 1977.
C.17	1978, 1979.
C.18	1980.
C.19	1981.
C.20	1982.
C.21	1983.
C.22	1984.
C.23	1985.
C.24	1986.
C.25	1987.
C.26	1988.

**Imperial College, London**

C.27                      1989.

C.28                      1990.

C.29                      1991.

C.30                      1992.

C.31                      1993.