

In Honour of the Memory and Legacy of

PROFESSOR SIR JOSEPH ROTBLAT KCMG, CBE, D.SC., FRS
NOBEL PEACE LAUREATE

1908–2005



“We scientists, young and old, must nurture a vision of a better world...a world without war, a society based on care and equity, a community that will protect the environment. And we should make it our task to turn this vision into reality.”—Joseph Rotblat 1996

Friday, 9 December 2005, 3.30–6.30

The Royal Society
6–9 Carlton House Terrace
London SW1Y 5AG.

*Sponsored by the British Pugwash Trust and the
Pugwash Conferences on Science and World Affairs*

PROGRAMME

Introductory music played by the Cranford String Ensemble, Adrian Charlesworth violin, Susannah Pattinson viola, and Simon Wagland cello, with Donald Watson on clarinet.

Welcome and Introductions to speakers and music
ROBERT HINDE, Chair British Pugwash Group

HALINA, KATHERINE AND HARRIET SAND – Jo and family
MACIEJ NALECZ – Jo and Poland

Polonaise in A Flat, Chopin
Kol Nidrei, *Max Bruch Op. 47*

JOHN MADDOX – Jo and St. Bartholomew's Hospital
DOUGLAS ROCHE – Jo and the abolition of nuclear weapons.

Sorcerer's Apprentice, Paul Dukas

MICHAEL ATIYAH – Working with Jo as President of Pugwash
PAOLO COTTA-RAMUSINO – Jo and Pugwash.

Film: Jo talking with Michael Douglas, Hamburg, 2003

HITOSHI OHNISHI – Jo, Hiroshima and Japan
D.L.O. MENDIS – Jo, Sri Lanka and Pugwash

Ol' Man River, Paul Robeson

SANDY IONNO BUTCHER – Start of Student Pugwash
JUAN PABLO PARDO-GUERRA – International Student Pugwash

Where Have All The Flowers Gone? Joan Baez

JACK HARRIS – Jo and British Pugwash
BRUCE KENT – Jo and the abolition of war

Last Night I Had The Strangest Dream, Pete Seeger

FRANCESCO CALOGERO – The Nobel Prize

A Rill will be a Stream, and a Stream will be a Flood – commissioned by IPPNW

TOM AND SALLY MILNE – Working with Prof

Beethoven, *Ode to Joy*

PROFESSOR ROBERT HINDE – Closing Remarks

Wine Reception

Joseph Rotblat (1908–2005)

John P. Holdren

Sir Joseph Rotblat, who died on 31 August in London at the age of 96, was a participant in the Manhattan Project, a pioneer in medical physics, and one of the towering figures of the 20th century in the domain of the social responsibilities of scientists. He was the only scientist to leave the American–British atomic-bomb project on moral grounds once it became clear that the Germans would not succeed in developing the bomb. Thereafter, he devoted the rest of a long career in science to clarifying the health impacts of ionizing radiation. His parallel career in public affairs focused on building international communication and cooperation to reduce the dangers posed by nuclear weapons.

Rotblat was the youngest of the 11 signers of the 1955 Russell–Einstein Manifesto, which called upon scientists to “assemble in conference to appraise the perils that have arisen as a result of the development of weapons of mass destruction.” (Most of the other signers, including Albert Einstein, Bertrand Russell, Max Born, Frederic Joliot–Curie, Linus Pauling, and Hideki Yukawa, already had Nobel Prizes.) He was instrumental in planning the resulting 1957 conference in Pugwash, Nova Scotia, which spawned a new international organization—the Pugwash Conferences on Science and World Affairs. It has since held some 300 conferences, symposia, and workshops on arms control and peace-building.

Even at the height of the Cold War, the Pugwash Conferences were able to assemble scientists and public figures from both sides of the Iron Curtain for private discussions of the thorniest science-and-security issues of the time. These meetings are widely credited with laying the technical foundations for the nuclear non-proliferation Treaty, the Partial Test Ban Treaty, the Anti-Ballistic Missile Treaty, the Biological Weapons Convention, and the Chemical Weapons Convention, among others. Joseph Rotblat was the organization’s first and longest serving Secretary-General (1957 to 1973), and later its President (1988 to 1997). For its entire existence until his death this year, he was its animating spirit and the embodiment of its commitment to diminish the dangers from weapons of mass destruction and from war itself.

A Polish Jew, Rotblat completed his doctorate in physics at the University of Warsaw. In 1939, he accepted a research fellowship to work under James Chadwick, the discoverer of the neutron, at the University of Liverpool. Later that year, he returned to Warsaw to collect his young Polish wife, but she was too ill to travel, and he had to return to England without her. The next day Hitler invaded Poland, and Rotblat never saw his wife again.

Rotblat’s own experiments at the end of the 1930s had shown that the newly discovered fission process emitted neutrons, and he was one of the first to realize that this opened the possibility of a chain reaction that could yield immense explosive power. With Chadwick, he went to the Los Alamos National Laboratory in New Mexico in 1943 as part of the British team assigned to the Manhattan Project (although he did not become a British citizen until after the war).

When it became clear in 1944 that the Germans were losing the war—and clear, as well, through intelligence that was shared with Rotblat, that the German atomic bomb project had gone nowhere—he packed his bags, left Los Alamos, and returned to Liverpool. He later told me and others that he had no wish to work on an atomic weapon destined for use against Japan, known not to be developing such a weapon itself.

Back in England, he switched the focus of his scientific work to medical physics, pioneering the use of linear accelerators for radiation therapy and becoming one of the world's leading authorities on fallout and the effects of ionizing radiation on humans. He also began to work on educating the public and policy-makers on the dangers of nuclear weapons and shortly after the war's end, became one of the founders of the Atomic Scientists Association—the British counterpart to the Federation of American Scientists that was established in the United States at about the same time.

In 1954, Rotblat met the eminent British philosopher and mathematician Bertrand Russell through a British Broadcasting Corporation television program about the hydrogen bomb in which they were both interviewed. He became an adviser to Russell on the details of nuclear-weapon science, and was subsequently recruited by Russell to sign the Russell-Einstein Manifesto and chair the press conference that released the document.

Recognizing that the knowledge of how to build nuclear weapons could not be eradicated, the signers of the Russell-Einstein Manifesto emphasized that safety for civilization would come only when war itself was abolished as a means of settling disputes among nations. A prohibition on nuclear weapons, while desirable, would only be a way station on the road to safety. Joseph Rotblat, however, became increasingly preoccupied with the urgency of reaching that way station and he made its pursuit the central aim of his own life's work in the nuclear arena and a major theme within the Pugwash Conferences.

He contributed a number of significant ideas to the multi-decade debate about the desirability and feasibility of eliminating nuclear weapons, along with tireless energy, unmatched eloquence, and total commitment to the cause of peace. The Pugwash Conferences served as an invaluable vehicle for pursuing these goals. Knowing full well that this quest would take longer than the span of his own life, he invested tremendous effort in recruiting to the cause, and mentoring students and young scientists. He was instrumental in founding in the 1980s, and nurturing thereafter, an international Student/Young Pugwash counterpart to the “senior” organization.

In 1995, Joseph Rotblat was awarded half of the Nobel Peace Prize with a citation that read “for efforts to diminish the part played by nuclear arms in international affairs and, in the longer run, to eliminate such arms.” The other half of the prize went to the Pugwash organization. Rotblat was elected to the United Kingdom's Royal Society in the same year and was knighted in 1998. With his passing, the world has lost a great champion of peace. But the compelling example of his life, which has already inspired and instructed so many about the social responsibilities of science and scientists, will continue to do so.

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SELECTED TRIBUTES TO JOSEPH ROTBLAT



Joseph Rotblat as a young man.

One could not help admiring this man of indomitable energy, moral integrity and high culture. Yet the most important thing about him was that even in very old age his mind remained crystal clear and his convictions firm. In a changed world facing new challenges, he addressed the people, ordinary citizens as well as world leaders, with an urgent appeal to rid the world of nuclear weapons, for in the final analysis this is the only way to a secure existence for future generations. Expressing my condolences for the passing of this remarkable man, I pay tribute to his long and eventful life, dedicated to serving the people, a life that is truly an

inspiring example to all of us.

PRESIDENT MIKHAIL GORBACHEV, Russia

He leaves a legacy of inspiration and courage to his many friends and colleagues around the world.

KOFI ANNAN, through his spokesman, September 2, 2005

At the time when it mattered most, many Manhattan Project scientists—some who in later years became icons for peace—were engaged in delicately balancing their consciences against their careers. But Joseph Rotblat did exactly what was right and moral. No equivocation, no this-or-that. He simply quit. Nukes are evil and immoral. What a marvellous example for everyone, particularly scientists, in a world where moral obfuscation is so fashionably common.

PERVEZ HOODBHOY, Professor of Physics, Quaid-e-Azam University, Islamabad, Pakistan, and Member, Pugwash Council

I was 15 when I met Dr. Rotblat: at the 1959 Conference on the Dangers of Biological and Chemical Warfare...I didn't know enough at the time to be petrified at what I was hearing, but Dr. Rotblat did—and yet it never took the spring out of his step, nor kept that eager, hopeful smile off his face....We met again in 1997 in Pugwash, at the anniversary conference, which addressed not only nuclear dangers, but also the tension between the world's "North and South" countries which was beginning to eclipse the old East/West division. So Sir Joseph had even less to be smiling and energetic about. But as I walked with him up to the gentle hill to the school to attend an afternoon session, his thoughts were on the future, and of all the good that "we" could do, and the high school senior who would receive the first Rotblat Scholarship; and I had to trot to keep up with him.

LISSY GULICK, daughter of Anne/stepdaughter of Cyrus Eaton

Sir Joseph was a great friend of my father's. He was also a friend of mine, although my contact is very recent. I was honored by Sir Joseph's agreement to be a member of the Select Advisory Committee of the Linus Pauling Centennial Award, founded by me in 2001 to commemorate the centennial of my father's birth, and greatly honored to present the 2002 Award to Sir Joseph himself in June, 2003, in Geneva, Switzerland. With great sorrow, but with hope that Sir Joseph's influence will continue to enlighten the peoples of the world.

LINUS PAULING JR MD, Honolulu Hawaii

I was privileged to meet Jo Rotblat after spending more than 11 years in Saddam's prison for refusing to work on his nuclear weapon programme. He symbolised humanity's reach for peace and respect for life. We immediately realised that we shared a total commitment to the same ideals, although we came from very different backgrounds. He asked me, given my experience, what he could do to help scientists behind bars who share our values and commitment. My response was 'Your towering profile is an inspiration and source of comfort for them.' I am deeply saddened for his loss, not least for the sake of the scientists behind bars.

HUSSAIN AL-SHAHRISTANI, First Deputy Speaker, National Assembly, Baghdad, Iraq

No one can live forever, not even Jo. However, at the end of the day he will turn out immortal and a great inspiration for everyone fighting for nuclear disarmament.

BENT NATVIG, Norwegian Pugwash Group



With students from the University of Liverpool at Llandudno just after the war.

All who walked with him can truly say that we knew a real human being who lived life in an exemplary manner, with a lightness of heart and gentleness of person in contrast to the weightiness of the subjects he addressed. He showed us that to remember our humanity involves being the change we wish to see and that being a person of peace is part of the process of moving the world from the cult of violence to the culture of peace.

DOUGLAS ROCHE, O.C. Chairman Middle Powers Initiative
JONATHAN GRANOFF, President, Global Security Institute

When I stopped by to see Jo at his office, in 2002, I asked him, “What’s the secret to your longevity?” (he was only 94 then!). He grinned and said, “It’s a secret!” Then he laughed, and added: “It’s having something to live for.” In his case, stopping or slowing the mad nuclear arms race. He was a sweet and feisty fellow who made the world a saner and safer place.

WILLIAM LANOUILLE, US, Leo Szilard biographer

I am very sad to hear that Professor Joseph Rotblat has passed away and I wish to express my most sincere condolences as an atomic bomb survivor and a Japanese physicist. I am deeply saddened for his loss for peaceful future human being, not least for the sake of nuclear disarmament.

SHOJI SAWADA, Japan

We – and the whole world – have lost a towering figure in the struggle for peace. Joseph Rotblat was one of a kind: brilliant, eloquent, tireless, demanding, impatient, completely committed to the pursuit of a saner, safer world for all of its inhabitants. He was the inspiration for everything I did in Pugwash from the day he met my plane on my arrival at my first Pugwash Conference, in the summer of 1973, when I was 29 and he 64. To me, and I think to all of us in Pugwash, he was a mentor, an example of selfless dedication and single-minded commitment that none of us could match, and a friend.

Our consolations in his passing are that he lived long and accomplished much, and indeed that he lived long enough to enjoy the major formal recognitions that came to him so late in life, so long overdue: the Nobel Peace Prize, election to the Royal Society, a knighthood. Our shame is that we did not succeed in presenting him, before he died, with the gift he most desired – a global prohibition of nuclear weapons. The greatest tribute we can pay his memory is to push forward with increased determination now towards this end.

JOHN HOLDREN, Teresa and John Heinz Professor, John F. Kennedy School of Government, Harvard University, Member of the Pugwash Council 1982-97

In 2003 I had what I consider one of the most memorable experiences of my life. We brought Michael Douglas and Joseph together in Hamburg to tape an interview for our “What’s So Hard About Peace?” series. We got to sit in the room while Michael asked him about his childhood in Poland, walking off the Manhattan Project, the difficult moral decisions he had made in his life. Some of the crew came up to me after the shoot and thanked me, saying that being there had changed their lives. Two of the women said they came away with crushes on Joseph. (Not surprising. He was completely charming in his sweet temperament, humility and warmth). Michael’s experience of the interview is probably best described by the expression on his face in the pictures taken afterwards.... The day before he passed away, I received an email from Desmond Tutu’s office about a letter some of the Nobel Laureates were signing, calling for reason and sanity on both sides in the Middle East. He said that Joseph Rotblat had just sent his best wishes to everyone from the hospital and they were just waiting for confirmation on his signature. It seems that true to form, the day before he died, Joseph Rotblat was still doing what he could to make the world a better place....



Photo by Peter Hoennemann, reprinted courtesy of TheCommunity.com

MARY WALD, Documentary filmmaker

You embody in your gift the Russell-Einstein mandate: “*We have to learn to think in a new way*” – because you showed us how to do so. When you left the Manhattan Project so long ago as a point of principle, no one left with you. You were thinking and acting in a new way that wasn’t even recognized and hardly emulated. ... Your gift to all who share your vision goes out and on beyond the Pugwash family, beyond all the converted, to generations who will benefit from your welcome to join in and shape for themselves a role in helping to realize what a culture of peace can mean.

ROBERT AND STEPHANIE MCCANDLESS REFORD, Friends, colleagues of International Student/Young Pugwash, Members of the Canadian Pugwash Group

His example of extraordinary moral courage has inspired millions and will continue to inspire in people hope and the will to act for generations to come. ... My last meeting with Dr. Rotblat was in February 2000. At that time I pledged to Dr. Rotblat that I would strive to continue his work for peace in the 21st century. This is a pledge I cannot and will not forget. Joining with like-minded people to bring into being a world without war, a world free from the dark threat of nuclear destruction, is the only way to requite the privilege of having know this great man.

PRESIDENT DAISAKU IKEDA, Soka Gakkai International

I asked Joseph what kept him working for Disarmament, with so much enthusiasm and joy. He said it was important for people to have goals and he had two goals in life. “My short-term goal” he said “is the abolition of nuclear weapons, and my long-term goal is the abolition of war.” Joseph never saw his goals fulfilled, but he did fulfill the most important goal any human being can attain. He evolved and was transformed during his earthly journey, into a truthful, joyous, compassionate, gentle, kind, human being. He was truly an inspiring and wise man for our time...As for his goals of nuclear disarmament and a world without war, I believe we can best pay tribute to our brother Joseph, by continuing to work to make his dreams come true and build a world safe for the human family.

MAIREAD CORRIGAN MAGUIRE (Nobel Peace Laureate)

The man who invented conscience

Over the years, and especially this week, since he died, I have read innumerable accounts of Sir Joseph Rotblat’s life....No picture is ever given of the wrenching experience of his rejection by the US, for which he had worked so hard at “the lab”. Never does anyone ever tell how he was labelled a turn-coat, a traitor, how he was hounded by the American and British secret services for years for listening to his own inner voice. Never is there mention of the fact that already before the bomb was dropped it had become a Shibboleth of the Holy American Empire, and only a communist could possibly be against it ... And this brings me to the point of this story: I think that the first condition for an act of conscience to be classified as an act of courage is that it must extract its “pound of flesh” from the doer. And that was what leaving Los Alamos did to Jo. That is what makes him not just a great man, but a giant among men.

PHILIP SMITH, INES



Jo with Ruth Adams at the First Pugwash Conference July 1957

An open letter to my son on the Death of Joseph Rotblat (extract)

My dear son, Joseph is a name you should wear with pride. Be a rebel, when it is for a good cause. Do not be constrained by limitations others set for you. Treat others with dignity and with loyalty. Stretch you mind and open your heart. Insist on an equitable world, and seek peace in every situation. Refuse to compromise your values. Laugh with others. Live simply and with meaning. Do not judge people by their titles or their age, but by their creativity and vivacity. Envision a long and productive life, and then exceed expectations. If you do all of these things, then you will honor the example set for you by Joseph Rotblat.

SANDRA IONNO BUTCHER, Former President Student Pugwash USA

A TEACHER REMEMBERED: JOSEPH ROTBLAT

Joseph Rotblat is now, of course, a holder of the Nobel Peace Prize, for his work with the Pugwash Committee concerning nuclear disarmament. Back in the days when he was Professor of Physics at St. Bartholomew's Hospital Medical College, and I was a mere first MB student (1970-71) he was possibly even more of an inspiration. He certainly needed to be, given his role in teaching physics to people who were not only scientifically ignorant, but, to some degree, scientifically sceptical. Dare one say it – some were even anti-scientific, steeped in the writings of Ivan Illich and R. D. Laing.

The first MB course, now sadly disposed of, was to many people then the most sensible means of admission to medical school. It meant an extra year, making it a six year course, but entry was open to anyone who had got three good A-levels, and/or a degree, whether in history, English Latin and Greek, or even the (then much despised) psychology. It involved doing physics, chemistry and biology from zilch to A-level in one year, but was tailored of course to medical requirements. It was hard work, somewhat bewildering, but it brought together a wonderful range of different people, most of them a bit more mature than your average medical student. Naturally physics was the most difficult topic, conceptually, to grasp, and on first meeting Joseph Rotblat with his heavy mid-European accent we all thought it would be a learning phantasmagoria.

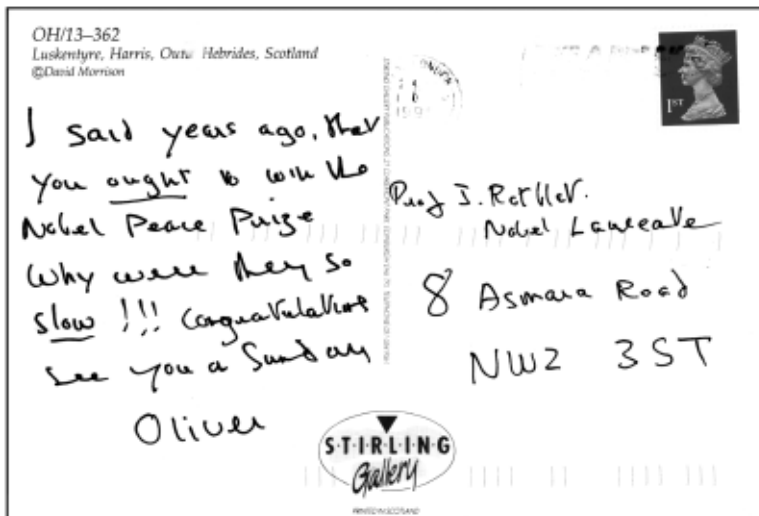
The first lectures were difficult. There were new concepts, complicated words, and we had varying levels of ignorance. It was very basic, and not very interesting. But as things progressed, the physics lecture theatre became the source of increasing wonder. Unravelling before us were not only the practical – and beautifully demonstrated – relevancies of physics and physical knowledge, but also a sense of the history of man's mental development. Not only was our teacher a man of immense intelligence, both scientific and historical, but he was clearly someone different, a committed soul, a man who loved knowledge and communicating knowledge.

The culmination of this was a lecture he gave on Einstein's Theory of Relativity. In the space of less than an hour he took us from the beginnings of Newtonian physics to somewhere beyond the stars to a previously incomprehensible world of $e = mc^2$, the strange infinities of the speed of light, and an extraordinary sense of how things were connected. We came out of that lecture walking on air, people just laughing and smiling at each other in a state of utter amazement. Forget the most special events you have been to, whether concerts or journeys or sporting dramas, this was a true privilege.

I am not sure if any of Joseph Rotblat's first MB students, listening intently to his lectures on physics, have even done anything useful in the world of physics. However, I do know that they owe to him an understanding of the meaning of science. He showed that it wasn't just mechanical and factual, but a true combination of knowledge and spirit. This drive, this enthusiasm, this sheer goodness of will, is something that all of us, as teachers now, should try to re-create.

DR. TREVOR TURNER (Student Barts 1976)

Post card from Sir Oliver Scott
sent from the Outer Hebrides



15th October 55

Dear Josh,

I felt a surge of pure joy when I heard the wonderful news on the BBC of the award to you a Pugnash of the Nobel Peace Prize! Peter called me quickly & I watched you being interviewed in your study.

At long last, as if by a miracle of historical timing, your life's work & achievements for peace through Pugnash have been recognised on the world's stage. I hope while you savour this proud moment of triumph you will also receive new courage from this award to continue the fight for peace.

Please accept our sincere congratulations & very best wishes for the future of Pugnash & yourself.

Sincerely,
Dorothy & Peter Wright

Letter from Lord & Lady Kennet

100 Bayswater Road London W2 3HD

Dear Joe;

Richly, richly deserved.

Love,

Wayland & Liz

“The quest for a war-free world has a basic purpose: survival. But if in the process we learn how to achieve it by love rather than fear, by kindness rather than by compulsion; if in the process we learn to combine the essential with the enjoyable, the expedient with the benevolent, the practical with the beautiful, this will be an extra incentive to embark on this great task.

Above all, remember your humanity.”

NOBEL ACCEPTANCE SPEECH, DECEMBER 1995.

“Let me, in conclusion, remind you that the basic human value is life itself; the most important of human rights is the right to live. It is the duty of scientists to see to it that, through their work, life will not be put into peril, but will be made safe and its quality enhanced.”

MESSAGE TO THE INHERITORS OF THE MANHATTAN PROJECT, 12 JULY, 2005

“I do not believe that the people of the world would accept a policy that is inherently immoral and likely to end in catastrophe ... We have to move forward from a now outdated security system based on nuclear deterrence and alliances, to one based on cooperation and allegiance to humankind.”

MESSAGE TO 7TH REVIEW CONFERENCE OF THE NUCLEAR NON-PROLIFERATION TREATY, NEW YORK, MAY, 2005

“I believe that we must ... seek to abolish war itself. This aim, intrinsic to the Russell-Einstein Manifesto, will take us on a long hard road. It does not necessarily mean pacifism as that is generally understood, but it means choosing to seek a world with “continual progress in happiness and wisdom”, a world in which morality, law and mutual respect govern the relations between nations, and no nation uses military power to impose its will on others.”

MESSAGE TO 55TH PUGWASH CONFERENCE AT HIROSHIMA, JULY 2005

“In the nuclear age, the human race has become an endangered species.”

THE QUEST FOR GLOBAL PEACE, 2002




DEN NORSKE
NOBELKOMITE
The Norwegian
Nobel Committee

Professor Sir Joseph Rotblat
British Pugwash Group
63a Great Russell Street
London WC1B 3BJ
England

November 6, 1998

Dear Sir Joseph,

CONGRATULATIONS ON YOUR 90TH BIRTHDAY.

WE ARE SO PROUD OF YOU (AND THE CHOICE WE MADE IN 1995.)

Best wishes

The Norwegian Nobel Committee
The Norwegian Nobel Institute


Geir Lundestad
Secretary/Director

The Norwegian Nobel Committee, Dr
(+47) 22 44 36 80 Fax: (+47) 22 43 01 68 Boaf

THE UNIVERSITY of *York*

Department of Physics
University of York
York YO1 5SD

Dr R G Keesing

28th April 1999

Dear Professor Rotblat,

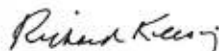
In the hour after your talk the response from my colleagues has been most gratifying. It turns out that several people did not come to the common room for tea because they had been so moved by what you had to say that all they wished was to be left alone with their reflections. A colleague has just written me a note which simply said that your talk had been the most memorable that had ever been given in our department. I was particularly gratified to see so many undergraduates in your audience and it was clear from their response that your message had struck deep chords within them. If the occasion is ever right to influence people and the way their minds are set this afternoon was one of those occasions.

Thank you for spending so much of your valuable time to come up to the university and give such a stimulating and inspiring talk.

I hope that you had an uneventful journey back to London after the episode with your rain coat!

With very best wishes

Yours sincerely



Richard Keesing

PS I have enclosed an expenses claim form which in the all the rush I forgot to give you.

AS A WAY TO HONOUR JOSEPH ROTBLAT'S LIFE AND LEGACY, Pugwash has set up a special fund to help make possible the establishment of his archives at Churchill College, Cambridge. In the course of his life, Joseph Rotblat accumulated papers of great interest to peace movements, to scientists, historians, and politicians. They include material relating to the Manhattan Project, and correspondence with many international figures. Before being deposited in the Churchill College Archive, it will take an archivist three years to sort and file the papers. Jo had a great sense of humour, and he was never more willing to laugh at himself than when he was discussing his "archives". Anyone who has seen his house will understand why the job will take three years. His house is filled from top to bottom with papers, and his dining room table hasn't been accessible for years! If you would like to contribute to the expenses involved in making his legacy available at Cambridge and electronically worldwide, please make your cheque payable to 'British Pugwash Trust (Nobel)' and send your donation to: Joseph Rotblat Archive Fund, Pugwash Conferences, Ground Floor Flat, 63A Great Russell Street, London WC1B 3BJ.

Our special thanks go to Anne Read, for design and layout of this booklet.

BRITISH PUGWASH GROUP

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