

What Pugwash Means to the World

A Talk Delivered in Celebration of the 50th Anniversary
of the First Pugwash Conference

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Hello Pugwash!

It is a real honor for me to be here today, to talk with you all about the history of the movement that began 50 years ago here in your beautiful town. I hope in the Q&A we are able to have a real dialogue about your experiences with the history of the Pugwash Conferences. I am sure many of you have family stories about that time in 1957 when the world's leading scientists descended on you all for the first time. They stayed in your homes, ate your food, walked your streets, and found a common humanity in these beautiful surroundings. It is not a stretch to say that the hospitality and kindness of the Pugwash people in 1957 had a great impact on future world events. Joseph Rotblat himself said that the environment here was one of the main factors in the success of that first meeting.

A quick internet search told me that your population is around 800, maybe a bit more. But I wonder if you realize that thousands more people in this world consider your town their spiritual home? For all of us involved in Pugwash in various ways, coming here is like a rejuvenating visit home. We have the feeling that some how this place can set us on our true course again, and remind us of our core values. And always the environment gives us the fresh air and freedom to think the bigger thoughts that sometimes get mired down in daily life and challenging political realities. While we meet here today, some of the world's leading thinkers on disarmament are trying across town to map out a plan to rid the world of nuclear weapons, to rekindle the "Pugwash message" in the context of today's difficult realities.

First of all, I should admit, I am a bit of a fraud. I am not a scientist. I don't personally know any world leaders. I'm just a kid from the New Jersey shore who grew up during the Cold War and rejected the insanity of the nuclear arms race, and who, as a leader of Student Pugwash USA became friends with Joseph Rotblat, Ruth Adams, and many of the people who were involved in the early days of the Pugwash Conferences. My fascination with the courage shown and the creative approaches taken by Pugwash led me to ask lots of questions, and as a result, Joseph Rotblat asked me to write the history of Pugwash. I am currently working on that history, and hope it will one day become a book. (I hope you will forgive me if during this talk when I refer to 'Pugwash' I am typically speaking about the organization, it's just a lot easier than saying the 'Pugwash Conferences on Science and World Affairs' over and over again.)

In the course of this talk, I would like to share some anecdotes, show a few pictures, and play a few audio clips. I hope to give you a sense of the times, and the courage of the people who came here. I'll try to give you a brief summary of what they accomplished, not only during the meeting in 57, but later, on the road to the Peace Prize. I won't sugar coat it, there were some tensions here and there, as is to be expected when such forceful people take on such monumental tasks as trying to eliminate nuclear weapons and seeking to put an end to war. But through the entire history of the organization, the common thread is the pure humanity of the people involved, the shared purpose that helped to override personal and political differences. And this, combined with their brilliance and ingenuity and commitment led to a new way of involving the 'citizen scientist' in important political and policy matters.

Joseph Rotblat

First, let's backtrack a bit, and let me reintroduce to you a familiar man: Joseph Rotblat. He was the glue that held it all together, and it was through his perseverance, more than any other person's, that the meeting took place here in 57 and that the organization became a reality. That is not to say that he did it alone, far from it. But the more I research into the archives, and don't just rely on what he told us all about the early history, the more I realize that he downplayed his own role in telling the story. For those of you who have met him, this will not surprise you in the least.

Joseph Rotblat was born in Poland in 1908. His early childhood quickly changed from one of privilege to one of poverty and hunger during the First World War. He said that his lifelong belief that science should be used to benefit humanity came from his suffering during this time. As a young teen he qualified as an electrician. He had to teach himself in the evenings and weekends to prepare himself for entry into the Free University, as many doors were closed to him due to the growing racism around him. He quickly became recognized for his insight and intellect, and soon became a pioneer in the emerging field of nuclear physics. He was among the first people to envision that it would be possible to cause a chain reaction that would lead to a huge explosion, and he put this thought out of his mind. He went to Liverpool University in England to work with James Chadwick (giving up an invitation to join the Curies in Paris, and thereby most likely saving his life). He was paid too little in England at first to bring his wife over, and when he went back to Poland to get her, she tragically could not travel due to appendicitis. As a result, she was unable to leave Poland, which fell into German hands. She ultimately perished in the Holocaust, though Rotblat did not know that until the war ended.

He feared, as did many knowledgeable scientists at the time, that Hitler might develop a nuclear weapon. He believed the only way to stop Hitler from using such a weapon was if the allies had one of their own. So he immersed himself in the development of an atomic bomb, throwing aside his moral scruples. He eventually went to Los Alamos, where the secret US weapons program was underway, and became the only non-US, non-British scientist there. He wasn't there long before he learned that the project leaders knew Germany was not working on a bomb project. As this was his entire reason for being there, he resigned. It is said he was the only project scientist to resign on moral grounds, and he paid dearly for it. Accusations of disloyalty dogged him for years, and he was forbidden to discuss his reasons for leaving. A trunk full of personal papers mysteriously disappeared while he was en route back to the UK, and some think this was confiscated by the intelligence services.

When he returned to the UK, he lost contact with what was happening in Los Alamos, and he was gravely saddened to learn of the bombings of Hiroshima and Nagasaki. As soon as he heard about the bombings, he began to fear that the next weapon to be developed would be even more powerful. At Los Alamos he worked in the office next to Edward Teller, and was friends with a fellow Pole, Stanislaw Ulam, who worked with Teller. He knew that a hydrogen bomb—'the Super'—was on its way.

Rotblat became a leader in the British Atomic Scientists Association, and the ASA launched a massive public education campaign about the new technologies. They made a traveling exhibit, called the 'Atom Train' that toured England, Scandinavia and the Middle East. Over 58,000 brochures were sold for the exhibit in England alone.

Rotblat Meets Russell

In 1954 when the US tested its first hydrogen bomb, Rotblat became uneasy and decided to do even more. He went on a BBC programme to explain the new technology to the public. It was on this show where he first met Bertrand Russell. He became a confidant of Russell's and began to regularly brief Russell on nuclear matters.

These new hydrogen bombs were devastatingly powerful. It became clear just how powerful when a US atmospheric test in the South Pacific went wrong, and a Japanese fishing vessel was doused with fallout. A crew member died, fish were irradiated, and the public became panicked about the nature of fallout. Rotblat was one of the key people in helping to determine exactly what the dangers were. He surmised that the US government was not being honest about the threat, and he went public. The government was claiming that the hydrogen bombs had explosive power in terms of blast and heat that made them 1000 times more powerful than the bombs used in Japan. Rotblat figured out that the radiation effects were also increased a thousandfold.

It was in this environment that Russell gave a famous radio address at Christmastime in 1954, where he expressed his concerns about nuclear weapons. The address, called 'Man's Peril' contained many of the ringing phrases that would later be part of what became known as the Russell-Einstein Manifesto.

Russell Hears from Born and Joliot Curie

After this address, Russell began to hear from scientists all over the world. These included Max Born, who recently received the Nobel Prize in Physics. Born urged Russell to consider issuing a public statement, signed by eminent scientists. They began to work out this idea. They knew that that most important scientist of the time had to be included: Albert Einstein. Russell wrote to Einstein, and Einstein replied enthusiastically. He encouraged Russell to consider himself 'dictator' of the enterprise. Rotblat was involved with the drafting of the statement. Russell believed firmly that in order to have an impact the statement needed to be signed from people of different political persuasions. He considered it essential that senior communist scientists signed. He was viewed with suspicion in the Soviet Union at the time, and the Soviet scientists he approached declined.

Frederic Joliot Curie, the leader at the time of the World Federation of Scientific Workers, and a communist, became essential to the enterprise. Russell and Rotblat negotiated with Joliot Curie and his intermediaries, and eventually Russell gave in on the one sticking point that Joliot Curie insisted upon: that the statement must include a call for a conference of scientists to assess the dangers. Russell was from the start skeptical about such a conference (in his own scheme, he was in favour of calling for a commission by a neutral government). But he thought Joliot-Curie's involvement was so crucial that he acquiesced and included the call for a conference.

The Russell-Einstein Manifesto is Released

As Russell was returning on an airplane to a hotel in Paris, he learned that Einstein had died. He believed at the time that this signalled the end to the project. But when he returned to his hotel, he found a letter from Einstein saying he wanted to sign the statement. This then was the last official signature of Einstein's life. The Russell-Einstein manifesto thus became the final warning from this brilliant man, and as a result, from the very start the Pugwash movement had a very special place in history.

Joseph Rotblat, the youngest of the signatories, chaired the press conference in 1955 where the manifesto was released.

We are speaking on this occasion, not as members of this or that nation, continent, or creed, but as human beings, members of the species Man, whose continued existence is in doubt. ...

We have to learn to think in a new way. We have to learn to ask ourselves, not what steps can be taken to give military victory to whatever group we prefer, for there no longer are such steps; the question we have to ask ourselves is: what steps can be taken to prevent a military contest of which the issue must be disastrous to all parties?

...Here, then, is the problem which we present to you, stark and dreadful and inescapable: Shall we put an end to the human race; or shall mankind renounce war? People will not face this alternative because it is so difficult to abolish war.

.. There lies before us, if we choose, continual progress in happiness, knowledge, and wisdom. Shall we, instead, choose death, because we cannot forget our quarrels? We appeal as human beings to human beings: Remember your humanity, and forget the rest.

Listening to the language, one is reminded that Russell received a Nobel Prize for Literature. The message of that manifesto is as poignant today as it was 50+ years ago.

Eaton's Invitation

Now we come to your village.

In the days immediately following the release of the manifesto, Cyrus Eaton (a man with whom I know you are all familiar), wrote to Bertrand Russell. The text of his letter read:

July 13, 1955
TransAtlantic
Air Mail

My Lord:

Your brilliant statement on nuclear warfare has made a dramatic world-wide impact. As a trustee of The University of Chicago, I take great pride in your one-time association with that institution, and I have long felt a special interest in your many brilliant achievements. I have read all of your fascinating books again and again.

Could I help toward the realization of your proposal by anonymously financing a meeting of the scientists in your group at Pugwash, Nova Scotia? I have dedicated a comfortably equipped residence there by the sea to scholarly groups.

Julian Huxley is coming from England to join a small company of American and Canadian scholars at Pugwash during the first part of August. If the location appeals to you, it is at your disposal any time from August 20th on. I should, of course, want to be host to you, and your fellow-scientists not only during your stay at Pugwash, but on your journey to Pugwash and return.

Cecil Powell, a Nobel laureate in physics whose photographic techniques allowed him to prove the existence of the pi-meson and K-meson in the nucleus.

H.J. Muller, a Nobel Prize winning geneticist.

Brock Chisholm, a physician some called “Doctor to the World,” one of the founders of the World Health Organization.

Chou Pei-Yuan, who spent a year working with Einstein on relativity, and the first scientist from China to visit the west after the Chinese revolution.

Leo Szilard, the somewhat eccentric genius who first envisioned the chain reaction and its possibilities.

M. Kuzin, the Soviet radiation expert.

The list goes on. The scientific eminence of the people present was unquestioned.

More Hope than Expectation

As Paul Doty, one of the two remaining participants from that first meeting has written, they came with “more hope than expectation.” The decision to attend was a difficult one for the participants, and it took courage. At a time of grave suspicion of anyone who sought to contact others across the Iron Curtain, it was uncertain what impact attendance at the meeting might have on their careers. Mark Oliphant wrote about this personal dilemma to a friend, he said:

I enclose also a copy of a letter from Bertrand Russell about these matters. If I accept his invitation, I am associated with Joliot-Cure and Powell, who are known communists, and with Pauling who was ‘investigated’ but cleared. Yet, can I say no and feel decent? Would I not be a coward? We are in a bad spot, morally, ethically, nationally...i

Joseph Rotblat said, “I came here with hope, but also prepared that it was going to be a complete fiasco.”ii

Chou Pei Yuan was asked directly by Premier Chou if he was worried about traveling to a capitalist country alone, despite having studied in the US. His family worried about his safety during the whole time of his trip.

Working Groups

But they did come, and they broke the ice. According to Rotblat this came during meetings of one of the 3 working groups, the one focused on assessing the radiation effects of testing. They came to an agreement about the scientific principles, and their rejection of a ‘threshold’ theory of nuclear radiation in place of a ‘linear no threshold’ theory was so ahead of their times that it only became mainstream US governmental thinking in 2005, when the US National Academy of Science issued a report stating that “that the risk of cancer proceeds in a linear fashion at lower doses without a threshold and that the smallest dose has the potential to cause a small increase in the risk to humans.”iii What this meant in lay terms is that the experts who came here in 1957 were warning leaders that though several thousand new cases of cancer, the effects of radiation from atmospheric tests, would be masked by regular incidents of cancer around the world, nevertheless they will be there.

As A.M. Kuzin, one of the Soviet participants, said,

Despite differing political convictions and views as to the future development of society, all the scientists completed the discussions with a single opinion on the degree of harm to the population from the tests of nuclear weapons.iv

Eugene Rabinowitch, editor of the influential Bulletin of the Atomic Scientists, wrote about working group II, which dealt with the more political aspects of the control of nuclear weapons:

The brief report of Committee II contains no startling new proposals...Most important was the experience that among scientists of all countries—including those from the East—these subjects can be discussed thoughtfully and without the discussion degenerating into an exchange of tiresome clichés.v

About working group three, which tackled issues of the social responsibility of scientists, he wrote:

If taken seriously, and not as mere pious pronouncements of Sunday faith without relation to Monday’s realities, the eleven-point declaration would obligate scientists to work for a radical change in the convictions

of their peoples and the policies of their governments, and for a far-reaching change in the education of youth, which carries these convictions from generation to generation. No thorough discussion of the eleven points could be undertaken in the crowded days of Pugwash.

These three working groups set the stage for the future work of what would become the Pugwash Conferences on Science and World Affairs.

The Atmosphere

I had the chance to spend a good part of the day here in 2003, when Joseph Rotblat and Ruth Adams were here for what they both acknowledged would be their last time. I asked them what they wanted me to know about that first meeting. They immediately and enthusiastically talked about the atmosphere here. I'd like to read a snapshot of their dialogue:

Rotblat: Coming here you...feel the atmosphere of the place and you can see why we can achieve so much in these lovely surroundings. I'm saying the environment makes a great deal...going out into the air, the fresh air, the serene surrounding...the setting...and of course the people who looked after us, the Eatons, they really created the relaxed atmosphere, I think this all contributed to the success which we had, don't you think so?

Adams: I would think there's no question about that...the truth was that here...it was possible to walk off with almost anyone, that you may not have finished the discussion within the larger group, and so you would see for the days that we were here, people going off walking and continuing to talk and I think Jo that this is what contributed to the success of the meeting.

Rotblat: Very much so.

Adams: There's no question about it. It also is very nice to have good wine and good food.

Rotblat: And lobster.

Adams: Oh, lobster!

Rotblat: The lobster dinner was really...

Adams: Oh, I never have forgotten that.

Rotblat: A very great occasion....

It was undeniably the atmosphere here that had the greatest effect, and in that way we could say that you, all of you here in Pugwash, created an environment that had a profound impact on future world events.

Cyrus Eaton was a generous host, and the accommodations were quite comfortable—even if a bit unusual (some participants stayed, for example, in railroad sleeping cars). Eaton asked his daughter's friend, Anne Jones to serve as hostess and it was her presence, many have said, that helped everyone to truly relax.

Going back to that discussion with Jo Rotblat and Ruth Adams, Ruth said that Anne Jones:

...was very gracious, you couldn't have had a more intelligent and sensitive voice here in this house.

Rotblat: And she had a great influence on Cyrus.

Adams: That's right, and so I think she was as responsible as any one individual in bringing this together and making it such a wonderful experience...

Anne Jones wrote a letter to a friend on 12 July 1957. In it, she gave lovely descriptions of the participants, which for reasons of time I won't be able to read out to you. She described an outrageous croquet match between Eaton, herself, and two of the Soviet participants, Topchiev and Kuzin. (Jones was in a wheelchair, and she describes Topchiev seizing her wheelchair and pushing her down fairly rough terrain at a speed she called 'breathtaking.') She describes the 'first encounter', as she called it:

...you can visualize their first encounter with each other in the big room overlooking the strait. It had the feel of a railroad station waiting room, full of silent strangers. Some, of course, knew each other; many were

known to each other, had even corresponded, but the only common denominator was Russell's invitation. So the gathering of scientists from both sides of both curtains for the first time since Hiroshima, to assess in Russell's words, the hazards of the nuclear age, was absolutely still. For minutes,

Szilard began, 'We find ourselves in a situation very like that between Athens and Sparta,' and he stopped to allow for the whispered translations. Yukawa told his nephew and the other young Japanese. They nodded. Pavlichenko explained to the Soviets and Danysz; they nodded. Lacassagne arched an eyebrow and looked pleased. Meanwhile, Oliphant's John Bull face was beaming and Chou registered amusement. Thirring nodded earnestly. The British and Canadians looked relieved, and the Americans, native and foreign born, relaxed. It was unanimous.

She went on to describe more of the meeting and then said, about the end of the meeting,

I must mention the marvelous change of atmosphere here as though early on these men decided that although they might not trust each other's governments, they could trust each other. When I mentioned this to Leo Szilard, he said, 'Hah! Who trusts his own government let alone someone else's?'

The meeting ended, the word of the meeting's success spread across the world. Academies of Science in different countries supported the work. And the groundwork was laid for a new organization.

(As a footnote to history, Rotblat said that Eaton called him up after the meeting to see if he would help arrange details for Eaton to wed Anne Jones in England. This fell through in the end, because they were able to marry in the States. But Rotblat was clearly tickled by this bit of romance.)

Cyrus Eaton

Before I go on to talk about the later history of the organization, I want to say a few words about Cyrus Eaton and his role in the beginnings of the Pugwash Conferences on Science and World Affairs. Or, rather, I want to read to you what Joseph Rotblat had to say about this:

Rotblat said the letter from Eaton to Russell was of "historic importance":

[I]t was the first time that the name of Pugwash appeared in our vocabulary. But the letter also reveals a great deal about Mr. Eaton's unique personality. Here was a man who could only be described as an arch-capitalist, a tycoon, who amassed a huge fortune in a variety of financial and commercial operations. His industrial empire embraced a multiformity of enterprises: gas, electricity, coal, iron mines, steel, rubber, railways, shipping, banking, you name it, Mr. Eaton owned it. One would have thought that to manage such a vast business was more than a full time job, yet—as his letter shows—he found time to read, again and again, all of Bertrand Russell's books, and—I should add—books of other philosophers as well.

But Eaton went well beyond the passive study of philosophy. He was keen on sponsoring active discussion among intellectuals, on promoting the generation of new ideas....These meetings were held in Pugwash, a small fishing village in Nova Scotia. Why in Pugwash? Because this was where he was born....Cyrus Eaton is the original Pugwashite....

Cyrus Eaton is invariably described by the Press as the founder of the Pugwash Movement. This is not correct. The real founder was Bertrand Russell; it was at his call, and not Mr. Eaton's, that the scientists gathered at Pugwash. Nevertheless, Eaton's role was crucial. Without his timely and generous assistance, which included travel expenses for the majority of participants, the conference would have been delayed even longer, and possibly the Movement would never have taken off. For this reason Cyrus Eaton has earned the eternal gratitude of the Pugwash Movement.

But those of us who knew him personally, will think of him not only with gratitude, but also with fondness and affection. For he was much more than a generous host: he was cordial and congenial, gracious and great-hearted. Above all he was a devotee of our cause. Indeed, his enthusiasm and zeal were so strong that he outpaced us. This shrewd businessman allowed his convictions to carry him further and faster than the supposedly naïve and starry-eyed scientists dared to go. Profoundly shaken by the grim consequences of a nuclear war, which were spelled out at the First Pugwash Conference, Cyrus Eaton embarked on a huge campaign to sway public opinion and compel the U.S. Government to take specific measures to halt the arms race, measures which included détente with the Soviet Union and the recognition of China.

Looking back...these objectives may seem modest and prosaic, but in those days they were considered highly radical, and Cyrus Eaton was depicted almost as a traitor to his country. He was the subject of vicious attacks by the hawks, and was savagely assailed by the Committee on Un-American Activities. But Cyrus Eaton was not easily intimidated. He continued his campaign with more vigour, and extended it to other issues affecting world security, such as the Vietnam war....

I mention the ferocious attacks on him, but he also received accolades for his activities; these too reflected the unique blend of his personality. Thus, the United States voted him Businessman of the Year, which the Soviet Union awarded him the Lenin Peace Prize. But to him the best award was to see that the objectives for which he fought were gradually being accepted by public opinion and governments.

These objectives were also those of the Pugwash Movement, although we approached them in a different way. Unlike Pugwash, Eaton believed that the struggle for peace demands the utmost publicity, and he used to the full the huge public relations apparatus at his disposal. But if we diverged on tactics, we completely converged on aims and ideals; and if the world managed to survive 34 years without a nuclear war, perhaps a little bit of the credit for it should go to the combined efforts of the Pugwash Movement and Cyrus Eaton.

All of us in Pugwash, indeed all humanity, are grateful for the life of Cyrus Eaton, a great man, a staunch altruist, and an undaunted fighter for peace and friendship among nations.vi

I said earlier that I was not going to sugar coat things. You probably have heard that at a certain point, in the years after this first conference, there were some tensions between Eaton and Pugwash. As you can tell from Rotblat's appreciation of Eaton, there was no animosity just a recognition of different ways to go about similar goals.

What Pugwash Means to the World

So, what DOES Pugwash mean to the world?

Anne Jones wrote in that letter I quoted earlier about a story the French participant, Lacassagne told at the meeting. She said he went to a Paris travel agency to book a ticket to "Poog vash", which no one had heard of or could locate on a map. As the meeting drew to a close, Lacassagne said, "Now Pugwash will go down in history with the great place names." She said he gazed dramatically at a far point in the ceiling and said, "Waterloo, Austerlitz and Pugwash."

The truth is, that the world DOES know about your village. And as someone who was involved for many years prior to the Peace Prize, it must be said that the Peace Prizes helped people become more aware of the town. As a leader of Student Pugwash USA I spent many, many, many a conversation explaining the name. "Not PUBwash (for some reason they always first thought that this would be the name of a student group). No, not "HOGwash." PUGWASH. Then I'd have to explain it was not an acronym.

After the Peace Prize, if someone was being particularly irritating, one could always be a bit pompous and say, "You know, the group that got the 1995 Nobel Peace Prize..." It used to cut down on some of the snide comments.

In this final bit of the talk I will trace for you some of the accomplishments of the organization that led to the Peace Prize, and a quick summary of where the organization is now.

After leaving here, a continuing committee was established, to discuss future activities. There was agreement that future conferences should be organized, and a great deal of discussion went into determining the size and nature of such meetings. The largest meeting ever held was in Vienna in 1958 and that meeting involved 10,000 people. They eventually fell into a mode of operation that still exists today: they typically held annual conferences engaging a larger number of scientists, and throughout the year smaller workshops focused on specific topics which went much more in depth into matters. The work stayed focused on nuclear issues, but also broadened out to include other topics, such as chemical and biological weapons, the environment, the arms trade, regional conflict, etc.

The most effective and essential ingredient of their success was the way in which the meetings were organized, and Rotblat deserves a great deal of credit for this. Because each participant came as an individual—and NOT as a national or organizational representative—and because the rules stated that no one could quote what a person said in the private meetings, it gave these eminent men and women space to explore creatively their understanding of different topics.

Example 1: ABM Treaty

I'll give you an example of how this worked in reality, and how it led to an important (though currently endangered) arms control treaty, the 1972 Anti-Ballistic Missile Treaty.

At a 1964 Pugwash Conference in Udaipur, India, Mikhail Millionshchikov, an eminent physicist who later became Speaker of the Russian Parliament, argued that the Soviet Union should have defences against ballistic missiles. There was an influential paper by Jack Ruina and Murray Gell-Mann that argued against this, trying to sell to the Soviets the somewhat contradictory concept that in a nuclear world defensive weapons are destabilising, since defences could always be overwhelmed or confused by decoys. Given Millionshchikov's party-line response at that meeting, nobody believed his thinking had been at all changed.

When Pugwash met the following year, the topic came up again, and this time Millionshchikov came back asking for more details, apparently having presented the concept to the government and military when he returned after the Udaipur conference. Eventually, by the time Pugwash met in Sochi in 1969, Millionshchikov definitely argued against anti-ballistic missile systems. The Strategic Arms Limitation Talks began in Helsinki a month after the Sochi meeting. The ABM Treaty was an outcome of this process. Millionshchikov later said he had privately come around to the anti-ABM position at the 1964 meeting.

The above is a bit of an oversimplification of an obviously complicated analytical process begun in the early sixties by Jeremy Stone, George Rathjens, and many others. In fact, another of the forums in which a significant amount of work was done on the ABM Treaty was a Pugwash 'off-shoot,' the Soviet-American Disarmament Study Group, a bilateral working group under the leadership of two Pugwashites: Paul Doty of Harvard University, and Millionshchikov. Time and again throughout Pugwash's history, hard to pin-down individual relations built between highly respected participants led to very concrete results.

CFE Treaty

One other example: the Conventional Forces in Europe Treaty. In the mid-1980s, Pugwash provided a forum for discussion of non-offensive defence, an idea that explored ways of restructuring national conventional forces so as to appear non-provocative to one's enemies. This was not as far afield from the traditional Pugwash anti-nuclear theme as one might suppose. A central tenet of non-offensive defence was that the question of removing US nuclear weapons from Western Europe could never really be addressed until the intimidating Soviet conventional forces in Eastern Europe were restructured.

The concept was first introduced at a Pugwash meeting by Anders Boserup in 1981, and was further discussed at subsequent meetings. In 1984, a special Pugwash Study Group on Conventional Forces met regularly and involved leading thinkers such as Anders Boserup, Robert Neild, Frank von Hippel, Yevgeny Velikov, Alexsei Arbatov, and others. Frank von Hippel raised the issues of non-offensive defences with Gorbachev at a February 1987 international forum of scientists in Moscow. According to von Hippel, in private correspondence, he and Andrei Kokoshin—who was trying to promote the concept in the Soviet Union—invited a panel from the Pugwash working group to present their views to the Russian scientists at this forum. Kokoshin encouraged the group to write a letter to Gorbachev, and Gorbachev himself corresponded with the Pugwash group in October and November 1987. Gorbachev ultimately unilaterally withdrew 10,000 Soviet tanks from Eastern Europe, which helped to create the environment for the 1990 Conventional Forces in Europe (CFE) Treaty.

Again, it is not possible to link Pugwash discussions directly with the CFE Treaty, and other organisations such as the US-based Federation of American Scientists also were highly involved. However, it is certain that the personal relationships formed at Pugwash meetings between some of the key thinkers in the field, combined with their ability to channel creative ideas into the diplomatic stream, led to key breakthroughs in negotiations.

This kind of input had effect on many other treaties, including the Partial Test Ban Treaty, the Non-Proliferation Treaty, the Chemical and Biological Weapons Conventions, etc.

Vietnam War

Pugwash also played a role in regional conflicts (as it is doing today in Kashmir). For example, during the Vietnam War, Pugwash played a direct and important role. At a June 1967 meeting in Paris, attended by three scientists from France, three from the US, two from the Soviet Union, and Rotblat as secretary-general, a "formula to stop the escalation of the war" emerged. Henry Kissinger, one of the US participants, was also then a consultant to the US president. It was ultimately decided that two French men, Marcovich and Aubrac, would take the Pugwash proposal directly to Ho Chi Minh. This was possible because Ho Chi Minh was friends with Aubrac. There is a great deal of documentary proof that this secret mission, code-named "PENNSYLVANIA," received attention at the highest levels of the US government, involving the Secretary of Defense, Robert McNamara (later a Pugwashite), and President Johnson. This back channel, which became independent of Pugwash, stayed open for months. Although the proposal initially failed, it is widely seen as having laid the groundwork for the San Antonio proposal, which was ultimately, according to

McNamara in a 1996 interview with Harry Kreisler, “the foundation for the start of the negotiations between North Vietnam and the US in Paris.”

Other Impact

Other topics on which the Pugwash forum has proven useful range from nuclear-weapons-free zones to a code of conduct for technology transfer, from limiting research on anti-submarine warfare to suggesting guidelines for international scientific collaboration for development, and from problems of environmental degradation to AIDS. The structure of Pugwash, which encourages formation of national Pugwash groups, allows for a wide range of issues to be covered—with some national groups naturally often focusing on issues most related to their regions.

Through all of this work, Pugwash has always placed a special importance on engaging the younger generations. As a prior Student Pugwash member who had contact with thousands of young people engaged through this outreach, I can say without qualification that in this way Pugwash has changed the lives of young people all over the world, and helped to foster a new cadre of young people ready to tackle the issues of the responsible use of science.

Today, as you can see by reading the papers or looking at the agenda and participants in the meeting across town, Pugwash is alive and well and continuing to have an impact. There are Pugwash national groups around the world, many of which take on topics more relevant to their region, but all of whom participate in the international activities. And the challenging task of building bridges between peoples during times of tension and conflict remains an ongoing mission. In Kashmir, in Korea, in the Middle East—all areas where conflict has the potential to escalate into nuclear war—Pugwash continues to provide opportunities for people to meet and injects creative thoughts into the debates.

I’ve gone on long enough, and I do apologize. I am certain you collectively hold a treasure trove of stories and insight from the earliest days of the movement, and I hope we can discuss that now.

In conclusion, then, I would answer the question “What does Pugwash mean to the world?” by saying, “Pugwash” means scientific integrity. It means courage. It means commitment to what others might call a lofty or unrealistic goal. It means proving that progress can be made through creative approaches. It means we all have a connection to a remarkable past and a mission that has yet to be fulfilled. Joseph Rotblat used to say he had two goals, one was short-term and the other was long-term. His short term goal was establishing a nuclear weapons free world. The long-term goal was abolishing war itself. We are lucky indeed that the citizens of Pugwash plan to continue to devote time and resources to making these goals a reality, and I personally wish you all the best as you create the Pugwash Peace Exchange. We know what an amazing history has already grown out of this lovely mixing pot of salty air, open space, beautiful vistas and friendly environs. Let’s see what else will spring from this unique and important place.

I’ll leave you with final images, of my own son with Joseph Rotblat in 2003 at Thinker’s Lodge. Joey (who is named after Joseph Rotblat), had a great time here. Prof insisted that my son spend time in ‘his’ room at Thinker’s Lodge. This connection meant a great deal to him, and to all of us.

As Bertrand Russell did before him, Joseph Rotblat reached across generations. I know they would applaud your efforts here to continue to do just that.

ⁱ M. Oliphant to H.R. Marston, 12 September 1956. Oliphant Papers. Barr Smith Library, University of Adelaide. MSS92 04775p/Series 3.

ⁱⁱ J. Rotblat, interview with the author, Pugwash, Nova Scotia, 20 July 2003.

ⁱⁱⁱ Richard R. Monson (chairman), Committee to Assess the Health Risks from Exposure to Low Levels of Ionizing Radiation, “BIER VII: Health Risks from Exposure to Low Levels of Ionizing Radiation,” Report in Brief, June 2005. Available 6 May 2007 at http://dels.nas.edu/dels/rpt_briefs/beir_vii_final.pdf.

^{iv} A.M. Kuzin, *Nuclear Explosions: A Worldwide Hazard*. Moscow: Foreign Languages Publishing House, 1959, p. 125.

^v E. Rabinowitch, “Pugwash—History and Outlook,” *The Bulletin of the Atomic Scientists*. Volume XIII, September 1957, p. 246.

^{vi} J. Rotblat, “Cyrus Eaton—An Appreciation,” *Pugwash Newsletter*, Vol 17, Nos. 1 & 2, July and October 1979, pp. 51-52.