

Annotated Bibliography

Primary Sources

Articles

Rotblat, J. (2007) "Leaving the Bomb Project", in *Joseph Rotblat: Visionary for Peace* (eds R. Braun, R. Hinde, D. Krieger, H. Kroto and S. Milne), Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim, Germany.

This article written by Joseph Rotblat clearly outlines the many reasons why he chose to leave the Manhattan Project. Rotblat's discussion of the Manhattan Project and how it affected him was an important resource that helped me during my research to fully understand his decision to leave. I used quotations from the article as well.

Spencer, Metta. "'Political' Scientists." *Bulletin of Atomic Scientists*, vol. 51, no. 4, July-Aug. 1995, pp. 62-68. EBSCO
search.ebscohost.com/login.aspx?direct=true&db=fth&AN=9508023905.
Accessed 1 Feb. 2017

Metta Spencer's article explained Pugwash's contributions during the Cold War and especially the influence of the conferences on the Anti-Ballistic Missile (ABM) Treaty. This article was helpful when writing the portion of my website on the ABM Treaty.

Books

Scientists in the Quest for Peace: A History of the Pugwash Conferences.
Cambridge, MIT Press, 1972.

This book written by Joseph Rotblat provided me with specific information about the first twenty-one Pugwash Conferences. I especially needed information about the tenth and eleventh Pugwash Conferences when researching their relationship with the Partial Test Ban Treaty signed in 1963. Discussion about a nuclear test ban and how to monitor countries to see if they were upholding the treaty was held at the ninth Pugwash Conference, and many of the ideas produced there were incorporated into the Partial Test Ban Treaty. I quoted a portion of the book when Rotblat explains how the Partial Test Ban Treaty demonstrated the impact of Pugwash during the Cold War.

Electronic

"Statement: The Russell-Einstein Manifesto." *Pugwash Conferences on Science and World Affairs*, pugwash.org/1955/07/09/statement-manifesto/.

This web page shows the text of the Russell-Einstein Manifesto. I have dedicated a portion of my website to explaining the importance of the Russell-Einstein Manifesto to the creation of Pugwash, and I analyzed the text of this historical document to better understand the motives and goals of the organization.

"The Origins of the Russell-Einstein Manifesto". Publication no. 1, Fredericksburg, Virginia, Cardinal Press, May 2005. Pugwash History Series.

This essay in the Pugwash History Series was sent to me by its author, Sandra Ionno Butcher, the former Executive Director of the Pugwash Conferences on Science and World Affairs and the current director of the Pugwash History project, in an email exchange. She explains Joseph Rotblat's relationship with Bertrand Russell and how the Russell-Einstein Manifesto came about, laying the foundation for the Pugwash Conferences. Joseph Rotblat was the youngest of many signers of the Manifesto, including Albert Einstein. I included a section about the Manifesto in my website since it was the document that helped establish the Pugwash Conferences in which Rotblat was heavily involved in and later jointly won the 1995 Nobel Peace Prize with.

Historical Documents

"Treaty on Conventional Armed Forces in Europe (CFE) Agreement on Adaptation."
U.S. Department of State, www.state.gov/t/avc/trty/115588.htm.

The outcome of the treaty of Conventional Armed Forces in Europe (CFE) was influenced by Rotblat and the Pugwash Conferences. I quoted a section of this treaty in the portion of my website when I discuss it to effectively summarize and explain the purpose of the treaty.

Images

45th Pugwash Conference, Hiroshima, Joseph Rotblat with Francesco Calogero, Michiji Konuma, John Holdren and others. Pugwash Conferences on Science and World Affairs. Web. 18 Feb. 2014.
pugwash.org/1995_45thpugconf_hiroshima_fc_jr_konuma_holdren-2/.

This image shows Joseph Rotblat walking through the Hiroshima Peace Memorial Park. It emphasizes his dismay with the invention of the atomic bomb and how he felt an obligation to visit Hiroshima and hold a Pugwash Conference there. His investment in ridding the world of nuclear warfare is communicated through this powerful photo.

Albert Einstein's signature on the letter of endorsement of Russell's proposed organization not long before his death. Pugwash Conferences on Science and World Affairs. Web. 9 July 1995. pugwash.org/1955/07/09/statement-manifesto/.

This image shows Einstein's signature on a letter that endorsed Bertrand Russell's manifesto, later named the Russell-Einstein Manifesto. The Manifesto was significant in starting the Pugwash Conferences. His endorsement in the short letter he signed just days before his death launched one of the most influential organizations that discusses nuclear warfare. The image allows viewers to visualize possibly the last greatest achievement of Einstein's life and how significant the ideas outlined in Russell's manifesto must have been for Einstein, one of the greatest scientists at that time, to have endorsed it. Along with Einstein, Joseph Rotblat signed the Russell-Einstein Manifesto.

Alex Wellerstein, "The Faces of Project Y," *Restricted Data: The Nuclear Secrecy Blog*. Web. 31 August 2012.
<http://blog.nuclearsecrecy.com/2012/08/31/the-faces-of-project-y/>.

This article included a composite image of the identification pictures of the scientists that worked on the Manhattan Project. It is alphabetized, so I found Joseph Rotblat's photo and used the picture of him and the pictures of the other scientists surrounding his image in my website. This image communicates how hundreds of people came together to work on this significant and secretive project, but Rotblat was the only one to take a stand and withdraw from the project.

“Bertrand Russell at press conference to launch Russell-Einstein manifesto”. *McMaster University Library*. Web.
<http://digitalcollections.mcmaster.ca/pw20c/associated-press-photograph-9-july-1955>.

This image of Bertrand Russell shows him presenting the Russell-Einstein Manifesto in London. I included this image in a gallery on the portion of my website that talks about the manifesto so viewers can visualize the Caxton Hall public announcement on July 9, 1955.

“Certificate for his doctorate from Warsaw University” (Fig. 3). Wiley Online Library, Web. onlinelibrary.wiley.com/doi/10.1002/9783527611263.ins/pdf.

This image is of Joseph Rotblat's doctorate from Warsaw University. I think that this image helps to communicate his journey from not being able to afford schooling to attending the Free University at night to graduating from the Warsaw University. It reflects his brilliance and determination to be educated.

“Dinner given by colleagues of the Physics Department at Liverpool University on his return from Los Alamos late 1944” (Fig. 6). Wiley Online Library, Web. onlinelibrary.wiley.com/doi/10.1002/9783527611263.ins/pdf.

This photo shows Rotblat at a dinner with his colleagues when he returned from the Manhattan Project. The influence Rotblat had on his colleagues and those he worked with is shown in this picture, since they seem ecstatic that he is back. I think this picture reflects how he touched others' lives.

“Entrance to Los Alamos ‘Tech Area.’” U.S. Department of Energy. Web.
https://www.osti.gov/opennet/manhattan-project-history/Events/1942-1945/establishing_los_alamos.htm

This image is of the entrance to the "Tech Area" in Los Alamos, the site of the Manhattan Project where Joseph Rotblat worked as a scientist. I included this image in a gallery of photos depicting Los Alamos so the location of one of the most secretive and important projects in the world can be visualized.

“Former Pugwash President Jo Rotblat with Student Pugwash USA event in New York”, April 1996. Pugwash Conferences on Science and World Affairs, Web. 2 May 2014.

<https://pugwash.org/international-studentyoung-pugwash/#jp-carousel-3154>

This picture shows Joseph Rotblat interacting with young students at a Student Pugwash event, showing his dedication to spreading awareness of the threats of nuclear warfare and educating students. I think this image also demonstrates how open to meeting new people he was and the importance of discussing his work was to him. Many people have written about how Rotblat has changed their lives, and this picture reflects how charismatic and significant and leader he was.

“The German Experimental Nuclear Pile at Haigerloch”. Atomic Heritage Foundation, www.atomicheritage.org/history/alsos-mission. Web. 6 Jun. 2014.

I used this picture in the portion of my website when I discuss the German effort to create an atomic bomb. Joseph Rotblat joined the Manhattan Project especially since he thought the atomic bomb he would help to create would simply be used as a way to scare the Germans into continuing their nuclear research. This picture helps to visualize the amazing efforts of the Germans to create a powerful atomic weapon, and it communicates the fear that most scientists working for the Allies were by just knowing that the Germans could have created the bomb first.

“Group photo of participants at the Second Annual Pugwash Conference”. Lac Beauport, Canada. 1958. Linus Pauling and International Peace Movement: A Documentary History. Web. <http://scarc.library.oregonstate.edu/coll/pauling/peace/pictures/1958i.52-large.html>

This image shows the second Pugwash Conference. I used this image on the thesis page of my website as a way to visualize the conference Rotblat helped to create and the lasting impact, as it is the second conference, and there have been many after.

Image of Los Alamos, the site of the Manhattan Project. “Top-secret Los Alamos nuclear bomb sites will be opened to the public in new national park commemorating the Manhattan Project” *Daily Mail*. Web. 30 Nov. 2013 www.dailymail.co.uk/news/article-2516221/Top-secret-Los-Alamos-nuclear-bomb-sites-opened-public-new-national-park-commemorating-Manhattan-Project.html.

This photo showing Los Alamos, the site of the Manhattan Project, was included in a gallery of pictures showing the town. Los Alamos does not look like a regular town, and this picture shows how guarded and military affiliated it even looks. The town during its time as the home of the Manhattan Project can be clearly visualized.

“Groves and Chadwick”. Los Alamos National Laboratory. Web. www.lanl.gov/about/history-innovation/history-images/index.php.

I used this image in a section of my website where I explain how Leslie Groves shared information with James Chadwick that was later told by Chadwick to Rotblat, influencing his decision to leave the Manhattan Project. The image shows the relationship between the two men and how the information Groves might have wanted Chadwick to keep secret started Rotblat's entire campaign against nuclear warfare.

Joseph Rotblat in his office. poland.pl. Web. 5 Sept. 2014. poland.pl/tourism/selected-nobel-prize-winners-polish-origin/joseph-rotblat/.

This image shows Joseph Rotblat in his office. I chose this as my hero image on the thesis page of my website. It shows him surrounded by books and files well into old age, showing that he never stopped fighting against nuclear warfare and was working his entire life.

“Joseph Rotblat as a student in Warsaw before the Second World War” (Fig. 2). Web. Wiley Online Library, onlinelibrary.wiley.com/doi/10.1002/9783527611263.ins/pdf.

This image shows Joseph Rotblat as a young student at Warsaw University. He was very poor and could not afford school, but he was able to get an education at the Free University in Poland and then move on to Warsaw University, as shown in this picture.

“Joseph Rotblat at Nuclear Non-Proliferation Conference, New York, 1995” (Fig. 14).
Joseph Rotblat: A Visionary for Peace. Web.

I used this photo of Joseph Rotblat from *Joseph Rotblat: A Visionary for Peace* since it demonstrates Rotblat's involvement in various arms control treaties during the Cold War. I used it on the thesis page of my website to introduce his stand against nuclear warfare along with Pugwash by influencing multiple Cold War arms treaties.

“Joseph Rotblat receiving the Nobel Peace Prize in Oslo with Professor Francesco Calogero (1995)”. Pugwash Conferences on Science and World Affairs. Web. 10 Dec. 1995. pugwash.org/1995/12/10/oslo-award-of-the-nobel-peace-prize/.

This image shows Joseph Rotblat receiving the 1995 Nobel Peace Prize jointly with a head scientist representing the Pugwash Conferences on Science and World Affairs. I used this image when discussing opposition to Pugwash winning the award because of the organization's discussion with Soviets during the Cold War.

Joseph Rotblat with Tola Gryn. *The Strangest Dream*. National Film Board of Canada. Web. www.nfb.ca/film/strangest_dream/.

This image shown in the film depicts Joseph Rotblat with his wife who died in the invasion of Poland during World War II. The couple were very much in love, and this picture seems to illustrate that love. I believe that many of Joseph's decisions later in his life regarding nuclear warfare and warfare in general were influenced by the loss of his wife in the invasion of Poland. I used this when communicating his relationship with her and his devastation after her death.

"Launching the WMD Awareness Project with Mikhail Gorbachev, London 2004." 2004.
Keeper of the Nuclear Conscience: The Life and Work of Joseph Rotblat.

I used this photo of Mikhail Gorbachev and Joseph Rotblat from *Keeper of the Nuclear Conscience: The Life and Work of Joseph Rotblat*. This photo shows them in conversation, and it helps readers of the website visualize their close relationship. Pugwash was credited by Gorbachev in significantly impacting the course of the Cold War and showing this photo strengthens my argument that Gorbachev associated closely with Rotblat.

Little Boy. Atomic Heritage Foundation. Web. 23 Jul. 2014.
www.atomicheritage.org/history/little-boy-and-fat-man.

This picture is of "Little Boy," the bomb dropped on Hiroshima on August 6, 1945. I used this image in my gallery of pictures showing the Manhattan Project. When Joseph Rotblat first about the bombing of Hiroshima that included the bomb depicted in the photo, he was horrified but encouraged to keep campaigning against nuclear warfare.

The main gate to Los Alamos, the site of the Manhattan Project. *Atomic Archive*. Web.
www.atomicarchive.com/History/mp/p4s25.shtml.

This image shows the main gate to Los Alamos, introducing the concept of the Manhattan Project in a later page that I will discuss. Joseph Rotblat chose to leave this secret project on moral grounds, and this picture accurately shows the secrecy of the project and the town where it was kept.

"The Manhattan project team assemble the first US nuke on July 16th 1945 at Los Alamos in the Nevada desert". *News That Matters*. Web.
ivarfjeld.com/2012/09/11/barack-expose-disunity-between-israel-and-the-us/.

This image shows the assembling of the first nuclear weapon, communicating the scientific research and groundbreaking work being done at Los Alamos in which Joseph Rotblat chose not to take place. The outcome of the first nuclear bomb explosion is known worldwide, and it is disturbing to see it before detonation. This image is included in a gallery of pictures showing the Manhattan Project.

"1958, as Chief Physicist at St. Bartholomew's Hospital, London, in the Animal Laboratory with one of Professor Lindop's Mice". *Wiley Online Library*. Web.
<http://onlinelibrary.wiley.com/store/10.1002/9783527611263.ins/asset/ins.pdf?v=1&t=iynh1xuw&s=abc556b37c9ccb8d2a716dd49d24b82d9a1e41be>

I used this image (Fig. 4) when explaining how after Los Alamos, Rotblat began working at St. Bartholomew's hospital to apply his knowledge of physics to helping others rather than creating weapons of mass destruction. This image communicates his role and happiness in the hospital.

"Notice to the World". *Peace and War in the 20th Century*. Web.
<http://digitalcollections.mcmaster.ca/pw20c/leaflet-9-july-1955-0>

This image is in a gallery in the part of my website that explains the Russell-Einstein Manifesto. It is a visual of what people saw that day and how they learned of the manifesto distributed worldwide.

“Officials from Tokyo Metropolitan Government measure radiation levels of tuna from the Lucky Dragon's catch at the city's Tsukiji fish market in March 1954”. *The Japan Times*. Web. 18 Mar. 2012
www.japantimes.co.jp/life/2012/03/18/general/lucky-dragons-lethal-catch/#.WJEi4bYrKgQ.

This image is used in a slideshow about the Lucky Dragon. It is showing how much radiation affected the crew and the fear it generated. This image helped me understand the seriousness of the hydrogen bomb.

“The Original Einstein-Russell Manifesto”. *Foreign Policy in Focus*. Web. 9 Jul. 2015
fpif.org/call-for-sanity-on-sixtieth-anniversary-of-the-russell-einstein-manifesto/.

This picture of the notice sent out alerting the world to the Russell-Einstein Manifesto was used in the portion of my website dedicated to the manifesto. This image helps when visualizing how the manifesto was distributed throughout the world, and the two men who created it, Albert Einstein and Bertrand Russell, are included on the face of the manifesto.

"Picture of Joseph Rotblat from The Strangest Dream." National Film Board of Canada, 2008, www.nfb.ca/film/strangest_dream/.

This picture of Joseph Rotblat shows him sitting in his office. I used this picture as the last one of my website since I think it displays his personality very well. He is smiling, showing how friendly he is despite being surrounded by talks of nuclear weapons and by advocates of war. It truly shows his optimism. I thought this picture could conclude my website very well.

A Polish boy sitting in the ruins of his home. *The Atlantic*. Web. 26 Jun. 2011.
www.theatlantic.com/photo/2011/06/world-war-ii-the-invasion-of-poland-and-the-winter-war/100094/.

This image shows a boy sitting in the ruins of his home in Warsaw that was destroyed during the invasion of Poland during World War II. I included it in a gallery of pictures of the invasion to communicate the devastation of the event. The invasion of Poland was especially significant in Rotblat's life since his wife Tola was killed during the event. Using this picture helps me to explain how Poland, Rotblat's birthplace and an important place in his life, was torn apart, ultimately affecting his decisions to campaign against general warfare.

President Kennedy signs the Limited Nuclear Test Ban Treaty, 07 October 1963.
John F. Kennedy Presidential Library and Museum. Web.
www.jfklibrary.org/JFK/JFK-in-History/Nuclear-Test-Ban-Treaty.aspx.

This image is of President Kennedy signing the Partial Test Ban Treaty, one of the treaties influenced by Joseph Rotblat and the Pugwash Conferences. I used this image in the portion of my website discussing the treaties to emphasize the significance of the treaty since it was signed by the president and the impact of it.

President Nixon and Leonid Brezhnev in Moscow after signing the Anti-Ballistic Missile Treaty in 1972. *Sputnik International. Web.* 13 Dec. 2014.
sputniknews.com/us/201412131015812803/.

This image of President Nixon and Leonid Brezhnev after signing the Anti-Ballistic Missile Treaty in 1972 is used in the portion of my website dedicated to discussing the treaty and Pugwash's role in its existence. The two world leaders shaking hands communicates the relationship between the United States and Soviet Union that Joseph Rotblat assisted in bringing about. Rotblat's involvement in the treaty was significant during the Cold War when talk of arms controls was difficult between the two countries.

Rotblat shortly before leaving Warsaw for Liverpool to take up his Fellowship with James Chadwick in 1939. *Wiley Online Library. Web.*
onlinelibrary.wiley.com/store/10.1002/9783527611263.ins/asset/ins.pdf?v=1&t=iy m7wq6u&s=7ec073871fd8003c073121e8dafb50d3c608b41f.

This image depicts Rotblat before he left Warsaw to go work with James Chadwick. It shows him in his youth before his scientific career really took off.

“Rotblat with Ludwik Wertenstein and unidentified member of Radiological Laboratory”,
Warsaw. Google Books. Web.

This picture shows him working in Warsaw during the younger stages of his life, accurately describing his brilliance shown at a young age that allowed him to work in a radiological laboratory. He is also pictured with Wertenstein who sent him to Liverpool to work with James Chadwick, starting his scientific career. I made this my hero image on the about page of my website.

A Scientist Inspects the Cyclotron Machine at Los Alamos in the 50s. "Top-secret Los Alamos nuclear bomb sites will be opened to the public in new national park commemorating the Manhattan Project," *Daily Mail*. Web. 30 Nov. 2013. www.dailymail.co.uk/news/article-2516221/Top-secret-Los-Alamos-nuclear-bomb-sites-opened-public-new-national-park-commemorating-Manhattan-Project.html.

This image was included in my gallery of photos depicting the Manhattan Project. It shows the serious scientific research that secretly went on in Los Alamos, communicating the seriousness and the necessity of the project being confidential.

Scientists of the Manhattan Project. "Women and the Bomb" Atomic Heritage Foundation, Web. 5 Jun. 2014. www.atomicheritage.org/history/women-and-bomb.

This image was used to show scientists during the Manhattan Project that Rotblat most likely worked amongst. I used it in a gallery that allows viewers to better visualize Los Alamos and the work done there.

The Sigismund Monument Stands amid Rubble in the Polish Capital after Germany's Blitzkrieg Assault. 1939. United States Holocaust Memorial Museum. Web. www.ushmm.org/wlc/en/media_ph.php?ModuleId=0&MediaId=663.

This picture of Warsaw during the invasion of Poland in 1939 accurately depicts the destruction caused. Joseph Rotblat was in Liverpool at the time of the invasion, but his family and his wife, Tola, who was killed, were in Warsaw at the time. This picture of the rubble communicates how devastating the event was to Joseph Rotblat, causing it to influence his decision to join the atomic bomb project and stop Germany from causing more damage throughout the world.

Signing of the Anti-Ballistic Missile Treaty, 1972. People's World, Web. 26 May 2015. www.peoplesworld.org/article/today-in-history-anti-ballistic-missile-treaty-is-signed-in-1972/.

This photo depicts the signing of the Anti-Ballistic Missile Treaty in 1972. I discuss Pugwash's impact on the treaty in a portion of my website. I included this picture in my website to show the coming together of the United States and the Soviet Union during the Cold War, and this event was greatly impacted by Pugwash. The Anti-Ballistic Missile Treaty was tangible evidence that Pugwash "thawed" the Cold War.

Signing of the Treaty on Conventional Armed Forces in Europe (Paris, 19 November 1990). CVCE. Web.

www.cvce.eu/en/obj/signing_of_the_treaty_on_conventional_armed_forces_in_europe_paris_19_november_1990-en-be28c359-ddf0-4d53-9e48-0c5c24c4cdb1.html.

This image shows the signing of the Conventional Forces in Europe Treaty. Joseph Rotblat and Pugwash were very involved in the establishment of this treaty, so I wanted to include an image of the signing in my website when discusses the various treaties he influenced.

Three pages of Russell-Einstein Manifesto. McMaster University Library. Web.
digitalcollections.mcmaster.ca/pw20c/russell-bertrand-mimeograph-9-july-1955-1

This collection of images of the original Russell-Einstein Manifesto was used so viewers could read the manifesto on the website. The words in the document cannot be summarized easily, so viewers can read the actual words of Russell that created the Pugwash Conferences on Science and World Affairs.

Troutman, Stanley. Hiroshima, Japan, in September 1945, a month after the detonation of an atomic bomb. *The New York Times*, Web. 10 May 2016.
www.nytimes.com/2016/05/11/world/asia/hiroshima-atomic-bomb.html?_r=0&module=ArrowsNav&contentCollection=Asia%20Pacific&action=keypress®ion=FixedLeft&pgtype=article.

This image was chosen as the first image on the entrance page of my website. I feel like the destruction seen in this image after the explosion of the atomic bomb on Hiroshima sets the tone for the information discussed in my website. It introduces the historical time period, World War II, and it signals that some aspect of the atomic bomb and nuclear warfare will be discussed. Joseph Rotblat was devastated when he heard about the atomic bombs dropped both on Hiroshima and Nagasaki, and this image reflects his horror.

Interviews

Butcher, Sandra Ionno. Personal Interview. 30 Mar. 2017.

I conducted an interview with Sandra Ionno Butcher, the former Executive Director of the Pugwash Conferences on World Affairs and the current director of the Pugwash history project, to learn more about Joseph Rotblat and the impact of Pugwash. She was very close to Rotblat, even naming her son after him. Through a Facetime interview, she gave me more information about Pugwash's role during the Cold War, opposition to Pugwash, her opinion on Joseph Rotblat's overall historical legacy, and the role of scientists on governmental policy today. I included a clip of our interview on my Cold War page that summarizes what Pugwash accomplished during the Cold War. Sandra Ionno Butcher later sent me several articles she and other Pugwash members wrote, a chapter of her unpublished book to reveal more primary sources I could use, a *New York Times* article written after the release of the Russell-Einstein Manifesto, and an article written by John Holdren, President Obama's Director of the White House Office of Science and Technology, who she suggested I contact.

Holdren, John, Dr. E-mail. Received by the author, 31 Mar. 2017.

Sandra Butcher, the past Executive Director of the Pugwash Conferences on Science and World Affairs and the current director of the Pugwash history project, suggested I reach out to John Holdren, President Obama's Director of the White House Office of Science and Technology. In the email he sent me, he explained how he became involved in Pugwash and the impact Joseph Rotblat had on him. Holdren attached the obituary of Joseph Rotblat he wrote, his Nobel Lecture "Arms Limitations and Peace Building in the Post-Cold War World," and his chapter in the book *Ending War: The Force of Reason*, "Getting to Zero: Is Pursuing a Nuclear-Weapon-Free World Too Difficult? Too Dangerous? Too Distracting?" I have used these documents in my research, especially quoting "Getting to Zero: Is Pursuing a Nuclear-Weapon-Free World Too Difficult?" several times in my website.

Lapp, Ralph. Interview. *Voices of the Manhattan Project*, 2002. Web. manhattanprojectvoices.org/oral-histories/ralph-lapps-interview.

In this interview, Ralph Lapp discusses the Lucky Dragon and the hydrogen bomb. His information about the Lucky Dragon was useful, and I quoted him talking about what the crew on the fishing boat experienced after the detonation of the first hydrogen bomb. Working on the Manhattan Project like Joseph Rotblat, he is an expert in physics and can easily talk about the hydrogen bomb since he witnessed the Bikini atoll nuclear tests. This interview was conducted by the Atomic Heritage Foundation.

"Interview with Joseph Rotblat." *The National Security Archive*, 15 Nov. 1998. Web. nsarchive.gwu.edu/coldwar/interviews/episode-8/rotblat1.html. Interview.

This interview conducted by the National Security Archive outlines Joseph Rotblat's life and his achievements. I pulled one quote of Joseph Rotblat's to use on my website page about the Cold War in which Rotblat discusses how he was able to predict the Cold War after the detonation of the atomic bombs in Japan. It showed his awareness of the impact of nuclear weapons and how they would affect the world in the future.

Rotblat, Joseph. "Building the Bomb." Interview by Michele Ernsting. *Spokesman Books*, 2 August 2005. Web. www.spokesmanbooks.com/Spokesman/PDF/85%20Pages%20from%20page%2009%20to%2016.pdf.

This interview was conducted by Michele Ernsting. Joseph Rotblat's various contributions and the stands he took are discussed, but it mainly focuses on his decision to leave the Manhattan Project. I used his quote about hearing that the Germans had stopped working on an atomic bomb to give another reason why Rotblat chose to historically leave the project.

Rotblat, Joseph. "War and Peace in the Nuclear Age." WGBH Media Library and Archives, WGBH Educational Foundation, 2015, openvault.wgbh.org/catalog/V_58342D1ADB7D4B0C971422389150CAC2. Interview.

I included a clip from Joseph Rotblat's interview from of the "War and Peace in the Nuclear Age" series. The particular clip I pulled from his interview is of him explaining why other scientists did not leave the Manhattan Project and why he was the only one to leave. This clip demonstrates why his stand is significant and one of a kind. I included it on my page about the Manhattan Project since it adds to my explanation of how defining his stand really was since no one else left with him.

Letters

Russell, Bertrand. Letter to Albert Einstein. 5 Apr. 1955. McMaster University Libraries. Web.
digitalcollections.mcmaster.ca/pw20c/russell-bertrand-letter-5-april-1955.

This letter was the last exchange between Bertrand Russell and Albert Einstein over Russell's proposed statement. Einstein responded to this letter two days before his death and endorsed Russell's declaration, which later became known as the Russell-Einstein Manifesto and established the foundation for the Pugwash Conferences on Science and World Affairs. I included this letter on my website since Russell explains his mission for the conference he proposed. The original mission reflects the mission of Pugwash still today and also reinforces the fact that Pugwash was looking to bring together people of different political backgrounds to discuss nuclear weaponry control.

Maps

“Map pinpointing Pugwash Nova Scotia from various locations in the world”.
“Remember your humanity, and forget the rest”: The Russell-Einstein Manifesto and the Pugwash Movement, McMaster U Library. Web.
<http://digitalcollections.mcmaster.ca/pw20c/photograph-1957-0>

This map shows the location of Pugwash on a map of the world with lines from different locations worldwide being drawn to it. The map symbolizes the journeys of various leaders around the world that came to Pugwash to partake in discussion of the elimination of nuclear warfare. The map communicates the significance of the conferences.

Oral

Rotblat, Joseph. "Rotblat, Joseph (4 of 40). National Life Stories Collection: General." Interview by Katherine Thompson. The British Library, British Library Board, May 1999, sounds.bl.uk/Oral-history/Science/021M-C0464X0017XX-0400V0.

The British Library provided on their website forty audio recordings of Joseph Rotblat telling Katherine Thompson his life story. I incorporated a portion of the fourth audio recording when Rotblat discusses his discovery that an atomic bomb could be built into my website. Not only does the audio clip demonstrate his brilliance since he could scientifically prove that an atomic bomb was feasible, but it demonstrates his awareness of how nuclear weaponry could ultimately impact the world in the future. When his experimentation showed the an atomic bomb was possible to build, he was uneasy about the power that could be harnessed by world powers, sparking his interest in saving a world from nuclear destruction.

Rotblat, Joseph. "Rotblat, Joseph (19 of 40). National Life Stories Collection: General." Interview by Katherine Thompson. The British Library, British Library Board, May 1999, <http://sounds.bl.uk/Oral-history/Science/021M-C0464X0017XX-2000V0>.

The British Library has a collection of forty audio recordings of Joseph Rotblat sharing the events of his entire life. I used an audio clip from the nineteenth audio recording where Rotblat discusses his involvement in the British Broadcasting Corporation's (BBC) new program *Panorama*. The first episode of the program was produced after the detonation of the hydrogen bomb. Rotblat was featured in the first episode to discuss the physics of the hydrogen bomb, and he met Bertrand Russell while participating in the program. His friendship with Bertrand Russell ultimately led to the creation of the Russell-Einstein Manifesto that Rotblat signed. I felt it was important to hear Rotblat discuss this instrumental part of his life.

Periodicals

Earl Russell with the Soviet Scientists. McMaster University Libraries. Web.
digitalcollections.mcmaster.ca/pw20c/newspaper-clipping-26-august-1962-0.

This picture featured in a *Sunday Times* article published August 6, 1962, shows scientists from both sides of the Iron Curtain participating in a Pugwash Conference. The goal of Pugwash is to bring together people from different political backgrounds just to discuss nuclear weapon control for the benefit of humanity. This picture shows the unity at the various Pugwash Conferences during the Cold War, and I included it on my webpage about the Cold War just to display that.

Stevenson, Richard W. "Peace Prize Goes to A-Bomb Scientist Who Turned Critic." *The New York Times*, 14 Oct. 1995. *The New York Times*. Web.
www.nytimes.com/1995/10/14/world/peace-prize-goes-to-a-bomb-scientist-who-turned-critic.html.

Sandra Ionno Butcher, the former Executive Director of the Pugwash Conferences on Science and World Affairs and the current director of the Pugwash history project, suggested I read this *New York Times* article to learn of opposition to Pugwash. Frank Gaffney, one of the most well-known critics of Pugwash, is quoted in this article, and I pulled his quote to use on my website. I wanted to include opposition to Pugwash on my website so it would not be entirely one-sided, and I could show others perspectives on the controversial work of the organization. Working with Soviets during the Cold War was not widely accepted, and using this article and Frank Gaffney's quote helped me show that.

Timaeus, Charles. "Pugwash men meet again." *Reynolds News*, 26 Aug. 1962.
McMaster University Library,
digitalcollections.mcmaster.ca/pw20c/newspaper-clipping-26-august-1962.

This is a newspaper clipping from the time of the tenth Pugwash Conference in 1962. It gives information about the Pugwash Conferences in general, but it also highlights that scientists from the East and the West were brought together in discussion, a crucial element of Pugwash during the Cold War. I specifically discuss the tenth Pugwash meeting in Cambridge, so this newspaper clipping helps to give more information about it.

Whitney, Peter D. "Nine Noted Scientists Urge War Ban." *New York Times*, 10 July 1955. Web.

This *New York Times* article announcing the release of the Russell-Einstein Manifesto was given to me by Sandra Lonno Butcher, the former Executive Director of the Pugwash Conferences on Science and World Affairs and current director of the Pugwash history project. It displays the attention the conference received from the press and also other scientists and thinkers worldwide. I included it on my webpage about Pugwash to communicate the impact the conference had when first announced.

Videos

World Conference of Scientists. McMaster University Digital Library, 2010. Vimeo, vimeo.com/8869023. Web.

This video shows footage from the day Bertrand Russell's manifesto was announced. It explains how scientists around the world attended and helps viewers visualize the public meeting and the people who attended.

Speeches

"Joseph Rotblat - Nobel Lecture: Remember Your Humanity". *Nobelprize.org*. Nobel Media AB 2014. Web. 28 Jan 2017.
http://www.nobelprize.org/nobel_prizes/peace/laureates/1995/rotblat-lecture.html

"Remember Your Humanity" was Joseph Rotblat's Nobel Peace Prize acceptance speech. I quoted the last few lines of the speech on the conclusion page of my website that perfectly summed up why the world needs to destroy all nuclear weapons. His goals for the world and for humanity are outlined here, and the last lines show what Joseph Rotblat was fighting for almost his entire life.

Rotblat, Joseph. "Bertrand Russell and the Pugwash Movement: Personal Reminiscences." 1998. Lecture.

I received this source in an email from Sandra Lonno Butcher, the former executive director of the Pugwash Conferences on Science and World Affairs and the current director of the Pugwash history project. In this lecture given by Joseph Rotblat, he explains Pugwash's history and starts from the time he met Bertrand Russell. When explaining Pugwash's contributions during the Cold War, he discusses how Mikhail Gorbachev credited Pugwash with making immense change over the course of the decades long struggle. I used a quote about Gorbachev in the section of my website about how Pugwash influenced Gorbachev and effectively impacted Gorbachev's dismantling of the Soviet Union and campaign against nuclear weapons.

Secondary Sources

Articles

Jones, G. O. "Obituary: Sir Joseph Rotblat." *The Guardian*, 2 Sept. 2005. *The Guardian*, www.theguardian.com/science/2005/sep/02/obituaries.obituaries.

This obituary for Joseph Rotblat published in *The Guardian* was given to me by Sandra Ionno Butcher, the former Executive Director of the Pugwash Conferences on Science and World Affairs and the current director of the Pugwash history project. I pulled a quote out where the author, GO Jones, discusses Rotblat's affiliation with Gorbachev and summarizes how Gorbachev stated that Pugwash contributed significantly to ending the Cold War. A portion of my website is dedicated to discussing Pugwash's influence on Gorbachev's dismantling of the Soviet Union and his campaign against nuclear weaponry, so I viewed this quote as instrumental in strengthening my argument.

"Hiroshima Peace Memorial Ceremony & Peace Message Lantern Floating Ceremony." *Visit Hiroshima*, visithiroshima.net/things_to_do/seasonal_events/summer/hiroshima_peace_memorial_ceremony_peace_message_lantern_floating_ceremony.html.

This article on the *Visit Hiroshima* website explains the "Peace Message Lantern Floating Ceremony" on the Motoyasu River each August 6th to commemorate the lives lost in the 1945 atomic bomb explosion. I used a picture on my website of Joseph Rotblat with his own lantern, and he wrote "remember your humanity," the famous words of the Russell-Einstein Manifesto, on it. I used this website to tell me more about why Joseph Rotblat had a lantern and how he was going to use it in Hiroshima.

Holdren, John P. "Joseph Rotblat (1908–2005)." *Science AAAS*, vol. 310, 28 Oct. 2005, pp. 633-5748.

John Holdren, President Obama's Director of the White House Office of Science and Technology, attached the obituary for Joseph Rotblat that he wrote in an email he sent to me after I had previously contacted him. The obituary gives a great summary of Joseph Rotblat's life, and it is very personal since John Holdren worked closely with Rotblat. I pulled one quote from the website to describe how Joseph Rotblat discovered that construction of an atomic bomb was possible during his time in Liverpool before the Manhattan Project.

Books

Braun, Reiner. ed. *Joseph Rotblat: Visionary for Peace*. Weinheim, Wiley-VCH, 2007.

This book includes a collection of articles about Joseph Rotblat that either summarized his life or talked about a specific part of it. First hand accounts of Joseph Rotblat helped me understand the impact he had on people's lives and the world. It also includes an appendix of written works by Joseph Rotblat. By reading his explanations of his ideas and contributions, I was able to understand his impact better.

Butcher, S. I. (2007) "Joseph Rotblat: Guiding Pugwash through the Cold War," in *Joseph Rotblat: Visionary for Peace* (eds R. Braun, R. Hinde, D. Krieger, H. Kroto and S. Milne), Wiley-VCH Verlag & Co. KGaA, Weinheim, Germany.

This chapter gave me insight into the role of the Pugwash Conferences and Joseph Rotblat during the Cold War. Butcher, an associate of the late Joseph Rotblat, was very close to him and extremely active in Pugwash today. Her extensive knowledge about the role of Pugwash during the Cold War was helpful, especially when learning about the treaties Pugwash helped to bring about. I quoted this article in the section of my website about the arms control treaties during the Cold War.

Brown, Andrew. *Keeper of the Nuclear Conscience: The Life and Work of Joseph Rotblat*. Oxford, Oxford UP, 2012.

This bibliographical book outlined each significant portion of Joseph Rotblat's life from his time at the Manhattan Project to his role in the Pugwash Conferences to his work during the Cold War. I pulled many quotes used throughout my website from this biography. The specific details included in this book gave me more information than many of the brief resources that could be found on the internet. Joseph Rotblat is not as well-known, but this information filled book provided me with many useful facts about his life.

Finney, J. "Joseph Rotblat: The Nuclear Physicist," *Joseph Rotblat: Visionary for Peace*, edited by R. Braun, R. Hinde, D. Krieger, H. Kroto and S. Milne, e-book, Weinheim, Wiley-VCH, 2007

John Finney's article discusses Joseph Rotblat's contributions as a physicist during different times in his life. It covers his time in Warsaw, Liverpool, and Los Alamos. I used the quote Finney uses to start his article that is from James Chadwick, Rotblat's mentor and friend. It describes Rotblat's brilliance and dedication that was seen by many who worked with him, adding to my points on his about page where I discuss the promise and talent he showed at a young age.

"Getting to Zero: Is Pursuing a Nuclear-Weapon-Free World Too Difficult? Too Dangerous? Too Distracting?" *Ending War: The Force of Reason*, by Tom Milne and Maxwell Bruce, Basingstoke, Macmillan, 1999.

John Holdren, President Obama's Director of the White House Office of Science and Technology, attached his chapter in the book *Ending War: The Force of Reason* in an email he sent to me after I previously reached out to him. In this chapter, he explores not only what a nuclear weapon free world would look like but if it is even attainable or should be advocated for. He proposed many new approaches to nuclear weaponry control. I quoted his various comments on nuclear weaponry throughout my website.

Harris, J. (2007) "Joseph Rotblat and Pugwash." in *Joseph Rotblat: Visionary for Peace*, edited by R. Braun, R. Hinde, D. Krieger, H. Kroto and S. Milne), e-book, Weinheim, Wiley-VCH, 2007

Jack Harris describes how Joseph Rotblat took part in the formation of the Pugwash Conferences on Science and World Affairs. I utilized this chapter when understanding Bertrand Russell's role and his relationship with Rotblat after both of them appeared on a BBC program. I also quoted a section in the end when Harris describes and quotes himself the song Rotblat chose to play on a radio program that accurately describes his dreams for the world.

Krieger, D. "Joseph Rotblat and Peace." *Joseph Rotblat: Visionary for Peace*, edited by R. Braun, R. Hinde, D. Krieger, H. Kroto and S. Milne), Weinheim, Wiley-VCH, 2007

This article focuses on the various parts of Rotblat's life where he was determined to promote peace worldwide like when he resigned from the Manhattan Project and took part in creating the Russell-Einstein Manifesto. I used a quote Krieger refers to in this article where Rotblat discusses how he made his decision to leave the Manhattan Project after overhearing a comment said by the head of the project. The slightest comment said prompted Rotblat to leave on moral grounds, and I felt that his situation could best be described using his own words.

Mahaffey, James. *Atomic Accidents: A History of Nuclear Meltdowns and Disasters: From the Ozark Mountains to Fukushima*. Pegasus Books, 2015.

This book provided information on the Lucky Dragon incident. It includes specifics about the event and helped me when writing the portion of my website focusing on the incident.

Szasz, Ferenc Morton Szasz. *British Scientists and the Manhattan Project: The Los Alamos Years*. Illustrated ed., Springer, 1992.

A brief section of this book discussed the MAUD Committee, the organization of British scientists that were working on the atomic bomb before the Manhattan Project, which Joseph Rotblat and James Chadwick were a part of. The book helped to clarify some information about MAUD that I discussed in my website when introducing the Manhattan Project.

Electronic

"About Pugwash." *Pugwash Conferences on Science and World Affairs*, pugwash.org/about-pugwash/.

This webpage on the Pugwash Conferences on Science and World Affairs website gave me details about the first Pugwash Conference in 1957. It includes the names of participating members and the countries represented at the conference.

Butcher, Sandra. "ABM Treaty." *ABM Treaty*, Web. 4 April 2009. pugwashhistory.blogspot.com/2009/04/abm-treaty.html.

Sandra Butcher's brief article describes the Anti-Ballistic Missile (ABM) Treaty. She also links to an important primary source, an article in the *Bulletin of Atomic Scientist*, which I also used in my research. This article gave me a brief summary of the ABM Treaty that I used when writing the portion of my website on it.

"Fact Sheets & Briefs." *The Conventional Armed Forces in Europe (CFE) Treaty and the Adapted CFE Treaty at a Glance* | Arms Control Association, www.armscontrol.org/factsheet/cfe.

This article outlines the Conventional Armed Forces in Europe Treaty. It's outcome was influenced by Joseph Rotblat through the Pugwash Conferences, and I quoted a section of it on my Cold War page that summarized the main purpose of the treaty very well.

"German Atomic Bomb Project." Atomic Heritage Foundation,
www.atomicheritage.org/history/german-atomic-bomb-project.

This webpage discusses the German efforts to create an atomic bomb, the reason that prompted the creation of the Manhattan Project. I took a quote on the page from Robert Furman about fear in the United States about the possibility of Germany harnessing atomic power and implementing it in a weapon first by describing the fear as the foundation for the Manhattan Project. Joseph Rotblat himself was frightened of Germany's potential power, and this quote helps describe the supposed purpose for the Manhattan Project and why Rotblat joined.

"In Memoriam: Sir Joseph Rotblat." Global Security Institute, 7 Sept. 2005,
gsinstitute.org/gsi/newsletter/newsletter_2005-09-07.

I used this webpage on the Global Security Institute (GSI) website that was dedicated to Joseph Rotblat upon his death since there were quotes from esteemed activists explaining his significance to the movement against nuclear proliferation. Mikhail Gorbachev, the former leader of the Soviet Union and a GSI board member, and Dr. David Krieger, the president of the Nuclear Age Peace Foundation and MPI Steering Committee Member, wrote small messages dedicated to Joseph Rotblat. Gorbachev hailed Rotblat as a friend and an important activist, while Krieger compared him to other leaders that effectively took a stand such as Rosa Parks and Nelson Mandela. I included powerful quotes from both Gorbachev and Krieger in my website to demonstrate the significance of Rotblat's stands.

"James Chadwick." *Contemporary Authors Online*, Gale, 2003. *Literature Resource Center*,
go.galegroup.com/ps/i.do?p=LitRC&sw=w&u=summ09123&v=2.1&it=r&id=GALE%7CH1000016839&asid=06a23b189e4ccaf0353a360af64eb641. Accessed 17 Jan. 2017.

This bibliographical article about James Chadwick, a mentor and friend of Joseph Rotblat, helped me understand his contribution to nuclear research and the Manhattan Project better. The article outlined his research in Liverpool that involved Rotblat, his specific role in the MAUD Committee that also included Rotblat as a member, and information about his position during the Manhattan Project. I include information about him in various parts of my website to better explain his significant role in the science community and in Rotblat's career.

Pugwash Conferences on Science and World Affairs. pugwash.org/.

This website gave me much information about Joseph Rotblat and his contribution to Pugwash. I quoted the mission statement shown on every page of the website on my own website because it accurately summarizes the goals of the conferences.

"Pugwash Conferences on Science and World Affairs - History". *Nobelprize.org*. Nobel Media AB 2014. Web. 9 Jan 2017.
http://www.nobelprize.org/nobel_prizes/peace/laureates/1995/pugwash-history.html

This article explains why Joseph Rotblat jointly received the 1995 Nobel Peace Prize with the Pugwash Conferences on Science and World Affairs. It discusses his contributions and why he was chosen. I used this information in the conclusion page of my website.

"Pugwash Delegation Visits Kazakhstan." *Pugwash Conferences on Science and World Affairs*, pugwash.org/2016/02/02/pugwash-delegation-visits-kazakhstan/.

This article was briefly used in my research of the Pugwash Conferences on Science and World Affairs. I added a detail included in this article about how the next Pugwash Conference will most likely be in Kazakhstan to explain the legacy of the organization and its impact worldwide.

"Pugwash History". *British Pugwash*. Web.
britishpugwash.org/wp/wp-content/uploads/2014/07/Pugwash-historyFINAL.pdf.

This article issued by the British Pugwash describes the British Pugwash's achievements as well as the overall achievements of the organization. It focuses on Joseph Rotblat, as well as the goals of the British Pugwash today and reasons behind Pugwash's success. I pulled a quote from the document explaining the Pugwash influence during the Cold War, especially concerning the Partial Test Ban Treaty, because it summarizes Pugwash's role very well.

"The Quebec Conference." *Canada History*, Access HT, 2013,
www.canadahistory.com/sections/eras/wwii/Quebec%20Conference.html.

This article explains the Quebec Agreement that essentially organized the Manhattan Project. I used it in my research of the Manhattan Project to understand how it started and the reasons behind its formation.

Watkins, Mel. "Joseph Rotblat: From Los Alamos to Pugwash." *Queen's Quarterly*, vol. 113, no. 1, Spring 2006, p. 106+. *Literature Resource Center*, go.galegroup.com/ps/i.do?p=LitRC&sw=w&u=summ09123&v=2.1&it=r&id=GALE%7CA145972731&asid=9ee11a42095d712d30430ae996013fa7. Accessed 9 Jan. 2017.

This article was a short autobiography, outlining Rotblat's experiences as a scientist working on the Manhattan Project to his leadership with the Pugwash Conferences on Science and World Affairs. The article was specifically important since it explained the many reasons he left the Manhattan Project.

Films

The Strangest Dream. Directed by Eric Bednarski, Bullfrog Films, 2008. *National Film Board of Canada*, www.nfb.ca/film/strangest_dream/.

This documentary about Joseph Rotblat outlined his life and helped me understand his contributions through various interview clips and images. It was an autobiographical film, introducing me to the many achievements throughout his life and to many sources that I could use for my research.

Images

Schreiber, Mark. The Lucky Dragon boat in the museum in Yumenoshima Park in Tokyo's Koto Ward. 2013. *The Japan Times*, www.japantimes.co.jp/life/2013/01/28/language/whats-in-a-japanese-name-more-than-you-might-expect/.

This image shows the damage done to the Lucky Dragon boat by the hydrogen bomb. It is featured in a slideshow with other images depicting the horrors of the hydrogen bomb to the Lucky Dragon. I am citing this image as a secondary source because the author of the *Japan Times* article this photo was included in took the picture himself in 2012.

Letter

Butcher, Sandra Ionno. "An Open Letter to My Son on the Death of Joseph Rotblat."
2 Sept. 2005. Letter.

This letter was written by Sandra Ionno Butcher, the Executive Director of the Pugwash Conferences on Science and World Affairs and someone who worked very closely with Rotblat. She explains to her son the contributions of the man he is named after in the letter. Butcher writes about many aspects of his life, and I specifically pulled a quote that explains his life of poverty and squalor in Warsaw during World War I for the section of my website where I wrote about his childhood. Her words explain his condition well, especially since she was most likely told about his childhood by Rotblat himself since they worked so closely together.