The Atomic Bomb: A National Triumph, A Global Tragedy

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Introduction

With the tension of World War II increasing, the United States began to develop an atomic weapon using the newly discovered process of nuclear fission, with hopes of using this catastrophic weapon to gain leverage over the Japanese opponents during World War II. The development and use of the first atomic bombs at Hiroshima and Nagasaki were triumphant in making the United States victorious in World War II, and in revolutionizing warfare. However, they also brought the great tragedy of thousands of Japanese deaths, caused significant radioactive pollution, sparked a grueling arms race between global superpowers, and stipulated that all future wars would be extremely deadly and plagued with nuclear proliferation.

Early Atomic Weapons

An atomic bomb is created by utilizing the explosive power of nuclear fission. When an atom splits into two pieces, it emits neutrons that can hit surrounding nuclei and create a chain reaction of fission, generating an immense explosion.\(^1\) Fission was not discovered until the late 1930’s. In 1939, Dr. J. Robert Oppenheimer, along with several other scientists, realized that in order for fission to occur, excess neutrons must be emitted, implying the energy could be used to create a bomb. That year, President Roosevelt facilitated the development of an atomic research committee.\(^2\) This committee and other private organizations began working to successfully create an atomic weapon.

The Manhattan Project

During this time, Nazi Germany began gaining power in the Eastern hemisphere, and global tensions continued to rise. In November of 1941, Vannevar Bush delivered a report to

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Roosevelt highlighting the importance of researching a U-235 bomb. On December 6th, Bush held a meeting in Washington to begin an accelerated research project. The next day, Japan attacked Pearl Harbor, and the U.S. soon became involved in the Second World War, which motivated further experiments. After the experiments yielded promising results, Oppenheimer proposed plans for a neutron lab intended to research the building of an atomic bomb. This was later given the name of “The Manhattan Project,” after the Manhattan Engineering District.3

The project’s primary laboratory was located in Los Alamos, with other locations and 600,000 employees scattered across the country.4 The U.S. government became hopeful that this research would allow the U.S. to impact the war. On April 24th, 1945, U.S. Secretary of War Henry Stimson wrote a classified letter to President Harry Truman, who replaced Roosevelt following his death, discussing the promising mission. The letter begins with: “Within four months we shall in all probability have completed the most terrible weapon ever known in human history, one bomb of which could destroy a whole city.”5 Less than two months later, on July 16th, 1945, the United States tested a prototype of the atomic bomb at the Trinity testing site in New Mexico. The plutonium test bomb “Gadget” exerted an estimated 20 kilotons of force, producing a mushroom cloud eight miles high and leaving a massive crater6 signifying the first successful detonation of a nuclear weapon. After witnessing this victory, Oppenheimer uttered

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his famous quote: “Now I am become death, destroyer of worlds,” commenting on the complete
destruction this new weapon was capable of.\textsuperscript{7}

**Atomic Weapons in World War II**

While the Manhattan Project was researching, the United States became involved in
World War II. The U.S. entered the war as a result of a surprise Japanese attack on U.S. Naval
Base Pearl Harbor. Naval and aerial victories followed for the Japanese until the U.S. Pacific
Fleet won the Battle of Midway in 1942, which was considered a turning point.\textsuperscript{8} The Allied
forces then began slowly conquering Pacific Islands by “island hopping,” or moving from island
to island with naval and air forces, conquering them. The U.S. used this strategy to reclaim the
Philippines from the Japanese, while simultaneously implementing a strategic bombing
campaign against larger Japanese forces.

The Allied Forces were successfully weakening the Japanese military, but these attacks
proved to be costly with casualties, time, and money for the United States. After successfully
constructing the first atomic bomb, the United States began to develop a plan for using these
weapons in the Pacific. On July 25th, 1945, President Truman wrote the following in his diary,
describing the bomb:

“This weapon is to be used against Japan between now and August 10th. I have told the
Sec. of War, Mr. Stimson to use it so that military objectives and soldiers and sailors are
the target and not women and children... The target will be a purely military one and we


encyclopedia.ushmm.org/content/en/article/world-war-ii-in-the-pacific
will issue a warning statement asking the Japs to surrender and save lives. I'm sure they will not do that, but we will have given them the chance.”  

Still, the United States and the Allied Forces were growing tired of the casualties of war. The Axis Powers were weakening and the Japanese were hesitantly debating a peace negotiation, but feared their imperial dynasty would crumble under unconditional surrender. Meanwhile, the Soviet Union began to plan an invasion of Japan. As a desperate attempt to avoid having align with the powerful but untrustworthy Soviet Union in this invasion, President Truman contradicted himself by bombing two large Japanese cities, killing thousands of Japanese civilians.

**The Bombings of Hiroshima and Nagasaki**

To be victorious in the war, on August 6th, 1945, the United States dropped a uranium atomic bomb on Hiroshima, Japan’s seventh largest city. This bomb, code named “Little Boy,” instantly vaporized over 90 percent of the city. An estimated 40,000-80,000 Japanese civilians were killed, with approximately 70,000 injured. Japanese officials were still reluctant to accept unconditional surrender and argued over the preservation of the imperial dynasty. Meanwhile, the Soviet Union was planning to invade Japanese mainland on August 15th. Knowing this, President Truman made the controversial decision to drop another atomic bomb on a Japanese city. His goal was to force Japan into unconditional surrender before the Soviet invasion. On August 8th, a second bomb, code named “Fat Man,”

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was dropped on the city of Nagasaki, killing another 40,000 people and wounding 40,000 more.\textsuperscript{12}

Fearing the threat of a Soviet invasion, and another attack from an atomic weapon, the emperor of Japan announced his acceptance of unconditional surrender, shocking the nation.\textsuperscript{13} However, historians argue the second bomb was futile and unjustified, as the Japanese would have likely surrendered without it. Referring to Japanese deliberation before the use of the second bomb, historian Gar Alperovitz claims “the increasing pace of contacts involving important Japanese representatives was an obvious indication of Japan’s deteriorating internal situation-and, too, of the clear trajectory of change”\textsuperscript{14}, supporting the claim of an evident Japanese surrender and the idea of the second bomb being futile. Nevertheless, the Japanese agreed to unconditional surrender on August 15th, indicating the end of the war and a triumphant victory for the U.S.

**The Aftermath: Allied Victory**

The bombings of Hiroshima and Nagasaki and fear of an impending invasion from the Soviet Union forced Japan to agree to unconditional surrender on August 15th, 1945. This was formally acknowledged on September 2nd, aboard the USS *Missouri* in Tokyo Bay. Foreign Minister Mamoru Shigemitsu and General Yoshijiro Umezu signed on behalf of the Japanese government and armed forces. Supreme Commander of the Allied Powers, U.S. General Douglas MacArthur, signed on behalf of the United Nations, declaring, “It is my earnest hope and indeed the hope of all mankind that from this solemn occasion a better world shall emerge out of the

\textsuperscript{12} Chinnock, *National Geographic Channel*, 1970.
\textsuperscript{13} Chinnock, *National Geographic Channel*, 1970.
blood and carnage of the past.”\textsuperscript{15} Per the agreement discussed by Allied Forces at the Potsdam Conference, the Japanese would accept the terms of establishing a new order of authority, allowing Allied Forces to occupy Japan until such authority is establishment, completely disarming their military forces, and confining themselves to the islands of Honshu, Kyushu, Shikoku, Hokkaido, and other approved small islands.\textsuperscript{16} The United States believes the decision to use both atomic bombs provided the most efficient outcome, claiming they shortened the war, saved tens of thousands of American lives, and helped avoid an invasion of Japan with the risky alliance between the U.S. and Soviet Union,\textsuperscript{17} which was a major militaristic triumph for the United States.

**Revolutionizing Warfare**

The development of nuclear weapons completely revolutionized modern warfare. In fact, when referring to military history, historians often refer to time periods as “prenuclear” and “nuclear” eras because there are clear distinctions between prenuclear and modern warfare. Prior to the development of such weapons, military strategy relied heavily on manpower; bombs and other large weapons carried significant damage, but were not the main source of destruction. After the nuclear age, countries possessing such weapons began to have the ability to inflict mutually assured destruction upon one another, meaning the countries could potentially destroy each other in the event of a nuclear war. Knowing this, most countries possessing weapons have adopted policies of extremely limiting the use of nuclear weapons in an effort to preserve their own country. However, if a nuclear war would occur, each country could be destroyed in as little

\textsuperscript{15} Holocaust Encyclopedia, 2017.
\textsuperscript{17} Chinnock, *National Geographic Channel*, 1970.
as days, as opposed to the conflicts of the past, which usually took years to resolve. Therefore, the creation of these revolutionary weapons could be considered a global triumph because these weapons force countries to more carefully consider foreign conflicts, and could potentially have less domestic casualties in the event of war because conflicts would be shorter and rely mostly on nuclear weapons instead of manpower.

The Cold War: A Nuclear Arms Race

After these weapons were first developed, a series of tragedies began to occur. Two years later after the development of these revolutionary weapons, countries from all over the world began competing to produce greater quality and a higher quantity of nuclear weapons. The greatest threats came from global superpowers, specifically the United States and the Soviet Union. Although these two nations had been allies in the war, the history of tense relations sparked a nuclear arms race following its conclusion. Both the United States and Soviet Union began stockpiling and further researching large quantities of nuclear weapons. As the number of nuclear weapons increased, the possibility of mutual destruction of each country by the other in the event of conflict requiring nuclear missiles grew, prompting these nations and several others to begin taking precautionary measures to negotiate the aspects of nuclear warfare. Nevertheless, the years following the conclusion of World War

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II still displayed an abundance of tension between the former allies, as the increasing of arms in both nations concerned one another regarding the possibility of a future nuclear war. This is a considerable tragedy because the increased arms led to a number of tense situations between nations.

**The Cuban Missile Crisis**

Tragically, the increasing number of nuclear weapons from nations led to uneasy situations. For example, after the United States failed to overthrow the Castro regime in Cuba, Soviet Premier Nikita Khrushchev reached a secret agreement with Cuban premier Fidel Castro to place Soviet nuclear missiles in Cuba to deter any future invasion attempt. The United States discovered evidence of Soviet missiles in October of 1962 with routine surveillance.\(^20\) Because of the increasing tension due to increased weapons, the United States grew weary of the Soviet Union’s intentions. After intense negotiations and the possible threat of a nuclear war, the two nations came to the agreement that the Soviet Union would dismantle all missile sites if the United States agreed not to invade Cuba a second time. On November 2nd, 1962, President John F. Kennedy announced to the nation “namely that the Soviet Missile bases in Cuba are being dismantled, their missiles and related equipment are being crated, and the fixed installations at these sites are being destroyed,”\(^21\) thus eliminating the imminent threat of a nuclear war in this instance. This is just one example of the tragic events that occurred because of increased nuclear arms.


\(^{21}\) John F. Kennedy and John F. Kennedy Presidential Library and Museum. “Cuban Missile Crisis, Address to the Nation: October 22, 1962.”
Nuclear Testing

Another major detriment of the rising nuclear arms was the amount of testing being conducted for further research. The U.S. conducted a series of tests the summer of 1946, with the intention of studying the effects of nuclear weapons on naval targets. The project, code named “Operation Crossroads,” was conducted at Bikini Atoll within the Marshall Island chain. This location was chosen because it offered ample protected anchorage for both a target fleet and support ships.\(^{22}\)

Over the next several years, nuclear tests were conducted near Bikini Atoll. The largest Baker Atom Bomb yielded explosions greater than the original bombs, posing a significant radiation threat. Both American researchers and hundreds of natives were plagued by radiation poisoning, causing long term disabilities and a greater risk of death. The area was rendered uninhabitable.\(^{23}\) This fatal radioactive pollution was a direct result of testing of these weapons. The long-term effects could be devastating, which compelled negotiations between the U.S. and Soviet Union to limit unnecessary radioactive pollution. Some examples include the Limited Nuclear Test Ban Treaty of 1963 and the Comprehensive Test Ban Treaty of 1963. However, these treaties can be easily violated by countries possessing atomic weapons, so the threat of testing has not been completely eliminated,\(^ {24}\) which could lead to environmentally harmful situations.

Present Day Nuclear Warfare

Today, several powerful countries possess nuclear weapons. Some examples of recent tensions between nuclear powers include relations between the United States and the North


Korean dictatorship\textsuperscript{25}, as well as the current conflict between India and Pakistan over the region of Kashmir\textsuperscript{26}. Because tension amongst foreign nations will always exist, the threat of nuclear proliferation will continue to rise, as research on nuclear arms will likely continue. Proliferation is the complete destruction of the environment caused by the damage of a nuclear war. Experts argue the best way to combat proliferation is to agree to refrain from using nuclear weapons in all circumstances. Organizations like the International Atomic Energy Agency have been established to enforce treaties and lead negotiations,\textsuperscript{27} but as long as atomic weapons exist, the possibility of using these weapons will always be threatening, as a violation of nuclear treaties could start a deadly nuclear war. Therefore, any country being able to possess these weapons is a global tragedy because there will always be a high risk of proliferation with any future conflict.

\textbf{Conclusion}

In conclusion, the development of nuclear weapons was exceedingly beneficial to the United States, as they were a major factor in the Japanese surrender of World War II. These weapons also revolutionized warfare and allowed for further technological advancements of atomic weapons. Yet, in providing such victory for the U.S., the weapons brought the global tragedies of killing thousands, causing radioactive pollution, sparked and a deadly arms race between powerful nations, and stipulated that all future wars had the potential to cause nuclear proliferation.

\textsuperscript{27}Harris, Joseph. \textit{Nuclear Proliferation}. Gareth Stevens Pub., 2010, pg 19.}
Annotated Bibliography

Primary Sources:


This speech from President Dwight D. Eisenhower in 1953 explains the dangers of nuclear warfare. This helped me understand how dangerous proliferation could be and what could be done about it. It also showed that these concerns were evident as early as the 1950's.


This primary source from President John F. Kennedy is an address to the nation regarding the Limited Nuclear Test Ban Treaty on July 26, 1963. This helped explain what his four goals were for the outcome of the treaty and how they would be beneficial to the United States.


This primary web source from the John F. Kennedy Presidential Library and Museum contains his address to the nation on October 22, 1962 regarding the Cuban Missile Crisis. He explains the situation and informs the citizens of the U.S. that he is demanding immediate removal of all Soviet nuclear weapons in Cuba. This helped me identify the serious and struggling relations between the U.S. and Soviet Union.


This primary document from the Library of Congress states the direct terms of Japanese surrender discussed at the Potsdam conference. This helped me understand the significance of their unconditional surrender.


This primary web source from the John F. Kennedy Presidential Library and Museum contains a follow up address to the nation regarding the Cuban Missile Crisis. In this speech, Kennedy confirms that the Soviet bases in Cuba are being dismantled. This helped show the attempts made to decrease tensions between the U.S. and Soviet Union.
In these primary diary entries from President Harry S. Truman in July of 1945, the President details government actions before the use of the atomic bomb. He explains the dimensions of the bomb and the destruction it could cause, as well as makes predictions for the outcome. This helped me understand how the executive branch reacted to the development of the weapon and planned to utilize it.


This primary source is a memorandum discussed between U.S. Secretary of War Henry Stimson and U.S. President Harry Truman. It discusses the final completion of the atomic bomb and the successful outcome of the Manhattan project. This helped clarify when the United States developed the weapon and what the U.S. planned to do with it.


This primary source from the U.S. Department of State contains the full text of the Limited Nuclear Test Ban Treaty, as well as dates of signing and countries involved. This helped to identify which key issues were being addressed in this treaty and that the hopeful outcome was to eliminate unnecessary radioactive damage.

**Secondary Sources:**


This book from historian Gar Alperovitz analyzes the benefits and detriments of using the atomic bombs and why the United States believed this was necessary. This helped me understand the role played by the atomic bombs in ending World War II.


This book by historian Gar Alperovitz explains the tactics of atomic warfare from a diplomatic standpoint. This helped me understand the military and government strategy of the second world war.

This secondary source from the Arms Control Association provides a complete timeline of nuclear warfare, with events as current as May of 2018. This source helped connect several of the events discussed in the paper and also identified more recent nuclear threats.


This secondary web source from Atom Central was created to provide readers with a complete history of atomic weaponry. This specific link described the bombings in detail and helped me understand exactly what happened in Japan on August 6th and 8th, 1945, as well as the damage the bombings caused.


This secondary web source from the Atomic Heritage Foundation provides a complete explanation of entire process used to create the Manhattan project, from the preliminary organization to its legacy. This was helpful in identifying numerical values, such as estimated death tolls, and in examining this aspect of the project as a complicated process rather than a single event.


This documentary from National Geographic is a secondary source describing the bombing of Nagasaki. It contains primary interviews from victims of the bombing and United States veterans involved in the attack, analyzes the events leading up to the bombing, and explains why it was unjustified. This helped me understand the event from the victims' point of view.


This is a secondary web source from CNBC. It helped me understand what is currently happening in the India-Pakistan conflict, which was useful in connecting my argument to present-day events.

This secondary source from the commission for the Comprehensive Test Ban Treaty describes the last U.S. conducted nuclear test in 1992. This proves that the Limited Test Ban Treaty did not completely stop testing, and these tests are still relevant today.


This secondary web source from the U.S. Department of Energy explains the Manhattan Project with a positive point of view. It helped me see that the United States intended to make the project look as beneficial as possible to its citizens, focusing only on positive effects rather than negative effects.


This secondary web source from the U.S. Department of Energy provides government approved information about Operation Crossroads. It also contains pictures and quotes from those involved. This source helped me understand how and why the weapons were tested, and explained how revolutionary the new technology was.


This secondary web source from Encyclopaedia Britannica explains the properties and effects of nuclear weapons. The source also gave a detailed narrative of the process used to develop and deploy these weapons. The source gave me a better understanding of how nuclear weapons work, as well as the damage these weapons can cause.


This secondary web source from the United States Holocaust Memorial Museum provides a detailed overview of World War II in the Pacific, specifically with interactions between the United States and Japan. This helped me understand what was happening in the area during World War II before the atomic bombs were used.

This secondary web source from the Atomic Heritage Foundation provides a complete timeline of the major events in nuclear history, from early nuclear science of the late 1800's to present day nuclear weapons. This source helped me understand and connect the major events through cause and effect.


This secondary web source by Lawrence D. Freedman describes the events leading up to the first use of a nuclear weapon. This creates a general narrative of the beginning of nuclear warfare. The source also helped me understand strategy and tactics of nuclear warfare from a militaristic point of view.


This book by Joseph Harris discusses the development of nuclear weapons, the arms race during Cold War, and dangers of nuclear proliferation. It gave me a better understanding of the current dangers of nuclear weapons.


This book by Wilson D. Miscamble gave a simplified version of the development, usage, and effects of the atomic bomb. This provided a narrative that was easy to understand and explained general events to further research.


This secondary web source from BBC News explains the dangers and health concerns of radioactive damage. This helped me understand that areas affected can be hazardous for decades or even centuries following an attack from these weapons.


This web source provided facts and analysis regarding nuclear weapons in North Korea. This helped identify some current Nuclear threats and explained why the situation could be so hazardous if not properly monitored.

This secondary web source from the U.S. Department of State portrays the United States description of events regarding the Cuban Missile Crisis. This helped me understand the concerns and tension between the U.S. and Soviet Union, as well as connect this key event to the overall stress of the Cold War.


This secondary source from Encyclopaedia Britannica provides examples of arms control throughout United States history, specifically with the Cold War and Cuban Missile Crisis. This helped clarify why tensions were so high between the U.S. and Soviet Union and highlighted some of the efforts made to control this tension.


This book by Stephen J. Whitfield described the tension of the Cold War. It helped provide details about the interactions of each nation involved.

Pictures:


This website contains aerial photography of Soviet missiles in Cuba.


A picture of the bombing of Hiroshima.

Department of Energy, United States. Trinity Test at .025 Seconds. 16 July 1945.

A picture from the collection of Trinity Test photographs.


This website contains graphs depicting the rise of nuclear weapons across the world.