

The Making of the End for Japan:  
The Making of the Atomic Bombs to End WWII

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Many historical events have severe outcomes which change the world as we know it, this is the case for the Manhattan District Project. The name "Manhattan" is after the city where it was organized secretly by many people in 1942. The goal of this plan was to destroy Japan's war industries and disable or kill the workers and scientists of those industries. Target one, Hiroshima, was the main priority for us because of its military importance and it would make them weak without a way to defend against any other attack. Target two, Nagasaki, was chosen because it was the largest city with many people which means a bigger impact.

The bombs were the first of its kind and not illegal yet because no one knew their power and they weren't really successfully tested at the time. No one had ever heard or seen of one before so we used this to our advantage to attack Japan, that's why we kept it a government secret. At the time we had many scientists that helped make it possible including Einstein who in the end knew we made a mistake. No one knew the true power of an atomic bomb so it was kind of a praying moment for us that nothing would go wrong. In the end nothing did go wrong, but the destruction was unimaginable and sent all other countries in shock including the citizens of the U.S.

### **The Atomic Fission Bombs**

When a radioactive atom splits, there is a very quick release of energy. It is known as nuclear fission.<sup>1</sup> The first bomb dropped was nicknamed "Little Boy" and was a gun type bomb. "In this bomb, quantities of either U-235 or plutonium are brought together at an extremely rapid rate into one mass which then explode" (Burr).<sup>2</sup> The gun method was the most straightforward of the two methods because it doesn't require as much luck and science, you shoot a uranium bullet at

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<sup>1</sup> [www.history.com/topics/world-war-ii/atomic-bomb-history](http://www.history.com/topics/world-war-ii/atomic-bomb-history)

<sup>2</sup> [nsarchive2.gwu.edu/NSAEBB/NSAEBB162/index.htm](http://nsarchive2.gwu.edu/NSAEBB/NSAEBB162/index.htm)

a plutonium bullet at each other, what could go wrong. The other bomb was nicknamed “Fat Man” because it was much bigger. In this bomb a sphere of plutonium is surrounded by a much<sup>3</sup> larger sphere of high explosives and When the explosives are detonated, the plutonium sphere is compressed ,or imploded, into a much smaller orb which forces all the atoms together causing them to react in a violent way.<sup>4</sup> This way required a lot of precision and luck, in that everything goes according to plan.

The S1-committee was a secret organization that planned everything out including what types of methods we should use to detonate the bombs, how much of each material we will need, and eventually, how to put it all together like a toy with no instructions. The resources needed to make the two bombs are unbelievable; we needed 350 tons of purified graphite, 40 tons of uranium oxide, and 6 tons of Uranium ore. Getting 6 tons of U-235 ore isn't a walk in the park because it isn't easy to find it. When we did manage to get all of the ore it had to be purified, to maximise the reaction. When we had pure Uranium most of it is used to make Plutonium. To make Plutonium you first take a Pure U-235 atom then split it, Doing this Turns it into a U-238 atom. After that you have to do the same thing again to make 1 plutonium atom. It is only possible to do a few at a time and we needed about 5 tons of it, so it took some time.<sup>5</sup> Mining 350 tons of graphite is never easy and it takes a long time to purify due to its properties. All of these final products were then brought together into what is known as “The Atomic Pile”. The pile was constructed in Los Alamos New Mexico, 230 miles away from the soon to be testing site for the first atomic bomb in history. To

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<sup>3</sup> Sherrow, Victoria. The Making of the Atom Bomb. San Diego, World History Series, 2000. World History Series.

<sup>4</sup> nsarchive2.gwu.edu/NSAEBB/NSAEBB162/index.htm.

<sup>5</sup> Sherrow, Victoria. The Making of the Atom Bomb. San Diego, World History Series, 2000. World History Series.

construct the pile alone cost \$2.7 million and the team that was needed consisted of Chemists, Biologists, Chemical Engineers, Metallurgists, and Engineers because of all the dangers in constructing and designing the pile. The pile was then distributed between three separate bombs and assembled different depending on their types. The entire project, research and development, cost 2 billion dollars today, and took around 6 years to complete.<sup>6</sup>

### **The Trinity Test**

The first nuclear bomb we assembled, the first nuclear bomb ever assembled, was nicknamed “Gadget”. This bomb was a plutonium implosion type so we could see on full scale just how powerful they really are.<sup>7</sup> To test such a beast they need a pretty large and empty piece of land, which is why they went to Texas because everything's bigger there. They tried to find a place where there weren't too many people living, when they stumbled on a U.S. Air Force Base at Alamogordo, New Mexico. The people living in the few hundred mile radius of the test site were told to leave for “government testing” without any other explanation the people left for their new homes made for them by the government without a clue of what was to come.<sup>8</sup>

Then at the break of dawn on July 16, 1945 a sudden flash of blinding light followed by a defining bang was heard and seen by everyone in the area.<sup>9</sup> After that a huge ball of fire appeared in the sky followed by a mushroom cloud some 40,000 feet across. It was as if the world was ending, when in reality it was just the beginning of a new era. This successful test boosted morale for all of the scientists, but there was still more work to do.

### **Egnola Gay and Bockscar**

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<sup>6</sup> [nsarchive2.gwu.edu/NSAEBB/NSAEBB162/index.htm](http://nsarchive2.gwu.edu/NSAEBB/NSAEBB162/index.htm).

<sup>7</sup> [nsarchive2.gwu.edu/NSAEBB/NSAEBB162/index.htm](http://nsarchive2.gwu.edu/NSAEBB/NSAEBB162/index.htm)

<sup>8</sup> [www.history.com/topics/world-war-ii/atomic-bomb-history](http://www.history.com/topics/world-war-ii/atomic-bomb-history)

<sup>9</sup> [www.history.com/topics/world-war-ii/atomic-bomb-history](http://www.history.com/topics/world-war-ii/atomic-bomb-history)

There were two different people and planes that dropped the bombs on Japan. The plane that dropped Little boy on Hiroshima Was Nicknamed “Enola Gay”, after his mother. The pilot of this B-29 Bomber was Paul Tibbets who after the war said he had no regrets up until his death years later. On August 6, 1945 at 2:45, Tibbets and his flight crew aboard the Enola Gay departed North Field for Hiroshima<sup>10</sup>. At 08:15 local time, they dropped the atomic bomb that eventually killed around 192,000 people instantly and over time. Over 92% of the cities buildings were either pulverized or destroyed beyond repair. He returned a celebrity along with his family who were proud of him for putting an end to japan. Three days later we sent out another B-29 bomber Named Bockscar piloted by Maj. Charles Sweeney to bomb Nagasaki. The bomb was dropped at around the same time as little boy and had around the same effect but a much bigger explosion, with a mushroom cloud of over 60,000 feet tall and wide. He returned a hero and was in all of the headlines of every newspaper, he too never regretted a thing that happened during WW2. A few days after the second bomb was dropped on Japan, their Emperor, Hirohito announced Japan's surrender, which put an end to WW2 as well as nuclear warfare, making the U.S. the only country to successfully test and bomb another country during a time of war.<sup>11</sup>

### **The long and short term health effects**

Although we did drop the two bombs that ultimately ended life as Japan knew it, we never truly understood nor considered all of the overall effects that come with dropping an atomic bomb. The exact amount of deaths is still unknown to this day, but some estimates state that around 129,000-240,000 people in and around the two cities died either instantly or over time. Some of these deaths occurred instantly when each of the two bombs were detonated 15,000 feet in the air.

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<sup>10</sup> [www.atomicheritage.org/history/hiroshima-and-nagasaki-missions-planes-crews](http://www.atomicheritage.org/history/hiroshima-and-nagasaki-missions-planes-crews)

<sup>11</sup> [www.atomicheritage.org/history/hiroshima-and-nagasaki-missions-planes-crews](http://www.atomicheritage.org/history/hiroshima-and-nagasaki-missions-planes-crews)

<sup>12</sup> The element of surprise played a key role in the effect of the bombs on the people of Japan, because these types of bombs were not well known at the time. The explosion simulated temperatures much like the sun and melted people like in the movies. After the explosion itself was finished, the real pain and suffering began. These survivors were exposed to so much radiation that they basically developed many health problems on the spot or shortly after. The radiation burns were unbearable because they made your skin itch to the point where you would wish you could crawl out of it, not to mention that it was also so dry and seared. If you were to itch it you would rip your skin off which only makes things worse because then it will become extremely infected really fast. Anyone who survived the explosion and the effects shortly after weren't exactly lucky because soon after all of the exposure to radiation, they would develop many different forms of cancer. <sup>13</sup>The effects of the bombs will continue even decades later. Anyone who survived everything and had kids later in their lives passed any problems on which led to many birth defects and miscarriages. All in all, everyone that lives anywhere close to the drop sights was eventually affected in some way. <sup>14</sup>

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<sup>12</sup> [www.history.com/topics/world-war-ii/atomic-bomb-history](http://www.history.com/topics/world-war-ii/atomic-bomb-history)

<sup>13</sup> [www.history.com/topics/world-war-ii/atomic-bomb-history](http://www.history.com/topics/world-war-ii/atomic-bomb-history)

<sup>14</sup> Sherrow, Victoria. *The Making of the Atom Bomb*. San Diego, World History Series, 2000. World History Series.



Picture of The entire Egnola gay crew just before take-off, paul tibbets is the second to the left.



This is a picture of Bockscar and its crew just before they loaded the bomb and took off for Japan.

Maj. Charles Sweeney is the one with the black hat in the center, he is pumped up for this mission.

<https://www.gettyimages.com/photos/enola-gay?sort=mostpopular&mediatype=photography&phrase=enola%20gay>

## Annotated Bibliography

**Primary Sources:**

"Atomic Fission Bombs." 2005. *The Atomic Bomb and the End of World War II*, edited by William Burr, Washington, D.C. *The National Security Archive*, [nsarchive2.gwu.edu/NSAEBB/NSAEBB162/index.htm](https://www.nsa.gov/NSAEBB/NSAEBB162/index.htm). Accessed 6 Dec. 2019. The source is all about what plans or operations were going on April 23, 1945. At this point they knew how strong the explosion would be as well as what they needed. So far in the actual project they had three different methods to detonate the bomb, and backups in case all of the methods failed. This source is very crucial for my project because it is a primary source about how they would make the actual bomb.

**Secondary Sources:**

*Atomic Bomb History*. A&E Television Networks, Sept. 2017, [www.history.com/topics/world-war-ii/atomic-bomb-history](http://www.history.com/topics/world-war-ii/atomic-bomb-history). Accessed 17 Dec. 2019. This source has many facts about The Manhattan Project itself and what they did to make the bombs. It also includes information on where, how, and when they tested the first nuclear bomb. The source helps to further my research about the testing on the first bomb, and how the bombs worked.

"Hiroshima and Nagasaki Missions - Planes & Crews." *Atomic Heritage Foundation*, Apr. 2016, [www.atomicheritage.org/history/hiroshima-and-nagasaki-missions-planes-crews](http://www.atomicheritage.org/history/hiroshima-and-nagasaki-missions-planes-crews). Accessed 5 Feb. 2020. This source will help my project out a lot because it goes into great detail about the who where and when the bombs were dropped, as well as who dropped them

under the command of who. It tells exactly when the bombs were dropped by who and gives details about how the people felt before and after they dropped the bombs.

"The Manhattan Project." *Bombing of Hiroshima and Nagasaki*, History, Nov. 2009,

[www.history.com/topics/world-war-ii/bombing-of-hiroshima-and-nagasaki](http://www.history.com/topics/world-war-ii/bombing-of-hiroshima-and-nagasaki). Accessed 15 Jan. 2020. This source has lots of information that covers every topic I need that relate to what i am researching. It includes lots of dates and what they did on those important dates, as well as very detailed paragraphs about the bombs themselves. The source also has videos that directly relate to the main idea of my project and will help reinforce this source.

Sherrow, Victoria. *The Making of the Atom Bomb*. San Diego, World History Series, 2000. World History Series. The source is about the making of the bombs that destroyed Nagasaki and Hiroshima, who made the components to the bomb, and includes the reactions needed for the bomb to be nuclear. The book also includes very specific information on chemistry behind it all and why they wanted to make them in the first place. The source helps my project because it goes into great detail about the subjects I need to make a great project.