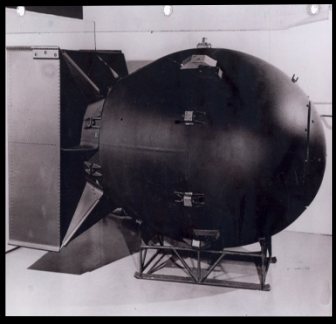


The Dropping of The Atomic Bomb at Hiroshima and Nagasaki

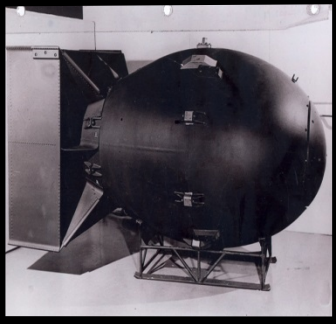
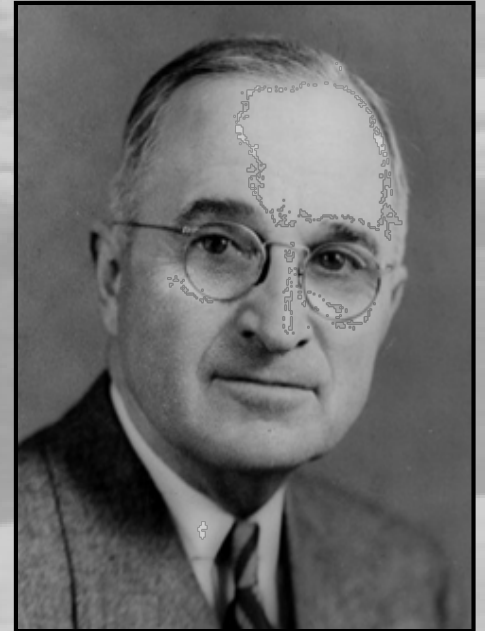
The atom bomb was no great decision. It was merely another powerful weapon in the arsenal of righteousness.

~ Harry S. Truman



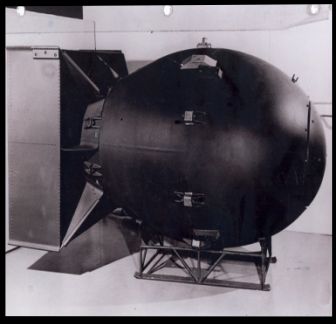
Essential Question

What were Harry Truman's motivations for using the Atomic Bomb against Japan in World War II?

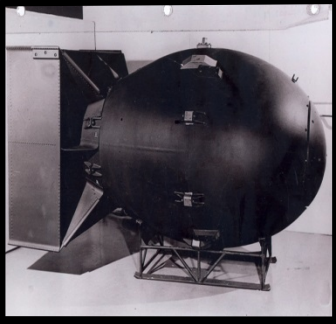


Nuclear Programs: Germany

- ☛ Germany started experimenting with Nuclear Fission in 1938.
- ☛ German scientist Otto Hahn and Fritz Strassman bombarded Uranium with neutrons and discovered Barium atoms.
- ☛ Conclusion: Nuclear fission releases a massive amount of energy

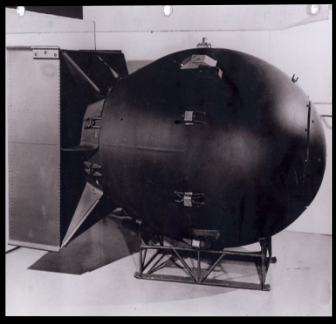


German experimental nuclear pile at Haigerloch



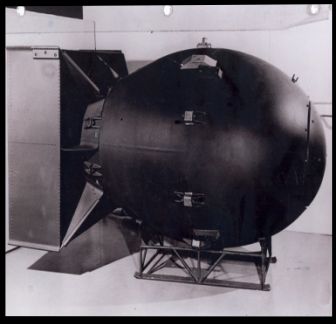
Project Alsos

- ❧ U.S. investigation in 1945 determined that the Germans have not created a sustained nuclear chain reaction.
- ❧ By creating a chain reaction, the Germans could create a nuclear reactor for nuclear power or absolute destruction.
- ❧ It is debated whether German scientists sabotaged their success of their nuclear program purposefully or whether their estimates were simply inaccurate and inadequate.



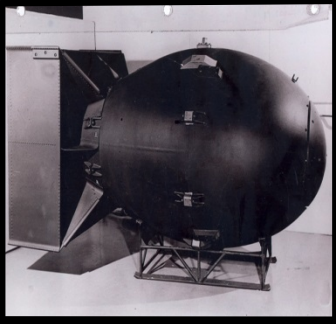
No Bomb for the Germans

- ☛ June 1942 - German atomic program slows down because Germany felt victory in WWII was imminent.
- ☛ U.S. and Britain were not aware that the Germans decided not to build a bomb.
- ☛ Japan also had an atomic program but was not successful.
- ☛ If Germany and Japan had created an atomic bomb, it would be used against the Allies.



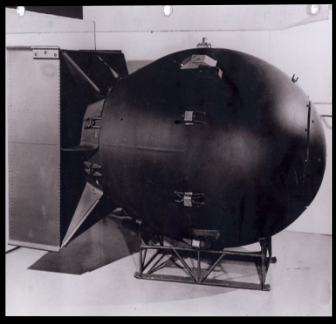
Failure of the German Nuclear Program

- ❖ When Adolf Hitler was in power, Hitler encouraged many top scientists to leave Europe.
- ❖ Heavy water was not easily accessible.
- ❖ No known factories for the production of nuclear missiles.
- ❖ Paris Treaties of 1955



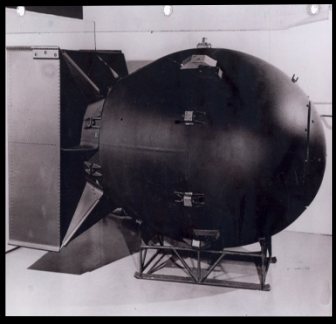
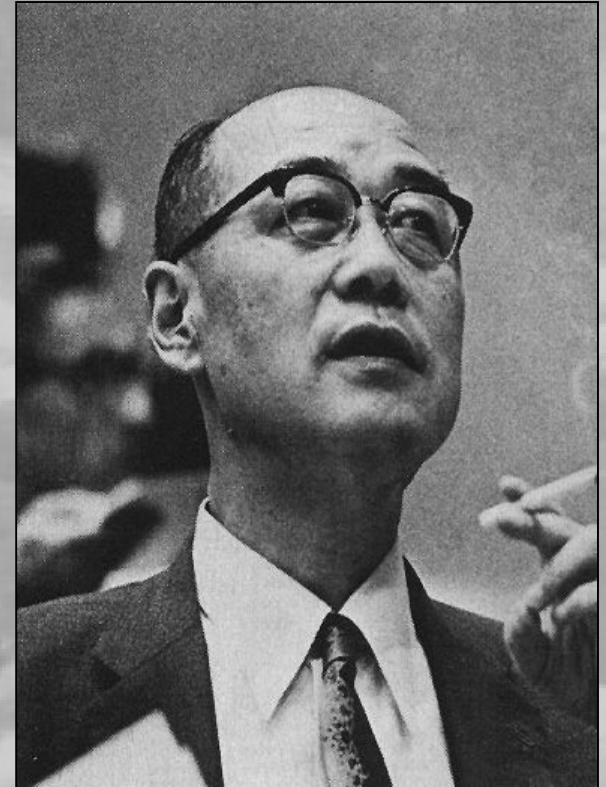
Japanese Atomic Program

- 🇯🇵 The Japanese atomic program was run by Empire of Japan in order to develop a "*genshi bakudan*" or atomic bomb.
- 🇯🇵 This project started around the same time as the Manhattan Project.
- 🇯🇵 Japan did not complete their atomic bomb by World War II.



Hideki Yukawa

- Hideki Yukawa was a Japanese theoretical physicist who was the first Japanese man to win the Nobel Peace Prize.
- In 1935 Yukawa published his theory of mesons, which explained the interaction between protons and neutrons.
- His writing quickly became a major influence on research in elementary particles.

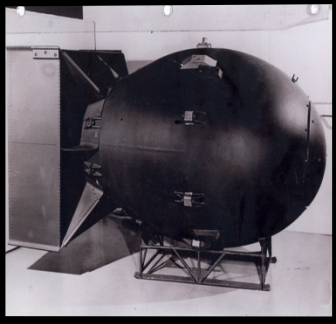


Einstein's Letter

In the course of the last four months it has been made probable - through the work of Joliot in France as well as Fermi and Szilard in America - that it may become possible to set up a nuclear chain reaction in a large mass of uranium, by which vast amounts of power and large quantities of new radium-like elements would be generated. Now it appears almost certain that this could be achieved in the immediate future.

This new phenomenon would also lead to the construction of bombs, and it is conceivable - though much less certain - that extremely powerful bombs of a new type may thus be constructed. A single bomb of this type, carried by boat and exploded in a port, might very well destroy the whole port together with some of the surrounding territory. However, such bombs might very well prove to be too heavy for transportation by air...

*Yours very truly,
(Albert Einstein)*



The Beginning of A Crash Program



American atomic bomb project in its early stages in 1941.



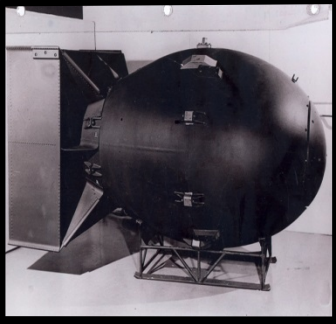
Independent research was done in Britain.



Vannevar Bush hears of German program.



October 9, 1941 U.S. starts significant research for the construction of an atomic bomb.



The Manhattan Project



June 1942, atomic-bomb project was controlled by War Department's Army Corps of Engineers.



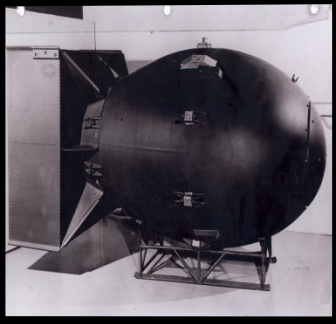
American and European physicists discovered that the fission of uranium could be a powerful weapon.



Major General Leslie Groves named head of the project.



At the height of construction in mid 1944, the Project employed nearly 129,000 people. No other nation in the world had the massive industrial capacity to make this possible.



The Manhattan Project Cont.



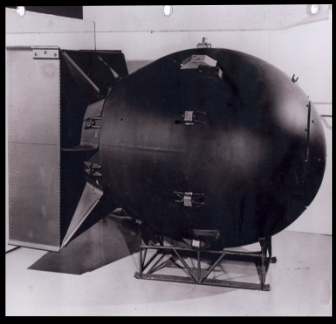
To disguise this ultra-secret project, the Corps created a Manhattan Engineer District, with a headquarters initially based in New York City.



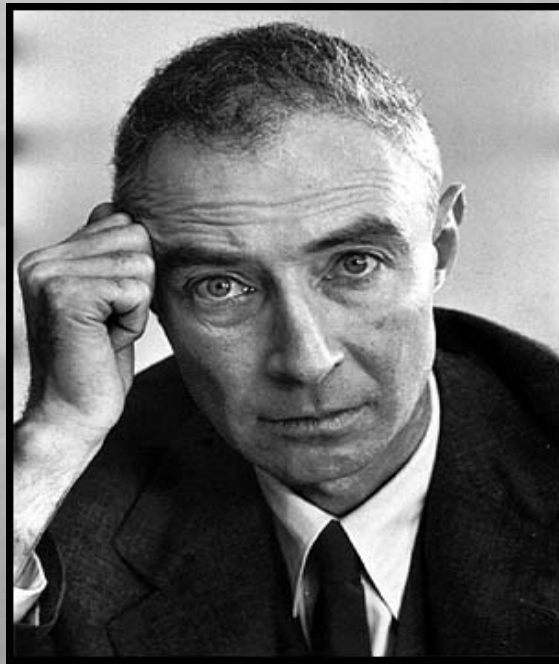
Most work done at Los Alamos, New Mexico



"Gadget" (Trinity) on July 16, 1945

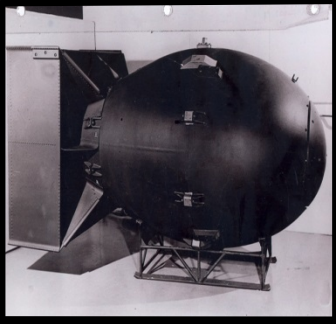


Robert J. Oppenheimer



When you see something that is technically sweet, you go ahead and do it and you argue about what to do about it only after you have had your technical success. That is the way it was with the atomic bomb.

The atomic bomb made the prospect of future war unendurable. It has led us up those last few steps to the mountain pass; and beyond there is a different country.



Robert J. Oppenheimer cont.



Late in 1942, Gen. Groves chose physicist J. Robert Oppenheimer to head a new laboratory devoted to the designing atomic bombs.



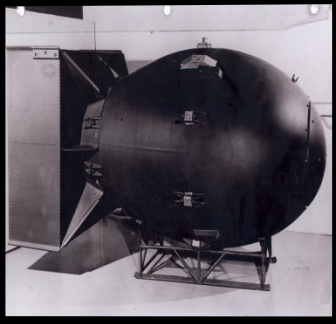
Oppenheimer recommended a remote site in New Mexico for the new facility, where many famous scientists could work together in complete secrecy.



From a wealthy N.Y. Jewish family.



Ties with Communism.



Letter to Harry Truman

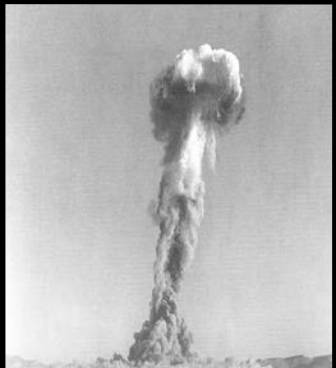
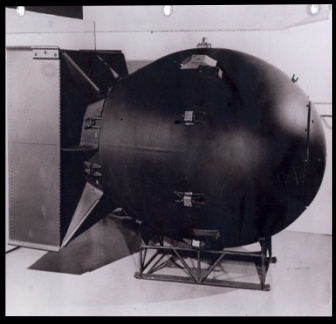
April 24, 1945

Dear Mr. President,

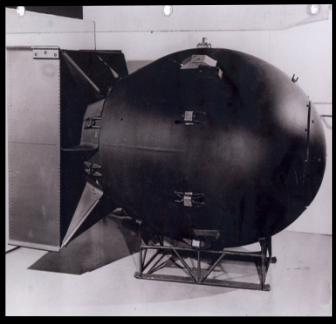
I think it is very important that I should have a talk with you as soon as possible on a highly secret matter.

I mentioned it to you shortly after you took office but have not urged it since on account of the pressure you have been under. It, however, has such a bearing on our present foreign relations and has such an important effect upon all my thinking in this field that I think you ought to know about it without much further delay.

*Faithfully yours,
Henry Stimson
Secretary of War*



Los Alamos National Laboratory



Los Alamos National Laboratory is one of the two laboratories in the United States where classified work towards the design of nuclear weapons have been undertaken. The other location is Lawrence Livermore National Laboratory.



During the Manhattan Project, Los Alamos was home to thousands of employees.



The first nuclear test was located near Alamogordo, New Mexico, under code name "Trinity" on July 16, 1945.

The Manhattan Project Success



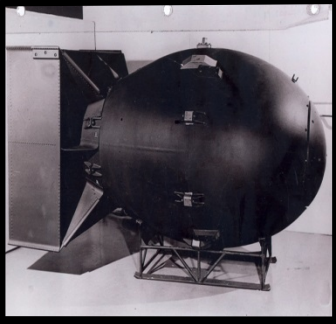
Two atomic bombs were made, "Little Boy" and "Fat Man."



Scientists at Los Alamos were not fully confident in the "Fat Man" bomb.

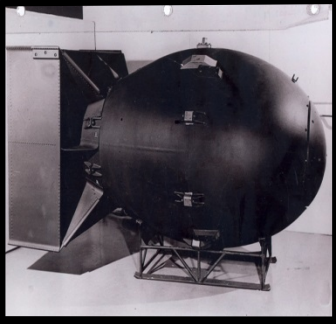


Bombs designed to create an accurate and symmetrical implosion.



“Trinity”

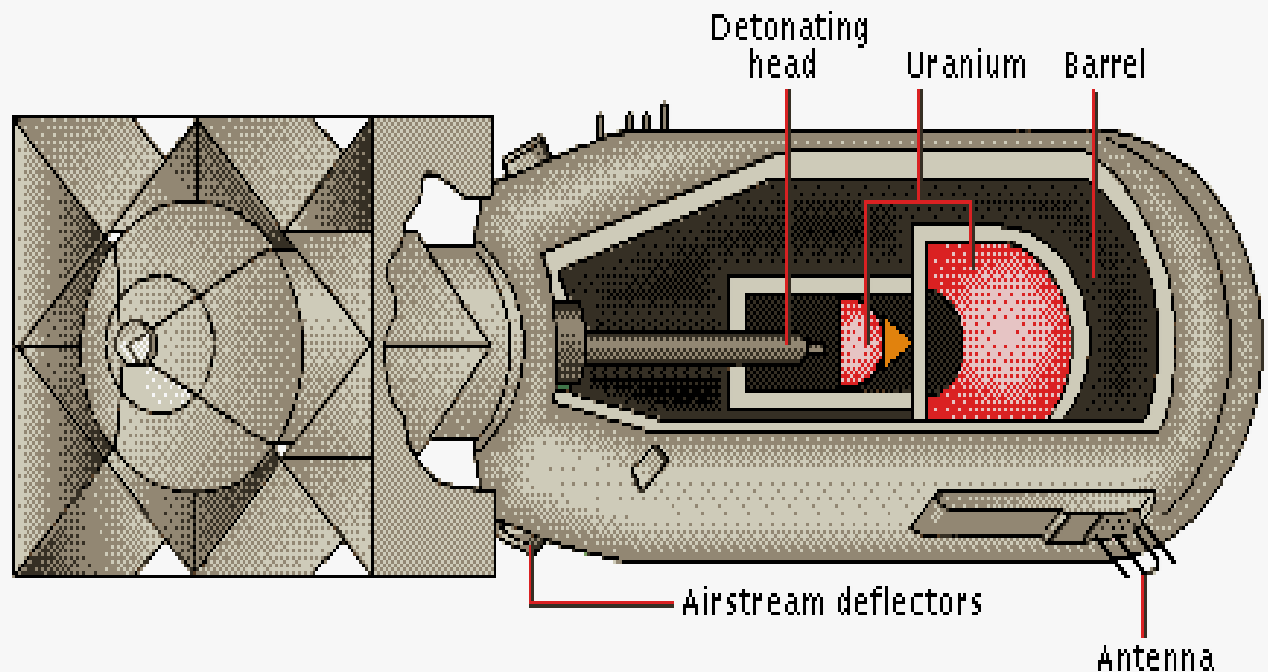
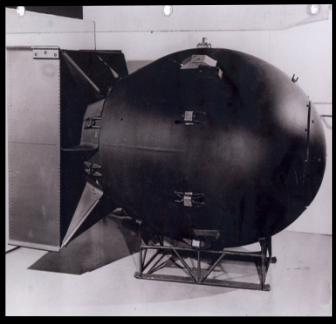
July 16, 1945



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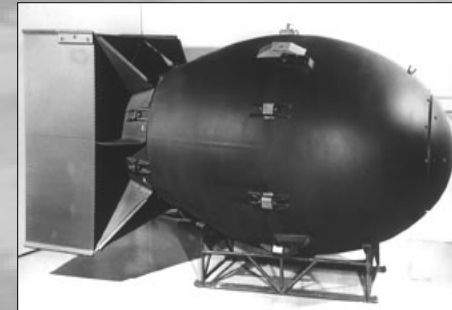
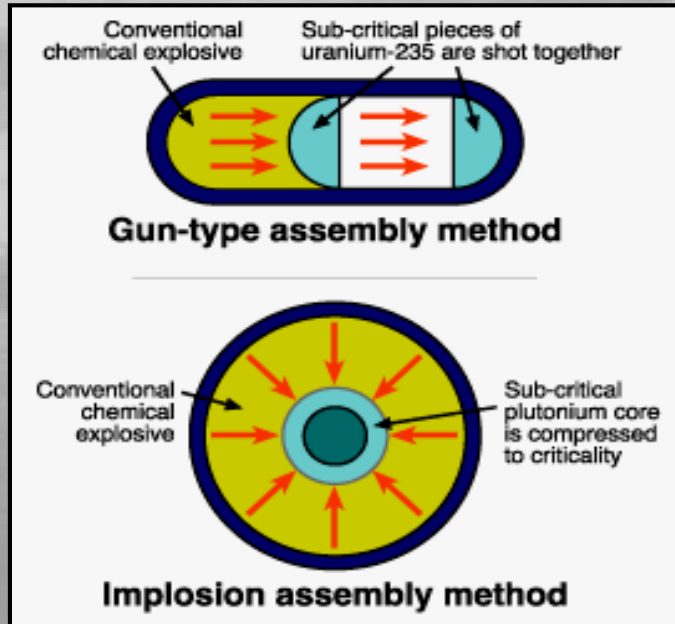
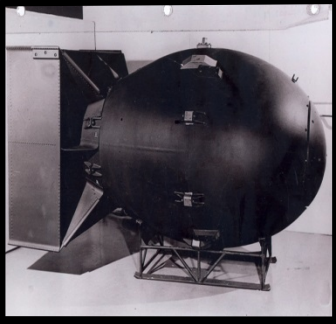
100 METERS

Fission Bomb

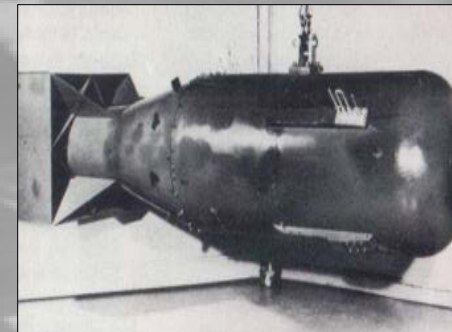


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Fat Man and Little Boy

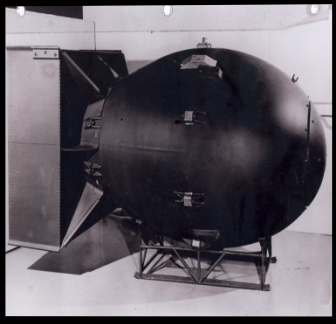


“Fat Man”




“Little Boy”

New Weapons in World War II




A black and white photograph of the Fat Man atomic bomb, a large, bulbous, egg-shaped weapon with a long tail fin assembly, resting on a metal transport cradle.

 During the last stages of the war, two new weapons were introduced: the long-range rocket and the atomic bomb.



A black and white photograph of a V-2 rocket being launched from a wooden launch rail. The rocket is angled upwards, and a large plume of smoke and fire is visible at its base.

 Throughout the war, most weapons were an improved version of the weapons used in World War I.

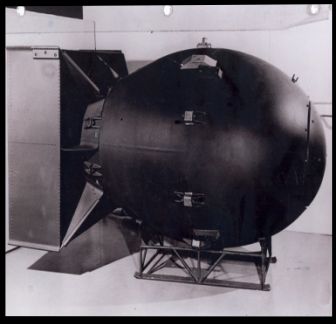


A black and white photograph of the atomic bombing of Nagasaki. A massive, towering mushroom cloud of smoke and fire rises from the city, with a large crowd of soldiers in the foreground watching the event.

 Atomic bomb = absolute destruction.

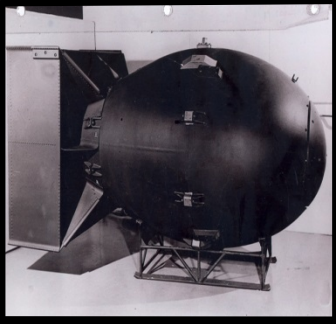
Russian Influences on Development of the Atomic Bomb

- The US carefully considered Russia in the development of the Atomic Bomb.
- General Groves viewed the Soviet Union as one of America's worst enemies.
- Truman's advisors convinced him that if the Atom bomb was used, it would keep the US's enemy Russia at bay.
- Postwar use of the bomb as a bargaining chip for territory was highly valued.

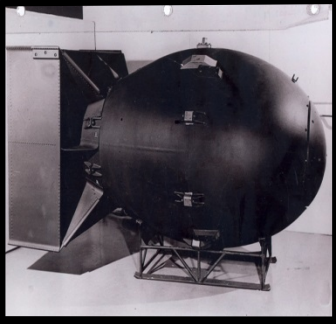


A Chance for peace?

- One week before Roosevelt's death, Japanese Prime Minister Kuniaki Koiso and his cabinet resigns.
- Second resignation of Prime Minister in two years.
- Japan believed "unconditional surrender" was not tolerable.
- Kantaro Suzuki was named new Prime Minister.



Battle of Okinawa



- Known as "Typhoon of Steel"
- Largest amphibious assault in Pacific of the War.
- Operation Downfall - invasion of main islands in Japan
- 48,000 Americans died. 150,000 Japanese civilians died.
- Japanese propaganda viewed Americans as "barbarians." This gave the Japanese the mindset of never surrendering to an American.



Uses for the Bomb



Against Germany or Japan



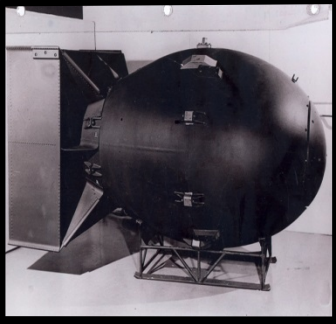
General Groves believed it could end World War II.



\$2 billion used to build the bomb. Not using it would be a waste.



'If this weapon fizzles, each of you can look forward to a lifetime of testifying before congressional investigating committees.' Gen. Groves to his staff, December 24, 1944



Debate over the Bomb: American Support



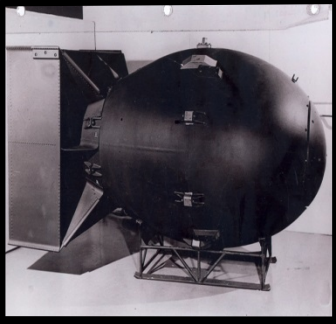
Americans were suffering many casualties and the Japanese were showing no signs of possible negotiation.



A cease fire was non-negotiable.



If the United States dropped the atomic bomb, surrender and peace would probably occur.

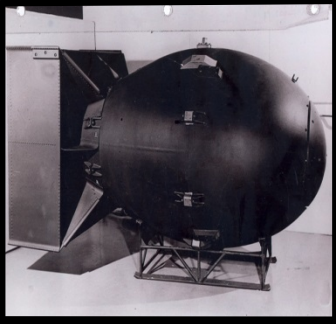


Potsdam Declaration

July 26, 1945

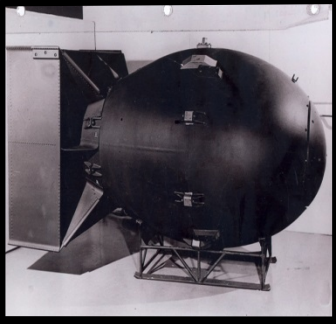
Key Points:

1. *We-the President of the United States, the President of the National Government of the Republic of China, and the Prime Minister of Great Britain, representing the hundreds of millions of our countrymen, have conferred and agree that Japan shall be given an opportunity to end this war.*
13. *We call upon the government of Japan to proclaim now the unconditional surrender of all Japanese armed forces, and to provide proper and adequate assurances of their good faith in such action. The alternative for Japan is prompt and utter destruction.*



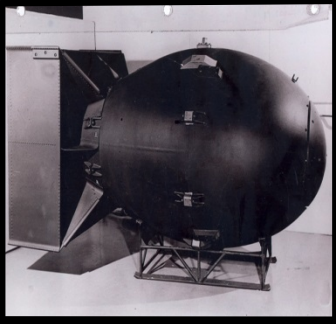
Potsdam Declaration Cont.

1. Japan would be occupied until the declaration was signed.
2. The Japanese army would be allowed to return home.
3. Once the declaration was met, allied troops would be withdrawn.
4. "Japan shall be permitted to maintain such industries as will sustain her economy and permit the exaction of just reparations in kind, but not those which would enable her to re-arm for war. To this end, access to, as distinguished from control of, raw materials shall be permitted. Eventual Japanese participation in world trade relations shall be permitted. "







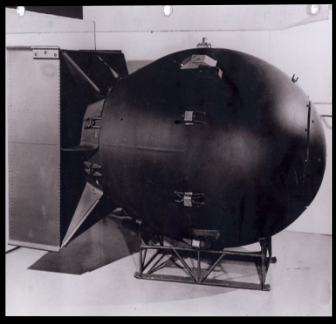
Japan's Response to the Potsdam Declaration

- Japan's response was ambiguous.
- Before Japan could agree to any surrender, the top military officials had to figure out a way to satisfy many different groups inside Japan.
- Japanese official Suzuki used the word *mokusatsu* which had a few different English translations.
- The US and the US newspapers interpreted the word to mean "reject" when in fact it could have meant something different.
- The apparent rejection of the Declaration definitely sped up the process of using the atomic bombs.

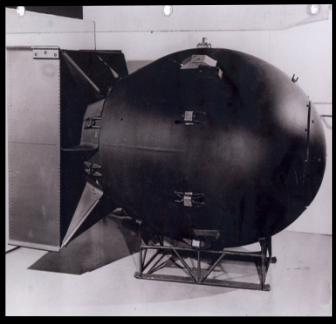





Unconditional Surrender

-  Established at the Casablanca Conference early 1943.
-  Popular because war aims were clear.
-  Gained Soviet and American support.
-  Prevents country from resurging to power (Germany).



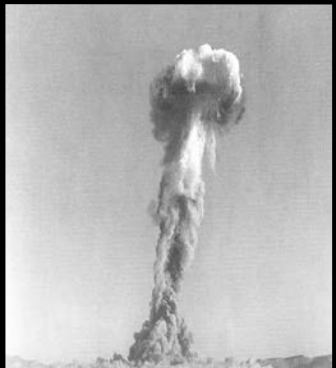
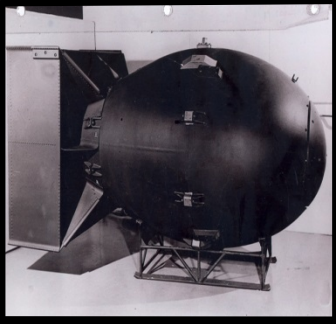
Japanese View of Unconditional Surrender



-  Emperor Hirohito was totally against unconditional surrender.
-  Americans viewed Hirohito as a symbol of military aggression
-  Unconditional surrender → destruction of "divine" monarchy.

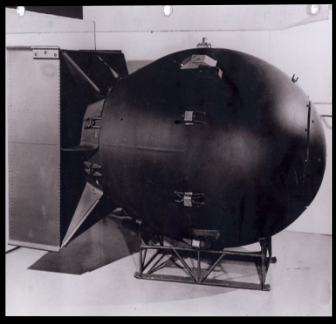
Emperor Hirohito

- The atomic bomb convinced the Emperor to break the deadlock of Japan's generals and accept the Potsdam Declaration
- He gave three reasons, "a collapse of domestic morale" and two military concerns: "inadequate preparation to resist the invasion and the vast destructiveness of the atomic bomb and the air attacks" (Frank, 345).
- The atomic bomb was given as the main reason for the surrender of Japan



Japan Will Fight Until the End

- Imperial Conference in Tokyo - June 8th 1945.
- "Fundamental Policy"
- Japan is willing to fight to the bitter end as an underdog.
- Surrender is not an option for Japan.



Roosevelt's Influences on Truman



Even though Truman and Roosevelt did not get along, Roosevelt's legacy remained in power.



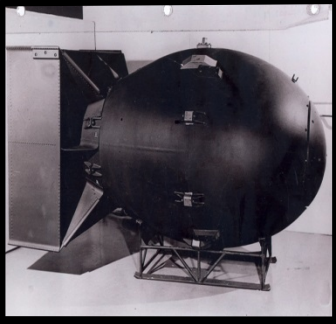
Roosevelt's former advisors found it easy to mold the new president Truman's foreign policy and his feelings toward the Soviet Union.



Kissinger said, *"Soviet policies were explained to Truman in inherent bad faith model."*



These heavy influences made the decision to drop the atom bomb very optimal.



Truman's Motivations



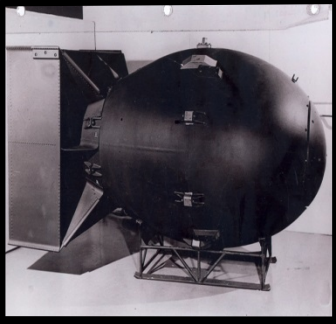
It cost the US \$20 billion (in today's dollars) to build the atomic bomb.



It cost the US \$20 billion (in today's dollars) to build the atomic bomb.



The use of the atomic bombs in ending World War 2 prevented endless investigations of the Truman administration.



Truman's Motivations Cont.



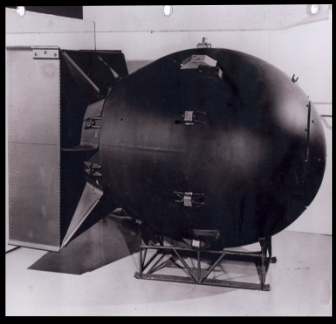
Many historians believe that a main reason for the use of the bomb was retaliation for the surprise and brutal attack on Pearl Harbor.



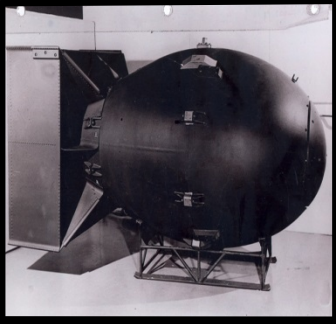
After the bomb was dropped on Hiroshima, Truman said *"This is the greatest thing in history."* and *"Nobody is more disturbed over the use of atomic bombs than I am but I was greatly disturbed over the unwarranted attack by the Japanese on Pearl Harbor and their murder of our prisoners of war."*




Thousands of POW'S were mistreated





Saving Lives by Using the Bomb





 Non-combatants were dying throughout Asia at the rate of 200,000 per month.



 The complete naval blockade of Japan would have resulted in hundreds of thousands of deaths due to malnutrition, dehydration, and famine.



 The atomic bomb saved thousands of American soldier's lives



Invading Japan?

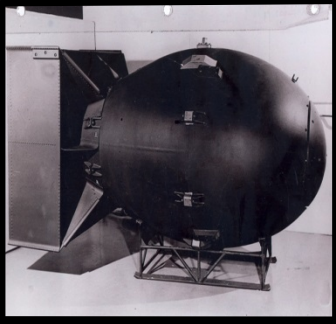
☐ If America did invade Japan, many Americans would have died.

☐ Secretary of State James Byrnes claimed 500,000.

☐ Total combat deaths after four years of war - 292,000.

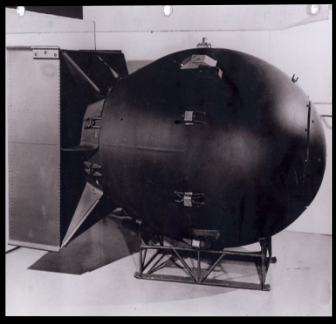


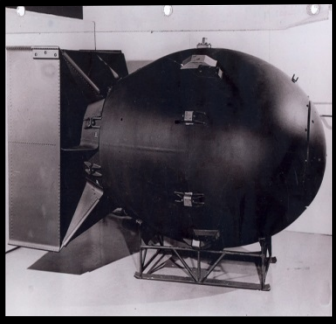
Photo # NH 96781 USS Missouri & USS Iowa off Japan, 20 August 1945



Japan: A Constitutional Monarchy

1. Japan's Constitutional Monarchy created many problems for the possibility of peace.
2. Surrender possible only with unanimous support.
3. Cabinet was dominated by militarists from Army and Navy.
4. Political stalemate.



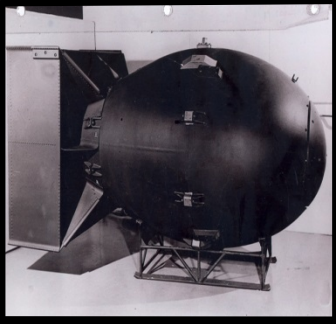


The Beginning of the End of Imperial Japan

- By 1945, a Japanese victory would not be possible.
- Use of kamikaze (divine wind) attacks damaged about 50 U.S. ships and sunk 17 during January 4 - 13 1945.
- Many Japanese soldiers jumped off cliffs instead of surrendering to U.S. soldiers.
- 1945, U.S. Marines capture the island of Iwo Jima. About 6,800 U.S. casualties.
- The next attack was scheduled for Kyushu in November 1945.

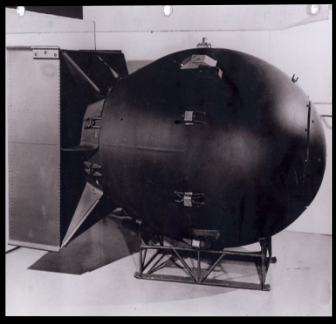
Japanese Support

- Some Japanese historians supported the dropping of the atomic bombs.
- Salvation in the atomic bombing.
- Koichi Kido - "We of the peace party were assisted by the atomic bomb in our endeavor to end the war."
- Hisatsune Sakomizu - "Golden opportunity given by heaven to end the war."







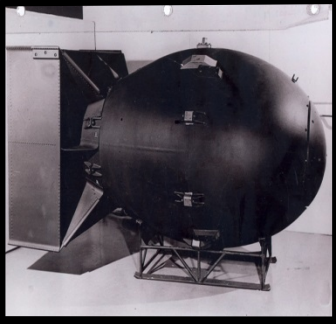
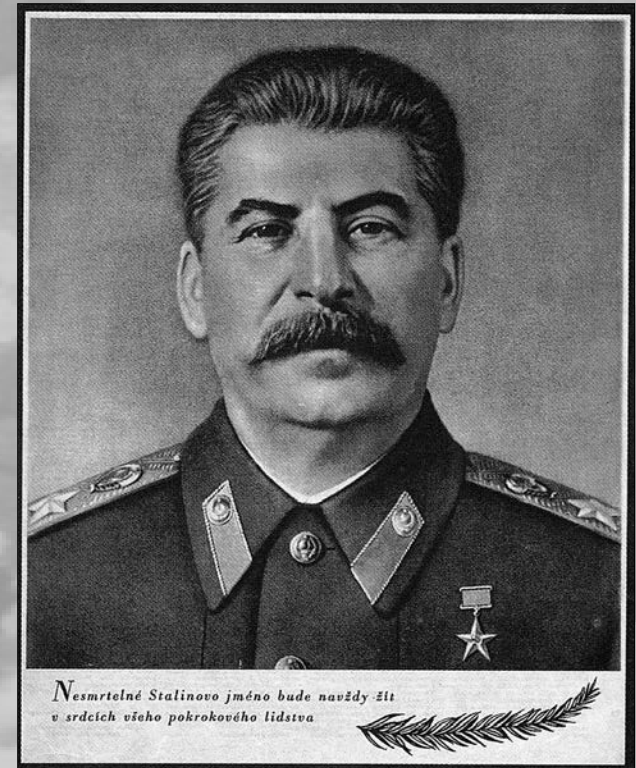
Japan and the Soviet Union

- There was a slight chance that peace could come through Moscow.
- Japan desperately sought help from Stalin to fight defeat.
- Japan wanted a conditional surrender with Allies.



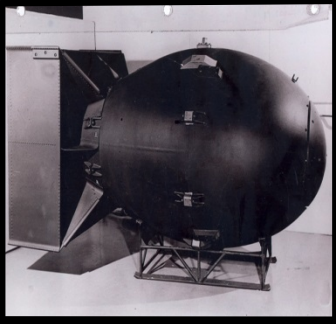
U.S. and the Soviet Union

-  Soviet Union played a large role in the use of the atomic bomb.
-  Growing tensions between U.S. and Soviet Union -- puppet governments in Eastern Europe.
-  Stalin started a Soviet atomic bomb project in 1942.
-  Soviets helped defeat Germany, but Stalin was not popular with the Allies.



The Soviet Union in the Pacific War

- As Germany weakened near defeat, U.S. wanted the Soviet Union to enter the Pacific War.
- Yalta Conference - Feb. 1945, Stalin promises to enter Pacific War 2-3 months after Germany surrenders.
- U.S. leaders start to have second thoughts on the Soviet Union's entrance into the Pacific War.



“Magic” & “Ultra”



 “Magic” – U.S. discovers Japan wants Soviet help.



 Unconditional surrender was not possible.







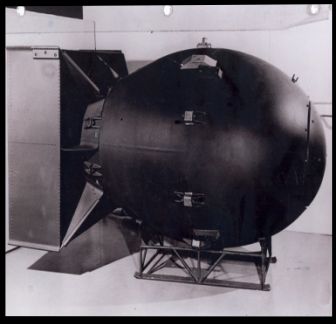
 “Ultra” – Japan willing to fight until the end.



 Further limited hope of negotiation with the Japanese.

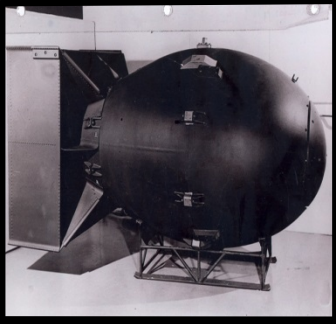
Interim Committee

-  The Interim Committee on post-war atomic policy discussed dropping the bomb on Japan without any formal warning.
-  May 31, 1945 meeting was held with Stimson (Sec. of War), James Byrnes (Sec. of state), and scientific advisers held by Dr. Robert Oppenheimer.
-  Committee decided not to formally warn Japan for the Hiroshima dropping.
-  U.S. needed to shock Japanese to surrender, so a warning was out of question.



Opposition to the Interim Committee

- ❁ Leo Szilard and other Manhattan Project scientists believed Japan should be warned.
- ❁ Without a formal warning would be immoral in the eyes of the world.
- ❁ Also, scientists believed U.S. should tell Soviets before using the war → postwar arms race.
- ❁ Chicago group - petitioned to President Truman.



Possible Target Locations



The target committee at Los Alamos from May 10 - 11, 1945, recommended Kyoto, Hiroshima, Yokohama, and arsenal at Kokura as possible targets.



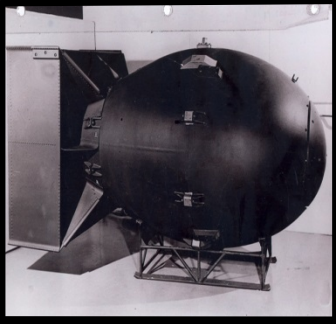
The psychological effects on the Japanese citizens were important to the committee members.



The target location for the detonation of the bomb should be spectacular for international recognition.



Kyoto, Hiroshima, Kokura, and Niigata.

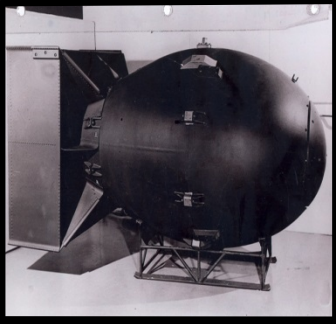


Truman's True Beliefs

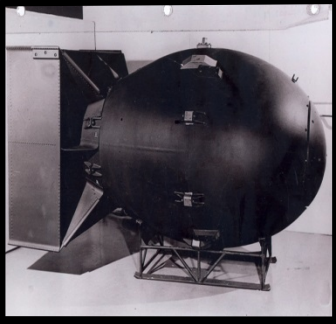
"We have discovered the most terrible bomb in the history of the world. It may be the fire destruction prophesied in the Euphrates Valley Era, after Noah and his fabulous Ark."

"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."

"He and I are in accord. The target will be a purely military one and we will issue a warning statement asking the Japs to surrender and save lives."

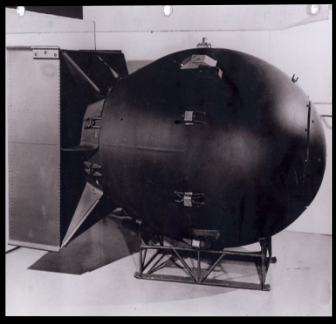


Ulterior Motives for Atomic Bombs?



Official Order To Drop Bomb

1. Stimson (Sec. of War) and Byrnes (Sec. of State) advised Truman to use the bomb. Spring and summer of 1945, Truman approves decision.
2. Decision was "noninterference."
3. Lt. Gen. Carl Spaatz requested a written order.
4. Official order was issued on July 25th.



Success



At 2 PM, just a few hours after the bomb was dropped on Hiroshima, General Leslie Groves called Dr. Robert Oppenheimer to tell him of the weapons mass success



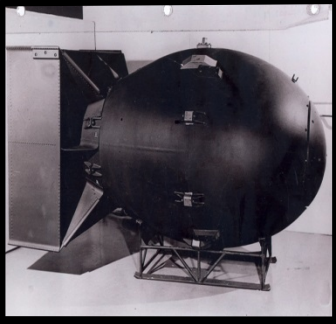
Groves said "Apparently it went with a tremendous bang."



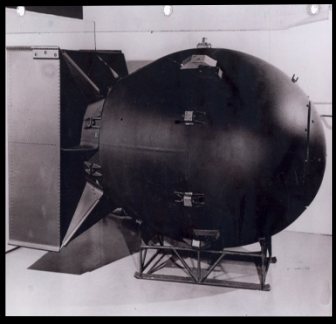
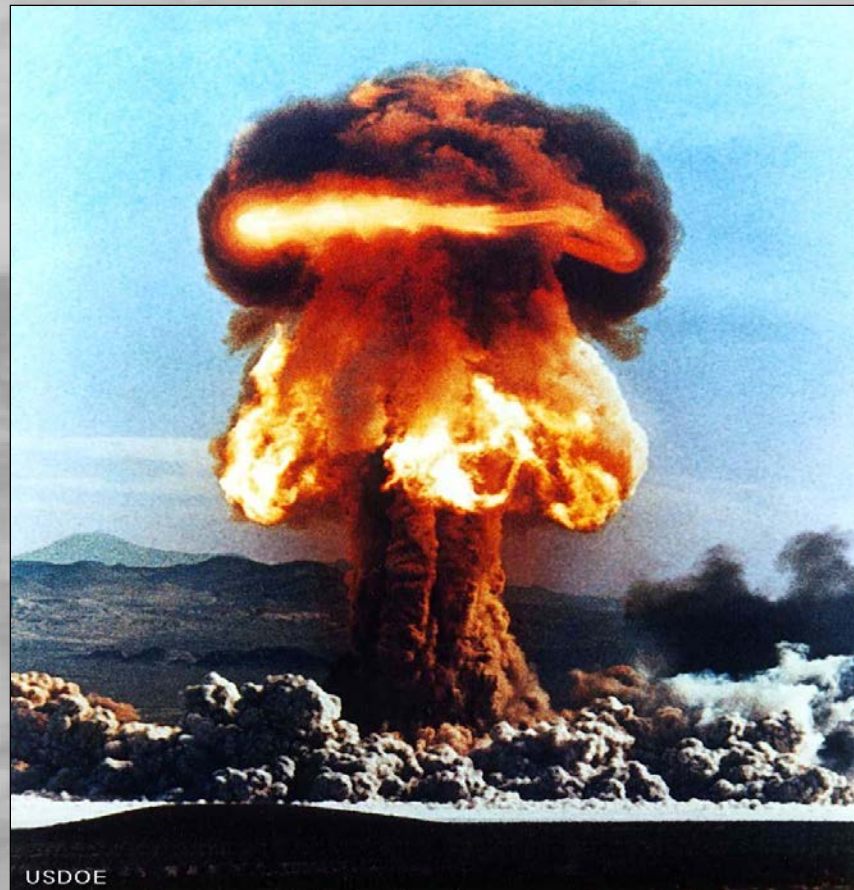
Right after the tremendous success with the Hiroshima bombing, "Every effort is being devoted to their next objective" (Nagasaki three days later)



After Nagasaki it was mentioned that there will be a following objective implying that there could be a third bombing

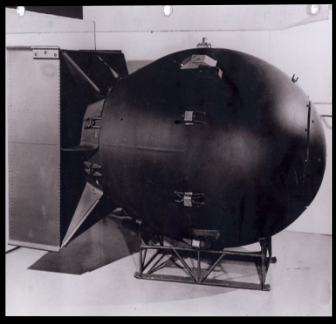


The Atomic Bomb at Hiroshima



Hiroshima During World War II

- Hiroshima, Japan had reached a population of over 381,000.
- Due to evacuations, the city population dropped to 255,000 at the time of the attack.
- The city's building construction consisted of several reinforced concrete buildings and lighter structures such as small wooden workshops and houses.



The Enola Gay



On August 6, 1945, the B-29 Enola Gay, under colonel Paul Tibbitts left Tinian airbase in the West Pacific.



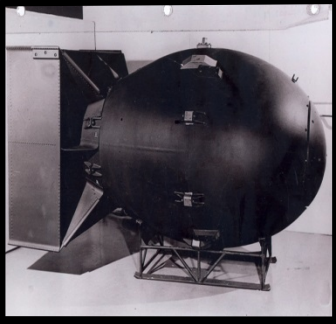
The six hour flight went exactly as expected.



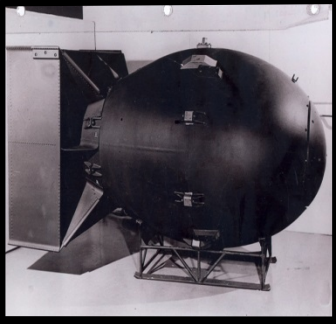
The bomb was armed midway and clear weather permitted for accuracy.



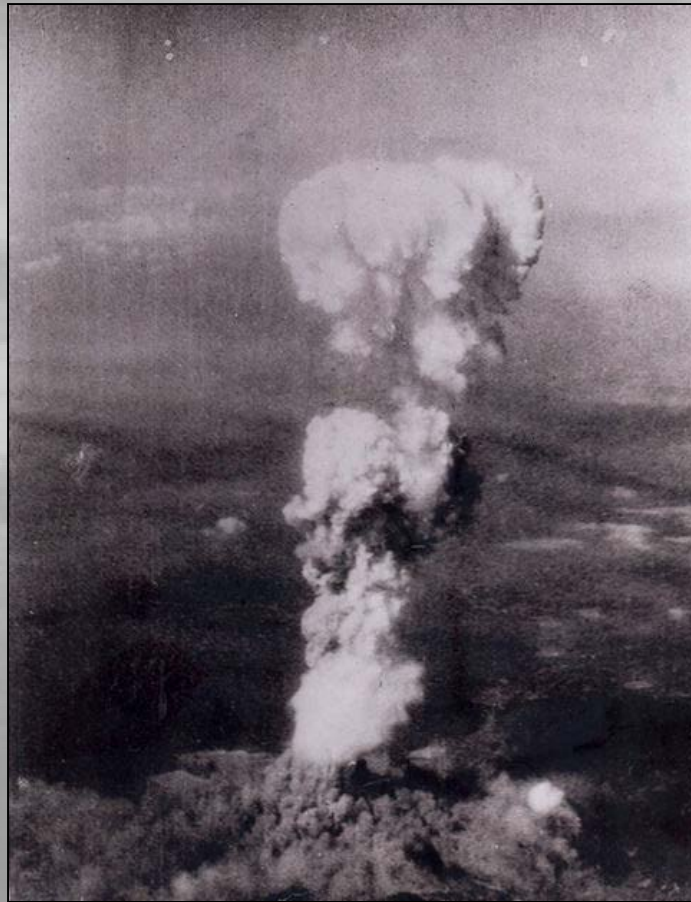
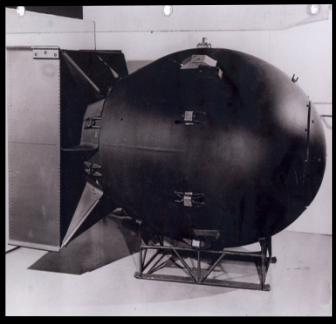
Hiroshima Before The Atomic Bomb



Hiroshima After The Atomic Bomb



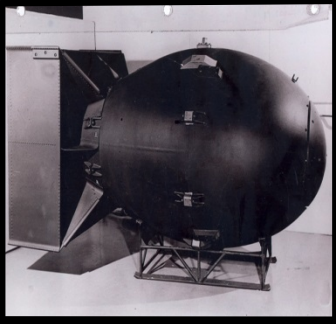
The Mushroom Cloud



- ☢ 8:15 AM, "The Little Boy" was dropped over the center of Hiroshima
- ☢ It exploded about 2,000 ft. above the city and had a blast the equivalent to 13 kilotons of TNT.
- ☢ Due to radiation, approximately 152,437 additional people have died.

Nagasaki During World War II

- Nagasaki was one of the largest seaports in southern Japan.
- The city was important during the war because of great industrial activity.
- Most residences and industrial buildings were made of wood.
- Since the city had been permitted to grow without any strict zoning laws, most buildings and residences were constructed closely to each other.

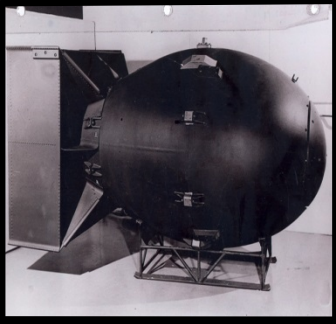


Formal Warning to Japan

- On August 10, 1945 thousands of leaflets were dropped over the city of Nagasaki
- The leaflets called for a petition to the Emperor of Japan to stop the war and agree to thirteen consequences of an honorable surrender.
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Sample Leaflet



Bockscar



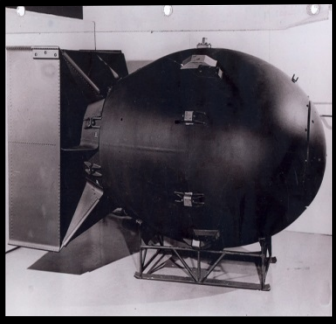
Sometimes called Bock's car.



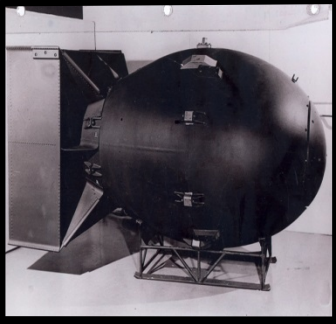
B-29 bomber Superfortress, flown by Major Charles W. Sweeney dropped the "Fat Man" on August 9, 1945.



The Bockscar did didn't have enough fuel to return to Tinian or Iwo Jima, so Major Sweeney flew the aircraft to Okinawa for an emergency landing with practically dry fuel tanks.



The Bombing: Nagasaki



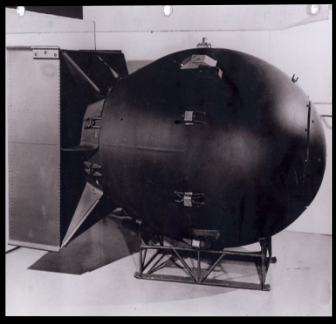
Before



After

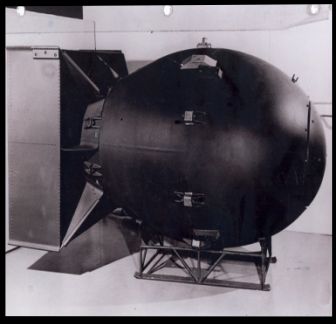
Japanese Realization

- 🇯🇵 Tokyo control operator of JBC noticed Hiroshima station went off air.
- 🇯🇵 Complete silence when military bases called Army Control Station.
- 🇯🇵 White House public announcement was Tokyo's first knowledge of the attack.
- 🇯🇵 Japan did not immediately surrender after the bombings. Emperor Hirohito was forced to agree to the Potsdam Declaration.



Japanese Leaders After the Use of the Atomic Bombs

- Even after the use of the atomic bomb on Hiroshima and Nagasaki, the Japanese were still undecided on whether to surrender
- There were two opposing plans for surrender
- The plan with four conditions
 1. A guarantee that the imperial family will continue to reign.
 2. Disarmament of the armed forces by Japan herself.
 3. Trial of war criminals by Japan herself.
 4. Occupation of Japan to be limited to the minimum time and places



The Japanese Surrender



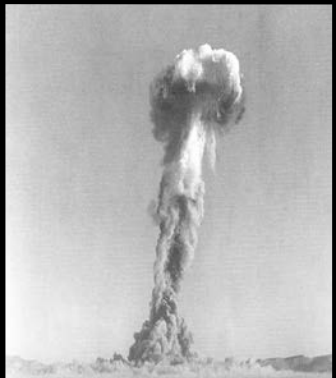
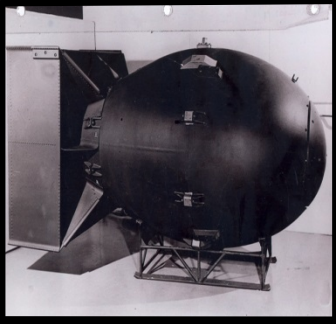
The Japanese surrendered on September 2, 1945.



The ceremony took place on the *USS Missouri* accompanied by British ships in Tokyo Bay.



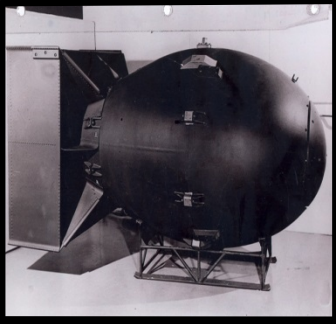
Japan agreed to a ceasefire and the release of POW's.



Imperial Rescript on Surrender

...“The enemy has begun to employ a new and most cruel bomb, the power of which to do damage is, indeed, incalculable, taking the toll of many innocent lives. Should we continue to fight, not only would it result in an ultimate collapse and obliteration of the Japanese nation, but also it would lead to the total extinction of human civilization.

Such being the case, how are We to save the millions of Our subjects, or to atone Ourselves before the hallowed spirits of Our Imperial Ancestors? This is the reason why We have ordered the acceptance of the provisions of the Joint Declaration of the Powers.



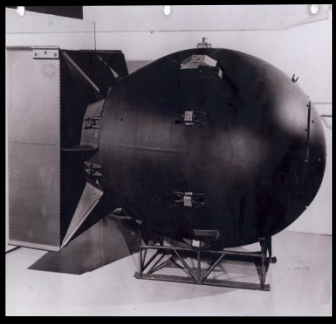
Signing of the Terms of Unconditional Surrender by Japan



"As President of the United States, I proclaim Sunday, September the second, 1945, to be V-J Day--the day of formal surrender by Japan. It is not yet the day for the formal proclamation of the end of the war nor of the cessation of hostilities. But it is a day which we Americans shall always remember as a day of retribution--as we remember that other day, the day of infamy.

From this day we move forward. We move toward a new era of security at home. With the other United Nations we move toward a new and better world of cooperation, of peace and international good will and cooperation.

God's help has brought us to this day of victory. With His help we will attain that peace and prosperity for ourselves and all the world in the years ahead.



Hindsight



Truman believed that if the atomic bomb was not successful, an invasion would be needed.



After the war, information concluded that Japan would have surrendered.



"Certainly prior to 31 December 1945, and in all probability prior to November 1945, Japan would have surrendered even if the atomic bombs had not been dropped, even if Russia had not entered the war, and even if no invasion had been planned or contemplated."

