

Important Faces of the Manhattan Project

There were numerous men and women whose participation helped provide the knowledge, understanding, and political savvy that made the unprecedented, top-secret Manhattan Project come together.

General Leslie Groves

A graduate of West Point, General Leslie Groves was an integral point person during the Manhattan Project. After supervising the building of the Pentagon in Washington, D.C., Groves was promoted to the rank of temporary Brigadier General and placed in charge of the Manhattan Engineer Project. Under his direction, the basic research behind the development of the atomic bomb was carried out. Coming on board in September 1942, Groves' job was multi-faceted. Each phase of the project was under his direction, from scientific research to production, from security to planning for the use of the world's first atomic weapon. Groves was in charge of the plants that were constructed at Oak Ridge, Hanford and Los Alamos.



In addition to the construction of each project, Groves played a prominent role in making significant decisions and prioritizing the various methods of isotope separation, acquiring the raw materials the scientists and engineers needed, and in creating the army air force bomber unit which would deliver the finished bombs to their targets. Groves was involved in gathering intelligence on Germany's atomic research program. Additionally, he helped decide which Japanese cities would be chosen as targets.

After the atomic bombing of Hiroshima and Nagasaki ended the war with Japan, Groves was awarded the Distinguished Service Medal. In 1944, Groves was promoted to temporary Major General and continued to direct the Atomic Energy Commission until January 1947.

J. Robert Oppenheimer

One of the most renowned scientific minds of this century, J. Robert Oppenheimer's contributions to the Manhattan Project were, in a word, immense. Known as "the father of the atomic bomb," Oppenheimer was a theoretical physicist. His work on the production of the atomic bomb began at the Radiation Laboratory at Berkeley, where he was asked to take over work on fast neutron calculations.



In the 1930's, like many young intellectuals during that time, Oppenheimer had become a supporter of communist ideas. After inheriting a large sum of money upon his father's death in 1937, Oppenheimer donated to many left-wing efforts including the Republican cause in the Spanish Civil War and other anti-fascist activities. He never openly joined the

Communist Party, though he did pass money to liberal causes by way of Party members.

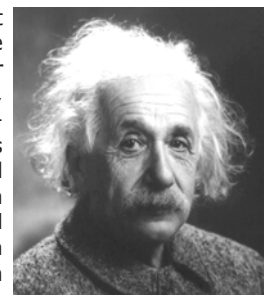
Despite Oppenheimer's political views, in 1942, newly-appointed Manhattan Project director General Leslie Groves hired Oppenheimer to be the Project's scientific director. Groves knew that Oppenheimer would be viewed as a security risk, but he thought Oppenheimer was the best man to direct a diverse team of scientists and a man who would be unaffected by his past political leanings.

Once he became officially involved in the Manhattan Project, Oppenheimer's first act was to host a summer school for bomb theory at his building in Berkeley. The goal of this meeting was to calculate what needed to be done to build the atomic bomb. Los Alamos, New Mexico was the chosen site for a centralized, secret research laboratory. The site, not far from Oppenheimer's ranch, was the site of a private boy's school. Next, Oppenheimer assembled a remarkable group of physicists, whom he referred to as the "luminaries." This group included Enrico Fermi, Richard Feynman, Robert R. Wilson, Victor Weisskopf, Hans Bethe, and Edward Teller.

The research and work done at Oak Ridge, Los Alamos, and Hanford resulted in the first nuclear explosion on July 16, 1945. The site, located near Alamogordo, New Mexico, was named "Trinity" by Oppenheimer. The test was a success, and news of it was rushed to President Harry S. Truman, who then authorized the bombings of Hiroshima and Nagasaki, Japan.

Albert Einstein

Albert Einstein was a guest professor at Princeton University in January 1933, the time period Adolf Hitler came to power in Germany. Not long after that event, Einstein's work was maligned as "Jewish Physics," and many German scientists attempted to black list his theories and those who taught them. Einstein then renounced his Prussian citizenship and stayed in the U.S., where he was given permanent residency and became an American citizen in 1940. He also retained his Swiss citizenship.



In 1939, Einstein was encouraged to send a letter to President Franklin Delano Roosevelt urging the study of nuclear fission for military purposes. He wrote this letter due to fears that Nazi Germany would be the first to develop a nuclear weapon. Upon reading this letter, President Roosevelt began investigating the probability of this occurring, and soon after ordered the formation of the Manhattan Project.

Important Faces of the Manhattan Project: *(continued)*

Enrico Fermi

Enrico Fermi was an Italian physicist whose most notable work was the development of the first nuclear reactor and for the development of the quantum theory. After winning the Nobel Prize in Physics for his work on induced radioactivity in 1938, Fermi moved his family from Rome, Italy to New York where he took a job at Columbia University.



In August 1939, Einstein signed a letter that was sent to President Franklin Delano Roosevelt. This letter evoked a response in Roosevelt which caused him to assemble the Uranium Committee and to award Columbia University the first atomic energy funding of \$6,000. This funding was used in studies which led to the first nuclear reactor, the Chicago Pile-1. This massive atomic pile of graphite bricks and uranium fuel was built under Stagg Field, the football stadium at the University of Chicago. The reactor went critical on December 2, 1942. The reactor was important for several reasons. First, it provided assistance in assessing the properties of fission, which was needed for understanding the internal workings of an atomic bomb. Second, it served as the pilot plant for the massive reactors built in Hanford, Washington.

Fermi's role in this project was very important. He planned every step and calculation very carefully and meticulously. When the first sustained nuclear chain reaction was made, a coded phone call was made to one of the Manhattan Project leaders. It said, "The Italian navigator has landed in the new world. The natives were very friendly."

Fermi later moved to Los Alamos, New Mexico during the later stages of the Manhattan Project to serve as a general consultant on the project.

Henry Stimson

Henry Stimson was appointed U.S. Secretary of War in 1911 under President William Howard Taft. He continued to serve in various political positions under Presidents Calvin Coolidge and Herbert Hoover. Stimson was once again appointed to Secretary of War in 1940 under President Franklin Delano Roosevelt.



As head of the War Department, Stimson skillfully directed the rapid, tremendous expansion of the Army to a force of over ten million soldiers. At 74 years of age, Stimson was energetic in his organization of America's industrial and economic resources in the fight against Japan and Germany.

In addition, Stimson was the principle decision-maker for the Manhattan Project, with direct supervision over General Leslie Groves. Stimson was referred to for his advice by both Presidents Roosevelt and Harry S. Truman. He had the authority to

and at times did overrule the military. One example was that he removed Kyoto, a cultural center in Japan, from the target list for the atomic bomb.

Leo Szilárd

It was Leo Szilárd who came up with the idea to send a confidential letter to President Franklin Delano Roosevelt explaining the possibility of nuclear weapons and encouraging him to develop a program that would create such a weapon. It was Szilárd who acquired the endorsement and signature of Albert Einstein for this proposal. It was this famed letter that eventually led to the formation of the Manhattan Project and the research of nuclear fission. Szilárd later moved his work to the University of Chicago where he helped Enrico Fermi and J. Robert Oppenheimer construct the first nuclear reactor.



Ernest Orlando Lawrence

Known as the "Father of Y-12," Ernest O. Lawrence played an integral part in the production of the fuel for the world's first atomic bomb. His career began in 1928 when he was appointed Associate Professor of Physics at the University of California, Berkeley. His work went full force in 1929 when he invented the cyclotron. For many years thereafter, he continued to revise and craft his invention, a tool that would prove extremely useful during WWII. At Berkeley, Lawrence was called the "Atom Smasher" and considered the man who "held the key" to atomic energy. In 1936, he became director of the University's Radiation Laboratory, and when America entered the war, he was tapped for the Manhattan Project. His vision for the cyclotron was to create a machine that would produce very high energy particles required for atomic disintegration by means of a succession of very small "pushes" without using high voltage. Because the cyclotrons were created at the University of California, Berkeley, they became known as "calutrons." Enormous calutrons were built and used at the Y-12 Beta-3 Calutron Plant to purify uranium. This method, also known as electromagnetic separation, was the most successful method used to separate highly enriched Uranium 235 from Uranium 238.



Lawrence was eager to help ramp up the American investigation into a weapon fueled by nuclear fission. His laboratory at Berkeley became a major center for wartime atomic research, and it was Lawrence who first introduced Oppenheimer to the Manhattan Project. At war's end, Lawrence became an advocate of "big science" and pushed hard for government sponsorship of related projects. The Nobel Prize winner in Physics received numerous awards throughout his lifetime including the inaugural Sylvanus Thayer Award from the United States Military Academy for service to his country. He was also honored when Chemical element number 103 was named "lawrencium" in his honor.