No Borders MUN

Background Guide

The Manhattan Project: U.S. Army Corps of Engineers

1 | Facilitating successful development and research of the first nuclear weapons

No Borders MUN 2022

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Committee Introduction

Welcome to the Manhattan Project crisis committee of No Borders MUN 2022!

In this crisis committee, delegates will become members of the U.S. Army Corps of Engineers (USACE) and the Los Alamos Laboratory to participate in the Manhattan Project, where the world's first nuclear weapons were developed during World War II. As this is a historical crisis committee, delegates are encouraged to be absorbed in their characters and make rapid decisions along the way to 'change history.'

The committees under the Manhattan Project have been working together day by day since its establishment in 1775 and acted as one of the key game-changers during World War II. Its laboratory at Los Alamos is only one of the hundreds of research areas all over the United States, but its significance is undeniable. The laboratory was responsible for the birth of the Manhattan Project- the first American-led effort to develop the first nuclear weapons in the world. As part of USACE and the Manhattan Project, delegates would use all their knowledge of nuclear warfare and technology to collaborate on creating the first successful, groundbreaking nuclear warheads in the history of mankind.

A crisis committee may seem unusual for many delegates as opposed to General Assembly committees, but it is certainly a more diverting kind. Delegates would have to deal with one major event, in this case the Manhattan Project, and would have to make different decisions according to what other decisions their fellow delegates make. Delegates would also draft private and public directives instead of resolutions according to the crisis updates introduced by the director. Quick decision-making skills and adequate research are both very crucial, but above all, the most important thing is having fun! With the most effective and innovative directives, delegates would be able to lead the United States' nuclear weapon industry to its desired direction in world society.

Agenda Introduction

Ever since the United States joined World War II as part of the Allied Powers, President Franklin D. Roosevelt had noticed the dire need for stronger weapons and power to prevent threats to American security. Roosevelt decided that the development of nuclear weapons would be the key to asserting power in the European Theater of Operations and established the Manhattan Engineering District in 1942. Thus, the story of the Manhattan Project began on August 13th, 1942. This committee runs under the assumption that the characters had all joined since the beginning of the project, despite some characters having joined a little later.

The world, including the United States, was ignorant of nuclear weapons, but President Roosevelt decided to change the trend of warfare. As the chosen members, the U.S. Army Corps of Engineers are responsible for creating successful nuclear weapons to bring victory and honor to both American science and the military. With the collaboration of multiple laboratories under the mission such as the Los Alamos Laboratory and the Clinton Engineer Works at Oak Ridge, Tennessee, members of USACE must safely and promptly develop the game-changing warheads.

With the constant fear of the Central Powers posing threats to the Allies, members of this Project are under high pressure and expectations. All the developments must also be done in ultimate secrecy, meaning the members must be aware of any suspicious individuals who may potentially be spies from the Central Powers. Everything must be done with perfection, secrecy, and security, making this project a very challenging yet ambitious task. The fate of this project is up to the decisions the chemists, physicists, officers, and generals of the Manhattan District make.

Letter from the Chairs

Dear esteemed scientists and officers of the U.S. Army Corps of Engineers,

Welcome to the Manhattan Project crisis committee of No Borders MUN 2022!

We are Anika Kim (Crisis Director), Sophie Wong (Head Chair), Curtis Ko (Deputy Chair), and Katelyn Oh (Associate Chair), and it is our honor to be serving as the chairs of NBMUN III Crisis II. We look forward to working with bright delegates both prior to and during the conference. In this committee, delegates will act as physicists, chemists, officers, and generals of the United States Army Corps of Engineers (USACE) and collaborate for such an exciting achievement - developing nuclear warheads! (Please do not find this exciting in real life.) We are excited to provide you with one of the only two crisis committee experiences of this conference.

While World War II was sparked by the German invasion of Poland, it has larger implications regarding the power and economic status of each nation. This crisis committee would require delegates to become characters themselves instead of just representing a country as in General Assembly committees to take part in such big meaning. Delegates would be encouraged to become entirely new people and make rapid decisions to either successfully or catastrophically complete the project. While this is a historical crisis committee where delegates have to stick to historical information and data, never forget that you are key action takers who have the ability to change the fate of the committee. Never be afraid to take risks!

We realize this committee may be new to a lot of people as crisis committees are not too common in the MUN field. In such cases, the chairs are always one email away willing to help out in any way! Even if things get tough, it's all part of gaining experiences and having fun. Feel free to reach out to us any time.

See you all at the conference in September!

Best,

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Key Terms

Allied powers (WWII)

The Allied powers consisted of Great Britain, the United States, France, and the Soviet Union. Winston Churchill, Franklin D. Roosevelt, and Joseph Stalin were the respective leaders of the *big three* Allied powers. The nations formed an international military coalition in opposition to the Axis powers. Nonetheless, the three nations did not share similar political aims and disagreed on ways the war should be fought. This will later lead to the collapse of the post-war alliance through international conflicts such as the Yalta Conference in 1945. The alliance was sparked and formed when Germany invaded Poland's borders. Other member nations include Poland, Canada, Australia, New Zealand, and South Africa. The alliance was greatly similar to WWI alliances.

Axis powers (WWII)

The Axis powers, originally named the Rome-Berlin Axis, consisted of Nazi Germany, Imperialist Japan, and Fascist Italy. Adolf Hitler, Hideki Tojo, and Benito Mussolini were the respective leaders of the main Axis powers. The Axis powers made their first move with Hitler, the Nazi German leader, invading Poland. As the country violates the German-Soviet Nonaggression Pact, the military coalition was in opposition to the Allied powers. With Germany as one of its allies, the Axis Powers frequently had a military advantage over the Allies through the strong German Air Force known as Luftwaffe. However, the aforementioned nations had differences in coordination and their political ideologies although they shared a common enemy.

Electromagnetic separation

Magnetic separation refers to the generation of magnetic forces on the particles to be separated. In this case, *electro*magnetic separation means the process of separating magnetic materials from non-magnetic materials. This can be done through ways of a conveyor, a drum, or a spinning screen. The method was proposed by Ernes Lawrence of the University of California, Berkeley in early 1941. This set the foundation and success for future processes of separating uranium isotopes. Other than using electromagnetic separation as a form of weapon creation, the first racetracks were constructed at the Y-12 Electromagnetic Plant in February 1943.

European Theater of Operations, United States Army (ETOUSA)

The European Theater of Operations, United States Army, or ETOUSA, was a Theater of Operations responsible for US military actions in Europe during WWII. The organization commanded parties such as the Army Ground Forces and the United States Army Air Forces. The ETOUSA began to grow its operations after the US formally entered WWII on December 11, 1941, a few days after the Pearl Harbor attack by the Japanese. German U-Boat attacks further escalated tensions between the US and Germany. The ETOUSA was fully in charge of the military operations following the mentioned events.

Gamma (γ) radiation

Gamma radiation is known to be weightless packets of energy, or photons. The most energetic photons in the electromagnetic spectrum would be gamma photons. Robert Serber, a Los Alamos physicist devised a way for testing the implosion properties of a device by placing a gamma-ray source in the center of it. This allowed for gamma rays to be used as a product of fission reactions. Although these rays are similar to X-rays, they can be distinguished as they are emitted from an excited nucleus. However, the negative consequences of radiation became a serious issue as the Manhattan project continued to develop.

Gas centrifuge

A gas centrifuge refers to a device that allows the performance of isotope separation of gases. The process revolutionized uranium processing for nuclear power, allowing countries to make nuclear weapons easily. The Manhattan Project failed to build a functional centrifuge. The gas centrifuge was invented in the Soviet Union by German prisoners of war around the 1950s and brought to the US by spies and informants. Unlike any of its prior technologies, the gas centrifuge was compact, affordable, and easy to build, nonetheless, it was capable of enriching uranium for the rapid creation of nuclear weapons.

Gaseous diffusion

Gaseous diffusion refers to gas diffusing through a membrane that contains microscopic pores under pressure. It was one of the three enrichment technologies used by the Manhattan Project. Effusion is a similar process where gaseous chemicals pass from a container to a vacuum. Gaseous diffusion was discovered by Graham in 1829, allowing hydrogen and oxygen to escape through a small hole, concluding that hydrogen molecules pass through four times faster than oxygen. The K-25 Plant, used in the Oak Ridge reservation, was used to separate uranium-235 from uranium 238. Gaseous diffusion was ultimately one of the three isotope separation techniques that allowed for the Hiroshima bomb, or Little Boy, to be built.

Gun-type fission weapon

Fission weapons are often referred to as atomic bombs, thermonuclear bombs, or hydrogen bombs. They are named in such ways as a portion of their energy is frequently released by nuclear fusion. Gun-type fission weapon is one of the two types of fission weapons. The weapons contain fissile material that functions through a gun-like motion. Plutonium is often used for the creation of such weapons. The Little Boy bomb that was deteriorated by the United States over Hiroshima is an example of a gun-type fission weapon.

Highly Enriched Uranium (HEU)

Highly Enriched Uranium, or HEU, refers to anything enriched above 20%. HEUs are often used for naval propulsion reactors and nuclear weapons. Uraniums may be enriched by splitting uranium isotopes with the use of lasers. The S-50 project was an attempt by the Manhattan Project to produce enriched uranium. Chemicals that were used to construct nuclear weapons often included uranium-235 and plutonium-239. The aforementioned isotopes are common in nuclear weapons as they are ready to undergo fission and can be easily utilized.

Implosion-type nuclear weapon

Implosion-type nuclear weapon refers to a method of assembling when "a subcritical mass of fissile material is compressed by a chemical high explosive into a denser critical mass". Plutonium or highly enriched uranium are often used for the composition of such weapons. Implosion functions when the detonation of the explosives is initiated on the outer surface, this allows the detonation waves to move inward and launch the weapon.

Los Alamos National Laboratory (LANL) & Manhattan District

Los Alamos Laboratory is a laboratory part of the US Department of Energy. It's located near Sante Fe, New Mexico, USA. The LANL holds the purpose to provide support for the national security system scientifically. The Laboratory was ultimately responsible for the development of US nuclear weapons later dropped on Hiroshima and Nagasaki as the last US acts in World War II. The Manhattan Project refers to the research and development during World War II that produced the US's inventory of nuclear weapons. The Manhattan Project was named after the Manhattan District in which most of its operations took place.

Nuclear fission

Nuclear fission refers to the reaction in which a heavy nucleus is split by neutrons and becomes unstable. This causes it to decompose into two nuclei, sharing the same size and magnitude. The discovery of nuclear fission by German scientists, Otto Hahn and Fritz Strassmann, triggered American scientists to warn Franklin D. Roosevelt, US President, that there are high chances that Germany will build an atomic bomb. This sparked the creation of the Manhattan Project which focused on strengthening the nuclear forces of America.

Radioactive decay

Any radioactive material has nuclei that are unstable. Radioactivity is the effect produced by the nuclei of an atom as a result of nuclear instability. A powerful burst of radioactive radiation from gamma rays and neutrons is the most immediate result of a nuclear explosion. As officials of the Manhattan Project became aware that they were about to create a new and powerful source of radiation, efforts to understand its repercussions increased. Ionizing radiation may impact the atoms in living things, providing a health concern by causing tissue and DNA in genes to be damaged.

S-1 Executive Committee

The S-1 Executive Committee, originally named the Uranium Committee, is a nuclear research group under OSRD. It coordinated the early nuclear research in the United States and set the basis for the Manhattan Project. As the institutional organization of uranium research in the United States changed dramatically, US President Franklin D. Roosevelt formed the Office of Scientific Research and Development (OSRD), which was led by Vannevar Bush. The Uranium Committee evolved into the OSRD Section on Uranium, also known as the S-1 Committee. The group was formed after Bush received the MAUD Committee Report, which revealed that a weapon may be produced for military use in the coming months.

Theoretical physics

Theoretical physics is a discipline of physics that rationalizes, explains, and predicts natural occurrences by utilizing mathematics and physical objects. Many theories and experiments conducted in the Manhattan Project were a form of theoretical physics. J. Robert Oppenheimer was the leading physicist on the Manhattan Project. He is often known as the “father of the atomic bomb”. He also served as the director of the Los Alamos Laboratory, overseeing the majority of atomic research and US development of nuclear weapons. Theoretical physics was one of the most crucial factors of the Manhattan Project as the discoveries regarding nuclear fission relied heavily on bomb dynamics, mechanics, and atomic particles.

Thermal diffusion

Thermal diffusion, or the Soret effect, is “the tendency of a convection-free mixture to separate under a temperature gradient”. The S-50 project was one of the Manhattan Project’s largest targets to produce enriched uranium by liquid thermal diffusion. The thermal diffusion process was initially reviewed by the Uranium Committee in 1940. As the new technology grew more prominent within the US’s classified operations, the enrichment of uranium was used as fuel in nuclear weapons. This ultimately allowed the US to build the two nuclear bombs that destroyed Japan and serve as a cause of the Cold War.

Tube Alloys

Tube Alloys was the code name for the research program supported by the United Kingdom along with Canada in order to develop nuclear weapons during WWII. Winston Churchill established the Department of Scientific and Industrial Research (DSID), the organization that is in charge of atomic resources. Although Churchill was the Directorate of Tube Alloys, Wallace Akers led the scientific mission to the US. Tube Alloys created an atomic bomb that was first tested in 1952, it was named Operation Hurricane. As the US founded the Manhattan Project, the British signed the Quebec Agreement, which essentially provided the US support in any way possible.

Historical Background

World War II broke out on September 1st, 1939 with Hitler's invasion of Poland, marking the beginning of an era of massive developments in warfare and weapons. The globe, just like during World War I, broke off into two different worlds. The Axis Powers, initially formed by the Rome-Berlin Axis coalition formed between Italy and Germany, mainly consisted of Germany, Italy, and Japan. Against them were the Allied Powers which initially consisted of only Great Britain and France.

Since its establishment in 1775, the U.S. Army Corps of Engineers (USACE) has always been involved in supporting large-scale warfares, and this did not exclude World War II. However, in 1939, President Roosevelt decided to assign the engineers of USACE with an unprecedented task - developing nuclear weapons. With the support from Great Britain and Canada, this massive task thus began with the collaboration of scientists all around the world. President Roosevelt first set up the Advisory Committee on Uranium, which included a lot of scientists under the Project and USACE, in order to establish a research facility focusing on isotope separations and nuclear chain reactions. The committee's name was later changed in 1940 to the National Defense Research Committee (NDRC), and later to the Office of Scientific Research and Development (OSRD) in 1941.

The United States was initially not part of the war, but because President Roosevelt declared war on Japan after the Pearl Harbor Attack in 1941, Nazi Germany declared war against the United States. Hence, the United States joined the worldwide theater of warfare in the same year OSRD started growing and was in dire need of technical developments including nuclear weapons. USACE and OSRD's massive goal of developing nuclear technology was now to develop warheads for World War II, and thus the Manhattan Project began in 1942. At this point when this conference's timeline begins, Colonel Leslie R. Groves had been assigned to lead the project and scientists had begun engaging in research with prestigious schools including the University of Chicago. The Project also gained support from Great Britain and Canada, and the outcome of the project is now up to what the delegates of this committee choose to do.

Current State of Affairs

The story of nuclear warfare started when German scientists Otto Hahn and Fritz Strassmann discovered nuclear fusion in 1938. The enormous power from nuclear fusion became an incredibly useful tool for building huge scale weapons, and a few months later, Albert Einstein and Leo Szilard sent a letter to President Roosevelt to inform him about the possibility of the German government building a nuclear weapon. Roosevelt immediately formed the Uranium Committee accordingly.

Intensive research began in Spring 1941 when the Military Application of Uranium Detonation (MAUD) Committee of the United Kingdom sent a report to the United States after confirming that it is possible to make atomic bombs using nuclear fusion. The United States immediately began research by utilizing the newly established S-1 Committee under OSRD, but later had to ask the USACE headquarters for help due to the lack of research in the S-1 Committee.

The Manhattan Project officially began on August 13th, 1942, by that time, USACE had been planning the establishment of the Los Alamos Lbaoratory in early 1943. Many scientists had already been recruited for this goal, and the British project Tube Alloys had also been recruiting scientists to collaborate with the Manhattan Project. Scientists were required to take on an American or British citizenship in order to join the project, and many European citizens were thus gathered in the Manhattan District. Major General Leslie Groves was appointed to lead the project, and the laboratories at Oak Ridge, Tennessee also started intense research. It is still uncertain whether or not the Germans and Soviets are continuing to develop atomic weapons.

Stances of Parties

Philip Hauge Abelson

Philip Hauge Abelson was an American physical chemist who proposed the gas diffusion process for separating uranium-235 from uranium-238 and was also one of the first American scientists who confirmed nuclear fission. In 1940, he also discovered a new element called Neptunium in collaboration with an American physicist. He received a Ph.D. in nuclear physics in 1939, and he mainly worked with the Naval Research Laboratory in Washington, D.C. His diffusion technique was used in the plants in Oak Ridge. He was an outspoken scientist and a strong believer in sharing information to advance humanity and its scientific knowledge.

Hans Bethe

Hans Bethe was a key scientist in completing theoretical work on the implosion method used in the Trinity test and the Fat Man bomb dropped on Nagasaki, the latter of which validated his research. Additionally, he studied the hydrodynamic effects of implosion and neutron initiators, as well as radiation propagation from exploding atomic bombs. Bethe worked on the hydrogen bomb project soon after World War II, despite his opposition to the weapon. He wanted to demonstrate its feasibility as soon as possible and wanted quick development, just like his impulsive personality.

Vannevar Bush

Vannevar Bush was in effect the first presidential science advisor during World War II as well as a well-known policymaker and public intellectual. His role at NDRC and OSRD led to the Manhattan Project, and he ensured that it received high priority from government officials. Bush and Conant foresaw and sought to avoid a nuclear arms race before the end of the Second World War. To prevent any one political group from gaining an advantage in science, Bush proposed international scientific openness and information sharing.

Arthur H. Compton

Arthur H. Compton was an American physicist who was appointed the Head of the Department of Physics at Washington University in 1920. He received the Nobel Prize for discovering the Compton Effect. In 1941, he was appointed Chairman of the National Academy of Sciences Committee to Evaluate Use of Atomic Energy in War and collaborated with many other scientists in the Manhattan Project including Leo Szilard and Enrico Fermi in creating atomic bombs. He and his colleagues created the first controlled uranium fission reactor Chicago Pile-1 (CP-1). He was strongly against any quarrels and conflicts, and thus wanted to focus on scientific development rather than any aggression.

Enrico Fermi

Enrico Fermi was an Italian physicist who received a scholarship from the Italian government and created statistical laws called the Fermi Statistics. He focused on electrodynamic and theoretical physics as well as nuclear transformation. He was one of the most significant contributors to the project, and he never hesitated to ask the advisory committees for funding for his research. He led the creation of reactor CP-1 with the collaboration of scientists Leo Szilard and Arthur H. Compton, and he was a proponent of sharing knowledge from the experiments to journals and institutions. He had some adversity towards the German forces and the Axis Powers in general and believed in the strength of science in weakening them.

Richard Feynman

In 1939, Feynman graduated from the Massachusetts Institute of Technology with a bachelor's degree. When Feynman was a student at Princeton, he worked on the Manhattan Project's theoretical division and also witnessed the first atomic bomb detonation. In spite of initially being thrilled about the achievement, he ultimately expressed concern about the consequences of the technology. A later innovation by Feynman led to safer methods for storing radioactive waste, saving the lives of many workers at nuclear power plants. The quantum electrodynamics theory, the theory of light's interaction with matter, is Feynman's most notable contribution to science and the project.

Klaus Fuchs

Klaus Fuchs was a German theoretical physicist who later turned out to be an atomic spy who spilled information about the Manhattan Project to the Soviet Union. He was initially an assistant to British physicist Rudolf and collaborated on the British atomic project Tube Alloys. Despite being a spy, he contributed to the project with his successful theoretical calculations on the first nuclear weapons and hydrogen bombs. He had British citizenship while he was born and raised in Germany, and he wanted to move his main workplace from Tube Alloys to the Los Alamos Laboratory.

Ernest O. Lawrence

Ernest O. Lawrence was an American nuclear physicist who worked at the Radiation Laboratory at the project headquarters in Oak Ridge, Tennessee. He had already had an established career and reputation as a physicist before he joined the project as he received the Noble Prize in 1939 and created the first cyclotron, a type of particle accelerator commonly used in nuclear physics. He developed isotope separation technology through rather inefficient processes but believed that outcomes were more important than processes.

John H. Manley

John H. Manley was an American physicist who worked with the Manhattan Project from the very beginning. He initially collaborated as part of the Metallurgical Lab at the University of Chicago but would later be transferred to the Los Alamos Laboratory in early 1943. He was an aide to scientist Robert Oppenheimer and also worked with Leo Szilard and Edward Teller. He was later made head of the Deuterium-Deuterium (D-D) Group (R-3) of the Los Alamos Laboratory. He was one of the principal assistants of the project and was a very diligent scientist who believed in the importance of collaboration and teamwork.

Maria Goeppert Mayer

Maria Goeppert Mayer was a German-born American physicist who joined the project in 1942. She was a friend of physicist Edward Teller and was greatly interested in radiation and Uranium isotopes. She accepted a research collaboration offer from Harold Urey during her career and worked with Columbia University's Substitute Alloy Materials (SAM) Laboratory in separating the Uranium-235 isotopes. She was a very adventurous and intuitive scientist who believed in the strength of possibilities and theories, which were applied in her scientific research and studies throughout her career.

J. Robert Oppenheimer

Robert Oppenheimer was an American theoretical physicist who joined the project in its very early stages. With his closest colleague Ernest Lawrence's recommendation to major general Leslie Groves, he was appointed the director of Los Alamos Laboratory later in 1943. Although his position was technically above other members of his committee, he insisted to work together with the scientists first-hand by collaborating on experiments. He was not typically the most adverse toward the Germans, but he was one of the most passionate physicists when it came to developing atomic weapons.

Joseph Rotblat

Joseph Rotblat was a Polish physicist and was one of the first people to think nuclear fission could be used to produce atomic bombs. He joined the Los Alamos Laboratory and Tube Alloys to have his amazing ideas out of his head, and he was initially not aware of the fact that the project was aiming to weaken the Soviet Union and Germany. He believed there is no need to continue developing weapons once it is confirmed that the Germans and Soviets have ceased to develop more nuclear weapons. He continued to work on his investigations on gamma-rays and nuclear fission, and by 1944, was thinking of leaving the laboratory if there is no more evidence of nuclear threats from the Central Powers.

Glenn T. Seaborg

Glenn T. Seaborg was an American chemist who was specifically interested in uranium. He was an avid proponent of having scientists advise officials of governments and institutions, and was also a passionate scientist that was thrilled to find out that nuclear fission was possible. He joined the Metallurgical Laboratory of the project in April 1942, and he was given the role of separating plutonium from a mass of uranium. He focused more on independent research and experiments rather than collaborative research projects like the ones Enrico Fermi and Arthur Compton were working on. He was rather neutral on the morality issue of the project.

Leo Szilard

Leo Szilard was a Hungarian-American physicist who was one of the first few people who proposed the possibility of building a nuclear fission reactor. He was the one who wrote the letter with Albert Einstein and ultimately started the Manhattan Project. He initially started his research building toward the project at Columbia University, but after the project officially began, he moved to the Metallurgical Laboratory in Chicago. He was known to be a rather stubborn scientist who did not back down on his opinions. He hoped that the American government would not actually use the developed nuclear weapons; instead, he wanted the Germans and the Japanese to surrender just from the fact that the Americans had been developing weapons.

Edward Teller

Edward Teller was a Hungarian-American theoretical physicist who joined the Manhattan Project after joining Oppenheimer's summer seminar at the University of California, Berkeley regarding the origins of the project. He was inspired by his conversation with his friend Enrico Fermi and thought of the idea of creating a larger nuclear fusion reaction using nuclear fission. His brilliant ideas fueled the research in his experiments in the Theoretical Division of the Los Alamos Laboratory. He often started new experiments on his own and found other scientists in the laboratory to collaborate with. He believed scientists had great responsibility by claiming that it is an "opportunity saving American lives by immediate military use".

Harold Urey

Harold Urey was an American physical chemist who received the Noble Prize in Chemistry in 1934 for his work on isotopes prior to joining the Manhattan Project. He was deemed to be the "expert" in isotope separation and was later appointed to the Committee of Uranium as part of the National Defense Research Committee in 1941. He participated in the Manhattan Project by conducting research at the Columbia University Substitute Alloy Materials (SAM) Laboratory and demonstrated excellent leadership skills. By looking at how he was the Director of War Research for the Atomic Bomb Project at Columbia University, it is certain that he was not very against the possible assaults against the Germans, the Soviets, and the Japanese.

J. Ernest Wilkins Jr.

J. Ernest Wilkins Jr. was an American nuclear scientist, mechanical engineer, and mathematician. Being known as a child prodigy, he entered the University of Chicago at the age of 13 and received a Bachelor's degree in mathematics at the age of 17. Unlike many other scientists part of the project, his main focus was on mathematics and practical physics rather than theoretical physics or chemistry. He was part of the University of Chicago Metallurgical Laboratory, and he collaborated with Enrico Fermi and Arthur Compton to produce fissionable nuclear materials. He was unaware of the real purpose of the project until very later, most likely because of the possibility that he might not want to participate in the research.

Robert R. Wilson

Robert R. Wilson was an American physicist who was recruited by Robert Oppenheimer. He was appointed the head of the cyclotron group at the Los Alamos Laboratory. He played a crucial role in his department by negotiating with James B. Conant, the president of Harvard University, to let the laboratory use the Harvard University cyclotron. He often went back and forth between Los Alamos and the University of Chicago Metallurgical Laboratory to communicate with the scientists who were also conducting research for the project. He was a very efficient and passionate researcher throughout his days at the laboratory, but he was not typically the most cooperative when it came to working with government officials.

Leona Woods

Leona Woods was an American physicist who joined the Manhattan Project in early 1942. She was part of Enrico Fermi's research team, and collaborated with Fermi and other scientists to create the first nuclear reactor (Chicago Pile-1) and the first atomic bomb. She was the youngest and only female member of Fermi's group, and was known to be very creative. Many of her colleagues stated that she was one of the bravest members of the project that did not fear any accidents or conflicts. She later claimed that the bombing of countries part of the Central Powers was not something that was done as a choice, but something that was necessary and couldn't have been done any differently.

Chien Shiung Wu

Chien Shiung Wu was a Chinese-American particle and experimental physicist. She joined the Substitute Alloy Materials (SAM) Laboratory at Columbia University and worked under Harold Urey to collaborate with other scientists on the development of the gaseous diffusion program uranium enrichment. She was one of the only few women scientists in her laboratory, not to mention being the only known Asian scientist in the project. She was personally against any attacks on other countries, especially since her family was still in China. However, she later claimed that, despite her effort toward building nuclear weapons, she still believed humanity would one day reach peace.

Possible Solutions

Waiting until the Axis Powers launch a first-strike weapon first

Attacking another country, especially with a weapon as large-scale as the atomic bomb, is something that may lead to future conflicts regarding foreign relations. It is always a good choice to defend the country if any conflicts occur. However, if the Central Powers decide to attack the Allies before the Allies do, then there would be a reason for the Allies to retaliate as defense. This is the most peaceful approach in a time of war, but there is also a risk as the Germans or the Soviets may actually cause immense harm to the Allies.

Attacking the Axis Powers first

It is certainly not the most moral solution, but it is one of the most possible and probably the easiest solutions, not considering the aftermath. It may bring the United States and the Allies a huge decline in social reputation and may even lead to international court cases. However, it is still the quickest and clearest way to weaken the Central Powers and prevent attacks towards the Allies.

Arbitrary inspections to determine spies

Delegates are already aware that there is a spy within the committee, which is Klaus Fuchs according to the actual historical context, but delegates may choose to be or not to be a spy. The committee must be aware that they must only accuse an individual if there is concrete evidence that they have been spilling information. To do this, committee members may conduct arbitrary inspections at any time to collect evidence. This is something that must be taken into consideration by all committee members at all times.

Sending American spies to Germany and the Soviet Union

Information is one of the most crucial parts of a military project, especially if it is about a field that is hugely unknown by humanity. Despite the large number of scientists from around the world already involved in the project, there is always a possibility that the scientists on the other side of the conflict would have better, stronger ideas. Stealing information would lead the committee to quicker development and may even threaten the national security of Axis nations. However, it must be also taken into account that some spies may be highly unreliable and some may already be spies from other states. There must be a method to appoint the best possible individual as the secret agent.

Questions to Consider

1. How can it be ensured that all committee members are trustworthy and would not leak information?
2. Should the project's main focus be weakening the Axis Power forces or developing new scientific technologies?
    a. Consider ethics/morals: should USACE plan sabotages or other unethical methods aside from nuclear weapons?
3. Should scientists continue sharing their information from experiments to journals, or should they conceal information that arises from the project?
4. What is the most effective technique for the efficient development of weapons?

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