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The Interaction of Nuclear Fiction and Leadership Studies

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Honors Thesis

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Defended on April 23, 2008 to:
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On August 6, 1945, the United States dropped an atomic bomb nicknamed "Little Boy" on Hiroshima, Japan. Three days later, another bomb, this one called "Fat Man," was dropped on Nagasaki, Japan during a second American bombing mission. Combined, these bombs killed 110,000 people, injured 130,000 others, elicited a surrender from the Japanese government that ended World War II, and changed the face of warfare forever. Clearly the deployment of these bombs was no small event in modern history, and the repercussions of the first use of atomic weaponry are still felt today. The development of nuclear weapons raised questions for America and the rest of the world that humanity still grapples with today, even more than sixty years later.

Ethical and Political Questions, Yesterday and Today:

Ethically, there will always be the question of whether or not the use of one atomic bomb, let alone two, was necessary to end the war with Japan. To justify the decisions made by the U.S. government in 1945, Harry Stimson, Secretary of War under Presidents Theodore Roosevelt and Harry Truman, published a work entitled "The Decision to Use the Atomic Bomb." It reiterated, to a large extent, the "party line" of conserving American and Japanese lives by ending the war in an expedient manner so as to avoid invasion and further confrontation. Yet, aside from this, Stimson makes several poignant statements
about the nature of mankind and the evolution of war. One such example is his

claim that

War in the 20th century has grown steadily more barbarous, more
destructive, more debased in all its aspects. Now, with the release of
atomic energy, man's ability to destroy himself is very nearly complete.
The bombs dropped on Hiroshima and Nagasaki ended a war. They also
made wholly clear that we must never have another war. This is the
lesson men and leaders everywhere must learn. (17)

These statements in particular do not make any attempt to justify Truman's
actions, but they do reference the fear that accompanied mankind's discovery of
a weapon with which it could potentially destroy itself. With the development of
the bomb came a new responsibility for those leaders with the enormous power
to use this technology, and Stimson is right to highlight this change as a crucial
one that future leaders must understand.

Truman has been scrutinized by many for his decision to bomb Hiroshima
and Nagasaki. Politically, there are questions of whether he was informed
enough about the issue to make such an important choice; after all, Truman had
become President a mere four months before Hiroshima. He had not been
particularly involved in Roosevelt's policy-making decisions while he was the vice
president, and did not find out about the existence of the Bomb and the tentative
plans the government had for it until he was sworn in as President after
Roosevelt died on April 12, 1945. Stimson was charged with filling the new
President in on the technology and helping him to fully understand and
appreciate the implications of a nuclear program that had, at that time, been in
development for over a decade. With such a new and different weapon, could
the magnitude of the decision to use it ever be appropriately comprehended beforehand?

While any scholars justify Truman’s choice by claiming that use of atomic bombs was necessary to elicit an unconditional surrender from Japan, there are others who still question it, stating that there is no rationale that would explain voluntarily ushering in the nuclear age. What is clear regardless of one’s feelings about Truman’s decision, however, is that there are important ramifications for future leaders to consider with respect to the choice Truman made. By authorizing the use of nuclear weaponry, Truman set a precedent for world leaders that is still influential today, arguably more so than ever. In Truman’s day, the danger of nuclear retaliation was relatively slight; the United States was the first and only country to have generated an atomic bomb in 1945. While there was always the danger of a conventional attack, there was no chance that another country could launch a nuclear assault on the United States in response to Hiroshima.

Today, however, the case is enormously different. The implications of a nuclear attack in the modern world are more catastrophic and apocalyptic because such an attack would undoubtedly elicit a nuclear response. Stimson’s point is well-made: there cannot, for the sake of humanity’s survival, be a nuclear war. Thus, the responsibility of ensuring that the world does not destroy itself ultimately falls to leaders, who are charged with having the power to destroy civilization, but are also entrusted with the job of protecting it.
The Media as a Source of Indirect Leadership:

In the realm of nuclear warfare, the general public is dependent almost completely on leaders. The citizens of a country are not the ones who make the decision about whether or not to use nuclear weapons: it is essentially a choice that only the leader in command of that power can make. Moreover, much of the discussion, debate, and information surrounding atomic weaponry is, and has always been, kept secret from the general population. Thus, the public must acquire their knowledge elsewhere if the government cannot be expected to disclose information on the subject. The media has always been a key source of knowledge for the public, as well as a staple in the formation of culture. Media figures shape public opinion, and while they do not have the diplomatic, legitimate authority of elected officials and heads of state, they do demonstrate leadership qualities. This means that there is an entirely separate body of leaders who also play an enormous role in the way the general public thinks about nuclear weaponry.

These leaders exhibit an indirect style of leadership since their role is to provide a point of view which affects the way in which the general public views an event or situation. What is interesting about this type of leadership, however, is that media does not reach only the public, but also the governmental leaders who make decisions. Logically, then, media ought to also have some impact on direct leaders as well as the general public, though perhaps not in the same way. While the public uses the media as a source of information, the government often already has access to this knowledge. Instead, for direct leaders, the media
ought to function as a kind of educational tool by which the feelings of the rest of
the population can be gauged, and a lens through which they are able to see
how information is presented to the public.

**Nuclear Fiction and Leadership:**

Literature is one aspect of the larger body of media that often gets
overlooked in terms of its importance. Because it is not based exclusively in fact,
fiction’s ability to impact its readers remains largely unacknowledged; yet these
writings still provide a venue for depicting hypothetical events in a realistic way.
Fiction is a place for speculation, the value of which is immeasurable, especially
if the theoretical scenario would result in severe repercussions in reality.

Such is the case with much of science fiction, and, more specifically,
nuclear fiction. Science fiction is a difficult term to define because it covers such
a wide variety of publications and topics. The value of science fiction as a genre
is that while it may often be deemed “fantastic,” it is frequently also rooted in
truth. This allows it to portray hypothetical scenarios in a way that acknowledges
the realistic possibility of their actual occurrence, thereby expanding readers’
imaginations while still relegating potentially dangerous situations to a safe
medium – literature. This is particularly important for nuclear science fiction,
since the bombings of Hiroshima and Nagasaki demonstrated that the actual use
of atomic weapons is enormously devastating. Nuclear science fiction often
portrays the way a full-scale nuclear war might develop between nations, as well
as the way the war could progress and the conflict’s after-effects. What, in reality, would be an international tragedy can be safely explored in a fiction work.

Speculation of this nature is valuable only when it is realistic; if it is not, it becomes only a method for instilling terror in the minds of readers, ultimately benefiting no one. There are numerous nuclear fiction books, however, which are based in reality and whose plotlines could feasibly happen. These are the novels which have something valuable to offer to both the public and the direct leaders responsible for making decisions regarding nuclear policy, because they have something to teach about what could happen. Even those works written before the technology was developed are useful in terms of their sometimes strikingly accurate predictions about atomic weaponry. The most useful of these realistic works are those which focus specifically on the hypothetical war itself, not just the aftermath of the conflict. By understanding how the novels’ wars began and progressed, leaders and citizens alike can better understand the potential for such an incident and how to stop it.

Novels written in this vein are also crucial for the establishment of open communication about the subject. Nuclear war has been a taboo subject in many ways for far too long, and enveloping the issue in secrecy does nothing but foster misunderstanding and fear of its power. Though the American nuclear program in the 1930s was kept entirely confidential, even from some of the uppermost governmental officials, fictional works on the subject still slipped passed censorship restrictions, or preceded the existence of such laws. These novels started a necessary dialogue through which nuclear war could be
examined and discussed. Martha Bartter references this dialogue in her annotated bibliography, *The Way to Ground Zero:*

Most Americans assume that the atomic bomb just happened to us in 1945 – that it sprang fully armed from the forehead of the Manhattan Project – and that we have been its helpless victims ever since. In one sense, that seems true; but in a deeper sense the bomb grew from an ongoing, public conversation. It was openly discussed, not only by scientists but also by ordinary people, for at least fifty years before its birth. The attitudes that made it possible, as well as those that made it necessary, were shaped in our personal, social, and political assumptions. These assumptions are faithfully reflected and made real in fiction, becoming part of the ongoing patterns of our living. We talked our way into our nuclear nightmare, word by word and story by story. As long as we remain ignorant of this conversation, we make ourselves helpless to alter it. (1)

As nuclear programs become more common in today’s world, it is important to understand the implications of the conversation addressed by Bartter, a conversation, she claims, that unites science, literature, history, and political events. The use of nuclear weaponry against Japan cannot be taken as an isolated incident, but must be examined in conjunction with the societal constraints in which it happened (as well as those that “Little Boy” and “Fat Man” helped to create).

Leadership and decision-making, then, does not exist in a vacuum of policy and law, but must also take into account the way it affects (and is affected by) other areas of culture and society. This interaction must be taken seriously, and leaders ought to use literature and other cultural, indirect leadership to their advantage; not simply because it accounts for much of the way the public’s opinion is shaped, but because it is a useful tool for predicting the effects of potential actions. Seeing the portrayal of realistic events, such as nuclear war or
the use of atomic weapons, not only conveys the way past individuals have reacted, but also how the public might react to a similar situation. The opportunity to see how an incident could potentially play out is a resource that, for leaders, cannot be overlooked. Cultural and indirect leaders, therefore, are not simply important for the public, but for the direct, governmental leaders who create policy and shape world events. Thus, two seemingly unrelated topics – literature and leadership – are actually inherently linked in the creation of a dialogue through which speculation and prediction might help leaders to make more informed decisions.

To argue this point, this paper will first outline the scientific, historical, and political events that took place during the beginning of the Atomic Age – from the late nineteenth century until the first nuclear bomb was dropped on Hiroshima in 1945. This basic information will lay the groundwork for understanding later historical eras, as well as the context into which nuclear fiction was introduced. Next, early nuclear fiction literature will be discussed in detail, highlighting the works of several authors published before World War II. This analysis will speak to the development of atomic fiction as a genre, and the value of such works in the early years of nuclear technology’s existence. This chapter will also delve into the relationship between the literary world and the public, and continue to flesh out the link between leadership and fiction writing. The next chapter will return to the historical side of the argument, outlining the political and scientific events that took place from 1945 until the end of the Cold War, depicting the way the world responded to the first use of atomic weaponry and what the
implications of its existence were in the time directly following the bombing of Hiroshima. Finally, the third chapter will examine how these events translated into the genre of nuclear fiction, and how works published after 1945 differed from those written prior to World War II. In the conclusion, the discussion will turn to the broader implications of this study, not just for literature or leadership, but also the interaction between these two fields. It will be demonstrated, through these chapters, that nuclear fiction works make an important intervention into the nuclear dialogue, and the larger context of leadership studies.
Introduction

Part II: Historical, Scientific, and Political Background

The events of World War II which led to the dropping of atomic bombs on two Japanese cities are, for the most part, common knowledge. Yet the complexities of the many fronts and enemies of the war, coupled with the inclusion of dictatorial governments on the side of the Axis powers, made the conflict especially hostile and secrecy an extremely high priority. Moreover, the significance of the scientific advances which spurred the development of the Manhattan Project cannot be comprehended without considering the environment in which they occurred. Looking at the historical, political, and scientific events of the war in conjunction with one another helps to frame the actions of Truman and his advisors as well, since there was no single factor in their decision to use nuclear weapons against Japan. Understanding the circumstances surrounding, and incidents that led up to, the bombings of Hiroshima and Nagasaki are crucial to understanding the repercussions of using atomic weaponry and the significance of these attacks in particular.

Before the War:

A string of international scientific breakthroughs paved the way for the development of nuclear weapons. Within the span of merely four years, beginning in 1895, X-rays, radioactivity, radium, and polonium had been discovered, all of which led Einstein, in the early twentieth century, to announce
first the special, and then the general, theory of relativity. During this time period, Rutherford also introduced the nuclear model of the atom and effectively transmuted nitrogen. But it was not until Ernest Lawrence built the first successful cyclotron (a type of particle accelerator) in 1931 that events began to move at a rapid pace. It was also during the early 1930s that governments and political leaders began to take notice of the scientific advancements, and started to seriously consider the implications of such discoveries for future military endeavors.

The political climate of the late twenties and early thirties was a precarious and mistrustful one. In Europe, dictatorial regimes gained strength in Italy and Germany, while in Asia the Imperial government of Japan had become increasingly militaristic. Benito Mussolini and his Fascist government took power in Italy in 1922, and Adolf Hitler officially installed his Nazi government in Germany when he was elected Chancellor in 1933, after ten years of political activism. Once these tyrannical regimes were in place, Italy and Germany followed in Japan’s footsteps by making territorial advances outside their own borders. Japan had made its first imperialist venture in September 1931, when it invaded Manchuria and created a puppet state there; six years later, Japan made the daring move of invading mainland China. Hitler and Mussolini followed suit: after directly violating the Treaty of Versailles (in which Germany had agreed not to increase the size of its army after losing World War I) by remilitarizing Germany, Hitler made it clear that he wished to make the Sudetenland part of the Nazis’ Third Reich. Britain and France complied, signing the Munich Agreement
in 1938, which gave Hitler the Sudetenland in return for the promise that he would make no further territorial claims in Europe. The same year, Mussolini invaded and conquered the nation of Abyssinia, extending Italian power onto another continent.

The year of 1938 was also an important one in the scientific world. In December 1938, Otto Hahn, a German chemist, was the first to identify nuclear fission (Bruce-Briggs 36). Soon after, the phenomenon was explained by Meitner and Frisch, and Hahn and Strassman first bombarded uranium. These discoveries also marked the international realization of the increasing importance of nuclear energy for political and military gain; within a year of Hahn's identification of fission, six countries had developed military nuclear-energy programs (Bruce-Briggs 36). This was of major concern to the United States, since one of these countries was Nazi Germany. Many of the frontrunners in the scientific development of nuclear weaponry were German, and there was nothing more terrifying to the United States in the 1930s than the possibility that Adolf Hitler might control an atomic weapon – especially before America did.

The following year, 1939, the conflicts in Europe grew even more intense. Hitler, in violation of the Munich Agreement, annexed the remainder of Czechoslovakia, and Mussolini conquered Albania. The Soviet Union thwarted the Japanese attempt to invade Mongolia, but it was rapidly becoming clear to the entire world that another world war was imminent. Alliances began to develop: France and Britain pledged their loyalty to Poland, while the Soviet Union signed the Molotov-Ribbentrop Pact to cement their relationship.
World War II Begins:

As expected, the war was close at hand: when Germany invaded Poland on September 1, 1939, World War II officially began – Great Britain, Australia, and New Zealand declared war on Germany a mere two days after the invasion, and France joined the war on the side of the Allies on September 4, 1939. Despite the assistance of its allies, however, Poland was forced to surrender to Nazi forces on October 6, 1939.

Later in 1939, President Theodore Roosevelt was officially informed by scientists “of the possibility of developing atomic energy as a military weapon” (Bernstein vii). Roosevelt worked quickly: on December 20, 1939, within a month of learning this information, the president named a Defense Board and instated an official United States secrecy on nuclear research in 1940, which set the precedent for maintaining confidentiality on the subject (Bartter 7).

Though the United States steadfastly resisted involvement in the war, the environment Europe and Asia remained tumultuous. While Roosevelt focused on America’s fledging nuclear energy program, the U.S.S.R. began occupying the Baltic States and Finland. Germany took control of Denmark and Norway, then invaded France and the Low Countries in May 1940. French resistance lasted only a month, and France was forced to sign an armistice with Germany on June 22, 1940, officially establishing the puppet state of Vichy France. Italy began its North African campaign in the same month by attacking Egypt, and, later in the year, Japan invaded French Indochina. Britain, in response to the
ever-worsening situation, dismissed Prime Minister Neville Chamberlain and replaced him with Winston Churchill.

It was becoming increasingly apparent that Japanese aggression needed to be dealt with in a definitive manner when the Soviet Union and Japan signed a non-aggression pact in 1941. This left Japan free to concentrate all of its efforts on British, Dutch, and American holdings in the South Pacific. In response, the United States, Britain, Australia, and the Netherlands imposed embargoes to restrict the export of natural resources to Japan. They also began to make monetary loans to China and offer covert military assistance when possible. Germany was giving support to its allies in 1941 as well; in February, Nazi forces were sent to Africa to compensate for Italian losses in that area. The aid paid off: in April, a mere two months after arriving in Africa, German General Erwin Rommel was able to push back the opposing British forces in Egypt. Hitler looked out for his own interests as well, and invaded and conquered Greece and Yugoslavia in 1941. Shortly thereafter, the Soviet Union entered the war on the side of Britain and France, and on June 22, 1941, Germany invaded the Soviet Union.

In the U.S., responding to world events, Roosevelt declared a state of emergency for the country on May 27, and created the Office of Scientific Research and Development “to discover whether [an atomic] bomb could be made and at what cost” (Bernstein viii). American relationships with hostile foreign nations began to deteriorate as well, especially in the case of the Japanese government.
The United States Enters the War:

Japan officially joined the war in early December 1941, and moved quickly for the remainder of the year. Only five days after Roosevelt demanded to know Japan's aims in Indochina, on the morning of December 7, Japanese pilots attacked the American fleet at Pearl Harbor. Almost simultaneously, Japan launched attacks on Malaya, Thailand, Hong Kong, the Philippines, and Wake Island. The United States declared war on Germany and Japan the following day, and Italy and Germany responded by declaring war on the U.S. three days later.

Now that the United States had finally entered the war, the quest to develop an atomic weapon and ensure its secrecy became paramount. To that end, Roosevelt started the Manhattan Project in Oak Ridge, Tennessee on August 3, 1942. In only three short years, the work scientists did there would come to a dramatic culmination in Hiroshima, Japan. The Manhattan Project functioned confidentially for two years before the Soviet Union discovered its existence through espionage. Confidentiality was so important to the endeavor's success, in fact, that it was not just kept from the rest of the world, but from the American public and key politicians as well:

Throughout the war, despite the expenditure of nearly two billion dollars, the project, known as the Manhattan Engineering District Project, was kept secret from the public, from nearly all members of Congress, and even from most Cabinet members and administration stalwarts. Secrecy was directed at concealing the project and its work from both Germany, our enemy, and the Soviet Union, our ally. (Bernstein viii)
There was a great fear during this time that foreign spies would steal state secrets, and the maintenance of information relating to the nuclear program was of the utmost importance. The government was obsessed with being the first to develop an atomic weapon, partially for pride's sake, but predominately because of the great fear that one of the tyrannical European governments would produce one first. If that happened, there was no telling how powerful Hitler and Mussolini could become. In the interests of the free world, the United States felt that it had to be the first to possess an atomic weapon, and that, to do so, secrecy was crucial.

While the American government worked to keep the program's existence a secret, the Manhattan Project, under the direction of the Army Corps of Engineers and General Leslie Groves and the scientific guidance of physicist J. Robert Oppenheimer, expanded to include another key site at Los Alamos, as well as thirty smaller sites throughout the United States, Britain, and Canada. The program was a joint endeavor developed by all three countries as a way to combine resources in an effort to produce a nuclear weapon before the Germans could generate one of their own. Not everyone was onboard with America's attempts to create a bomb, however. Those who understood the devastating repercussions an atomic weapon could have for the world were adamantly about preventing its development from the start. Before the Manhattan Project had even begun, a petition to halt development of such a weapon was sent to the U.S. government. Signed by immigrant physicists, its topic was the "dangers of nuclear weaponry" (Bruce-Briggs 36). In particular, Hungarian immigrant and
physicist Leo Szilard campaigned aggressively to end America's nuclear weaponry development program. Despite the scientific interest men like Szilard had in seeing the project through, they could not, and would not let others, ignore the negative aspects of nuclear weapons — regardless of whether it was in the hands of a dictator or not. For the scientists, this fear was not linked exclusively to the dangers of Germany and the Soviet Union, but to a deeper understanding of how detrimental it would be for humanity to have the ability to destroy itself. This document was the first attempt scientists made to derail the nuclear program in the United States, but it was not the only one.

The success of the Manhattan Project was not the only thing that improved for the Allies in 1942 and 1943. The tide of the entire war began to shift in their favor, and they were finally able to prevent advances from Germany, Italy, and Japan across Europe and Asia. The Allies enjoyed many successes, from the morale-boosting American air raid on Tokyo to the Battle of Midway, which is described as the turning-point of the Pacific war. American dive-bombers sank four Japanese aircraft carriers — enough to destroy the Japanese fleet's numerical superiority in the Pacific. America started the "island-hopping" approach to defeating Japan after this battle, cart-wheeling from one island to the next in anticipation of reaching Tokyo. In Europe, Mussolini surrendered to the Allies when they invaded Italy, and after a failed attempt by the Nazis to re-install him, he was hanged by Italian nationals.

The most pivotal event for the Allies was D-Day, when troops landed on the beaches of Vichy France on June 6, 1944 to mount an enormous offensive
against Germany. While the Allies continued to drive the Germans to retreat across Europe, American troops in the Pacific liberated the Philippines and Iwo Jima, and the Soviets pushed the Germans out of the Soviet Union and Poland.

Despite the teamwork the Allies demonstrated in their efforts to defeat Germany, the United States and Britain were still mistrustful of Joseph Stalin and his authoritarian government in the Soviet Union. It was becoming clear to Churchill and Roosevelt that Stalin possessed many of the same characteristics they feared in Hitler; Stalin was often unwilling to compromise, and lacked humanitarian principles that the United States and Britain believed in so strongly. Roosevelt and Churchill were rapidly becoming concerned that any weapon they allowed to fall into the hands of Stalin would be just as detrimental for the rest of the world as it would if Hitler controlled it. In keeping with this theory, Roosevelt and Winston Churchill “made a secret agreement [on September 19, 1944] to continue excluding the Soviets from all information about the [Manhattan Project]” (Bernstein viii). Along with this decision, their accord also laid the groundwork for the eventual bombing of Hiroshima: “in the agreement, Roosevelt and Churchill pledged that ‘when a bomb is finally available, it might perhaps, after mature consideration, be used against the Japanese’” (Bernstein viii). In spite of this statement, Roosevelt never officially “discussed with anyone whether or not the bomb ought to be used before his death; [though] Secretary of War Henry L. Stimson maintained later that Roosevelt never had any doubts about using it” (Bernstein viii). If this last assertion is true, then Roosevelt may have, consciously or otherwise, disregarded the many concerns and misgivings of the
scientists who alerted him to the potential detriments of the use of nuclear weaponry.

The agreement between Churchill and Roosevelt was already made when they attended the Yalta conference in February 1945. In addition to these two leaders, Stalin was also present to discuss the fate of Germany and the need for Hitler's unconditional surrender. They decided that once the Allies defeated Germany, it would be divided into four zones: one for each America, the Soviet Union, France, and Britain. The U.S.S.R. also agreed to revoke their non-aggression pact with Japan so that the Soviets could join the Pacific conflict after Germany's surrender; Roosevelt hoped that the U.S.S.R.'s involvement would help to bring a quick end to the war with Japan.

In the months following the Yalta Conference, the Allies strove to continue their success in Europe, but April 1945 saw the deaths of several important figures in World War II. President Roosevelt died on April 12; following his death, Vice President Harry Truman was sworn in as President, and Harry Stimson had the arduous task of meeting with the new President to discuss the bomb, of which Truman had no prior knowledge. Benito Mussolini was executed on April 25, after the Italian Social Republic was overthrown. Finally, on April 30, Adolf Hitler died in his Berlin bunker from probable suicide. Now that the Fuhrer was dead, German surrender was not far behind. On May 7, in Rheims, France, the coveted unconditional surrender came from Germany. The following day, known henceforth as V-E (Victory in Europe) Day, the official surrender was signed in Berlin.
The End of the Pacific War:

Back in the United States, Truman created the Interim Committee “for recommending action to the executive and legislative branches of our government when secrecy is no longer in full effect [and also] actions to be taken by the War Department prior to that time in anticipation of the post-war problems” (Bernstein viii). Chaired by Stimson, this Committee was established largely to give advice to the new president, who had not been involved in the development of the Bomb from the beginning. The Committee met for two days at the end of May 1945, during which time it concluded that the Bomb should “be dropped on Japan without warning in a location which also affects civilians” (Bernstein viii). Because Germany had already surrendered by the time this Committee convened, it was not considered as a target. The Committee also decided that bombing Japan would serve as a show of strength to the Soviet Union, who many assumed would be the next enemy of the United States once World War II came to a close. While justifying American use of an atomic bomb, Stimson later maintained that the Committee had examined all possible solutions and found them to be inadequate:

In reaching these conclusions, Stimson explained in 1947, the Interim Committee carefully considered such alternatives as a detailed advance warning, or a demonstration in some uninhabited area. Both of these suggestions were discarded as impractical. (Bernstein ix)

The Committee believed that the only thing that would elicit an unconditional surrender from Japan was a direct attack on the country; additionally, the United
States wanted to present a strong front to Stalin in the event that the U.S.S.R.
became the next enemy of the U.S.

With Germany and Italy already defeated, the only remaining Axis power
was Japan. The United States continued cart-wheeling towards Tokyo, taking
Okinawa in June 1945. That same month, work on the Manhattan Project was
once again questioned: James Franck, a German physicist involved in the
program, submitted a report in which he (and the other scientists in the Chicago
lab of the Manhattan Project) voiced his belief that the United States would be
unable to indefinitely keep its atomic advances a secret. Quite accurately, he
predicted that the development of nuclear weapons would lead to an eventual
arms race, in which production would need to be sped up significantly in order to
keep abreast of competing nations. Franck went on to discourage the use of the
atomic bomb against Japan, which was the weapon's rumored target after its
completion, and recommend that, instead, the Bomb’s power be demonstrated to
all the representatives of the United Nations in an uninhabited and isolated
location. Hopefully, Franck wrote, this display would lead to universalized
international control of atomic weaponry rather than competition between
nations. Franck asked that if the U.S. could not agree to a U.N. demonstration,
they instead continue to keep the Bomb a secret for as long as possible. He
hoped that this would enable America to have a head start to develop weapons
superior to those of other nations. Franck’s report was, of course, ultimately
ignored and production of atomic weaponry continued. Japan found itself losing
the war with the U.S., which was now focusing exclusively on the Pacific conflict
after the defeat of Germany and Italy. In an effort to salvage the situation, the Japanese government began sending secret messages to the Soviets in early July, hoping that the Soviet Union could help to mediate the situation with the United States. Initially, they received no response from Stalin.

The first atomic bomb was successfully tested in Alamogordo, New Mexico on July 16, 1945, and Truman was told of its success the next day, after his arrival at the Potsdam Conference. The Conference, attended by Stalin, Churchill, and Truman, once again addressed Germany, but the leaders also discussed the conditions of a potential Japanese surrender. They issued the Potsdam Declaration, calling for unconditional Japanese surrender, but not warning them about the existence of the atomic bomb. Stalin was not privy to this information either, since Truman had told him only that the United States had developed an unspecified new weapon. The Declaration stated specifically that if Japan continued to fight, “the full application of [Allied] military power, backed by [its] resolve, will mean the inevitable and complete destruction of the Japanese armed forces and just as inevitably the utter devastation of the Japanese homeland” (Bernstein 14). The Soviets, who were not yet at war with Japan, were not asked to sign the Declaration. Japan declined the conditions of the Potsdam Declaration, deeming it unacceptable because it abolished their Imperial Monarchy. Instead of accepting Allied terms, Japan continued to pursue a meeting with the Soviet Foreign Minister.

This meeting came too late to prevent the impending destruction, however, and on August 6, 1945, Hiroshima, Japan was the first target of atomic
weaponry. Two days later, when the Japanese were finally granted their meeting, they were handed a declaration of war from the Soviet Union in keeping with the agreement made at the Yalta Conference. The U.S.S.R. subsequently invaded Manchuria and the following day, August 9, the United States dropped a second nuclear bomb on Nagasaki. Japan was left with no choice but to surrender to Allied forces. In August 1945 the Japanese Emperor accepted the previously rejected Potsdam Declaration with only one stipulation: Japan demanded that the Allies guarantee the continuation of the Imperial Dynasty, which the Americans ambiguously accepted. The official Japanese surrender was signed in Tokyo Bay on September 2, finally bringing an end to the Second World War.

Arguably, it was the atomic bombs that made the difference by convincing Japan to accept the terms of an unconditional surrender to Allied forces. To again quote Harry Stimson,

The atomic bomb was more than a weapon of terrible destruction; it was a psychological weapon. In March 1945 our Air Force had launched its first great incendiary raid on the Tokyo area. In this raid more damage was done and more casualties were inflicted than was the case at Hiroshima. Hundreds of bombers took part and hundreds of tons of incendiaries were dropped. Similar successive raids burned out a great part of the urban area of Japan, but the Japanese fought on. On August 6 one B-29 dropped a single atomic bomb on Hiroshima. Three days later, a second bomb was dropped on Nagasaki and the war was over...it was not one atomic bomb, or two, which brought surrender, it was the experience of what an atomic bomb will actually do to a community, plus the dread of many more, that was effective. (98-99)

The conclusion of years of global war had come down to the cargo of two American planes. The power of nuclear weapons was undeniable; for Truman to authorize their use meant forever changing the way modern war is waged,
expanding the power of the leaders of nations with nuclear programs to a heretofore unprecedented level, and asking more of those leaders than had ever been asked before.
Chapter One

The first use of atomic weaponry and its devastating consequences in Japan left much in question for the rest of the world. The American public, and even many of the country's leaders, knew virtually nothing about nuclear energy even after the Bomb was initially used, and the secretive stance of the U.S. government following World War II did little to improve their understanding of the new technology. The fear (and reality) of espionage was too great a risk for those involved in the nuclear program, and consequently the entirety of the Manhattan Project and its preceding research was almost completely confidential. Even with these safeguards, spying, especially from German and Russian agents, was a persistent problem for the American government. Everyone, including leading scientists and government officials, was suspected of aiding the enemy, or having ties to the Nazi and Communist governments. Without reliable or ample information, much of the civic and public sector was left entirely in the dark about America's new technology. But even for those aware of the Bomb's existence, the theories behind atomic energy were so radical and complex that few people understood how the process worked or had a firm grasp of its concept. Even if the recent advances in scientific technology had been made more public, as the earliest ones were, most of the country was not well-versed in scientific terminology. In order to grasp the significance of these new ideas, the majority of the American public needed discoveries translated into manageable ideas and understandable outcomes. Throughout the development
and use of atomic weapons, speculation was virtually the only outlet for establishing a dialogue about the topic amongst the leaders and citizens of the country. Science fiction provided a natural space for such speculation, which was a necessary piece of the conversation that proved so important to the Atomic Age. The need for such a discussion caused the genre to evolve to encompass a new form: nuclear fiction. With this genre came the addition of many novels that offered insight, predictions, and inquiries about the newly-developed technology. These works were not targeted solely at educating the general public, nor were they expressly written to warn leaders of the dangers they might later face with the continued expansion of the nuclear program. Rather, these works served as an outlet for writers' speculation, a means through which to inform the public, and a vehicle for confronting the diplomatic and ethical dilemmas nuclear weaponry could potentially raise for leaders. All of these aspects of nuclear fiction validated and necessitated the existence of the genre long before there were actually atomic weapons developed to use for military advancement.

The Evolution of Science Fiction:

Science fiction, as a genre, is a particularly difficult one to define, yet its rise in the nineteenth century speaks volumes about the inquisitive nature of the times and the various technological advances that occurred in rapid succession. There is no definitive subject matter that must be included in the plot of these works for them to be considered part of the genre. Rather, the only defining
characteristic that remains consistent throughout science fiction is the inclusion of imaginative and unknown aspects of life. Science fiction is not exclusively "fantastic," nor is consistently realistic. It is generally agreed by critics that the term "science fiction" was "first used, it seems, in 1851," though Mary Shelley's novel *Frankenstein*, published in 1818, is often cited as the first novel in this genre (Cudden 791). Like other pivotal works of science fiction, *Frankenstein* is notable because of its originality in plotline and conception. It would seem strange to place a work about a scientist who creates a living monster using various body parts and electricity in the same category as novels written about super heroes and space travel, but it is for this reason that science fiction is divided into subgenres that convey the different methods of imaginative speculation used by authors. Nuclear fiction fits in directly with none of the aforementioned types of science fiction, which is why it was relegated to its own subgenre once a significant number of authors began to write stories about atomic technology.

Nuclear fiction developed as a result of the scientific advances that occurred in the late nineteenth and early twentieth centuries. As Paul Brians writes,

> The atom was viewed as harboring world-shattering power as early as 1895, and...popular articles and books on the mysterious new sort of energy proliferated during the early years of the twentieth century. In 1913 [H. G. Wells] wrote what is usually cited as the first novel depicting a war involving atomic weapons. (Brians)

These works did more than simply develop a new subtopic and advance science fiction as a literary genre; they brought what Cyndy Hendershot calls "an
awareness of the Atomic Age to the attention of a popular audience" (77). Wells and other writers like him publicized the scientific advances that surrounded atomic technology by making them accessible to the general public in language that could be understood and digested by even the most pedestrian reader. In the introduction to *The World Set Free*, Wells has a character explain the history of scientific evolution – the development of steam engines and electricity, to name a few. This professor also describes the new concept of radioactivity, and what it could mean for humanity, depending on how leaders choose to use it:

"Mark what we should be able to do! We should not only be able to use this uranium and thorium; not only should we have a source of power so potent that a man might carry in his hand the energy to light a city for a year, fight a fleet of battleships, or drive one of our giant liners across the Atlantic... Do you realize, ladies and gentlemen, what these things would mean for us? It would mean a change in human conditions that I can only compare to the discovery of fire. (Wells)"

His optimism is evident in this description of the beginnings of nuclear technology, and he points to specific, tangible uses for this new technology that laymen can comprehend. Wells also makes this information exciting and relevant to the average reader, rather than regulating its importance solely to the scientific elite. Helping the public to understand the advances in technology and science is crucial to begin a dialogue in which the public can participate, along with leaders and scientists, and in affirming that atomic energy affects all Americans, as well as the rest of the world.

**Nuclear Fiction’s Ability to Shape Conception of the Bomb:**
Wells’ work is especially remarkable for its time because of his extensive understanding of advanced scientific principles, and his ability to plainly recount it to his readers amid an exciting and engaging plotline. Wells makes every effort to explain the progression of science and technology as a background for this story, but he also qualifies humanity’s evolution from “the fire-stick savage” to modern man’s “feverish productivity”: although these scientific developments represent “the bright side of the opening phase of the new epoch in human history,” Wells claims, “beneath that brightness was a gathering darkness, a deepening dismay” (Wells). Wells is not naïve enough to assume that the world can advance at this pace without some negative repercussions, but that is not his main thesis regarding scientific advancement; it is still his hope that “highly educated and highly favored leading and ruling men [can] voluntarily set themselves to the task of reshaping the world” (Wells).

Wells’ description and understanding of nuclear weaponry is also far more accurate than many others at this time, because, as Brians notes,

He understood Einstein’s theory well enough to grasp that atomic energy would be derived from the annihilation of matter; the ‘Carolinium’ used in his bombs bears some resemblance to plutonium; and his atomic bombs are delivered from the air. (Brians)

Writing like Wells’ helped the general public to better grasp what nuclear energy might look like, and how the many scientific advances of the time could potentially be unified and used for military gain. It also helped to differentiate between traditional bombs and weapons and the newer, more destructive atomic weaponry. The unique qualities of modern weapons, Wells states, make them “strange, even to the men who used them” (Wells). Wells’ nuclear bombs, made
with the aforementioned "Carolinium," are the "most dangerous to make and handle," and result in a "crater that burst[s] open above it, [with] puffs of heavy incandescent vapor and fragments of viciously punitive rock and mud, saturated with Carolinium, and each a center of scorching and blistering energy" (Wells).

The creation of these weapons was, Wells continues, "the crowning triumph of military science, [it was] the ultimate explosive that was to give the 'decisive touch' to war" (Wells). Thus, there is a clear divide between traditional weapons and the state-of-the-art ones Wells describes. Not only are they unlike anything the world has ever seen, but they are capable of changing the face of modern warfare.

Early texts, those written prior to the bombing of Hiroshima, not only allowed authors to speculate for themselves how scientists and the government might use this new technology, these works also helped the rest of the population to develop and expand their own comprehension of the topic. Nuclear fiction played a large role in shaping the public's conception of nuclear energy by filling in what Hendershot calls "gaps in knowledge" left by the complex scientific announcements and theories (70). Though it was fairly common for new scientific findings to be made public prior to the beginning of World War II, their significance was often lost on the American people, and even government officials sometimes failed to comprehend the implications of the discoveries. Science fiction, and nuclear fiction in particular, was able to take the complex technological wording of the scientific world and incorporate it into an interesting plotline through which the significance of the innovation could be understood by
laymen. Moreover, nuclear fiction often suggested what might be done with such technology, explaining it in a comprehensible way that helped the American public to grasp where the world, and this technology, might be headed.

The ability of nuclear fiction to help create public knowledge on the subject of nuclear weaponry became even more important once America began censoring the information it released to the public about atomic technology. Because of the overwhelming fear of espionage, voluntary censorship existed in the U.S. long before the Office of Censorship was officially created for the purpose of monitoring wartime publications. In 1939, as the situation in Europe began to worsen, “American scientists involved in nuclear experiments agreed voluntarily among themselves to stop publishing information that might have possible military usefulness. ‘Special emphasis’ was placed on ‘uranium work’” (Washburn 5). Additionally, the following year, editors of American scientific journals began filtering any articles they wished to publish through the Committee of the National Academy of Sciences. By the time the Office of Censorship was finally established on December 19, 1941, there was little scientific news to censor: the scientific community was so silent, in fact, that Time magazine noted the lack of scientific innovations announced at national conventions in 1941 and 1942. Because scientific experimentation was kept so quiet, the Office of Censorship itself was not even informed explicitly about the Manhattan Project until March 1943, when the military deemed the Office’s inclusion absolutely imperative to state security. The confidentiality of the Manhattan Project left Byron Price, head of the Office of Censorship, with a new problem: how to warn
editors to avoid the publication of items related to atomic energy without directly informing them of the existence of such technology. It took Price three months to develop a satisfactory plan, but

Finally, the Office of Censorship, the Office of War Information, and Military Intelligence put together a confidential note to editors, which was issued on June 28, 1943. It asked that nothing be printed or broadcast on wartime experiments involving: 'production or utilization of atom smashing, atomic energy, atomic fission, atomic splitting, or any of their equivalents; the use for military purposes of radium or radioactive materials, heavy water, high voltage discharge equipment, cyclotrons; or the following elements or any of their compounds: polonium, uranium, ytterbium, hafnium, protactinium, radium, rhenium, thorium, deuterium.' (Washburn 7)

Primarily, this directive was aimed at monitoring the many leaks in factual news articles and radio broadcasts, as well as scientific advances and research. Yet occasionally, as Washburn observes, it became necessary to screen publications outside the "mainstream magazines and newspapers" (12). These exceptions often included fictional works related to nuclear energy. After censoring one particular novel in 1943, Jack Lockhart, head of the Press Division of the Office of Censorship, wrote that "ordinarily we do not have any interest in fiction, but when fiction incorporates factual information dealing with restricted subjects, it can give information to the enemy as readily as any other form of published material" (Washburn 12). Only fictional works dealing with atomic energy in a realistic way were censored by the U.S. government, but Lockhart's statement demonstrates the merits of nuclear fiction writing and its ability to shape the public's conception of the new technology. This type of censorship also went beyond novels and even included short stories and comics that represented nuclear energy too realistically. The government maintained that it was not "in
the business of censoring fiction or comic strips,” but that “considerable caution [was] needed in any discussion of this topic for the duration of the war” (Washburn 24). American censorship could not completely squelch the influx of speculation and information about atomic weaponry, however, especially when it came from overseas. News broadcasts and published works from London and the rest of Europe found their way to the American public, and there was little the Office of Censorship could realistically do to prevent it. Even in the U.S., there were no legal repercussions for those who, intentionally or otherwise, violated the censorship agreements, and leaks were a frequent problem throughout World War II. All the government could do was try to prevent stories from publication by catching them before they went to print, or demanding the magazine or newspaper remove them from the shelves after they were distributed. The more widely-read and reliable the source, the more important it was for the government to monitor its content. Once the Enola Gay dropped the first atomic bomb on Hiroshima on August 6, 1945, however, many of the regulations were relaxed, and most articles and stories were allowed to be published, barring those that included specific scientific formulas and techniques – again in the interest of national security. On August 14, 1945, the Office of Censorship was officially disbanded and the Code of Wartime Practices ended with Japan’s surrender.

The era of censorship and espionage was one of confusion and misinformation for much of the United States. Since very little new information was released to the public, there were no facts to either confirm or refute the fiction that had been published prior to the ban, or the fantastic and farfetched
tales that made it through the screening process. Americans’ conception of the atomic bomb was thus shaped not by whatever recent technological or military decision had been made, but by sparse information leaks and the speculative fiction left over from the pre-war era. The public was left to fill in the gaps that the government refused to; often this was through the works of science fiction authors like H. G. Wells.

**Shortcomings of the Power of Fictional Writing:**

Unfortunately, these authors, despite their accurate technological predictions, were largely incorrect in their calculations about the aftermath of the use of atomic weapons. Wells is, admittedly, one of the most accurate in terms of recognizing that any use of nuclear energy would absolutely cause destruction. Yet his novel maintains an upbeat tone despite its carnage:

> Only half of the action is concerned with the war and resulting damage. The other half details the emergence of a new, peaceful, rational, world state made possible by the destruction and death that has taken place. (Bulfin 76)

The concept of rationality is an interesting quality for Wells to choose to qualify his post-war society, especially since the hysteria surrounding the bombing of Hiroshima and Nagasaki was anything but rational. Wells’ characters, unlike the public in reality, experience an awakening of sorts regarding nuclear weaponry and its place in the world. Instead of involving themselves in an arms race, they opt for peace:

> The catastrophe of the atomic bombs which shook men out of cities and businesses and economic relations shook them also out of their old established habits of thought, and out of the lightly held beliefs and
prejudices that came down to them from the past... The moral shock of the atomic bombs had been a profound one, and for a while the cunning side of the human animal was overpowered by its sincere realization of the vital necessity for reconstruction. (Wells)

Ultimately, the Bomb’s destructive capabilities are not the focus of Wells’ novel – his message is about the positive result that comes from the damage done.

Coming to the brink of annihilating the world was the catalyst necessary for humanity to understand nuclear power, and to realize the need to containing that power. Near the close of the novel, Wells, through his narrator, reflects that:

Civilization was very near disaster when the atomic bombs came banging into it... if there had been no induced radioactivity, the world would have – smashed – much as it did. Only instead of its being a smash that opened a way to better things, it might have been a smash without a recovery... [The world] had no belief that science could save them, nor any idea that there was a need to be saved. They could not, they would not, see the gulf beneath their feet. It was pure good luck for mankind at large that any research at all was in progress. And as I say, sir, if that line of escape hadn’t opened, before now there might have been a crash, revolution, panic, social disintegration, famine, and – it is conceivable – complete disorder... (Wells)

Wells is not alone in this expectation of rationality and peace following nuclear war. In this regard, his work is in line with the majority of pre-World War II nuclear fiction writing, most of which also adheres to this buoyant view of humanity’s ability to recognize and reject its newfound ability to destroy itself in favor of universal, eternal peace.

Frank Stockton’s 1889 work, The Great War Syndicate, also presents this optimistic view of the use of nuclear weapons, and even takes it further because he negates the actual war. Stockton’s characters have only to detonate their “super weapon” in an isolated location (though they need to do so several times)
to understand its power and end the standoff between Great Britain and the United States. Following the nuclear demonstrations of strength, there is a

Reduction of military and naval forces, and gradual disarmament... Now there would be no more mere exhibitions of the powers of the instantaneous motor-bomb. Hereafter, if battles must be fought, they would be battles of annihilation. (Stockton)

Though there is still a devastating weapon created in *The Great War Syndicate*, the novel remains optimistic, specifically due to the fact that the weapon is never used directly against another person because enemies are warned of an impending attack and evacuate before the Bomb is launched. Stockton reinforces his upbeat tone by writing, at the end of his novel, that: “the Spirit of Civilization raised her head with a confident smile” (Stockton). There is no animosity toward the winners of this conflict for their newfound position superiority because every nation understands that it is in its best interests to support peace and unity. In fact, Stockton even writes that

No time was lost by the respective governments...in ratifying the peace made through the Syndicate, and in concluding a military and naval alliance, the basis of which should be the use by these nations, and by no other nations, of the instantaneous motor. The treaty was made and adopted with much more dispatch than generally accompanies such agreements between nations, for both governments felt the importance of placing themselves, without delay, in that position from which, by means of their united control of paramount methods of warfare, they might become the arbiters of peace. (Stockton)

This passage demonstrates how many of the early nuclear fiction authors expected and hoped that leaders would react to the use of nuclear weapons. This was not, of course, the world’s reaction to Hiroshima, but writers like Stockton and Wells still hoped that there would be a moral epiphany through which tranquility would be established.
Hollis Godfrey's 1908 novel, *The Man Who Ended War*, is perhaps the clearest allusion to universal peace in the aftermath of the development of atomic weaponry, even though there is no war in the novel. Godfrey tells the story of a man who is singularly entrusted with control of an atomic weapon. Rather than use it to his personal advantage, however, Godfrey's character uses the weapon as incentive to end war forever. Godfrey makes the explicit point that technology, even at its most terrible, can bring about an eternal peace. In doing so, he

Paved the way for the American technological wizard who would invent the ultimate weapon, save the United States from its enemies, and establish the Pax Americana. [Godfrey showed that] even the greatest human problems can thus be solved by a technological miracle, particularly if the miracle takes the form of something that just might turn out to be the ultimate weapon. (Elkins)

There is something that, retrospectively, seems counterintuitive about this point. It is difficult, sixty years after the devastation of Hiroshima, to view atomic weapons with the kind of optimism that these authors were able to, or to see humanity as the moral, rational entity that they do. Therein lies the problem: there is a large disconnect between fiction and the way the events actually occurred.

A writer who publishes a prophetic work, regardless of whether or not this is fiction's purpose, bears a certain responsibility to readers. Because the plotlines of nuclear fiction works are often so realistic, there was a natural inclination to believe what they had to say – especially in the absence of confirmed facts from other sources regarding scientific developments. It is hard to take their predictions with the requisite grain of salt needed to read fiction
works when there is an almost universal consensus among authors about the outcome of a certain scenario. If the public cannot understand the science, and the direction in which it is headed, the opinion of authors who can carries a bit more weight than that of the average citizen.

The issue with the message of these pre-World War II texts is the association of atomic weaponry with eternal peace. H. Bruce Franklin calls this misconception the “mythology of nuclear weapons,” claiming that from “1895…until 1945, nuclear weapons existed nowhere but in science fiction, and in the imagination of those directly or indirectly influenced by this fiction” (Hendershot 84). The messages of these authors, then, played an enormous role in how the public regarded nuclear weaponry, and, Franklin argues, even influenced American politicians: “the American myth of ‘the ultimate peacemaking weapons’ that would lead to world peace…directly shaped the nuclear policies of the United States” (Hendershot 84). American rhetoric near the close of World War II supported this conviction, since the Truman administration maintained that the Bomb’s purpose was to expedite the end of the war and ultimately save American and Japanese lives.

Truth Versus Fiction: How the “Myth” Really Shapes Policy:

This single rationale is not a completely accurate assessment of America’s policy on nuclear weaponry, even before the bombing of Hiroshima, however. The existence of the Manhattan Project was kept so private that even some government officials were unaware of it. Espionage and sabotage were major
Elberson

concerns of both the Allied and Axis powers during the war, especially once Nazi and American scientists began to compete for nuclear superiority. There were entire divisions of the military and government devoted to breaking the codes other nations used to keep their communications confidential. All of this concealment and deception ran in complete contrast to the message of Roy Norton’s novel, *The Vanishing Fleets*. Published in 1908, *The Vanishing Fleets* outlines the benefits of sharing technological advances – even with the enemy. In the work, the United States is the only country with the knowledge and technology to produce atomic weapons. Instead of arming themselves and concealing this newfound data, America shares the information needed to develop the Bomb with the rest of the world. In keeping with his contemporaries, Norton claims that the end result of such generosity would be universal peace so that there is no need to ever use the weapons.

As naïve as this view seems to be, the events of the Atomic Age have proven that the alternative, absolute secrecy, does not serve the world any better. If the “myth” entirely dictated the policy decisions of the United States, or any other country, prior to the bombing of Hiroshima, one would be hard-pressed to justify the decision to conceal scientific developments before and during the war. Since the “myth” advocates optimism, there would be no reason to fear the world’s reaction following the Bomb’s conception – unless one believed that the “myth” was just that: a myth. In reality, throughout the world, leaders and policy-makers did not accept the buoyant rhetoric of early nuclear fiction. If any leader believed that the use of nuclear power would bring positive outcomes, it was
because they saw the acquisition of atomic weaponry as a means through which they could gain superiority over the lesser nations of the world – those that were not fortunate enough to have developed the Bomb.

Early nuclear fiction writers like Norton and Wells undoubtedly had a hand in shaping the way the public viewed the Atomic Age, but policy-makers proved to be a shrewder and more cynical audience. The world will never know what might have happened had the fears and predictions of these authors been heeded by international leaders. The merit of fictional works whose basis lies in reality is that they create an arena in which events and scenarios can be explored “without risk or penalty” (Scarry 25). The real world affords no such opportunity, and perhaps humanity has paid for the way nuclear weapons have been treated by policy-makers since their development began in the late nineteenth century. How would the world look now had leaders taken the peaceful path described in pre-war novels, rather than the tumultuous course of the Cold War, Cuban Missile Crisis, and, much later, the debate over North Korea’s armament? Much of today’s world remains mistrustful and wary of other peoples and countries and the weapons they have been allowed to develop in the wake of the atomic bomb’s conception. This is a far cry from the kind of world authors like Wells and Godfrey predicted, but it is the reality. Regardless of how differently things might have turned out had leaders taken the writings of nuclear fiction authors more seriously, the reality of the Atomic Age is that the optimistic predictions of eternal and everlasting peace offered by these works is certainly not what actually happened after Hiroshima.
Bartter's aforementioned "ongoing, public conversation" about the concept of nuclear war and its repercussions was not enough to motivate policy-makers to comply with the warnings and concerns of nuclear fiction authors (1). Yet the works of this genre still made the conversation's existence possible in a way it otherwise might not have been. The persistence of these authors to publish their thoughts and fears amid the turbulence of the times is a testament to the importance of exploring the Atomic Age and all of its implications, not only for leaders, but for the public and the rest of the world.
Chapter Two

The era preceding the first use of an atomic weapon was a tumultuous and tense time for leaders and followers alike. Espionage, deception, and coercion were used extensively by all of the world's superpowers to get ahead and become the first country with the capabilities to launch a nuclear attack. This desire for military supremacy did not fade after World War II; on the contrary, it increased. With the bombing of Hiroshima and Nagasaki in 1945, leaders not only learned that atomic weaponry was an attainable goal, they also saw the swift and dramatic results that came from its use when Japan surrendered to the United States only days after Nagasaki was bombed. America remained the only country to have developed a working atomic bomb, which unquestionably tilted the world's balance of power in America's favor. As long as the U.S. was the only nation with nuclear weapons, it had an indisputable position as the leading superpower. No other country could hope to escape devastation if America decided to again make use of its nuclear arsenal, and retribution was utterly impossible for any other nation in the world. This situation allowed for the dangerous possibility that the United States might become a global bully, simply flexing its nuclear muscles whenever an international dispute went against its wishes. While no nation wanted to again unleash the destructive capabilities of nuclear weapons, it was unacceptable to many leaders that no other country could retaliate against an atomic attack from the United States. Thus, in the wake of World War II, the Arms Race began in conjunction with the Cold War: a
bloodless conflict that pitted two prior allies (the Soviet Union and the United States) against one another in the quest to become the leading superpower. U.S.-Soviet relations, while never especially warm, took a turn for the worst after their shared enemies (Japan, Germany, and Italy) were defeated. With no common interest to unite the two countries, "it became clear within a few months after the end of World War II that the next enemy of the American Republic would be the Soviet Union" (Bruce-Briggs 43). This proved, in the coming years, to be absolutely true, as competition with the Soviets dictated American foreign policy and decision-making.

The Cold War: Before and After Hiroshima:

Though the most widely-held conception of the Cold War lists its start date as 1945, directly following World War II, many historians believe it started far earlier – even before World War II began. America and the Soviet Union often found themselves at odds in terms of global policy and governmental theory, and their political ideology clashed frequently. Both nations ultimately found it to be in their best interests to unite for the purpose of defeating Italy, Germany, and Japan and squelching the imperialist aspirations of these countries, but their strained union could not completely eliminate the level of distrust that the U.S.S.R. and the United States held for one another. Espionage, secrecy, and hostility permeated their relationship throughout the war, and once World War II officially ended, there was no reason for the uneasy partnership to continue. The
latent animosity that had been barely contained for so many years came to a
head in the period following Hiroshima.

One of the most dramatic examples of the tension between East and West
was demonstrated when the Allied powers split control of Germany after the
Nazis were defeated. Though the capital of Berlin was technically within the
Soviet zone of occupation, none of the Allies were willing to allow any one of the
others to have exclusive control of the city. Consequently, Berlin was split down
the center, with the Western half controlled by Britain, France, and the U.S., and
the Eastern half controlled by the U.S.S.R. The Western powers chose to make
West Berlin a capitalist democracy, which ultimately thrived under their
leadership, while East Berlin was made into a communist entity like the rest of
Eastern Europe. The discrepancy between East and West led a large number of
East Berlin citizens to relocate to West Berlin in search of economic prosperity.
To combat this, the Soviet Union not only instituted a strict pass system to travel
between East and West Berlin, but they also erected a wall and barbed-wire
fence that completely surrounded West Berlin and made the territory an isolated
entity within hostile Eastern Europe. The Berlin Wall came to represent the
exclusion of Western influence from Eastern Europe and the Soviets’ unbending
secrecy – symbolically called an “Iron Curtain” around all of Eastern Europe.

The “Iron Curtain” and Berlin Wall successfully separated the Soviet Union
and its holdings from the Western world, and confirmed the enmity America had
expected to encounter after World War II. This animosity would prevail in Soviet-
American relations until the end of the 1980s. This era, known as the Cold War
because there were no actual battles fought, was characterized by open competition between the two nations, especially in the area of nuclear (and conventional) weaponry and space travel. The Cold War did not start the Arms Race, nor was the Arms Race the exclusive factor in the Cold War's existence; espionage and secrecy had existed in U.S.-Soviet relations long before nuclear weapons were developed by American scientists, but the Arms Race coincided with the Cold War after the end of World War II, when the U.S. successfully used a weapon that the Soviet Union hoped desperately to develop. While the United States struggled to justify its decision to use atomic weapons against Japan and maintain its nuclear superiority, the Soviets raced to catch up to and surpass the Americans.

The Aftermath of Hiroshima:

American policy-makers expected a backlash from the rest of the world after the first use of atomic weaponry. Acting out of foresight, the American and British governments commissioned a team of civilian analysts to investigate the physical, moral, and economic effects of nuclear war on Hiroshima and Nagasaki (Bruce-Briggs 39). Thus, the United States Strategic Bombing Survey (USSBS) was formed prior to the actual use of atomic bombs during World War II to investigate both sites immediately after the bombing. This examination also extended to sites bombed by Allied forces using conventional weapons earlier in the war, but it was the nuclear component that provided the newest and most unique information. From the USSBS's report, America not only hoped to gain
insight into the effects of “Fat Man” and “Little Boy” on Japanese cities, but also on the ways the United States might protect itself from similar attacks. The USSBS was not only a vehicle for allaying the concerns of a horrified world; it was also designed to assist the U.S. in updating its defense so it could use its new nuclear advantage to the fullest extent while still protecting itself in the event that another nation develop a Bomb.

The committee’s findings about the use of atomic weaponry in Japan ran in direct contrast to the party-line America’s government had been towing about the need to use nuclear weapons to bring an expedient end to the war:

The USSBS concluded in 1946 ‘that certainly prior to 31 December 1945, and in all probability prior to 1 November 1945, Japan could 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.’ (Bernstein xiii)

Yet the administration maintained the necessity of the Bombs. Stimson, in particular, “asserted that the use of both bombs was necessary for ending the war promptly… that the bomb made the critical difference” (Bernstein xiii). There is no definitive proof to either confirm or disprove this statement, of course, and the justification behind the bombing remains debatable. What is certain, however, is that bringing an expedient end to the war was not the sole factor in the decision to use nuclear weapons against Japan; America had a unique opportunity to prove its superiority through one of the most astounding and dramatic displays of all time. Not only was atomic weaponry the catalyst for ending a war, it was also irrefutable evidence that the United States had developed the most dangerous weapon in the world, and was not afraid to use it.
This was not done just for the benefit of America's enemies, either: many policymakers in the U.S. hoped (consciously or not) that the Soviet Union, America's past and future enemy, would take notice and resist escalating tensions in their already strained relationship.

Regardless of the justification behind it, the first use of atomic weaponry in warfare threw the world, not just its competitive superpowers and leaders, into a panic:

In 1945 and 1946, the popular view of the next war was a nightmare... Each side would launch its bombers against the other, pummeling cities into atomic dust, until one side or the other quit, or both were annihilated. (Bruce-Briggs 40)

The hopeful tone and limitless possibilities of the pre-war period were gone; atomic technology had been relegated to the arena of terrifying destruction by the rest of society. Essays decrying the massive devastation wrought by even a single Bomb were published in the era directly following World War II. One such example, written in 1946 by Louis Ridenour, even went so far as to explain why conventional air defenses were useless against atomic weaponry: even if one plane could deliver its payload (which it undoubtedly would, given the inadequacies of the American air defense system), Ridenour claimed, the target city was essentially lost. In keeping with these fears, the first General Assembly of the United Nations met in January 1946 to discuss the possibility of eliminating "all weapons of mass destruction, including the atomic bomb" ("History of the Atomic Age"). Clearly this discussion failed to rid the world of the Bombs, but, two months later, another attempt to restrict nuclear weaponry was introduced: *The Report on the International Control of Atomic Energy* was published by the
State Department’s Committee on Atomic Energy, stating that there should be a worldwide authority established to control every aspect of nuclear power. The U.S. military strongly opposed this idea, believing that it should maintain the control it already enjoyed over atomic munitions. The Soviet Union also rejected the idea, claiming that it would give the United States the advantage of having atomic weapons already in their arsenal, while Soviet production would have to be halted until details regarding the international authority could be fleshed out. The Soviets suggested international disarmament, but neither country ceded to the other’s plan, and both ideas were dropped from UN negotiations. With no international agreement, each country was left to develop and maintain its own nuclear program.

In America, this meant first ridding the project of Britain’s influence. The United States had allowed the British to collaborate throughout the evolution of the Manhattan Project, but now that World War II was over and there was no need for an alliance, Britain was left to manage its own nuclear program – without America’s assistance. The United States continued to struggle with the issue of who ought to control their atomic program, and later that year the military lost unilateral control when the Atomic Energy Commission was established on August 1, 1946 through President Truman’s Atomic Energy Act. The committee was composed of five civilian members and a scientific advisory panel, which was chaired by J. Robert Oppenheimer, a scientist who had been a major factor in the success of the Manhattan Project. The Atomic Energy Act also officially ended the relationship between the British and American nuclear programs.
Now that each country was in control of its own atomic program, the Arms Race intensified as other nations struggled to develop the technology the Americans already possessed, while the United States pushed to keep its superiority by improving their weapons. The late 1940s and 1950s were marked by the testing of weapons from a variety of nations around the globe. On July 1 and 25, 1946, the United States conducted the first post-war nuclear testing in Bikini Atoll in the South Pacific. These tests, called Operation Crossroads, were designed to see how different detonation techniques would affect the impact of a nuclear weapon. Not only did testers discover that bombs made a far greater impact when detonated underwater, but the effects of radiation were also noted to be "a grave threat to the crew and thereafter to the operation of a ship" (Bruce-Briggs 41). It would be over two years before another test would take place, but during that time, Britain's nuclear program began to take shape. Its first reactor went critical in 1948 — making British facilities capable of manufacturing the self-sustaining fission reaction required to produce atomic energy. In August 1949, the Soviet Union tested its replicated version of the American bomb "Fat Man" in the area of the U.S.S.R that is now Kazakhstan. The Soviet bomb was based largely on the information they had stolen from American scientists during the early stages of the Manhattan Project. This was the first non-American bomb to be tested anywhere in the world, and its detonation was not publicized until American weather planes detected radioactivity in the atmosphere from the test several days later. Though the world was shocked and appalled that another nation now had the ability to unleash the devastating destruction of nuclear war,
scientists in America and throughout the world were unsurprised – it had long been believed by scientific intellectuals in the United States that “any industrial nation could construct an atomic bomb given sufficient time” (“History of the Atomic Age”).

Now that the Soviets had caught up to the Americans in terms of creating an atomic weapon, it was time for the United States to take the next step in their nuclear program: in 1950, President Truman approved the development of a hydrogen bomb despite the concerns raised by scientists like Oppenheimer. The concern for the development of this new weapon came from its technological differences: a traditional atomic bomb, an A-Bomb, is created through a nuclear fission reaction, a hydrogen bomb, or H-Bomb, is the result of a nuclear fusion reaction – a reaction with limitless yield and, thus, infinitely more power than the original atomic bomb. Two scientists working within the American program wrote that “since no limit exists to the destructiveness of this weapon, its existence and knowledge of its construction is a danger to humanity as a whole” (“History of the Atomic Age”). Nevertheless, the opinions of American scientists again went unheeded, and the program to develop this new technology pressed on, as did nuclear agendas in other countries.

While the U.S. grappled with the development of a weapon even more dangerous than their original atomic bomb, nations elsewhere in the world continued to start their own fledging programs, eager to arm themselves with the constantly-evolving technology. The Chinese atomic program began under a blanket of secrecy when, in 1951, they signed an agreement with the Soviet
Union to exchange Chinese uranium for Soviet technical expertise in bomb construction. This loose alliance gave an advantage to both China and the Soviet Union in their quest to compete with the American program. The next year, Britain detonated its first atomic bomb in Western Australia, making it the third country to successfully produce the technology. The United States soon upped the ante, however, when it detonated the first hydrogen bomb less than a month after the British tested their A-Bomb. It took the U.S.S.R. just under a year to catch up with American technology, and though the hydrogen bomb the Soviets tested on August 12, 1953 was less powerful than the American model, it was already useable for warfare, whereas the United States' model remained undeliverable. Churchill started his scientists on a program to create an H-Bomb in 1954, though it would take them until the end of 1957 to successfully do so.

Frightened by the rate at which the Soviet Union was creating atomic weapons, the United States tested its first deliverable hydrogen bomb on Bikini Atoll on March 1, 1954. This detonation represented the largest nuclear weapon ever tested, and it also made the effects of the nuclear age a startling reality for residents of the islands 300 miles away from the testing ground, who, ten years after the test, began to develop thyroid tumors. It was later reported that “of those under 12 on [the island] at the time of [the test], 90% have developed thyroid tumors” in the decade following the test (“History of the Atomic Age”). But the world's superpowers continued the Arms Race even amid the concerns of civilians and scientists alike, who pointed to the many harmful consequences of radiation, contamination, and destruction as evidence to stop the development of
atomic weapons. Policy-makers, however, refused to end the nuclear era: the Soviets detonated another H-Bomb in 1955, the British followed two years later, and the French developed their first A-Bomb in 1960. Only a brief hiatus of nuclear testing existed near the end of the 1950s during a failed multi-national attempt to make disarmament a reality. President Dwight D. Eisenhower, in conjunction with the British government, made an offer to halt nuclear testing provided that the U.S.S.R. also cease all of its tests. During a series of negotiations, Premier Vladimir Khrushchev and Eisenhower extended various proposals to one another, but could never agree on all points. While discussing the issue, however, all sides did, temporarily, agree to stop nuclear testing until the end of 1959 – so long as the other nations also adhered to this restriction. When 1960 began with no further agreement between the Soviets, Americans, and British, all countries were again officially free to test whatever nuclear weapons they chose. The United States, unwilling to allow this regression, proposed a new ban on nuclear testing in 1961 – this one lasting three years. The Soviet Union not only rejected the policy, but resumed their nuclear testing later that same year, when it exploded the largest nuclear weapon ever created – a hydrogen bomb with a yield of 58 megatons, more than four times the payload of the bomb the United States tested in 1954.

This was a dangerous change in the power balance for America, which could no longer enjoy its prior status as the world’s most elite superpower. It was especially worrisome for the United States because so little had been done for the country’s strategic defense in the wake of World War II. Since the Soviets
traditionally had poor aviation and naval expertise, and, until recently, no nuclear weapons, America found it unnecessary to expand upon their pre-existing defense system because they believed the U.S.S.R. had few capabilities for reaching the United States. The Soviet Union wasted no time in flaunting its newfound nuclear superiority, and, less than a year after testing its new weapon, the Soviet Union helped to bring the world as close as it has ever been to full-scale nuclear warfare by placing weapons dangerously close to the United States.

The Cuban Missile Crisis and its Repercussions:

On October 14, 1962, an American reconnaissance plane making a routine flight over Cuba discovered missile sites under construction on the island. While it was not learned until much later that the missiles were armed with nuclear warheads, there was still great cause for concern about the existence of missiles so close to American shores. Under the control of Communist dictator Fidel Castro, Cuba was known to look to the Soviet Union as a source of Communist leadership and support, and President John F. Kennedy wasted no time in convening a team of his closest advisors, which would come to be known as ExComm (Executive Committee) and would meet several times daily until the end of the Cuban Missile Crisis. The Committee, divided on whether to implement military or diplomatic actions, waited until October 22 to order a naval blockade of Cuba and put the United States military on DEFCON level 2, the rarely-used, second-highest level of military preparedness. Having failed thus far
to get a positive response from Moscow, Kennedy hoped this drastic step would convince Premier Khrushchev to remove the missiles from Cuba. It took six more days, but Khrushchev eventually did just that, agreeing to remove the missiles from Cuba if America recalled its missiles from Turkey, which the Soviets felt were equally threatening to their nation. Though the confrontation lasted only two weeks, the aftermath of the Cuban Missile Crisis has helped to shape much of the Atomic Age.

Changes were implemented on both sides of the Atlantic to prevent similar standoffs from occurring in the future: in particular, "the famous 'hotline' was installed between the US and the Soviet Union to help resolve future conflicts" ("History of the Atomic Age"). This direct connection would help to avoid any miscommunication between the two nations, or mistaken receipt of instructions from someone other than either country's leader. It was also during this time that the United States officially accepted responsibility for the thyroid cancer caused by their earlier nuclear testing on Bikini Atoll, and granted monetary compensation to those affected by the disease. Coming to the brink of nuclear warfare had also inspired American and Soviet leaders alike to begin negotiations on a Limited Test Ban Treaty (LTBT), which would restrict the amount of nuclear testing any country could conduct, thus limiting the world's collective nuclear arsenal. It took almost a year of discussion and concessions from all sides, but the LTBT was finally signed by the United States, Britain, and the Soviet Union in 1963. It ended atmospheric, underwater, and outer space nuclear testing. Since its conception, an additional 113 countries have also
signed the treaty ("History of the Atomic Age"). The LTBT brought about an era of relaxed tensions and peace that was very different from the strained hostilities generally prevalent during the Cold War. This period marked a détente for the superpowers of the world, none of whom could identify a forerunner in the nuclear arms race. Instead, a new theory of "mutually assured destruction" was generally accepted. This idea essentially acknowledged that each country knew the other had the capabilities to launch a second-strike in retaliation to any first-strike made against them; thus, no matter who started the war, both countries knew they would suffer great losses should a nuclear confrontation ever take place. Efforts aimed at preventing such a calamity seemed to be taking place throughout the world, as each of the world's superpowers began to develop and construct anti-missile defense systems while simultaneously scaling back their nuclear production in accordance with the LTBT.

The focus in the 1960s shifted away from the quest to develop the most destructive weapon possible. Instead, the priority became the assurance of global and national safety in a world equipped with nuclear weapons. Both the U.S. and the Soviet Union created several versions of a missile defense system for their respective country, which could defend against long-range missile launches, as well as bombs dropped directly from planes. Yet no matter how much progress the LTBT seemed to demonstrate in steering the world away from the use of nuclear weaponry, the leaders of other countries could not accept détente. In 1964, the Chinese tested their first nuclear device, and, three years later, they had developed and tested a functioning hydrogen bomb as well.
France detonated its first hydrogen bomb over an island in the Pacific in 1968, leaving the island uninhabitable for the next six years. Both China and France had notably refused to sign the LTBT when it was agreed upon in 1963, and their rejection of arms limitations put a strain on the promises made by the rest of the countries who had signed the treaty.

Regardless of each nation's stance on limiting the production of atomic weapons, there was an irrefutable drain on the economies of all nations with nuclear programs and anti-missile defense systems. In 1969, the world's superpowers were spending about $50 million dollars a day to operate their atomic programs ("History of the Atomic Age"). This expense was felt especially hard by America, which was also under the economic stress of funding the Vietnam War. Coupled with the progress made towards ending the Cold War by the LTBT, this excessive expense helped to prompt the beginning of an even more restrictive international nuclear treaty – the Strategic Arms Limitation Talks (SALT) treaty. It took three years of negotiations, but finally the United States and Soviet Union were able to reach an agreement, and the SALT I treaty was officially signed in May 1972. This accord froze the number of strategic ballistic missile launchers each country could possess at their current level. Only by dismantling launchers could a country build new ones, which essentially negated the motivation to participate in an Arms Race between America and the U.S.S.R.

Still, as with the LTBT, there were countries who could not accept the end of nuclear competition. Just months after the SALT I treaty was signed, the Prime Minister of India authorized his country to develop a nuclear program of its
own, which produced its first weapon less than two years after its conception. India refused to acknowledge its participation in a violent Arms Race; instead, the Prime Minister claimed the underground detonation was aimed at improving mining techniques and other engineering technology. The world rejected this rationale, however, believing instead that India was merely trying to develop a weapon strong enough to make it an international competitor. While India stood by its stance of peaceful technological development, international opinion berated the newest atomic power for going against the trend of détente and disarmament.

**Nuclear Disasters Prompt Change:**

Arguably, however, this inclination towards peace was nothing more than a façade adopted by both the United States and the Soviet Union. After signing the SALT I treaty and preaching disarmament, neither superpower seemed particularly inclined to surrender their atomic edge. While the Soviets began to replace all of their allotted ballistic missile launchers with newer versions whose improved range could now reach targets in Western Europe, the United States pressured European nations to allow American missile launchers on their soil, as a last resort to compete with the Soviets. Throughout this time period, negotiations had begun between the two nations about expanding the SALT I treaty to make it more restrictive, but it took a near-tragedy to emphasize the dangers of continuing down the path of nuclear advancement.
In the early morning hours of March 28, 1979, the American nuclear site at Three-Mile Island in Pennsylvania experienced a partial core meltdown in one of the site's reactors. Though no one was killed by the accident itself, radioactive material was released into the atmosphere, and 140,000 Americans fled the island in fear of the incident. Aside from terrifying the nation and displacing many of its citizens, the clean-up process was a lengthy and costly one for the United States: Through months of expensive testing and thousands of environmental samples, the government ultimately determined that the dose of radiation to which those in the immediate area had been exposed was extremely low and not at all dangerous. In addition to assuring the environmental safety of the island, the reactor site needed to be monitored and decontaminated – it took experts and government officials until 1993 to adequately defuel, drain, and shut down the nuclear reactor. Three-Mile Island represents the worst nuclear incident in American history, and it epitomized the fears of those who opposed atomic technology.

It is no coincidence that the SALT II treaty was signed only a few months after the disaster at Three-Mile Island. The potential for disaster during peacetime from merely producing nuclear weapons or energy was too great a risk or possibility for the leaders of the United States and the Soviet Union to ignore. Three-Mile Island, though it was the most extreme example of the accidental dangers of nuclear technology, was not an isolated incident. Plants in Idaho and Detroit had already experienced accidents which led to minor emissions of radiation into the atmosphere in 1961 and 1966. Neither reactor
melted down like the one at Three-Mile Island, but the number of nuclear mishaps was becoming alarmingly dangerous to civilians living near the plants, as well as the environment. The SALT II treaty was the first to be aimed at actually reducing — not just maintaining — the nuclear arsenal of both countries, and was the most restrictive step thus far in controlling production in the Atomic Age.

The promises of and sentiment behind SALT II were forgotten before the treaty could even become a law, however. When the Soviet Union invaded Afghanistan in 1980, President Jimmy Carter revoked the SALT II treaty before it could be ratified by the U.S. Senate, the last aspect of the process required for it to officially become part of American policy. The next year, when Ronald Reagan became president, he enacted a bevy of changes which also ran counter to the theory of détente. In addition to reversing the attempts Carter had made to halt further American reliance on nuclear power and energy as an alternative fuel to oil, Reagan upped the American military budget in an attempt to outspend the Soviets and proposed the Strategic Defense Initiative (SDI), which would come to be known popularly as “Star Wars.” This system was a high-tech anti-missile system based in space which could defend the United States against potential nuclear attacks — namely from the Soviet Union.

Fortunately, the Soviets had problems that took precedence over attacking the United States. Shortly after Mikhail Gorbachev took power in the U.S.S.R., a nuclear disaster far worse than Three-Mile Island occurred in the Ukraine. On April 26, 1986, the nuclear reactor at Chernobyl exploded, releasing thirty to forty
times the amount of radioactivity created by Hiroshima and Nagasaki into the atmosphere. The core experienced a partial meltdown, and the Soviet Union launched a massive attempt to cover up the disaster. The secrecy lasted only two days, however, because Sweden detected high levels of radiation in the atmosphere and demanded an explanation from Soviet officials. In response, Gorbachev admitted the tragedy publicly and erected a large metal and concrete shell over the reactor to prevent any more radioactive material from escaping into the atmosphere. When all the information regarding Chernobyl was finally made public, it was revealed that thirty-two people had been killed in the initial explosion, and an immeasurable number suffered radiation illness or poisoning. As a direct result of this event, Gorbachev proposed a fifty percent reduction in the nuclear arsenals of the U.S. and the U.S.S.R. The agreement ultimately failed, but it represented a huge step for Soviet policy-making that the initiative for arms reduction had come directly from the Soviet Premier.

**The End of the Cold War:**

Even though Gorbachev's proposal failed, the Intermediate Nuclear Forces Treaty did not. It was signed in December 1987, and it eliminated an entire class of nuclear weapons. Coupled with Gorbachev's new policy of glasnost ("openness") for the Soviet Union, this treaty brought the United States and the U.S.S.R. closer to ending their conflict. It took another two years for the Berlin Wall to come down, an event representing a defeat for communism and a progressive step towards uniting the East and West. Finally, on December 8,
1991, the Soviet Union officially dissolved, instead forming the Commonwealth of Independent States. The replacement of the U.S.S.R. by the C.I.S. symbolized the end of the Cold War. While the conclusion of this conflict did not bring an end to the Atomic Age, it definitively ended the imminent threat of nuclear war between East and West. The world had come dangerously close to nuclear disaster numerous times since the bombings of Hiroshima and Nagasaki, but the end of the Cold War and the numerous treaties signed by the world’s superpowers symbolized the end of the immediate risk of nuclear hostilities between the Soviets and Americans.
The Changing Face of Nuclear Fiction:

With the bombing of Hiroshima came a marked change in the way the world responded to nuclear technology. No longer was atomic weaponry a source of hope and promise for the world; instead, it became a greatly feared weapon that many worried would destroy the world. As superpowers grappled with the implications of wielding such destructive weapons, the general population struggled to understand what this new technology would mean for their future. Nuclear fiction scholar Paul Brians describes the post-war world as one in conflict, torn between “exhilaration and alarm” at recent events (8). With the Cold War in full swing and Communist espionage a major concern of the U.S. government, the American public could not be certain that its nuclear superiority would persist. In search of greater perspective and more information about the new technology, the public turned to other outlets to determine the way nuclear power would affect the world around them. Fortunately, the number of nuclear fiction novels published in the period immediately following the end of World War II increased rapidly and dramatically, offering the public a large base of works to choose from. So much was written about atomic weaponry in the late 1940s, in fact, that in 1952 the editor of one of the leading science fiction periodicals complained that too many of the magazine’s submissions dealt with nuclear war: he introduced the issue by grumbling that so many essays “still nag away at atomic, hydrogen and bacteriological war, the post-atomic world,...war, more
war, and still more war” (Gold 2). Atomic fiction, in addition to becoming much more prominent after World War II, had also undergone a dramatic change in tone. In the years between the implementation of censorship laws and the bombing of Hiroshima and Nagasaki, science fiction authors had become far more pessimistic about the repercussions of nuclear technology.

The difference in the tone of atomic fiction before and after the bombing of Hiroshima is neither a subtle nor a gradual one, and it happened almost instantaneously. The December 1945 issue of the science fiction periodical *Astounding* featured the first published piece of post-war atomic fiction. Titled “August Sixth 1945,” the short story was written by Theodore Sturgeon and reflected the new negative philosophy of nuclear fiction in the wake of World War II: man, Sturgeon asserted, “learned on August 6, 1945 that he alone is big enough to kill himself, or to live forever” (Sturgeon). The ominous tone of works like Sturgeon’s did not go unnoticed by those outside the literary community. Edward Teller, who invented the hydrogen bomb and was a driving force in the development of the Star Wars system, was a science fiction fan prior to 1945. After the end of World War II, however, Teller remarked that he could no longer read nuclear fiction. “My tastes did not change,” he argued. Rather, “science fiction did. Reflecting the general attitude, the stories used to say, ‘How wonderful.’ Now they say, ‘How horrible’” (Wager 448). Far from touting nuclear power as the development that would establish universal peace, writers now foretold an apocalyptic ending to any future use of atomic weaponry. Peter Ruppert, who reviewed David Seed’s *American Science Fiction and the Cold*
War: Literature and Film, called post-World War II nuclear fiction "overwhelmingly dystopian," and for good reason: hypothetical nuclear wars rarely ended in the hopeful fashion they had prior to the bombing of Hiroshima, and greater emphasis was placed on the need to prevent war from happening in the first place (258).

Though the tone of these novels was in keeping with the public's new fear of nuclear war, the sheer volume of works related to this topic arguably made the likelihood seem all that much greater to readers – a dangerous possibility for the public to become comfortable with, yet one they needed to accept in the wake of the reality of Hiroshima. The existence of these novels created a new arena in which the dialogue of the Atomic Age continued to take place – they symbolized a change in the perceptions of nuclear weapons, and helped readers to better understand how public opinion has been altered in the interim during which censorship was enforced. Before the war, the public was comfortable with the hope and promise nuclear technology was purported to offer them; once Hiroshima demonstrated the destruction that came with atomic weapons, it was necessary to reframe the discussion in a way that recognized this shift. By releasing such a large body of works in a time when fear dominated public conception of nuclear weaponry, science fiction authors helped the public to regain the level of understanding and comfort they had previously enjoyed so that the dialogue could begin again. Isaac Asimov asserted that "the dropping of the atomic bomb in 1945 made science fiction respectable," but, more than that,
it made it nuclear fiction relevant to the world outside the science fiction community (Seed 8). Suddenly nuclear war was not just a fantasy, it was reality.

Apocalyptic Endings and Tragic Repercussions:

Much of early nuclear fiction offers prophetic speculation about the course of technological advances, yet misses the mark in predicting human response to such developments. Post-World War II fiction interacted differently with humanity because it did not take the same optimistic stance about mankind’s ability to react positively and peacefully to the development of nuclear weapons. Instead, newer novels were more realistic in their acceptance of the negative repercussions associated with the Atomic Age. According to W. Warren Wager,

Writers of science fiction foresaw nearly every horror of the nuclear age several years or decades before it materialized and, as soon as it did materialize, every horror yielded a profusion of tales developing its implications...for the future of humankind. Fiction anticipated truth and truth provoked more fiction. (448)

The element of prediction was still present in later fiction, but it was extended to encompass the negative implications that were now associated with nuclear technology. Each hypothetical wartime scenario ended in any number of horrific ways; destruction of entire cities and the decimation of a large portion of the nation's population hardly approach the depths authors were willing to go to in order to accurately describe the horror of nuclear war. Rather than “old-fashioned deliverance by technology,” these authors painted a much darker picture of “bleak post-holocaust landscapes” (Wager 448). Such is the case in Bernard Wolfe's 1952 novel Limbo, which tells the story of a doctor who flees the
United States for an uncharted Pacific island when World War III breaks out, though the novel takes place after the war has already ended. While Wolfe does not include the war directly in his plotline, he describes it as being “grotesque,” and its participants “monstrous” (40). Its repercussions are no less distressing: the America of Wolfe’s work is a conquered and marginalized one, composed of a disheartened population and a mere fraction of the territory it once encompassed. Soviet bombing raids during the war have rendered every U.S. seaboard utterly uninhabitable, and the newly-appointed Soviet dictator refuses to even consider repairing the damaged cities. The novel is an extreme and vivid picture of the demoralized Americans who live amid the wastelands that were once their finest cities. Similarly disconcerting is Douglas Terman’s 1980 work, *Free Flight*, in which the U.S. again loses a nuclear war. Once it defeats the United States, the Soviet Union is free to institute a world-wide totalitarian regime, under which the American people clearly suffer. The Soviets use the United States to produce exports while keeping them under strict regulations that include the use of ration coupons for food and the banning of weapons. America falls deep into poverty, regressing back to an agrarian society based largely around a feudal hierarchy and the barter system. Loyalty and national identity are lost in this new society, where the government encourages its citizens to report fellow Americans who fail to adhere to the nation’s rules.

Describing a desolate, conquered United States is not the only way authors portray the negative aspects of nuclear warfare. Bernard Newman’s *Shoot*, published in 1949, presents a different, and less severe, example of the
dangers of nuclear weaponry than do Terman's and Wolfe's works. During the hypothetical World War III the Americans and Soviets use nuclear technology amid a simultaneous Soviet invasion of Europe. As the war stretches on and new technologies evolve, Europe begins to experience a sudden upswing in the number of cases of cancer they diagnose. Disease is not the only change in European lifestyle – crop failures also permeate the continent with the advent and use of different atomic weapons. Environmental effects also play a large role in the post-nuclear world described by Lawrence Schoonover in his *Central Passage* (1962) which tells the story of a twenty-minute nuclear war between the Soviet Union and United States. Though brief, the war proves to have enormous repercussions for the entire globe: not only is the entire nation of Panama destroyed, but the Gulf Stream is affected and the temperature throughout the world is changed so dramatically that an Ice Age sets in. Schoonover's text emphasizes the repercussions that can be felt far from the nuclear battleground, as well as the effects that atomic weaponry has on an international scale.

Whether describing a newly destroyed landscape or a civilization coping with disease and dictatorship, post-World War II novels portray a very apocalyptic vision of what a nuclear war would mean to humanity and the world as a whole. These images are a far cry from the expectations about atomic power before the war, as the majority of authors believed atomic technology would bring peace and rationality to the world. Later works provide more than just cynicism and doubt, however – there is also an important focus on maintaining realism in these novels.
The Element of Realism:

The Soviet-American Arms Race took center stage in most American novels published during the Cold War because it was such a prominent aspect of U.S. culture at the time. Coupled with the apprehension regarding the very real possibility of nuclear war was the strong American desire to distance itself from Communism, and the pervading concern that Soviet spies were everywhere. During this period of general unrest, many authors used science fiction as a vehicle for social criticism. From the minor inclusion of lines such as Wolfe's mention of “quaking in the cellar, waiting for the bomb to land” to more involved allusions to espionage and specific enemies, nuclear fiction novels in the post-war period worked hard to give their hypothetical scenarios a very realistic tone (215).

Paul Brians, in his discussion of William Prochnau’s 1983 novel Trinity’s Child, writes that the author “makes the likelihood of [nuclear war and its repercussions] seem very high, and the likelihood of our escaping it very low” (Brians). Terrifying as it might be, these authors point to the possibility that is not nearly as far-fetched as one might hope. David Seed claims that “these science fiction narratives perform a role of negative prophecy where the dreaded outcomes are envisaged…in such a way that the reader is induced to ponder the present signs of disaster” (9). Many of the works written after World War II are realistic in most of their details, including the enemy the United States is currently fighting. In the years immediately following the Second World War, it was logical
to assume that the enemy the United States was most likely to go to war against was the Soviet Union. Consequently, nearly every novel written during the Cold War period (including all those mentioned here) pitted the United States against the U.S.S.R. Neither country prevailed over the other more frequently – a testament to the constantly shifting balance of power in the post-war era.

The identity of America's opponent in these novels is not the only inclusion that helps to base the novels on fact: the path to war was often scarily feasible as well. Predominantly, there is a tendency to blame the war's first Bomb on either human error or miscommunication. In Prochnau's work, there is an accidental first strike launched against the United States, which nearly incites a full-scale U.S.-Soviet nuclear war. Prochnau's characters are largely ignorant about the technology they are in control of, and, though war is eventually avoided, an air of confusion and chaos permeates the entire novel. As Brians comments,

The novel illustrates only too convincingly how a nuclear war, once begun, can become nearly impossible to control, and how close to holocaust we live on a daily basis... no other novel is as effective in depicting the probable course of a nuclear war. (Brians)

Frightening as it is to consider the possibility of an unintentional nuclear war, the need for American and Soviet officials to install a direct line from Moscow to Washington, D.C. immediately following the Cuban Missile Crisis is proof enough that communication and clarity break down quickly during a crisis situation. Coupled with the numerous nuclear accidents of the Cold War era, it is unsurprising that a mistake could very well lead to nuclear war.

In the case of Wolfe's *Limbo*, communication between nations is an issue that defines Soviet-American relations – or at least, appears to. The war begins
when, "in 1970, Russia and America simultaneously came to a hallucinated decision: they, and not merely their vocabularies, were such diametric opposites that they could not exist side by side on the same planet" (140). It is only after the two countries virtually destroy one another that they are able to see what they have in common – violent tendencies. In an entirely disturbing revelation, Wolfe determines after the war that "Russia and America were absolutely and irrevocably alike...For each was now...the totally bureaucratized war machine" (140). Rather than correcting their miscommunication, or lack thereof, as Prochnau's characters do, Wolfe's characters learn to communicate through warfare and aggression – a tendency no amount of effort can eliminate from humanity in this narrative.

Another element of reality present in many later nuclear fiction novels is seen most clearly in *Shoot!* Espionage and sabotage, prevalent in Soviet-American relations both before and after World War II, is a driving force in Newman's work. The book opens with Soviet sabotage of the American nuclear program at Oak Ridge, the original location of the Manhattan Project, and it is later learned that a small number of American pilots are loyal to the Soviet Union. When the pilots provide the U.S.S.R. with an American nuclear weapon, it becomes the prototype for the Soviet model – a clear allusion to the manner in which the Soviet Union used information gleaned from espionage during the Manhattan Project to produce their first atomic weapon. These details help to base the novels in reality, but they also serve as a means to plant the works squarely in the time period in which they were written. According to David Seed,
“science fiction narratives are not futuristic fantasies, but reworkings of metaphors circulating in the world of their composition” (10). In other words, authors draw heavily on the events of the time to create a realistic and relevant work which must be analyzed with an understanding of the constraints of the era. Nuclear fiction novels are not works to be read in a timeless vacuum, because they are largely influenced by the knowledge, opinions, and ideals of the time. As much as they seek to influence the public, the public also influences the topics they explore and the conclusions they advocate. In early nuclear fiction literature, the tone of most novels is reflective of the faith the nation had in the invention of nuclear power; after they saw the destructive abilities of atomic bombs, the fear of what the weapons could do immediately became the chief concern for leaders and citizens alike. This concern carried over into the works of fiction created during this time.

The Necessity of Avoiding War:

Fear of nuclear war made it absolutely imperative to avoid it at all costs, both in reality and in fiction, making prevention a common theme for authors of nuclear fiction in the era after World War II. For instance, the characters in Prochnau’s novel, though they allow a minor nuclear exchange to occur, manage to prevent a full-scale war from occurring – but only at the very last second, literally minutes before the American president launches a nuclear attack on the Soviet Union. But all writers are not as optimistic as Prochnau, and though many acknowledge the need to prevent war, some scenarios escalate far beyond
peaceful negotiations and minor exchanges. In Brian Harris’ *World War III*, mediation is not enough to avert the imminent nuclear war – even though neither the United States nor the Soviet Union want the war. Mistakes and miscommunications are prevalent here as well. In Harris’ novel, the leaders of both nations are nearly successful in preventing the war using peaceful channels, but their efforts are made useless when lesser Soviet and American officials put in motion events that lead to a full-scale nuclear war. Similarly, in *Shoot!*, a war breaks out after a television correspondent erroneously announces that the Soviet Union has already used nuclear weapons against the United States. The U.S., believing it has been attacked, retaliates in kind with its own atomic weapons, and a devastating nuclear war begins.

Perhaps the most extreme attempt to eliminate the threat of nuclear war comes from Wolfe’s *Limbo*. Though the war has already ended when the novel begins, attempts are made to prevent further wars. Not only are American citizens’ limbs removed under a voluntarily program designed to eradicate aggression, but lobotomies are performed on the doctor’s deserted island to rid its inhabitants of the war-waging part of the brain. Wolfe goes far beyond the use of negotiations and peaceful discussion between nations in his novel. He claims that war is so inavoidable that even the removal of a portion of the brain cannot remove conflict from the world: when the islanders are attacked with hydrogen bombs, they still retaliate, in spite of their recent lobotomies. Wolfe’s plotline seems to suggest that there is no way to rid human beings of their desire to wage war and perpetuate violence.
The Shortcomings of Post-World War II Fiction:

But how productive are the observations of Wolfe and others? This body of literature exists to enable a conversation about the possibilities, dangers, and developments of nuclear power, and, as Wager suggests, nuclear fiction novels implicitly “pose the question of what literary inquiry can do to unpack the nuclear obsession and help rid the world of all its bombs” (448). Many authors use their works as a vehicle to point out mistakes and concerns over nuclear energy, but few directly describe political leaders or administrations that adequately handle their nuclear responsibility. Wager recognizes that “few authors furnish visions of effective political action to prevent nuclear war,” and this fact seems to be serious shortcoming in the function of atomic fiction (450).

Yet the novels’ criticism actually offers advice to those willing to delve deeper into an author’s message. The development of nuclear technology, far from making anyone feel safer, put the world in a danger it had not previously experienced. As Bartter claims, “even given our technological expertise, we frequently feel unsafe, not at all in control of our own lives or our society” (148). The defenses and weapons that Bartter mentions only become destructive, however, in the hands of those who are ignorant of their vast power and fail to control them correctly. This underlying message exists in all the cautionary tales which warn against allowing human errors in judgment, miscommunication, and other mistakes and misconceptions to lead to nuclear war. Those who abuse nuclear technology in atomic fiction are, by and large, either unaware of its
enormous destructive capabilities or acting without considering the repercussions of their decisions.

Nuclear fiction seeks to prevent these hypothetical situations from becoming a reality not just by contributing to a conversation, but by helping to eradicate the ignorance and irresponsibility displayed by so many of its characters. Involving the world in a dialogue about the realities, shortcomings, and dangers of nuclear weaponry enables authors to advocate the value of control and knowledge, and hopefully make their readers aware of the dangers of acting rashly. As Ruppert states, "science fiction is central to American culture, shaping not only our imagination, but also our weapons policy" (258). Because it has the ability to have such an integral impact of policy, science fiction authors have a unique opportunity to make an influence in the world. Encouraging conversation is an important contribution to the Atomic Age, because, as Wager asserts, "the Bomb is not just another usable theme for writers and their critics. The Bomb really exists. It stands ready and waiting to terminate civilization" (451). In the wake of Hiroshima, it is necessary to understand the implications of nuclear weaponry and acknowledge it as a reality, outside of the world of fiction. The realistic scenarios in these novels help readers to do just that, and allow the conversation to progress beyond merely understanding the technology: post-war fiction and its criticism helps readers to comprehend what is necessary to prevent another use of atomic weapons.
Conclusion

The Value of Nuclear Fiction: Direct and Indirect Leadership:

In the preface to *Leading Minds*, Howard Gardner defines what it means to be a leader:

A leader is an individual (or rarely, a set of individuals) who significantly affects the thoughts, feelings, and/or behaviors of a significant number of individuals. Most acknowledge leaders are “direct”; they address their public face-to-face. But I have called attention to an unrecognized phenomenon – indirect leadership: In this variety of leading, individuals exert impact through the works they create. (ix)

Nuclear fiction is not merely a venue for direct leaders, politicians in particular, to understand the general public and its opinions or concerns about the world. Additionally, nuclear fiction authors are leaders in their own right, because of the influence their works have on their readers. Taken in isolation, each of these writers might not seem especially powerful or significant, but when their collective body of works is examined as a unit, it is able to affect a far greater number of individuals in a more meaningful way. Nuclear fiction novelists are not only unique in that their leadership stems from their existence as a group, but because they exhibit the kind of indirect leadership Gardner references through the messages published in their writing. Changing the tone of one novel after the bombing of Hiroshima would have been insignificant and gone generally unnoticed; it is the revision of the entire group’s mentality that is so striking in the era directly following World War II.

Literature, especially science fiction, is not generally considered to have an especially important bearing on politics and public opinion. The novels that
have succeeded in influencing perceptions and inspiring change outside the
arena of academia are few and far between, and are hailed as timeless, pivotal
works of canonical literature. By and large, this is not the case with the works
discussed here. Aside from a few notable exceptions, nuclear fiction writers are
not particularly well known, and their work does not transcend time and location.
The value of their contributions is exactly the opposite: the stories they tell are
placed squarely in the era in which they were written, and are understood only in
the historical and political constraints of that period. This temporal quality is
much of the reason that nuclear fiction is able to interact so closely with public
opinion; as much as the tone of the era helps to shape the message of the novel,
authors are equally capable of influencing public perceptions about their subject
matter. Far from being “fantastic” and irrelevant, nuclear fiction has a distinct
place in the public sphere, and its significance cannot be overlooked.

In her critical study of sentimental fiction, Jane Tompkins advocates
temporal works of fiction as having value in a cultural and historical analysis of
fiction,

...not because they manage to escape the limitations of their particular
time and place, but because they offer powerful examples of the way a culture
thinks about itself, articulating and proposing solutions for the problems that
shape a particular historical moment...[they] were written not so that they could
be enshrined in any literary hall of fame, but in order to win the belief and
influence the behavior the widest possible audience. These novelists have
designs upon their audiences, in the sense of wanting to make people think and
act in a particular way. (xi)

The agenda Tompkins references can be, in the case of much of nuclear fiction,
an imparting of knowledge and warning of potential nuclear destruction. Nuclear
fiction is a worthwhile genre because of its close interaction with the public and
the construction of public opinion. These texts were able to not only help individuals understand how and what to think about atomic weapons, but also reflect the concerns of the masses and give voice to the thoughts of a generation. It was not that these novels each had a unique and special way of portraying the nuclear frontier; rather, their strength as a genre came in their ability to work in conjunction with one another to fashion a universal opinion. Tompkins explains that she does not advance temporal works because they are different from other works, but to show what the texts share. She justifies this claim by arguing that “a novel’s impact on the culture at large depends not on its escape from the formulaic and derivative, but on its tapping into a storehouse of commonly held assumptions, reproducing what is already there in a typical…form” (Tompkins xvi). It is only through re-creating the innermost thoughts and feelings of the public that a work can interact so closely with, and so definitively shape, public opinion.

Since nuclear fiction has a bearing on instilling knowledge and relaying information to the public, there is no question that, as a genre, the novels have an inherent value beyond merely entertaining its readers. Were the world to take more cues from literature, humanity might have a far greater understanding of the way that individuals think, act, and respond. As Maureen Whitebrook notes, A society which took its moral vocabulary from novels…would not ask itself questions about human nature, the point of human existence, or the meaning of human life. Rather, it would ask itself what we can do so as to get along with each other, how we can arrange things so as to be comfortable with one another, how institutions can be changed so that everyone’s right to be understood has a better chance of being gratified. (34)
Fiction can do more than just offer a speculative venue: it can reflect on the way humanity behaves and even propose the best way to act in accordance with this behavior. It also helps one to look outside oneself and appreciate individuals different from oneself. This can be useful, especially in nuclear fiction, for perceiving the "kinds of suffering endured by people to whom we had previously not attended" as well as coming to terms with "what sort of cruelty we ourselves are capable of" (Whitebrook 34). Nuclear fiction is a versatile medium, the message of which is perpetually evolving to encompass new ideas, technologies, and events. It changes along with history, so its commentary is infinitely valuable for finding the pulse of public opinion at any given time, as well as understanding the thought process that resulted in this consensus. This makes it an important tool for direct leaders to recognize and utilize, but it also makes authors leaders in their own right, since they have the ability to affect change simply by publishing their messages.

There are limitations to the claim that nuclear fiction has an inherent value, and it is necessary to consider that all nuclear fiction is not written in a way that enables it to have a place in the nuclear dialogue that is so crucial to understanding the Atomic Age. Yet those novels that have something to contribute to the conversation are a strong resource for leaders to acknowledge, as they helped a generation of individuals adapt to the sweeping changes that accompanied the creation of nuclear weapons. There was no one technique authors used to do this, nor was there a singular opinion expressed unanimously throughout all of nuclear fiction at any one time. But there are similarities in the
qualities possessed by many of these novels, and their messages do frequently converge at pivotal moments in the Atomic Age. This is also a testament to the way the literature is capable of adapting in conjunction with public opinion.

Before World War II, the literature had a hopeful, optimistic tone about the as yet undeveloped nuclear technology; once authors saw the terrible consequences of the first atomic bombs, their message changed dramatically to one of apocalyptic predictions and unavoidable destruction. This happened in a relatively short period of time, considering the scale on which the fiction changed: it was not just one author leading the new way of thinking; instead, nuclear fiction authors collectively adopted this line of thought as the standard almost simultaneously across the board.

It was no accident that once censorship laws were lifted and Hiroshima proved nuclear energy a reality, the quantity of novels written about the subject increased exponentially. The more prevalent atomic weapons became, the more important it was to understand their power and their capabilities – both positive and negative. The bombing of Hiroshima and Nagasaki demonstrated that nuclear weaponry could, and would, play an enormous role in international relations, and that its effects were universal. Once it became clear that nuclear energy would have an important, and controversial, place in the future, it became necessary to explore its implications and formulate an opinion about its existence. This was not simply a task for the world’s leaders, but also for the public, which was as much a part of this new reality as anyone. Moreover, holding leaders accountable for adhering to public opinion requires an educated
and informed constituency which is able to articulate what its opinion is. The nuclear dialogue, and all its components, helps to create this kind of engaged citizenry.

As the number of nuclear fiction works increased, the voice of its authors grew more powerful, and their representations were capable of playing an even larger role in shaping the public's perception of nuclear technology. This left them with a greater responsibility to readers, but it also helped to elevate the genre's status as a body of literature. It was easy to ignore the publication of a few novels that alluded to the creation or use of nuclear weapons; but the works published after World War II were more numerous, more realistic, and more extreme. What these later novels retained, however, was the authors' ability to use speculation to explore events outside the sphere of reality and instill knowledge. This capability, unique to fiction writing, is essential for scenarios like nuclear war, since the reality of such a war would mean horrific consequences for the entire world. Because of this, Jacques Derrida notes that "nuclear war can only be approached speculatively, [so] literature – and particularly science fiction – can occupy a space equal to sociological, strategic and other modes of speculation" (Derrida). Once its worth is appropriately appreciated, nuclear fiction is able to play a large role in the way the public understands the technology and its influence on their life. As part of the conversation about the Atomic Age, the messages of nuclear fiction make, as Seed asserts, "constant interventions in the debates...on such matters as civil defense, foreign policy and internal security" (9). Nuclear energy continues, even today, to become more
prevalent and relevant, making an understanding of nuclear technology vital for grasping world events, and the role of those who can further or alter knowledge about atomic weapons ever more significant.

The Implications of this Study:

This project is not solely a commentary on leadership studies, nor is its significance exclusive to the field of English. Rather, it is an effort to unite the two fields in a way that offers valuable contributions to both areas of study while pointing out the necessity of further interaction between the topics of leadership and literature. The few works which are traditionally regarded as having something to contribute to leadership studies are those which are either included in the canon of English literature, or those which directly demonstrate a leader-follower relationship and have a particular lesson to teach about leadership. Because of the value of fiction that does not meet these two constraints, the exclusion of temporal literary works is presently an oversight in leadership studies, as novels have much to contribute to the development of able, qualified, and knowledgeable leaders.

The debate about the significance of fiction in society is one that dates back to Plato and the publication of his Republic. In this text, Plato decries art and literature as unworthy of inclusion in his hypothetical society. Any literature that is permitted, he says, must be that of consisting moral, virtuous topics and characters. He places extensive importance on the value of education for shaping leaders, but he also believes in censoring literature so as not to present
the evil side of fiction, as art (literature included) has a tendency to corrupt
because it cannot even create reality – just a picture of reality. Plato's wariness
toward literature is extreme, as he seeks to essentially rid the world of its
existence, but he does make an interesting point which validates literature's
importance: he acknowledges its strong capacity to influence. Were it not so
influential, so crucial in the creation of intellect and specific beliefs, there would
be no need to deal with it so stringently – to censor or outlaw it completely.
Thus, Plato finds himself in contradiction, where he can neither fully advocate the
inclusion of a potentially dangerous vehicle for unethical thought, nor avoid
admitting the important role literature plays in education and the formation of
citizens.

The debate about the value and place of literature has been ongoing ever
since, and the literary world has predominantly pointed to canonical texts to
defend the worth of fictional works. While these enduring works undoubtedly
contribute to society, theirs is not the only worthwhile type of influence.
Canonical texts remain relevant today; their lessons, characters, and plotlines
are ones in which insights applicable to the present time can still be found. They
seek to make a commentary about society and humanity that will be pertinent
hundreds of years later by constructing their stories amid timeless
circumstances. Conversely, nuclear fiction does no such thing – nor does any
temporal work. But while canonical texts offer thoughts about humanity that
endure long after they are written, temporal works explain how society was when
they were written, a contribution that, from a cultural and historical standpoint,
cannot be overlooked. Temporal literature's value, then, lies in helping readers to understand their present surroundings, the possible implications thereof, and how they came to be. From a literary point of view, understanding the constraints the writer worked within, and how readers reacted to the text once it was published, is critical for examining the novel; literature does not exist in a vacuum, and while some writers create works that seem eternally relevant, it is valuable to understand their surroundings when reading their works so that one might determine how the text interacted with larger society at the time. For temporal works, this is not simply an additional way to evaluate their message, it is the only way. The interaction of society and literature is the sole function of the novel, and to examine it under any other premise is to ultimately diminish its worth as a cultural and historical tool by which the pulse of society can be taken.

Since temporal texts are so clearly representative of the era in which they were written, it follows that they could easily serve as a valuable tool for the study of leadership. Just as literature does not exist in a timeless vacuum, leadership is strongly affected by the world around it. Different leadership styles are successful in different environments, and there are numerous variables to consider when choosing a leadership technique. In order to select the most appropriate style of leadership, one must first understand the contexts into which one is stepping, and temporal fiction can provide this information. These novels dually reflect the sentiments of the public and shape readers' perceptions of the subject matter, and thus serve as an underutilized and valuable tool for leaders
who wish to better understand their surroundings and become more informed leaders.

The intersection of leadership and literature is not one that is frequently examined or typically highly-valued. Yet fictional works, even those outside the canon, have something to offer in terms of improving the way that leaders understand their followers and how the public's opinion is constructed and influenced. In many ways, the consideration of works outside the canon debunks the widely-held Great Man theory because it furthers the writings of lesser-known authors and texts, and places value on the contributions they make to society. But the impact that nuclear fiction has had on the Atomic Age with respect to its participation in the proverbial nuclear dialogue proves the worth of novels that are rarely recognized outside the genre of science fiction. Nuclear fiction has made great strides since its inception in the nineteenth century, but it will not fully realize its potential as a leadership tool until it is properly acknowledged and used as such.


