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Bombs, Bikinis, and Godzilla: America's Fear and Fascination of the Atomic Bomb as Evidenced Through Popular Media, 1946-1962.

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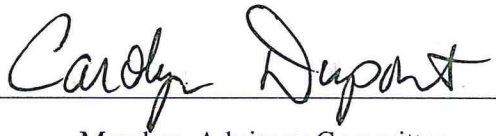

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ABSTRACT

This project aims to illustrate the change in emotions white, middle class Americans experienced towards the atomic bomb during the nineteen forties to early nineteen sixties by examining the popular culture that they produced and consumed. These Americans described the bomb as being an object of beauty, a powerful savior, an object of prosperity, and a weapon of fear. Each of these depictions are examined in their own separate chapter with various popular culture items examined as evidence. A wide range of popular media were inspected for this study, including films, magazines, comic books, cartoons, novels, and even video games.

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Introduction

"After the thing went off, after it was a sure thing that America could wipe out a city with just one bomb, a scientist turned to Father and said, 'Science has now known sin.' And do you know what Father said? He said, 'What is sin?'" – Kurt Vonnegut, *Cat's Cradle.*[1]

The 1950s can be defined by many things, be it the rebellious rock 'n roll stylings of Elvis Presley and Johnny Cash, or the wholesome family values depicted in television shows such as *Leave it to Beaver*. There are the prosperous and patriotic attitudes of Americans during the "I Like Ike" administration, and even the terrifying possibility of all out destruction due to nuclear war. The atom bomb became one of many symbolic figures to come about during the fifties. The bomb was a hero, a savior, that delivered the U.S. from a costly and devastating war. The promise of the atom meant new technologies and infinite discoveries in the realms of medicine, energy, and even economics. The fifties also saw a rapidly growing pop culture movement in the United States, spurred by mass media and consumption, and this movement latched on to the atom bomb and rode it high. But beneath all these hopes and dreams that the atom may elevate humanity unlike anything ever before, there was a deep undercurrent of fear that the very

[1] Kurt Vonnegut, *Cat's Cradle,* (New York: Random House, 1963), 17.

technology that had liberated mankind in 1945 might also be the means to mankind's extinction.

This project examines the popular culture of the 1950s in the United States to uncover the emotional state of American citizens concerning the atom bomb. For this study, the term "Americans" will be used primarily to describe white, middle class men and women unless otherwise stated. These people were the primary consumers in American culture during the fifties, as lower class, poor families (which included many minorities as well as white families) did not often have the additional income to expend on the leisure items that most of this study is compounded of. Upper class, rich families also purchased items that many others could not afford, thus their lifestyle makes for a difficult area to focus on a comprehensive American consumer culture.

After the use of the atom bomb on Japan in 1945, Americans experienced a mixture of fear and fascination with the incredible power of the bomb, and this is evidenced in the culture Americans consumed and produced during the time period. For roughly the next decade, fear remained in the background of Americans' minds while feelings of triumph, hope, praise, and even amusement at times prevailed. By the 1960s, when the reality of atomic energy had been established, fear became the dominant emotion felt by the majority of Americans. What was once a promising new technology that could lead America into the future became instead seen as a weapon capable of reverting civilization back to primitive times, and Americans placed their hopes towards new advancements, primarily technology concerning space exploration.

The atom bomb was an extraordinary piece of technology, and its mere existence was enough to both fascinate and terrify Americans as well as citizens around the world. The atom bomb (sometimes referred to as "atomic bombs" or simply abbreviated to "A-bombs) is a nuclear weapon that uses nuclear fission to generate an incredible explosive blast. This process requires a mass of enriched uranium or plutonium that must then be assembled into a supercritical mass, the speed of which creates an explosion of extreme proportions. The power of the A-bomb can produce the energy of approximately 20,000 tons of TNT (Figure 1). While called atom bombs, most the energy is produced from the nucleus of the atom, and not the atom itself.[2] Nuclear weapons were first developed in the 1940s, and have only been used twice in actual combat, both times by the United States of American against the nation of Japan during World War II.

A major reason Americans and the scientific community worldwide were enamored with the atomic bomb was due to its unprecedented destructive power. The motivation for the employment of the bombs (code named Little Boy and Fat Man respectively) has been debated, but two reasons are undeniable: President Harry S. Truman desired to test the power of the newfound nuclear technology, and, if successful, cause immediate and devastating damage that the Japanese would swiftly surrender. The first bombing took place in the industrial city of Hiroshima on August 6th. In the

[2] Chuck Hansen, *U.S. Nuclear Weapons: The Secret History*, (San Antonio: TX, Aerofax, 1988)

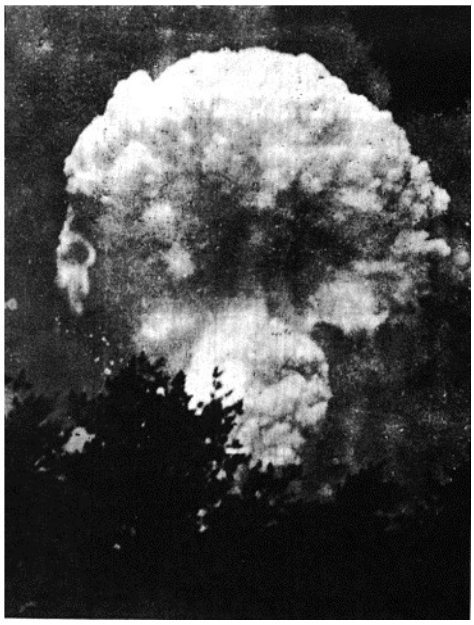

Figure 1: Seizo Yamada's ground zero photo taken approximately 4.3 miles northeast of Hiroshima. Source: Seizo Yamada, "Ground Level View of Hiroshima Mushroom Cloud," 1945, accessed on March 22, 2017, http://nuclearweaponarchive.org/Japan/Hirosh.html

explosion, around 80,000 people were instantly killed, and more than 70,000 were injured.[3] Even though many of the buildings were strongly constructed to withstand intense earthquakes in the region, approximately 70 percent of all manmade structures in Hiroshima were destroyed due to the atomic bomb. The bomb's blast covered an estimated 4.7 square miles. After the Japanese hesitated about surrendering, a second bomb was quickly prepared, and on August 9th it was deployed on the seaport city of Nagasaki. (Originally, the Americans had planned to bomb the city of Kokura on the 11th, but weather and other factors changed the bombing's time and location.) The casualty rate varies by large degrees, but at least 35,000-45,000 people died instantly when the bomb exploded, with more than 60,000 injured. The Japanese surrendered three days later, on August 12th.[4] After these events, every major power on the global stage desired the new technology of nuclear weapons after witnessing how swiftly and deftly the Americans obliterated the Japanese cities.

Rapidly emerging popular culture and technology in America during the post-war era allowed the atom bomb to quickly became an American icon. Television sets became

[3] These numbers are debated. While most U.S. sources claim approximately 80,000, many Japanese sources point to a total closer to 200,000. Jonathan Soble, "At Hiroshima's 70th Anniversary, Japan Again Mourns Dawn of Atomic Age," *The New York Times,* August 6, 2015.
[4] Michelle Hall, "By the Numbers: World War II's Atomic Bombs," *CNN Library,* August 6, 2013.

much more affordable, and came to be used in most American's homes in the post-war era. Prior to 1941, there were an estimated 7,000 televisions in American homes. By 1960 however, nearly 70 million televisions had been purchased.[5] Radios were as popular as ever, especially with new styles of music and musicians debuting at a swift pace. The United States by 1960 had approximately 4,281 radio broadcasting transmitters, more than 3,000 more than any other country in the world.[6] Newspapers with their columns and cartoons are read by most every American. Census data has determined that approximately 123 percent of households subscribed to a newspaper in 1950, or 1.23 newspapers sold per household.[7] Comic books and superheroes were seeing monumental sales. Comics featuring superheroes sold millions to Americans, with the best-selling comic franchise of the era, Captain Marvel, selling approximately 1.4 million copies on a biweekly publication.[8] The pop art movement was also emerging through the fifties and sixties, an art form that challenged fine art by including everyday items and images, from Coca-Cola bottles, Campbell's Soup cans, and even the atomic bomb.

The emergence of this new media allowed for a vast number of new products for a society to consume, and studying both the consumer and the products they purchased can yield understanding of their values, ideas, and emotions. Lizbeth Cohen states that analyzing consumerism leads to insight on American class, gender, and race relations, as

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[5] "Annual Television Set Sales in USA," TV History, 2013, accessed March 22, 2017, http://www.tvhistory.tv/facts-stats.htm

[6] *Statistics on Radio and Television, 1950-1960,* (Paris, France: United Nations Educational, Scientific and Cultural Organization, 1963): 10

[7] "U.S. Daily Newspaper Circulation, 1940-2000," U.S. Census, accessed March 22, 2017, http://www.staeofthemedia.org/2004/newspapers-intro/audience.

[8] Ben Morse, "Thunderstruck," *Wizard*, July, 2006, 179.

well as the changing of government as it evolves to accommodate the changing markets.[9] This is especially apparent in the postwar era. The 1950s, according to Cohen, saw the emergence of a new type of American citizen, who recognized that it was through the consumption of goods that they could benefit society. Cohen explains that during the thirties and forties, American citizens purchased items largely to create a better society. Activists chose where to shop and what to buy as statements for equal opportunity and to combat fascism, among other things. Cohen writes that this "citizen consumer" sought "the enhancement of American democracy and equality."[10] During the war, Americans developed a sense of using their purchasing power to promote the country and the marketplace, becoming the "purchaser consumer." Americans were encouraged to buy American goods from American stores in order to support the troops and be a good citizen. Where the citizen consumer favored self-interest, the purchaser consumer believed in supporting the marketplace as to better all Americans. After the war however saw a blending of these two ideas, and the "purchaser as citizen" was born. This new citizen believed that by combining personal gratification in the marketplace, they were also patriotic because consumption allows for social mobility, a strengthening of the economy, and demonstrated the freedom and superiority America had over other nations.[11] Never had before citizens recognized that they had such power through their interaction with the marketplace. Americans purchased not just what was available but what they wanted for themselves and what they wanted for society.

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[9] Lizbeth Cohen, *A Consumer's Republic: The Politics of Mass Consumption on Postwar America* (New York: Knopf Doubleday Publishing, 2008), 9.
[10] Cohen, 55.
[11] Cohen, 8-9.

This project has two main goals. First, I aim to determine, via analyzing popular culture, the ways in which the attitudes towards the atom bomb changed during the era. Through the 1950s, there is a conflict in the ways in which the atom bomb was portrayed. In some aspects, the bomb was heralded as being a pinnacle of technology, an "American hero" that saved the nation from the Japanese, and the atom itself as a savior. Americans also acknowledged the dangers the bomb posited, such as the destruction in Japan, the possibilities that it could be used in future warfare, as well as the effects of harmful radiation. Secondly, this project is important to present-day research as many of the same themes of the 1950s are still in effect today. Contemporary popular culture consistently harkens back to the 1950s and the atom bomb. In 2015 alone, the incredibly popular video games *Fallout 4* and *Wasteland 2* were produced, taking place in a world where the Soviet Union dropped an atomic bomb on the United States, with *Fallout 4* taking home numerous Game of the Year Awards. In the same year, the film *Mad Max: Fury Road* debuted, the fourth in a series set in a post-apocalyptic Australian wasteland, and the film received an Academy Award for Best Picture. The atom bomb is still a popular piece of culture even in the new millennium, and to more fully understand why it remains important the root of its presentation in culture must be explored.

My examination of the atom bomb in popular culture will be split into multiple chapters, each focusing on a theme in which Americans viewed the bomb. The first chapter, titled "The Atom Bomb is Beautiful," focuses on the positive and appealing representations of the atomic bomb in American media. During the fifties, numerous beauty pageants themed around the bomb took place, all showcasing the contestants by comparing them to the explosive weapon. Dozens of songs were also produced in which

a male singer compares a woman whom they are infatuated with to the atomic bomb. The early pop art movement also saw artists depicting the atom bomb in stunning ways in their works.

The second chapter, "The Atom Bomb is a Savior," focuses on the almost mythical powers many ascribed to the atom bomb and atomic energy during the era. Many experts during the era claimed that the atom could solve many of the Earth's problems, including curing disease, making money obsolete, providing near limitless vehicular power, and generating an endless supply of electricity. Science fiction also played a major role in championing this concept, from comic book superheroes to monsters on the big screen. These details show that Americans gave the atom a power that could do more good than harm, and that it was through the atom that mankind would be able to further prosper.

The third chapter, "The Atom Bomb is Profitable," focuses on merchandising of the atomic bomb, as well as the Geiger counter industry. Through the uranium rush, the bomb and its components became a marketable item that interested the entire family. Geiger counters are devices used to detect uranium radiation. During the early 1950s, Geiger counter manufacturers advertised their merchandise as tools that could lead users to uranium, which they could then sell for millions. Numerous American men purchased Geiger counters and prospecting gear to aid them in their search for uranium and fortune. Towns and businesses near nuclear testing sites or recent uranium finds attempted to use these in advertising to appeal to aspiring prospectors. Children were also a major focus for marketing prospecting. Popular boy's magazines frequently featured articles on Geiger counter and prospecting, and toys that allowed children to envision themselves as

prospectors were also prominent. The focus on children shows that American businesses saw a future with uranium prospecting, and that to ensure profits the future must be educated and encouraged to participate in that lifestyle.

The final chapter, "The Atom Bomb is Scary," explores how in the late fifties America's fascination towards the atom turned into fear. With the Soviet Union locked in an arms race with the United States, Americans began to fear that a nuclear war could be inevitable. The year 1957 was a turning point in the Cold War, as President Dwight D. Eisenhower issued a two-year ban on nuclear testing, the Soviets launched Sputnik 1 and 2, and the Gaither Report, a private examination of the U.S. defenses, was leaked to the American public. All of these things spread fear across America and generated a negative perception of the atom bomb. U.S. popular culture reflected this. After 1957, fewer and fewer songs were written about the bomb, and those that were focused on destruction, not of love. Monster movies featuring creatures empowered by atomic radiation also became popular. Superheroes became intensely more vulnerable as Americans no longer felt invincible due to the atom. As the world entered the sixties, parodies of the fifties culture and its love for the bomb became popular, such as seen in *Dr. Strangelove.*

The atomic bomb has been depicted in numerous ways across media, from beautiful to terrifying, and each of these portrayals must be examined independently to accurately determine the emotions of Americans during the fifties. While one in 2017 may easily assume that those in the atomic era were also fearful of this new technology, the popular culture they produced indicates a much more positive message. Each form of media, be it song or movie, comic or artwork, provides a primary source document with its own voice and perspective. By lumping these perspectives into common themes, such

as the view of the bomb as a thing of beauty, I aim to trace the evolution of the view of the bomb from savior to destroyer.

Chapter II

The Atom Bomb is Beautiful

"The sight of the first woman in the minimal two-piece was as explosive as the detonation of the atomic bomb by the U.S. at Bikini Island in the Marshall Isles, hence the naming of the bikini."-Tom Waits, 2008.[12]

A U.S. army film from 1950 states that "Viewed from a safe distance, the atomic bomb is one of the most beautiful sights ever seen by man."[13] Removed from the danger of the atomic blast, and away from the harmful radiation emitting from the explosion, the towering mushroom cloud from an atomic bomb may in fact be beautiful, yet its beauty is only viewed when one eliminates the very fabric of what the bomb is. The atomic bomb, first and foremost, is a devastating weapon, designed specifically for the total annihilation of the enemy. The bomb's blast on Hiroshima eliminated over 90 percent of the city's infrastructure, instantly killing more than 80,000 people and causing damage to 5 square miles of territory. After the second bomb fell on Nagasaki, more than 200,000 Japanese lay dead.[14] The atom bomb does not ignore innocent civilians, residential housing, friendly forces, or even nature, and if these are caught in the atomic blast they are as

[12] Robin Hilton, "Tom Waits Interviews Tom Waits," *NPR.Org*, May 20, 2008.
[13] *The Atomic Café,* directed by Jayne Loader, Kevin Rafferty, and Pierce Rafferty. (1982; New York: The Archives Project, 2002): DVD.
[14] Michelle Hall, "By the Numbers: World War II's Atomic Bombs," *CNN Library*, August 6, 2013.

completely eradicated as if they were the intended target. And yet, for some, that atomic blast could be described as a thing of beauty. Certainly, if there was a realistic threat from the atomic blast, then one would not find the explosion at all alluring. The narrator of the army recruitment film surely did not mean that seeing New York City go up in flames from the relatively safe vantage point of Jersey City would also be considered "beautiful." This is the key to understanding America's view of the atomic bomb through the late 1940s and early 1950s. The atomic bomb symbolized military dominance of the United States over the Japanese. It was the creation of great scientific minds, and evidence of a future in awesome technology and scientific advancements. Overall, the atomic bomb led to peace after a devastating Second World War. All of these ideas could, indeed, be seen as beautiful things. In 1945 the atom bomb belonged only to the United States. With it, the U.S. emerged from World War II not only as a victor, but as the leading global superpower.

The atomic bomb and its association with beauty began even before its utilization against Japan. After the first nuclear test explosion in the middle of the desert on July 16, 1945, observers such as Robert Oppenheimer and General Leslie Groves, were in awe. The War Department release on the test claims that "At the appointed time there was a blinding flash lighting up the whole area brighter than the brightest daylight. A mountain range three miles from the observation point stood out in high relief… a huge multi-colored surging cloud boiled to an altitude of over 40,000 feet."[15] As the report indicates, the explosion of the bomb lit up the surrounding world, and the choice of words makes it

[15] "War Department Release on New Mexico Test," *National Science Digital Library*, July 16, 1945, accessed on March 22, 2017, http://www.atomicarchive.com/Docs/Trinity/PressRelease.shtml

impossible not to associate the explosion with a glorious sunrise (Figure 2). The brightest daylight, mountains in high relief, and multi-colored clouds are all examples of how one may describe a sunrise in a positive, beautiful way.

Figure 2: *Chesley Bonestell's* The H Bomb Hits Lower New York City, *1950.* Source: Chesley Bonestell, *The H Bomb Hits Lower New York City,* Luce Center, 1950, accessed on March 22, 2017, http://www.nyhistory.org/exhibit/h-bomb-hits-lower-new-york-citypreparatory-sword-and-bible-week-october-21-1953-Sunday

Art is a major example of how a society interprets beauty, and the pop art movement of the 1950s grew in large part due to the visual spectacle that was the atomic bomb. The pop art movement aimed to utilize the rapidly emerging popular culture of the fifties in artwork. The movement was a direct challenge to fine art, in that it used images from everyday life, such as advertisements and Campbell's Soup cans, for artistic expression. Pop art specialized in removing items in popular culture from their familiar context, forcing the viewer to see something in a new way.[16] Jackson Pollock, a famed painter whose work largely influenced the pop art movement, stated in 1950 that "the modern painter cannot express this age, the airplane, the atom bomb, the radio, in the old forms of the Renaissance or of any other past culture."[17] Pollock was speaking on the early signs of the emergence of this new art form. New technologies

[16] Marco Livingstone, *Pop Art: A Continuing History* (London: Thames & Hudson, 2000).
[17] Jason Gaiger, Charles Harrison, Paul Wood, *Art in Theory: An Anthology of Changing Ideas* (Oxford, UK: Blackwell Publishers, 1992), 575-576

were influencing the American people unlike ever before, and just as the country had to evolve to adapt these technologies, the art world would too have to evolve in order to ideally capture this new world's beauty.

Even when one places the atomic bomb firmly in the context of its destructive power, the weapon can inspire beautiful works of art. Spanish surrealist painter Salvador Dali, another prominent artist whose work partially inspired the pop art movement, proclaims in *The Unspeakable Confessions of Salvador Dali* that "[t]he atomic explosion of August 6 1945 shook me seismically. Thenceforth, the atom was my favorite food for thought. Many of the landscapes painted in this period express the great fear inspired in me by the announcement of that explosion."[18] The fact that the bomb was so powerful was what made it so beautiful in the eyes of many individuals. Due to the bomb's power, it has come to be depicted in a similar was as Gods are in classical works of art. These forces have the capability of destroying everything that we have ever known, and its mere existence is something not only be acknowledged, but celebrated. Chesley Bonestell's *The H Bomb Hits Lower New York City,* painted in 1950, is another perfect example of how some artists captured beauty in the knowledge that nuclear weapons could destroy all. The painting consists of vibrant colors, the mushroom cloud appearing as peaceful as a sunset high above its wake of destruction of America's largest city. The idea that there existed a weapon that could cause such a catastrophe was frightening, but for many it should be celebrated especially for that reason.

[18] Salvador Dali, *The Unspeakable Confessions of Salvador Dali as told to Andre Parinaud* (New York: William Morrow Company, 1976), 216.

The atom bomb's beauty was also celebrated in the fashion industry due to awe-inspiring nature. French fashion designer Louis Réard created the bikini on July 18th, 1946, just two weeks after the Able atomic bomb test and one week before the Baker test. The Baker test was the first of many nuclear tests conducted on the Bikini Atoll, part of the Marshall Islands near the equator in the Pacific Ocean. From 1946 to 1958, a total of 23 nuclear devices were detonated by the United States near the atoll.[19] The bikini swimsuit was a first in fashion as it left little to the imagination of observers as to the body of the wearer. The bikini is a two-piece bathing suit that from the front is cut exposing the navel and from behind is mostly bare, which a thin strip of fabric on the bottom positioned between the buttocks (Figure 3). Réard originally named his design the "atome," French for "atom." This name was meant to evoke the sense of something small, as the bikini was such a tiny swim piece. Sources suggest different reasons as to why the garment was renamed to bikini. The fashion press in Paris write that the bikini resembles how a woman may look emerging from a nuclear bomb blast dressed in tatters. Others say that the name appeals to the haute couture, and the combination of scantily clad islanders coupled with the atomic bomb blasts suggests that weapons reduces everyone to primitive ways.[20] Wearing the bikini, according to these people, is to make a political fashion statement that investing in the arms race is only to doom us to this attire. Others that wore bikinis found appeal in appearing primitive, as it was a roundabout way

[19] Maria Beger, Silvia Pinca, Zoe T. Richards, Carden C. Wallace. "Bikini Atoll Coral Biodiversity Resilience Five Decades After Nuclear Testing." *Marine Pollution Bulletin* 56. (2008): 503-515.

[20] The French concept of high end fashion that is custom made and constructed by hand. Because of the time, skill, and money that must be allotted to each piece, haute couture is often reserved only for the upper class.

for the elite to culturally appropriate the island clothing style and culture. Réard stated that the bikini simply means "smaller than the smallest bathing suit in the world."[21]

Figure 3: Photo of model Michelle Bernadini posing in the very first bikini at the swimsuit's reveal in France. Source: "The Evolution of the Swimsuit," *Today,* www.today.com/id/55074272

Regardless of the origin of the name. the bikini has inextricably been linked to the atomic bomb and the testing on the atoll since the bathing suit's creation. The bikini is shocking, provocative, and yet catches the viewer's eye. It draws attention to the wearer, and while it makes them vulnerable, dawning the suit gives the wearer a sense of liberation and strength. Putting on the bikini makes the statement of out with the old, in with the new. Historian Lena Lenček writes in 1998 that "As subsequent history would show, the bikini was more than a skimpy garment. It was a state of mind."[22] Wearing the garment gave women a feeling of being a liberated, strong woman, unafraid to hide their bodies, but courageous enough to display it. Much of this can be applied to feelings of Americans after the end of the Second World War. The United States emerged with new responsibility as one of two global superpowers. Using the atomic bomb both painted a target on the U.S.'s back, making them vulnerable, as well as granting the nation power amongst its peers.

[21] "Nuclear Fashion," *U.S. News & World Report,* July, 1996.
[22] Lena Lenček, *The Beach: The History of Paradise on Earth* (London, Penguin Group USA, 1998), 100.

The atomic bomb's beauty was also expressed through various beauty pageants held in America's west, and often times in a much more direct way than the bikini swimsuit. The earliest of these beauty pageants was the Miss Atomic Blast pageant held in Las Vegas. The pageant consisted of beautiful Las Vegas showgirls competing to be crowned the Miss Atomic Blast (Figure 4). Pageants, as well as gorgeous women, are things to be celebrated, and in the early 1950s the atom bomb was no different. A flier for the event promised that the pageant would combine the "glitz and glamour of Las Vegas with the glitz and glamour of the atomic bomb." Yes, explosions do produce a lighting effect, a glamour if you will, but not all bombs were described in such a way. Only a weapon exclusive to the United States, one credited with toppling the Japanese, and one capable of intimidating any of the nation's foreign enemies into submission, would be described in the same way as a Hollywood movie star or fireworks that light up the night sky on the Fourth of July.

The idea for the Miss Atomic Bomb pageant came shortly after President Truman established an atomic testing range in December 1950 located in Nevada, then titled the Nevada Proving Grounds and later renamed the Nevada Test site. Residents in Nevada quickly began to grow fascinated with the atomic bomb as detonations from the test site would regularly light up the early morning sky and the booms of detonations echoed across the land. In 1952, the first televised atomic blast occurred, stirring atomic fever all across America.[23] The atom bomb had become a spectacle. People flocked to see the bomb in the same way one would witness the birth of a newborn baby or the procession

[23] "Miss Atom Bomb," (Las Vegas, NV: National Nuclear Security Administration, 2004.)

of a king. It was through this near glorification of the atom bomb by the U.S. government that the American public too began to embrace the bomb, and their curiosity for the weapon became reflected in American culture.

Figure 4: "Miss Atom Bomb." This photo, taken in 1956, depicts the last and most recognized Miss Atomic Blast, Lee Merlin. What makes this pin-up especially noteworthy is the bathing suit that she is wearing. Made of cotton and in the shape of a mushrooming cloud, the suit and model seek to glamorize, sexualize, and beautify not only the atomic bomb but also its detonation. Source: "Miss Atom Bomb," Las Vegas NV: National Nuclear Security Administration, 2004.

By May 1952, the atomic style of the age was already spreading into pageantry. The first Miss Atomic Blast, a Las Vegas dancer who went by the name of Candyce King, appeared in newspapers across the nation. A caption for her photo stated that she was "radiating loveliness instead of deadly atomic particles…" and she was "as awe-inspiring… as was the 'Big Bang.'" One of the main duties for the Miss Atomic Blast, aside from greeting tourists to Las Vegas, was to entertain U.S. Marines on duty at the Nevada Test Site. Numerous photos depict the pin-up girl posing with men in uniform, and her picture was said to be found regularly at the atomic testing ground.[24]

North Las Vegas also had its own, separate atomic bomb pageant winner in 1953, coinciding with the Upshot-Knothole series of atomic bomb testing in the area. The new settlement elected Paula Harris as Miss North Las Vegas, and to celebrate her victory she

[24] "Miss Atom Bomb."

rode atop a float in a parade. The sign on the side of the float read that North Las Vegas was as "new & modern as the A-bomb" and Paula was nicknamed "Miss A-Bomb" for that year.[25] The slogan echoes the sentiment the atom bomb is a symbol of brilliance, advancement, as well as civilized. Any township in the United States would want to associate itself with these qualities, and North Las Vegas was no different. Coupled with a beauty pageant, an event that many cities in the United States use to celebrate youth, beauty, a bright future, as well as community, these pageants ascribe these qualities to the atom bomb by using it in name and image to market their city and pageants.

The Miss Atom Bomb pageants displayed the ways in which Americans linked women and the atom bomb together. First, the women are often compared to the bomb as something to be marveled, adored, and even beautiful. The bomb is sophisticated, modern, and a sign of America's dominance. Secondly, the very fact that pageants were held to crown a "Miss Atomic Blast" displays that Americans during the time period viewed the atomic bomb in a somewhat light-hearted manner. The crowns and swimsuits were shaped like mushroom clouds, the catchphrases hinted at how explosively "hot" and "radiating" the contestants were.

Musicians also expressed the beauty they saw in the atom bomb by associating it with love and pretty women in their songs. Shortly after the atom bomb blast in 1945, songs were being released with the bomb as the major subject matter. What most closely relates to the atomic bomb and beauty are the songs in which a male singer relates the woman he longs for with that of the atomic bomb. The majority of these songs go much

[25] "Miss Atom Bomb."

further than simply describing the bomb as a thing of beauty, but also ascribe to the woman properties of the weapon of mass destruction. Phrases declaring how hot she is, how explosive she can be, and how her very presence radiates power are all common. Perhaps the most notable of these types of songs comes from the Five Stars with their 1957 doo-wop hit "Atom Bomb Baby."[26] The song features the Somoan string band singing about a beautiful woman, the eponymous atom bomb baby, and how she is just as amazing as the powerful weapon. The second verse describes the woman as being "loaded with power, radioactive as a TV tower, a nuclear fission in her soul, loves with electronic control." Here, the properties of atomic radiation are on full display. The woman is not ordinary, just as the atomic bomb is not an ordinary weapon. She possesses awesome power that other women cannot rival. Her personality is so radiating that it, like a TV tower, glows and pulsates with strength. The atom bomb baby's love is so precise that it is almost as if she is half machine.

A second example of a song comparing woman to the bomb comes from Sheldon Allman and his rock song "Radioactive Mama."[27] Sheldon Allman was a popular Canadian-American actor, comedian, and song writer. He is perhaps best known for writing the lyrics to the hit sixties cartoon *George of the Jungle.* The song opens by stating that when he and his woman get together, "there won't be nothing left except a mushroom shaped cloud." The lyric alludes to the explosive nature of their lovemaking, that it is so incredible, so powerful, so exhausting, that it is like a bomb going off, and the only remnants of their interlude is the mushroom cloud left behind. A later verse states

[26] The Five Stars, "Atom Bomb Baby," Kernel Records, 1957.
[27] Sheldon Allman, "Radioactive Mama," *Folk Songs for the 21st Century,* Hi-Fidelity Records, 1960.

that when his woman kisses him, Allman feel "all those gamma, gamma rays" flowing through him. Here, he is comparing the fantastical emotion of love, often depicted as butterflies fluttering in the stomach, to the tingling sensation of radiation. Allman is saying that like radiation, her kisses change him inside out, mutating him from a common man to one empowered by her love. Lastly, a line in the song states that since being with her, Allman has "lost my hair and eyebrows and my teeth shine in the dark." At first, one may think of this as a ghastly figure, but for Allman this is purely a positive statement. Allman's woman does not make him feel natural, and while the gamma rays have mutated him on the inside, the hair falling out and teeth glowing is a physical indication of his transformation. Allman cannot hide his love for his radioactive woman, as her effects on him are apparent to all. Her kisses and her presence give him an otherworldly appearance, almost supernatural in nature, and he is strengthened by it.

Hank King's country song "Your Atom Bomb Heart" tells of the dread feeling King has of breakup from his girl and compares it to the destructive power of the bomb. In the song, King states that the woman that broke his heart has "just one ambition, to conquer men of the town." This lyric is used to express the remorse he feels towards the girl, and how she carries around with men without any regard to their feelings. Like the bomb, the woman's allure attacks all, not knowing any innocent or guilty parties. For King, she leaves behind only a trail of victims of broken hearts, similarly to the thousands dead due to the bomb. Frequently throughout the song, King compares the woman to Satan, specifically with "you possess all the words of old Satan himself," as well as with her "devil filled kisses." King undoubtedly establishes that both the woman's behavior and the atom bomb are both evil, but the comparison to Satan does not make either any

less beautiful. Satan, as it is widely known, was the most beautiful angel in heaven.[28] The woman, like Satan's evil, is destructive, but it is certainly alluring. Sin tempts people, and is often more appealing than doing the proper thing. The woman is not good for King, and she left him in ruins, but in many ways he is still attracted to her.[29]

Not all songs about the atom bomb during the early fifties were about men falling in love with the bomb, but most still compared the beauty of woman with the explosiveness of the weapon. Linda Hayes and the Red Calendar Sextette's 1953 song "Atomic Baby" sings of how hot tempered a woman can be, and how cautious a man must be around her. "I've got a high potential and low resistance point," references how powerful both she and the atom bomb can be, and how easily they be set off. She warns that her man "better handle me with care or baby I'll blow up the joint," to emphasize the point. The lyrics accentuate both the dangerous power and the fragility of both woman and the bomb. The bomb, if not handled with care, can erupt into a catastrophic explosion and injuring all those nearby, yet according to the musicians if it is preserved and cherished it can be a glorious thing. Woman is the same way. For the artists, women are delicate, beautiful, and must be cherished, or else their beauty fades as they can quickly cause destruction when angered.

The expression of beauty is one of the most prominent ways people in the fifties viewed the bomb, as evidenced from the wide range of media that focused on this depiction. Artwork often aimed to capture the beauty in the fiery blast, as well as the

[28] Ezekiel 28:12-13

[29] Hank King with Bud Williams and his Smiling Buddies, "Your Atom Bomb Heart," Howard-Vokes-Hank King, 1955.

scenic ruins left behind from the explosion. Fashion emphasized the shocking nature of the bomb by exposing more of the woman's body, generating a provocative response among viewers. Music also tied the bomb directly to women, with male and female artists both acknowledging the fragile yet powerful nature of woman, and the sensational emotions love and the bomb both generated. Beauty gave many a sense of being empowerment, as beauty and love can make many feel as if they have transcended to a higher more magical realm. Being beautiful separates one from being ordinary, and being in love can make one feel invincible. The atomic bomb also gave people of the fifties this euphoric feeling. These emotions of superhuman ability and strength is further explored in the heroic qualities many in the atomic age ascribed to the bomb, as witnessed in the next chapter.

Chapter III

The Atom Bomb is a Savior

"The success that Americans are said to worship is success of a specific sort: accomplished not through hard work, primarily, but through the ingenious angle, the big break. Sit down at a lunch counter, stand back up a star. Invest in a new issue, and watch it soar. Split a single atom, win a war." -Walter Kirn.[30]

Many Americans in the 1950s believed that atomic energy, and by association the atomic bomb, would solve all the world's problems up to that point. The *St. Louis Post-Dispatch* stated on August 7, 1945 that "Imagination leaps forward to visualize the use of atomic power for man's comfort and enjoyment in generations to come."[31] This was a mere twenty-four hours after the second atomic bomb had been detonated in Japan. Even though a city had been obliterated, with a death toll of at least in the tens of thousands, not to mention the first bomb that had done a similar amount of damage, the atomic bomb itself was being heralded in newspapers as a blessing. The bomb's power was imagination at work, much like Edison's lightbulb or Alexander Graham Bell's telephone. Great minds came together, took an element of the world, and shaped it into

[30] Walter Kirn, "The Tipping Point Review," *New York Magazine,* February 28, 2000, accessed on March 22, 2017, http://nymag.com/nymag/critics/books/2204/
[31] "A Decision for Mankind," *St. Louis Post-Dispatch,* August 7, 1945.

something of practical use. For many, the bomb's use was seen as an act of terror, and the death toll horrific; others considered the Japanese defeat as a valiant effort, and thus the atom bomb was a savior. Many Americans, from the public to elected officials, from engineers to even scientists, prescribed an almost mythical power to the atom, and thus they believed that atomic energy could be a hero in many other areas besides warfare.

As the atomic age neared, scientists from around the world theorized about the superb power that they may harness from atomic and nuclear energy. The powers of this kind of energy was limited only to scientists' imaginations: by harnessing this power, the world's problems could be solved. Some such issues that could possibly be solved by the power of atom were diseases like cancer and the common cold, as well as the control of weather. The acquisition of absolute wealth, and potentially limitless energy were also among the gifts that atom would provide the world. By giving atom and nuclear energy a nearly god-like power, scientists could be justified in focusing their efforts into researching and testing the material. Even the atomic bomb blasts in Japan would be justified as tests for atomic energy, the results of such tests could eventually lead to a paradise on Earth by unlocking the atom's potential. By this rationale, many believed that while hundreds of thousands died in Japan and from radiation exposure, potentially unlimited lives could be saved by studying the atom and the atomic bomb.

The ideas that scientists and reporters perpetuated through their theories and writings inspired Americans to invest in atomic energy as view the atom and the bomb in a more positive light. The atom, by prescribing to it miraculous powers, became a marketable item that was difficult for consumers to turn away from. Suddenly, people everywhere who heard of the atom's abilities had to have it. Those that did not buy into

the ideas of nuclear power plants, atomic energy automobiles, and, to a lesser extent, atomic bomb themed hamburgers, were not supporting atomic research. Without atomic research, the world (and, more importantly to some, America) would be unable to obtain the true magnitude of the atom's power, and thus fail to become the best it could possibly be. To support the atom thus was to support America, as America must be the best country in the world and introduce to the globe all the untapped marvels of atomic power.

William L. Laurence, the first reporter on the Manhattan Project, furthered the fantastical ideas surrounding the atomic bomb with his numerous articles about the Project. Laurence was considered a top expert in the field of atomic study. Through much of his writings, including his 1946 book *Dawn Over Zero,* Laurence declared that the atom was to be regarded as the "philosopher's stone," and would create from the elements wealth greater than gold. With atomic power, all things would be obtainable. Laurence continued to prescribe atomic energy a spiritual quality by comparing man in the post-atomic age to Moses when on Mount Pisgah, being shown the truth and "gazing at a land of promise."[32] For Laurence, the atom offered salvation. The atom would be the key to ending all of the world's suffering and ushering in a new harmonious era free of troubles, just as Moses saw paradise on Mount Pisgah.

Much of the atom's assumed power derived from its mythical healing abilities, as scientists and pundits in the fifties largely sought to utilize the atom to cure disease. The *Dallas Morning News* on August 12, 1945 ran an editorial cartoon depicting a skeleton

[32] William L. Laurence, *Dawn over Zero: The Story of the Atomic Bomb* (New York: Alfred A. Knopf, 1946), 237, 265, 270-271.

whose name was "Cancer" being chased by lightning bolts titled "atomic energy."[33] Atomic energy did not just leave human beings fleeing in terror from its power, but also Earth's greatest diseases. For Americans, atomic energy was a superhero capable of doing anything. It not only ended largescale war against America's greatest foe, one that had attacked Americans on their own soil, but also the diseases that impacted so many families. With atomic energy, scientists theorized that no longer would Americans have to fear cancer creeping up and taking over from inside. Instead, cancer would have to fear humanity because humanity had the power of atom on its side.[34]

By 1954, scientists were using atom smashers for cancer research under the belief that exposure to radiation would cure the disease, despite there being no evidence of the benefits of radiation. The *Science News-Letter* published a photo of a 16-foot wave guide atom smasher, which had the capability of directing 50,000,000-volt microwaves into patients diagnosed with cancer. This same issue reported that the American Cancer Society stated "There is no prospect of immediate application" of using the microwaves for cancer treatment, but its use could be beneficial.[35] The prospect of the atom was too much for scientists to turn away from, and even if research and results told them otherwise, they continued testing due to their faith in the atom. This seems to go against the fundamentals of science, in that research is results driven, and thus an indicator of just how strong the belief of the atom was during the fifties.

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[33] "Editorial Cartoons," *Dallas Morning News,* August 12, 1945, section 4, p. 8. Photo too small to be legible as a copy.
[34] Paul Boyer, *By the Bomb's Early Light,* (New York: Pantheon Books, 1985), 109.
[35] *The Science News-Letter* 65, no. 10 (March 6, 1954), 151.

Numerous universities and institutions also pursued research on the atom, often times without the U.S. government's guidance. The University of Chicago, for instance, refused the government's assistance in their atomic research, choosing instead to raise money from private contributions, emphasizing that their tests would "provide a venue for the *private* development of nuclear energy, independent of government control."[36] Chicago's efforts eventually failed, as funding and interest in the atom decreased over the next decade, but the concern that the government could establish a monopoly over the atom is evident in their early actions. If the atom truly possessed the powers that were fantastically attributed to it, then the government could have absolute power over the populace, charging outrageous prices for cancer treatment or other benefits of the atom. Universities like Chicago believed that this power should be available to anyone, and governmental control over such resources was nothing short of tyrannical.

Reality concerning the atom's powers began to set in little-by-little across the decade. Through the forties and fifties, many scientists wrote papers and gave speeches to alert the public and their colleagues that atomic energy may not be the blessing once envisioned. Albert Einstein, for example, cautioned that atomic energy would produce no practical benefits "for a long time." John W. Campbell, Jr., the editor of *Astounding Science Fiction*, confronted the dangers of using atomic energy and the radiation that would emit from it. Campbell, Jr. stated that "If an atomic-powered taxi hit an atomic-powered streetcar at Forty-second and Lex, it would completely destroy the whole Grand Central area." As editor of the science fiction magazine, Campbell, Jr. strove to make the

[36] Stuart M. Feffer, "Atoms, Cancer, and Politics: Supporting Atomic Science at the University of Chicago, 1944-1950," *Historical Studies in the Physical and Biological Sciences,* 22, no. 2. (1992): 234.

science in his publication's stories more plausible. The atomic age brought with it lofty expectations and unreal dreams for the power of the atom, and Campbell, Jr. frequently rejected stories involving overblown dreams of harnessing atomic energy.[37] Such stories, Campbell, Jr. thought, perpetuated the idea that the atom was a thing of fantasy rather than one grounded in facts and science.

The first nuclear power plant in the U.S.A., built in Fort Belvoir, Virginia in 1957, ended all fantasy. Though England had established a nuclear plant a year prior, the launch in America commenced with full fanfare. The experimental boiling-water reactor (EBWR) began to supply 5,000 watts of electric power to the laboratory in which it was stationed, generating a sustainable amount of energy but a number far below the mythical proportions that were attributed to nuclear power ten years prior.[38] Even by 1967, when fourteen plants produced 2.3 million kilowatts of electricity, nuclear power only made up 1 percent of the U.S. power source.[39] Even with other nations investing heavily into nuclear energy, it became increasingly apparent that the atom could in no way lead to a source of unlimited energy to sustain mankind.

For the United States, the atomic bomb was often depicted as a savior, yet for the Japanese, it often displayed rage and punishment in a much more severe and negative light. Undoubtedly, the Japanese have dealt with the atomic bomb in a much different way from the U.S., yet there is one crucial piece of popular culture that has been used to display both the U.S. and Japanese emotions while also having a significant impact on

[37] Boyer, 116.
[38] "Nuclear Power Plant Ceremony," *Science* 125 (1957), 275.
[39] "The Growth of Nuclear Power," *Science* 157 (1967), 407.

both nations: the films of the monster Godzilla. Godzilla is a towering, violent, prehistoric sea monster with characteristics to that of an Iguanodon, Tyrannosaurus Rex, and even an alligator (Figure 5). The first Godzilla film debuted in 1954, produced by Toho Co., Ltd., and since then he has starred in over 40 movies in both the United States and Japan.[40] While his origins have often changed throughout the years, in the original film the ancient sea creature is awakened after the United States drops the atomic bombs on Japan, and the nuclear radiation of those bombs empowers the creature to rise from the depths of the ocean and create havoc on the island nation. For the Japanese, *Godzilla* is a horrific reminder of the Second World War. Director Ishiro Honda was a prisoner of war during WWII, and on his way back to civilian life he traveled through the leveled Hiroshima. Honda depicts visions from his journey in the original film with terrifying footage of radiated humans, their skin peeling from poison, following Godzilla's rampage.[41] Godzilla not only represents the United States as a giant that punishes its attackers, but the very concept of nuclear warfare and how technology can be used to cause harm. The mere fact that Godzilla is so massively huge is a direct reference to the United States. Admiral Yamamoto, leader of the Japanese strike on Pearl Harbor, famously stated that after the bombing of Pearl Harbor, the Japanese had "awakened a sleeping giant and filled him with a terrible resolve."[42] The United States had been a

[40] Godzilla has been one of the most recognizable film characters of all time. In 1996, Godzilla was awarded the MTV Lifetime Achievement Award. In 2004, the character received a star on the Hollywood Walk of Fame.
[41] Adrian McCoy, "Radioactive: 60 Years of Godzilla Mayhem," *Pittsburgh Post-Gazette,* May 15, 2014.
[42] Historians have debated whether Yamamota said these words, or if film makers made them up. Even so, Godzilla mimics this mentality of awakening a nation to engage in battle. Crosby Day, "Yamamoto's 'Sleeping Giant' Quote Awakens a Gigantic Argument," *Sun-Sentinel Times,* October 28, 2001, accessed on March 22, 2017, http://articles.sun-sentinel.com/2001-10-28/entertainment/0110260564_1_pearl-harbor-tora-tora-richard-fleischer

powerful world leader, especially in their military. After World War I, the country distanced itself from global politics, thus seen by the Japanese as being in a dormant state. With the attack on Pearl Harbor, the United States was forced to retaliate against the Japanese, as well as to participate in the conflicts occurring across Europe involving Nazi Germany. Godzilla behaves similarly. The United States, in dropping the atomic bombs, punished the Japanese for their transgressions, and with that awakened another sleeping giant which would come to further punish the Japanese for their mistake in attacking the United States. The major weapon that Godzilla utilizes is his atomic breath: a burst of fire with the power of the atomic bomb, which he uses to vaporize Japanese citizens and buildings. This is a reminder of the immense destruction the weapon caused and how almost effortlessly the great sleeping giant was able to use the atomic energy to cause damage. Godzilla, just like the United States, can use his atomic breath to hit anywhere at any time, killing thousands.

Figure 5: Still image from the original Godzilla film in 1954, Godzilla: King of the Monsters, directed by Ishiro Honda. Source: Godzilla: King of the Monsters, directed by Ishiro Honda, 1954, Tokyo: Toho, 1998, DVD.

Godzilla's role changes from frightening beast in his first film, to heroic savior in most subsequent movies. In the original 1954 film, Godzilla is a fierce creature whose only goal is to cause destruction on the Japanese. He is wrathful, terrifying, and full of rage. The monster takes out his aggression on notable Japanese landmarks, tall buildings, innocent civilians, and military vehicles such as tanks and helicopters that desperately attempt to halt the beast's rampage. Due to technology and nuclear weaponry, Godzilla has become more powerful and angrier. In later films, Godzilla adopts the role of protector of the Japanese, defending them against similar creatures that come to attack the island nation. It is these films that become much more popular in America. While the first film did release in the United States, it was targeted towards Japanese Americans and was not very popular with the mainstream public. The second film, Godzilla Raids Again (retitled Gigantis, The Fire Monster in its original American release) was much more successful in the west. The film depicts Godzilla fighting the creature Anguirus, another fictional creature which resembles an ankylosaurus dinosaur that lived during the same prehistoric time period as the Godzilla and has been awakened due to the atomic bomb blasts. Anguirus too is empowered by the atomic energy in the area around Japan, and attempts to use its new power to eliminate both Godzilla and Japan. It is up to Godzilla to stop his rival and protect Japan from ultimate destruction. While Godzilla's behavior undoubtedly changed between the first and second films, his metaphor as a depiction of the United States does not. After the Second World War, the United States forced the Japanese to sign a treaty, through which they would become demilitarized, and the U.S. would set up military stations in South Korea and the island of Guam, both previously under Japanese control. By 1950, the Soviet Union and North Koreans were threatening

the peace in Japan, and it was the United States who came to aid them from foreign invaders. By the late 1950s, even after the Korean war had ended, the Japanese still were fearful of invasion, and they had no method of protecting themselves from enemies as their military was forcefully removed. The Japanese reluctantly relied on the U.S. to protect them. This dynamic is perfectly depicted in the Godzilla movies. While the enormous monster had once caused so much death and destruction on the Japanese, when other monsters such as the terrifying Mothra or Ghidorah, Godzilla risked everything to defeat these creatures and defend the Japanese. He was terrifying, capable of great destruction, and yet he was also a hero.

Cartoonists used anthropic characters to speak about the bomb in a similar fashion as Godzilla, however their stories were often more adventurous and whimsical than frightening. Cartoon animals certainly were not an invention of the fifties, with Felix the Cat and Mickey Mouse becoming stars in the twenties and thirties respectively. During the post-war era however these characters exploded in popularity. In 1952, six of DC Comics' thirty-nine books were of this kind, consisting of Doodles Duck, Ozzie Owl, and Nutsy Squirrel among others. Looney Tunes, whose comics were first created in 1941, sold more than three million copies every single month.[43] Their popularity quickly led to stories associated with the atom, much due to the fantastical nature of both atomic theories and the outrageous adventures cartoon animals undertook. Cartoon animals were far from reality, unlike comics such as *Dagwood, Blondie, Dennis the Menace,* and *Archie.* Cartoon animals possessed the qualities and abilities of humans, such as speech,

[43] Ference M. Szasz and Issei Takechi, "Atomic Heroes and Atomic Monsters: American and Japanese Cartoonists Confront the Onset of the Nuclear Age, 1945-80," *The Historian* 69, no. 4. (Winter 2007), 742

opposable thumbs, and the capability to walk upright. Their deformations from actual animals almost suggests their association with radiation, combining humans and animals in some form of twisted radiation accident. These cartoons may look like animals, but they are much more human, and it's not hard to imagine them as an evolved being of sort whose progression is incited by the atom.

Cartoon animal stories often examined the magical nature of the bomb, exaggerating both its power and its construction, making the bomb almost as far from reality as the talking animals in the cartoons. One of the earliest atomic tales featuring cartoon animals was in a 1948 Donald Duck comic titled "Donald Duck's Atom Bomb" that could be obtained by mailing in Cheerios box tops (Figure 6). In the comic, the anthropic duck combines "mashed meteors, brimstone, and a lightning bolt" to construct an atomic bomb in his kitchen. A villainous wolf conspires to steal the bomb's formula to

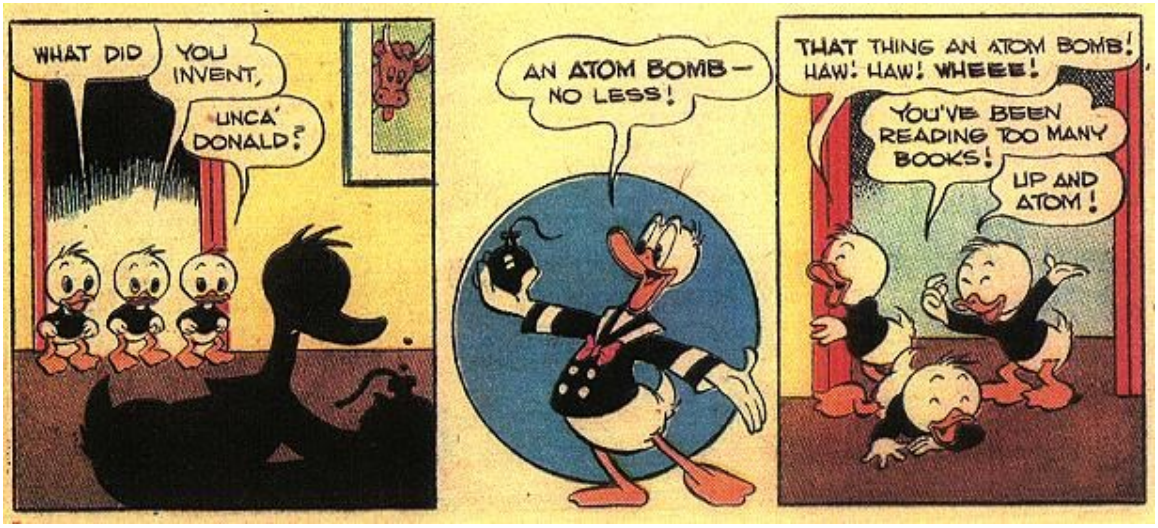

Figure 6: Panel from Disney's "Donald Duck's Atom Bomb" comic, 1948. Source: Carl Barks and Walt Disney, "Donald Duck's Atom Bomb," Cheerios, 1947, accessed on March 22, 2017, http://www.authentichistory.com/1946-1960/4-cwhomefront/7comics/ddatombomb/Donald_Ducks_Atom_Bomb_1947.html

cause destruction, but by the end of the comic the villain discovers that mixing the ingredients does not create a bomb, but simply makes people's hair fall out.[44] The humorous story sheds light on the many attitudes of Americans during the late forties. Donald's fascination and desire to construct a bomb in his own kitchen reflects how connected wealthy and middle class Americans felt to the bomb, seemingly wanting one of their very own, even if just to display on their mantle. The bomb was not simply a weapon, but an icon of the fifties, and possessing one would be like owning a prized artwork. Keeping the bomb so close to home also indicates the carefree nature some had towards the weapon. Anyone who acknowledges the incredible destructive force of the bomb would never keep such a thing nearby their home and their family, and yet here Donald proudly displays the item to his three young nephews Huey, Louie, and Dewey. The ingredients used to construct the bomb also played towards the magical nature of the weapon, as the ingredients could just as easily be utilized in a fictional witch's brew. The atom bomb in the Donald Duck comic, constructed from these fantastical elements, was not real, and might as well have been a magic potion. Lastly, the actual effect of the bomb, causing one's hair to fall out, is meant to be comical rather than insidious. Hair falling out is often the result of a cartoon explosion, along with charcoal skin and teeth fancifully tumbling out of a grinning mouth. Ironically, the radiation from the atom bomb can actually cause hair to fall out, though this is an indication of much more serious and harmful radiation. The Donald Duck cartoon makes no other hint towards radiation,

[44] Szasz, 742-745.

however, and readers are left with the impression that the hair will grow back after this sort of childish prank.

Cartoon animals often became empowered by the atom, being transformed from dopey animals to bold superheroes, and their exposure to radiation suggests strength rather than harm. Pete Pixie, in 1949, chanted the spell "Pick a Peck o' Pixies" to transform into "The Mighty Atom," a superhero that possessed the abilities of the atom. A 1957 Charlton comic featured a character named Tom Cat who accidentally fell asleep near an atomic spill, and in his slumber, he absorbed the radiation to become "Atom the Cat," a superhero who consumed fish to maintain his atomic powers in a similar fashion as Popeye ate spinach to gain his super strength. Perhaps the most famous of these atomic animals was the Hanna-Barbera creation of "Atom Ant" in 1965, an insect whose ant hill was affected by radiation, giving him the ability to fly and the intelligence to construct super computers and solve crime.[45] These examples of atomic animals point not only to the playful nature cartoonists viewed the atom and the bomb, but also the carefree attitudes towards radiation. Unlike Godzilla, atomic radiation does not construct a being of terror, but instead generates heroes. Atomic radiation is not to be feared, but almost desired. The mutations of radiation are not a biological curse, as many Japanese interpreted it, but a monumental blessing. Even if there are complications from atomic radiation, it in no way is severe. The hair falling out caused by Donald's atom bomb will grow back, just as the injuries caused by an anvil falling on one's head will be corrected in the very next scene.

[45] Szasz, 742-745.

The emergence of the atomic bomb transformed the concept of superheroes, who were once envisioned during World War II as American patriots with abilities far above the common man, into everyday people with atomic indestructability during the post-war period. Comic artists often used superheroes throughout the War to spread propaganda to connect with young readers. As stated earlier, comic books featuring superheroes boomed during the thirties and forties, with the most profitable being Captain Marvel, selling approximately 1.4 million copies on a bi-weekly basis.[46] Many comic heroes used the backdrop of the Second World War to make them not only super powerful, but super patriotic. Author Charles Hatfield states that "Superheroes in the forties were linked to the war effort and served as effective instruments of wartime propaganda."[47] Superman famously fought for "truth, justice, and the American way." His stance celebrated his immigrant background, an alien who now calls the United States his home, and he has chosen to protect the American spirit from foreign enemies. Ian Gordon suggests that Superman's motto brings together philosophies of individualism, consumerism, democracy, and the support of the U.S. military all into one cohesive idea.[48] The motto suggests America is fighting also for truth and justice, and that the only route to peace is through the United States. Batman was also widely used for marketing the American way, and often during the 1940s he and other D.C. superheroes were featured in issues where they visited the troops and preached to Americans to support the U.S. military effort. For instance, the cover of issue #8 of *World's Finest Comics,* a D.C. series that

[46] See page 3.
[47] Charles Hatfield, *Hand of Fire: The Comics Art of Jack Kirby*, (Oxford: University Press of Mississippi, 2011), 21.
[48] Ian Gordon, "Nostalgia, Myth, and Ideology: Vision of Superman at the End of the 'American Century,' in *Comics and Ideology,* ed. Matthew McAllister et al. (Bern, Switzerland: Peter Lang, 2001), 181-185

contained stories from across a multitude of franchises, featured Batman, Robin, and Superman selling war bonds and stamps to children with the accompanying sign "Sink the Japanazis." Batman specifically promotes the idea of America battling for peace and justice by displaying a prominent peace sign (Figure 7). While it may be ironic for Batman to promote war under the guise of peace, these are characters that month-after-month are depicted punching and knocking out others to make the world a safer place. Because of their portrayal of using violence for a good cause, there is no better character to promote war than the comic book superhero. Batman's efforts to fight crime and bring fugitives to justice is not dissimilar to the attitudes Americans had concerning the United States declaring war on the Japanese because of their attack on Pearl Harbor, and the war crimes committed by Nazi Germany by going against the Treaty of Versailles.

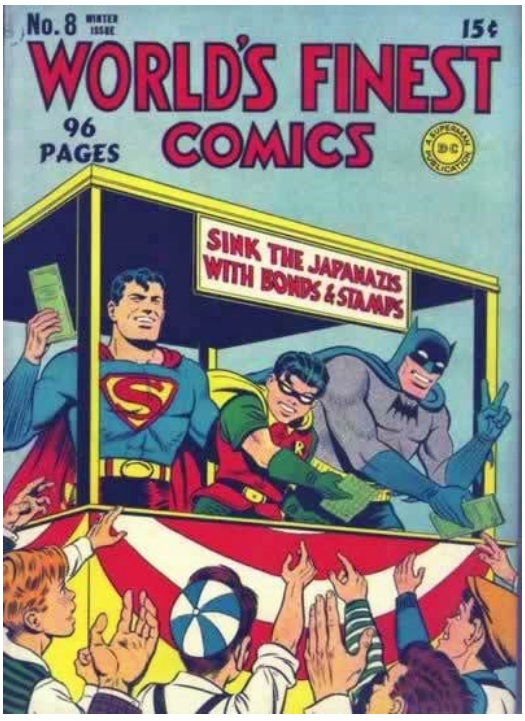

Figure 7: Cover of *World's Finest Comics #8* featuring Batman, Robin, and Superman selling war bonds to American children. Source: Jack Burnley (I, P), *World's Finest Comics #8,* DC Comics, 1942.

Perhaps the most obvious example of a superhero being used as a figure for propaganda is Captain America. It should come as no surprise, given the hero's name, that he was designed specifically by Jack Kirby to show support to American war efforts. The hero was created to capitalize off the tense global atmosphere of the War period. As author Richard Reynolds explains in his essay "Masked Heroes," "World War Two gave the superheroes a whole new set of enemies, and supplied a complete working

rationale and worldview for a super-patriotic superhero such as Captain America."[49] Charles Hatfield also shows support to this view, writing that Captain America's debut in 1941 was a "pre-war triumph," and he "generated the kind of graphic excitement that galvanized the then-new superhero genre."[50] Captain America was seen as technologically progressive, and his authors even used him to promote an anti-Nazi stance before the United States even officially declared war on Nazi Germany. The cover of the very first issue of *Captain America Comics* even depicted the American super hero, clad in red, white, and blue and wielding a shield emblazoned with the American flag slugging the German dictator (Figure 8). Bradford W. Wright proclaims that in that cover, Captain America's debut "was a call to arms, urging the nation to unite against foreign aggression."[51] Superheroes like Captain America made readers feel empowered to support the United States, that they were allies of this triumphant heroes, and cast real-life foreign aggressors as the evil masterminds of the comics' fantastical tales.

[49] Richard Reynolds, "Masked Heroes," in *The Superhero Reader,* ed. Charles Hatfield et. al. (Oxford: University Press of Mississippi, 2013), page 100.
[50] Hatfield, 21.
[51] Bradford W. Wright, *Comic Book Nation,* (Baltimore: Johns Hopkins University Press, 2003), 30-31.

The advent of the atomic bomb and the hope the atom provided to Americans influenced the comic book industry forever, and heroes quickly shifted from being patriotic symbols to embodying the power of the impressive new technology. The atomic age with its impressive technology came to represent an era of both uncertainty and wonder, and the epic adventures of the comics perfectly captured this. Numerous new heroes came into existence during the forties, adopting the atom's wondrous powers into their own. Atomic Man, who debuted in 1943, came about just as the wonders of the atom were first being discussed. Originally, Atomic Man used the power of the atom to zap his foes into submission. After the bombs were used against Japan however, Prize Publishing rewrote Atomic Man's origin to tell the story of scientist Dr. Adam Mann whose tireless experiments with uranium-235 granted him the superpowers of super strength, exceptional invulnerability, flight, and the ability to shoot "atomic blasts" from his fingertips.[52] This atomic superhero did not get his abilities through magic, such as the popular Captain Marvel, nor was he an unearthly being like Superman. Atomic Man gained his abilities through human engineering, and it is through the scientific study of the atom that he can transcend from being a mere-man and become a superhero. This origin reflects the feelings Americans had with the atomic bomb. The United States, with the bomb and engineering on its side, could become the world's strongest military. Through the bomb, peace was won, and everyday Americans could achieve the same goals of other superheroes such as Captain America and Superman.

Figure 8: Cover of *Captain America #1*. The Issue was released in 1941, before the United States had formally entered World War II. Source: Jack Kirby, *Captain America #1,* Marvel Comics, March 1, 1941.

[52] "Atomic-Man: The First of the 'Atomic Age' Heroes," *Gamespot,* June 2, 2013, accessed March 22, 2017, http://comicvine.gamespot.com/atomic-man/4005-60305/

Another hero, Atoman, celebrated the notion that any hardworking American can become great due to the power of the atom. Nuclear scientist Barry Dale absorbs the powers of the atom during his studies, gaining similar abilities as Atomic Man, along with the capacity to control atoms to enhance his vision and see through walls. Dr. Dale states in issue #1 that "Evidently my body is so geared as a result of working with radium and uranium that it can explode atoms and give me atomic strength."[53] It is not simply his exposure to the atom that grants Barry Dale his abilities, but the emphasis on his hard work in the lab that sparks the absorption of the atom's power. The comic's message is to emphasize the capitalist message of America, that with hard work and dedication, one can transform from a common citizen to a praised hero. Just as anyone could grow up to be millionaire or President, so too could they have superhuman powers, and these abilities were no longer limited to those blessed by magic or otherworldly elements.

The atom bomb in its multiple facets of popular culture gave strength to the weak, hope to the frightened, and a light in the growing darkness of the world. Where World War II was so devastating, with the battles seemingly lasting to no end, the bomb brought closure to warfare. It was through the bomb that the United States emerged as one of the victors of the war, as well as to be one of two global superpowers. The atomic age represented peace and prosperity and the start of an era in which America was a dominant force. Americans in 1945 came to associate victory, strength, and justice all in the name of "atom." The bomb's power was unlike anything that had come before, and its capabilities enchanted the minds of Americans just like the superheroes they read in the

[53] "Atoman," *Public Domain Superheroes,* accessed March 22, 2017, http://pdsh.wikia.com/wiki/Atoman

comics or the giant monsters they witnessed on the screen. The atom bomb was so wondrous in fact that its potency grew astronomically over the years just as with American tall-tales such as Paul Bunyan and Pecos Bill. The atom could not only be fashioned into a bomb, but it was asserted that it could also cure cancer, offer unlimited energy, and lead to untold riches. While these claims were as false as they were outlandish, it did not prevent Americans from trying.

Chapter IV

The Atom Bomb is Profitable

"Well, I don't know but I've been told uranium ore's worth more than gold. Sold my Cad', I bought me a Jeep, I've got that bug and I can't sleep." – Uranium Fever, Elton Britt[54]

The United States government promoted the prospection of the mineral uranium to increase production of the atomic bomb. To encourage the American public to get behind such a venture, the government, either purposefully or unwittingly, linked the atomic bomb with economics, as well as furthered the message that to be a good American one must be a good capitalist. After the successful bombing of Nagasaki and Hiroshima in 1945, the United States shortly thereafter began ramping up production of the atom bomb in preparation for future conflicts. To build the atomic bomb, the rare mineral of uranium was necessary. Uranium is a mineral that when refined appears as a silver and white metal. What makes uranium so important in construction of the atom bomb is that it was the very first mineral discovered to be fissile, that is, capable of sustaining a chain reaction with neutrons of any energy, otherwise known as a nuclear chain reaction. Enormous amounts of uranium were needed to create the atomic bomb

[54] Penny Britt, *Uranium Fever,* Elton Britt, 1955 by RCA Victor, LP.

stockpile the United States desired. The very first atomic bombs were constructed using uranium acquired from the Belgian Congo and from Eastern European mines that were captured from Nazi Germany. Manufacturing the first bombs, however, nearly depleted the U.S.'s uranium supply, and thus America chose to encourage uranium prospecting in the motherland.[55] This began the uranium rush of the 1950s, in which hundreds of thousands of Americans embraced the prospector lifestyle, and set out across the nation, primarily to the less inhabited American West, to dig for uranium.

The U.S. encouraged uranium hunts by assigning high profits for prospectors and promoting stories of uranium finds that led to incredible fortunes. The government in 1946 set a price for uranium well beyond the market value and guaranteed to hold that price for ten years, starting at $10,000 for any significant deposits of uranium discovered. The United States also allowed prospectors to stake claims on private lands with zero restrictions, and on public property after paying only a single dollar, further pushing prospectors to look high and low for uranium. By 1955, the government had paid more than $2,000,000 for uranium discoveries, and some few prospectors were being paid over $150,000 per month (Figure 9).[56] These were significant amounts of money even in today's terms, much more so in the forties and fifties. Discovering even the lowest amounts of required uranium would mean being paid five digit figures, making it difficult for anyone with the gumption to prospect to pass it up. The United States government, in paying such high amounts for uranium discoveries, ensured that American citizens were quickly motivated to do the hard work of finding the ore for government use, and by

[55] Robert R. Johnson, "Romancing the Atom: Uranium Prospecting, Once and Again," *The New Atlantis* 25 (2009), 117.
[56] Johnson, 118.

paying even $10,000, the government guaranteed that they would have a massive stockpile of uranium for a low price, thus leading to a stockpile of nuclear weapons at a fraction of the cost of excavating uranium via other means.

Figure 9: *Mechanix Illustrated* photo from May, 1955. Vernon Pick (Right) was awarded approximately $9 million by selling his uranium finds to Atlas Corp. Source: *Mechanix Illustrated,* May, 1955, Cover.

Americans of all backgrounds and classes quickly became enamored with the prospect of striking it rich by discovering large quantities of the mineral. Certainly, there were some cases of people who had accomplished just that, such as Charlie Steen. A former oil worker in Texas, Steen left his job in 1948 and took his wife and two sons to the Colorado Plateau, where they dug up a rich amount of uranium. By some accounts, Steen became the richest man in Utah with a fortune of around $130 million.[57] Newspapers, magazines, and national news agencies reported on each of these successes, fueling uranium fever. Yet for every Charlie Steen there were thousands of would be millionaires who came up empty. In a New York times issue dated August 27, 1949, reporter Brendan Gill wrote that a receptionist at a New York Atomic Energy Commission building stated that over twenty-five hundred samples of rock had been sent by aspiring prospectors, but not even ninety percent would make it

[57] Johnson, 118.

past the preliminary Geiger counter testing, because "they're just not radioactive."[58] The people who mailed in these ordinary rocks were likely so infatuated with the idea of finding a fortune that they sent in rocks haphazardly in hopes of the slim chance that it could possibly have some radiation tied to it.

Evidence of the widespread appeal of prospecting for uranium is evident in the sale and advertisement of Geiger counters (Figure 10). Geiger counters are tools invented for detecting traces of radiation, and where there is radiation there is likely uranium. Prospectors relied on the tool to scout out areas in search of uranium. Geiger counters came in a wide range of varieties for prospectors to choose from. The Radiac Company of New York, for example, recommended starting with a simple counter, costing approximately $50, and gaining experience prospecting before upgrading to fancier tools, such as the $5,000 airborne and carbon systems.[59] These prices meant that most anyone could get into the prospecting business. While $50 was not by any means extremely cheap, the idea for the prospector was that this was a small, necessary investment. The $50 used to purchase a Geiger counter now could mean tens-of-thousands of dollars soon, and thus it was determined that $50 was a great deal. Serious prospectors, such as those who had already struck it big or were aspiring to hunt for uranium as a full-time career, would invest in the much more expensive tools for the same reasons.

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[58] Johnson, 118-119.

[59] "The Uranium Rush – 1949," *National Radiation Instrument Catalog* (2017), 14, accessed March 22, 2017. http://national-radiation-instrument-catalog.com/new_page_14.htm. This catalog is an independently run website that collects primary sources such as photographs, advertisements, and magazine articles pertaining to radiation instruments such as Geiger counters.

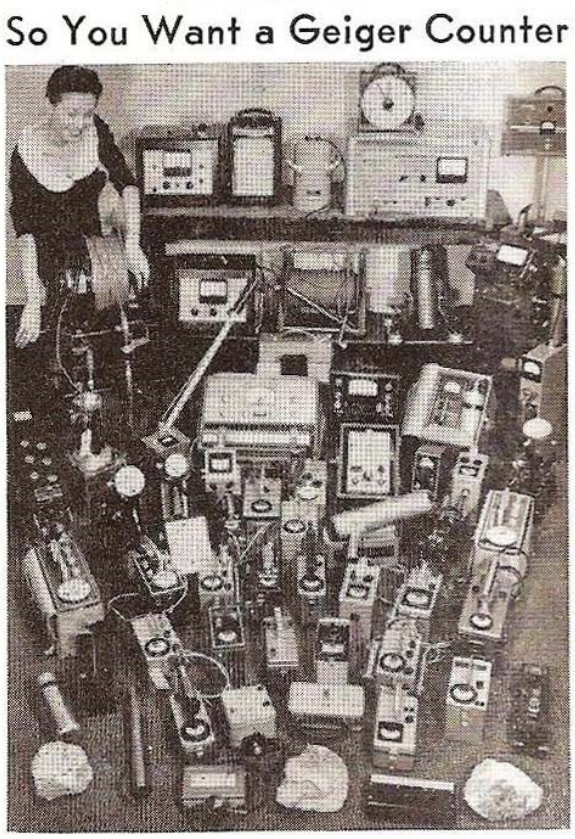

Figure 10: Newspaper advertisement for the Radiac Company depicting a woman with a wide range of Geiger counters for potential prospectors. Source: "The Uranium Rush – 1949," *National Radiation Instrument Catalog* (2017), 14, accessed March 22, 2017. http://national-radiation-instrument-catalog.com/new_page_14.htm

By 1959, the price for high voltage batteries and cheaper G-M tubes had made building a homemade Geiger counter at the cost of around $15.00 possible.[60] Some magazines and journals published articles detailing how to do so, and even instructions for creating the device in a school setting with children. The April, 1955 issue of *Popular Science* for instance featured a step-by-step guide to crafting "one of the most efficient Geiger counters yet devised" by using "juice from flashlight cells."[61] These guides allowed even the poorest of individuals to craft a Geiger counter on a budget, enabling them to scout for uranium in their neighbor's yards or spend their funds on trips across the country where uranium was more plentiful, or to purchase more expensive materials, such as a Jeep for traveling. The strategy here was to ensure that anyone could prospect, not just those that could afford it, and because the poorer populations would be the most desperate for funds they would likely invest more time and energy in locating the elusive uranium.

[60] James Wahla, "A Simple Inexpensive Geiger Counter," *The Science Teacher* 26 (1959): 255-257.
[61] "Prospecting with a Geiger Counter," *Popular Science* (April, 1955), 231-234.

Educating the public on radioactivity, uranium, and the use of Geiger counters became a top priority for companies because the more the public knew about these, the more invested they would become in their use. Geiger counter companies aggressively attempted to sell their wares to the American public, even going so far as campaigning for radioactivity to be included in general education. The Radiac Company, for example, established a retail business on Fifth Avenue after profits soared, and the store's sales manager marketed their devices towards teachers by stating that they should not neglect "the fourth R – ranking radioactivity" right alongside "reading, writing, and 'rithmetic."[62] Science and mechanical magazines of the period often highlighted Geiger counters on their front pages and included articles on the best ways to make use of them. Enthusiast magazines such as *Popular Mechanics*, *Boys' Life*, and *Mechanix Illustrated* frequently contained articles on how to prospect for uranium as well as tips for how to maximize your haul. The August, 1957 issue of *Boys' Life* magazine contained a fictional story of a young boy, his father, and their dog on the hunt for uranium. While the tale was fictionalized, the techniques the father teaches the boy in the story, such as checking the sides of cliffs for exposed ore and bringing protection to guard against dangerous wildlife, are conveyed in a way to educate young readers on how to best find uranium.[63] A further example is the May, 1955 issue of *Popular Electronics,* which was dedicated to prospecting, being dubbed the "Uranium Prospecting Issue." The magazine included instructions on how to build a homemade Geiger counter, as well as reviews for the best prospecting tools on the market. Some companies sold home kits for children and

[62] Johnson, 119.
[63] Bob Gorsuch, "Boy on a Uranium Hunt," *Boys' Life* (August, 1957), 12, 54-55.

families during the fifties. Many of these even included real Geiger counters in order to teach children how to use them properly in order to find uranium. By involving children in the education and marketing of Geiger counters, companies aimed to have children talk about the devices with their parents who would be encouraged to buy based on their child's recommendations. Interest for the devices by children would also push sales, as children may invest in Geiger counters for their own hobbies, or look to buy one once they grew older.

The toy industry also hoped on the uranium rush bandwagon to get prospecting themed items into the hands of adolescents and involve their families. The board game "Uranium Rush" by Parker Brothers promised to be "[a]n exciting new electronic game for the family." Players moved across the board staking claims on tiles that they land on, then use a magnetic wand to search for "uranium." If the wand began to tick like a Geiger counter, the player has discovered the rare ore and they are granted a check from the government. Players raced to "[m]ake a million dollars" and the player with the most money at the end wins.[64] The "Uranium Rush" board game targeted every facet of the phenomenon. The game involved the excitement of exploration by traveling around the board to meet the goal. The use of money as an incentive to encourage players to complete the game shadows the government's use of cash to award prospectors who discovered uranium. Lastly, the "Uranium Rush's" use of technology, in this case the magnets to mimic the Geiger counters, was thrilling in the same way that using new

[64] "Uranium Rush (1955)," *Board Game Geek,* accessed March 22, 2017, https://boardgamegeek.com/boardgame/16053/uranium-rush

technology was exciting for prospectors. These elements combine to create a fun, rewarding experience that families could play without investing into actual prospecting.

Uranium prospecting even influenced fashion. In a 1955 Sears catalog, prospecting duds are featured for the whole family (Figure 11). The entire ensemble featured bright orange and yellow clothing, resembling that of a professional prospector. For men, the catalog suggests a prospector's smock. For children and women, a bright orange jumpsuit, complete with hardhat and boots, are featured. The woman's attire is named the "diggerette."[65] While a real prospector could use this gear for excavating uranium, the way the duds are advertised for the whole family indicates that they are meant to be worn as fashion rather than utility. Much like the board game "Uranium Rush," these prospecting clothes allowed ordinary citizens to obtain the prospector look and experience some of the thrill without the heavy investment.

Although women were rarely depicted as major participants in the uranium rush, the roles in their inclusion often were not different than a male's, and their presence promotes the concept of a nuclear American family. National Geographic published a rare photo of a woman utilizing a Geiger counter to check rocks for radiation.[66] The woman is shown to be attractive, but not sexy. She is dressed in revealing albeit comfortable, attire that is suitable for prospecting in the hot American west. The woman has a professional look about her as she scans for radiation, suggesting to the reader that

[65] "Historic Ads," *National Radiation Instrument Catalog* (2017), accessed March 22, 2017, http://national-radiation-instrument-catalog.com/historical_ads.htm
[66] Robert Nininger, "When rock blooms yellow and Geiger counters rattle - uranium!" *National Geographic Society,* (June, 1953), 2.

she not only knows how to use the complex tools in her arsenal, but she is serious about her work (Figure 12). This photograph furthers the notion of a nuclear family. The husband and son cannot be the only ones who are sophisticated enough to know how to use this new technology, nor can they be the only ones being good American citizens by hunting for uranium and purchasing prospecting gear. Like the story in *Boys' Life* magazine, women shown in the uranium rush suggests an America in which the entire family goes out in search of fortune and adventure. A dangerous world of prospecting, once dominated by adult males, is seemingly open to the entire family. The father takes his son, the dog, and his wife and daughter, too. The more people, the greater the chances of finding uranium, striking it rich, and benefiting the good ole U. S. of A. The marketing of uranium to the entire family is evidence of just what the quintessential fifties American family aspired to be: a family that lived together, loved together, and worked together for their country. Even if a woman working outside of the home went against the conservative norm of the decade, the goal of prospecting can still be seen as promoting conservative values: working to support the husband, to instill in the children the knowledge to be good American citizens, and aid America in the best way possible. A woman prospecting accomplishes these goals. The wife supports her husband in his costly, dangerous endeavors as he attempts to provide a living for the family. The mother's

Figure 11: Sears catalog photo for family prospecting duds. Source: "The Uranium Rush – 1949," *National Radiation Instrument Catalog* (2017), 14, accessed March 22, 2017. http://national-radiation-instrument-catalog.com/new_page_14.htm

knowledge in how to use Geiger counters and precisely how to find uranium can be taught to the children so that they can become better prospectors when they are older. The successful finding of the rare ore meant that the woman was not only benefiting her family but also giving the United States a leg up in the nuclear arms race, ensuring the safety for Americans everywhere and thus being one of the most patriotic things any citizen can do for their country.

Local businesses in the areas where the uranium boom was taking place were also jumping at the opportunity to not only appeal to aspiring prospectors but also make a profit in the heat of the movement. In Grand Junction, Colorado, a restaurant called the Uranium Club boasted not only the finest food and cocktails in the region, but also that visitors "will find the uranium men at the uranium club." In Dove Creek, Colorado, Charlie's Liquor Store proclaimed that their place was "where the Uraniumaires get their supplies." The city of Moab, Utah, proudly displayed on its sign that it was "the uranium capital of the world."[67] These pieces of evidence point that uranium was a big business, that thousands of prospectors were coming into the area, and that targeting this

Figure 12: *National Geographic* photo of a woman operating a Geiger counter, 1953. Source: Robert Nininger, "When rock blooms yellow and Geiger counter rattle – uranium!" *National Geographic Society,* June, 1953.

[67] "The Uranium Rush… ", 14.

audience was at least good business if the rush sustained.

The uranium rush did not last indefinitely, however. By 1957, the U.S. uranium stockpile had drastically increased, new ore deposits were being discovered around the globe every day, and thus the price for uranium plummeted.[68] Atomic fears also overshadowed the excitement of digging for uranium, as the United States began to champion for decreased nuclear testing in response to the Soviet Union's growing nuclear weapons stockpile. The need for uranium and prospectors had all but reached rock bottom.

[68] Johnson, 120.

Chapter V

The Atom Bomb is Scary

"The release of atomic energy has not created a new problem. It has merely made more urgent the necessity of solving an existing one." – Albert Einstein.[69]

At the same time in which fascination with atomic technology was established, a sense of fear was also slowly growing amongst the American people. Atomic fears, specifically towards radiation, originated at the same time as the first bombs. Scientists, far and wide, cautioned that while the release of atomic energy could bring us to a utopia, a dystopia was also a very possible reality. Harold C. Urey writes in *One World or None* that "not only may our own culture be destroyed by these weapons of mass destruction, but all civilizations as they exist in the world may be retarded and weakened for centuries to come."[70] The atomic age at first glance was a moment in which humanity had greatly modernized, and this energy would usher in a new era for mankind. At closer inspection, however, critics of the atomic energy issued warnings that the atom could erase all

[69] David E. Rowe and Robert Schulmann, *Einstein on Politics: His Private Thoughts and Public Stands on Nationalism, Zionism, War, Peace, and the Bomb* (Princeton: Princeton University Press, 2007), 357

[70] Harold C. Urey, *One World or None: A Report to the Public on the Full Meaning of the Atomic Bomb,* ed. Katharine Way et. al. (Washington D.C.: Federation of American Scientists, 1946): 58. The *One World or None* was a report towards the public concerning the full meaning of the atomic bomb.

progress humanity had made thus far, sending humanity spiraling back into primitive times.

To assuage the fears caused by atomic energy, the U.S. government oversaw the production of civil defense films. These films are peculiar in that they are a direct example of the government attempting to convince Americans to behave in a certain way. The idea for a Civil Defense program began in 1948, after the government began to better understand atomic weaponry and radiation. Historian Arnold Ringstad states that the 1948 Office of Civil Defense Planning report outlined the goals for the Civil Defense program as telling survivors of an atomic bomb attack what areas to avoid, what to dispose of and what was safe to eat and other preventive measures to take.[71] This initiative led to the creation of Federal Civil Defense Administration (FCDA) under the Federal Civil Defense Act. Congress directed the FCDA to "disseminate civil defense information by all appropriate means" to the general public.[72] One appropriate medium for communicating to the public the government's intent were motion pictures. One letter, written by Frederick K. Rockett (president of the Frederick K. Rockett Company in Hollywood) states that "There is no medium so quickly and thoroughly understood as a motion picture demonstration."[73] Films not only were an effective way to communicate with the public, but cost efficient for the government. By cooperating with Hollywood in the production of these movies, the FCDA saved enormous funds. In a September 1951 issue of *Film News,* an article states that "films are going into production before any

[71] Arnold Ringstad, "The Evolution of American Civil Defense Film Rhetoric," *Journal of Cold War Studies* 14, (2012), 96.
[72] Ringstad, 97
[73] Ringstad, 99

federal funds have been appropriated" due to "the courage of the film producers who have agreed to make the pictures with their own capital and risk being repaid through income from print sales."[74] Producing the films in this manner meant big bucks for film studios as well as quality, swiftly made productions for the U.S. government, thus it was a win-win situation for both parties.

Films began to change tone due to increasing understanding of the dangers of fallout radiation. New hydrogen bombs meant even greater destruction, and the Castle Bravo Test, in which the H-bomb was first used, made the public aware of the dangers of nuclear fallout.[75] This led to "the most comprehensive motion picture program yet undertaken," with fifteen films on civil defense produced. These movies sought to go about civil defense in a more realistic and educational manner, educating the public on safety techniques. Harold Kirn, the director for the OCDM, stated that "I think the backlash against CD [Civil Defense], fallout shelters, 'Duck and Cover' (Figure 13) and stocking shelters came later on as we learned more about a nuclear threat and what could be done about it realistically."[76] The absurdity of hiding beneath a wooden desk or covering one's head with a hardback book to protect oneself against an nuclear blast was not as widely apparent in the early fifties as it is today, as the American public trusted

[74] Ringstad, 101.
[75] First designed in 1952 by the U.S. military, a hydrogen bomb consists of the fusion of hydrogen isotopes and creates an explosion comparable to 50 kilotons of TNT, or approximately 1,000 times stronger than an atomic bomb. The components to create a hydrogen bomb is much more complex and costly however, thus its popularity in both the military and general public did not reach that of the atom bomb until at least the 1960s. Ed Payne and Tim Hume, "The H-Bomb: What is it? Who has it? Why it matters," *CNN*, January 6, 2016, accessed March 22, 2017, http://www.cnn.com/2016/01/06/asia/hydrogen-bomb-why-it-matters/index.html.
[76] Ringstad, 105.

that these government sponsored films were providing accurate information, and could actually save lives.

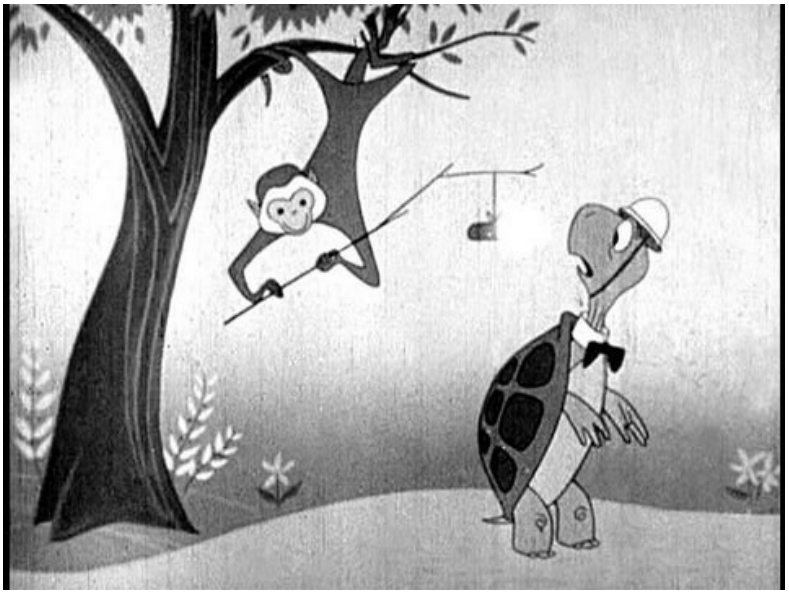

Figure 13: *Still picture from the Civil Defense film Duck & Cover*. Source: *Duck & Cover,* directed by Anthony Rizzo, Archer Productions, 1952.

Civil Defense films were often geared towards children and families, as it was believed children would be the most enthusiastic to practice such safety measures and would naturally pass it along to their families at home. An infamous piece of popular culture that was used to educate Americans on how to protect themselves in the case of an atomic blast was "Duck and Cover." This technique was made into both a cartoon and a song to help make it memorable, especially towards children. The cartoon and song both tell the story of Burt the Turtle who, when in danger, ducks into his shell for cover. These pieces advised people that in the event of a nuclear explosion, they should get low to the ground and cover their heads with a hard object, such as a school desk or books, to shield them from falling debris. While an actual nuclear blast would likely destroy everything, and no desk or book could protect anyone in such an event, these safety tips and exercises could be utilized in any number of dangerous scenarios, such as in a tornado, and their goal was ultimately to calm fears through education, not heighten them.

The United States government also employed comic book companies to aid them in educating the public about the marvels as well as the dangers of the atom. One prominent example came in 1948 with *Dagwood Splits the Atom*, an entertaining and educational short book using the popular Dagwood and Blondie characters. In the comic, Dagwood is shrunk down to microscopic size due to the powers of Mandrake the Magician, and explores the atom while onlookers such as Popeye, Maggie, and other popular comic characters watched in amazement. The comic attempted to not only educate readers on what the atom was, but to ensure that there was nothing to fear from the atom itself. The end of the comic even included multiple choice test questions that children and families could answer using the comic's material.[77]

Just as the comic book character Dagwood helped educate about the bomb, so too did writers use popular comic superheroes to help talk to children about the bomb. Children looked up to superheroes like Superman even though they were fictional characters, and comic book authors used these characters as role models to connect with children. Throughout the Golden Age of comics, superheroes were commonly used in Civil Defense messages due to their close connection with readers. Historian Michael A. Amundson writes that these superheroes helped assuage the fears of children caused by the anxieties of possible nuclear war and the complex questions atomic energy posed.[78] Their role in the early fifties was much the same as the government's use of Burt the Turtle and other figures to appeal to children, educate them in an entertaining manner, and help children feel safer when confronted with the ideas of nuclear warfare. *Duck and*

[77] Boyer, 296.
[78] Michael A. Amundson and Scott C. Zeman, *Atomic Culture: How We Learned to Stop Worrying and Love the Bomb* (Boulder: University Press of Colorado, 2004), 11.

Cover, Dagwood, and superhero comics did not say that danger was not present, but they did help their audiences understand nuclear dangers so that their fears would be more rationalized. Burt the Turtle could take cover to protect himself during an atomic bomb blast, and Superman was there to help prevent the bad guys from using the bomb in the first place.

Although the creation of the atomic bomb allowed superheroes to become nearly indestructible, as the atomic age lingered the bomb also threatened the existence of superheroes as mighty figures altogether. Atomic Man and Atoman's existence is indication of an age in which superheroes were no longer the most powerful beings one could imagine. The atomic bomb leveled entire cities in seconds, and even the strength of Superman paled in comparison. Angela Nostwick writes that the bomb's existence "questions the legitimacy of American domination."[79] When the United States solely possessed the bomb, heroes like Atomic Man could flourish in the atom's shadow. As the 1950s lingered on however, and nuclear weapons came to be possessed by foreign nations, superheroes and America dominance came into question. Bradford W. Wright explains that the "postwar comic book market had not only grown, it had grown up" in regards to its views of the bomb. "The existence of the atom bomb alone removed all doubt about that. Times had changed since 1945, but… superheroes had not changed with them."[80] Where the atom bomb once gave hope and strength, as production grew and more nations acquired the technology, it stole that very hope and strength away from Americans' hearts. When America's enemies also possessed atomic weaponry, the

[79] Angela Nostwick, "Super Power, Power Struggle: *Captain America,* Authority, and the Atomic Bomb," *Ideals* 2, no. 1 (Urbana-Champaign: University of Illinois at Urbana-Champaign, 2015), 41.
[80] Wright, 123.

destructive nature of the atom overcame its positive capabilities, and suddenly the nation was made even more vulnerable because of the atom rather than invincible.

Due to the serious tone of the era and the multiple anxieties Americans faced, popular humor comics and magazines debuted, such as *Mad Magazine*. These satirical works attempted to ease fears through humor and making light of the possibility of war, political corruption, or nuclear annihilation. *Mad Magazine* began as a small comic in 1952 and upgraded to magazine status in 1955. The satire magazine was almost instantaneously popular, with 325,000 issues read monthly in 1955, to 1.3 million in 1958. By the 1960s, the magazine was read by an incredible 58 percent of all college students in America, as well as 43 percent of all high school students.[81] *Mad's* initial goal was to combat the paperback book market rapidly growing in the fifties due to pressure from the government to educate Americans and to get them to read more literature.[82] *Mad's* founders believed that the government being so involved in determining what Americans read was equal to totalitarianism, in that the government was shaping the ideas of Americans based on what the government recommended the public to read, and created a publication that combated these notions.[83] *Mad Magazine* provided humorous articles that forced its readership to question the authority, as well as the ideas depicted in the material that they were reading. One article from 1963 confronted the continuity of book clubs by asking "Are you ashamed to be seen reading trashy, sensational paperback

[81] Maria Reidelbach, *Completely Mad: A History of the Comic Book and Magazine* (Boston: Little, Brown and Company, 1991), 188.
[82] Kristin L. Matthews, "A *Mad* Proposition in Postwar America," *The Journal of American Culture* 30, no. 2 (June, 2007), 214-216.
[83] Matthews, 217.

books?"[84] The inquiry was aimed to make readers ponder if they enjoyed reading the things they were assigned in book clubs and in school, and urged Americans that were dissatisfied with conformity to break away and create their own individuality.

Mad's methods of parodying the government was not simply for entertainment sake, but to give readers the tools to question authority and discern for themselves what is fact and what is fiction. It is in this essence that satire is the greatest weapon against governmental propaganda. Researcher Joseph M. Kirkman writes that satire "[gives] people power… [as] a tool that can help to make them effective critics of politics and society."[85] This is by educating the reader on a topic that they may not be acquainted with, and making the topic vulnerable to attack. Through humor, things that are complicated, scary, or sometimes dangerous become much less threatening, and thus is can be better examined, critiqued, or even broken down. Political commentators Darrell M. West and John M. Orman state something similar, writing that "[Satire] is a way to boost public interest in a subject about which many Americans are not deeply absorbed. The idea is that politics does not hurt as much if you are laughing at public officials."[86] Satirists use humor to first disarm something or someone which may be in power, making it possible for the reader to question or attack the subject at hand. Satire not only offers a new perspective on an otherwise solid issue, but breaks that issue down in a way that it can be seen from multiple angles. People of authority, for example, often dictate how

[84] "Mad's Full-Color Fold-Out Paste-On Paperback Book Covers," *Mad Follies 1* (1963), cover.
[85] Joseph M. Kirkman, "Using Satire to Study Current Events," *Social Education* 57, no. 3 (1993), 139.
[86] John M. Orman and Darrell M. West, *Celebrity Politics: Real Politics in America* (Upper Saddle River: Prentice Hall, 2003), 98.

they are perceived by those beneath them. Thus, satire demolishes the barriers erected by the authority, creating gaps in their persona that can easily be engaged with.

Mad Magazine confronted the atomic bomb by directly showing how ridiculous it was to ignore the dangers of the bomb's powerful blast by writing about the Earth's destruction in a whimsical manner. In an article poking fun at both a nuclear holocaust and the carefree nature of youth's and music, *Mad* listed a "post-nuclear war hit parade," describing it as "These are the songs young couples of the future will hum as they walk down lovers' lane arm in arm *in arm.*"[87] Another article from 1964, which confronted the dangers of smoking cigarettes, featured humor hypothetical ads tobacco companies may use to appeal to smokers. One such fictional ad, under the headline "The 'Compare-The-Scare' Appeal," featured an adult male smoking a cigarette from the fictional company "Armaments" while pointing over his shoulder at a mushroom cloud (Figure 14). The man is quoted as saying "With **that** to worry about… who's gonna worry about **this**… ?"[88] The comic makes fun of how carefree Americans can be towards real world dangers while at the same time be consumed with fear over the atomic bomb. The authors of the comic are stating that while an atomic bomb blast is indeed deadly, the chances of a bomb killing you over the numerous diseases linked to tobacco are slim to none, yet many Americans used the bomb as a distraction so as not to deal with more immediate dangers such as cigarette smoking.

[87] *Like Mad* (New York: Signet Books, 1973), 16.
[88] "Some New Ad Tactics," *Mad Magazine* (December, 1964), 7.

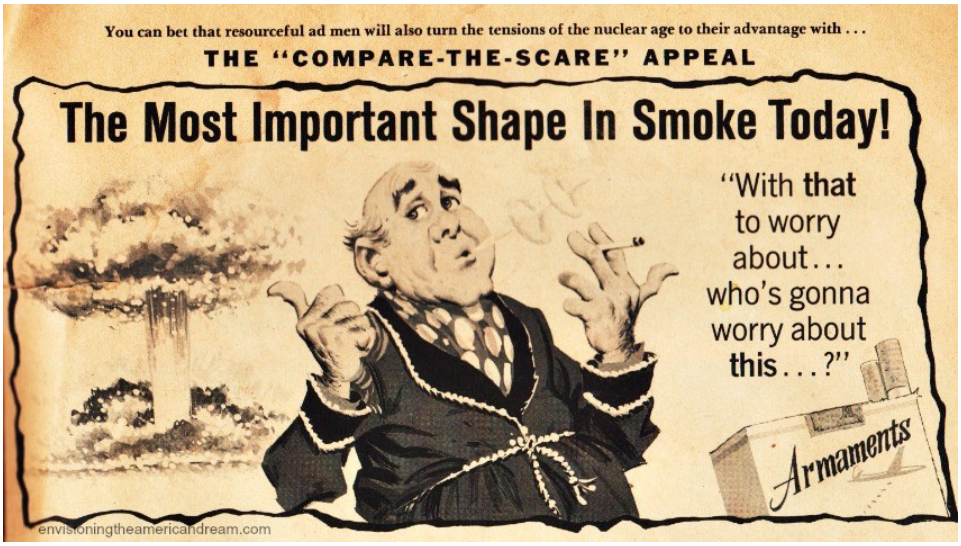

Figure 14: "The 'Compare-the-Scare' Appeal" anti-smoking comic featured in Mad Magazine, 1964. Source: "Some New Ad Tactics," Mad Magazine, December, 1964, 7.

Satire was used as a powerful weapon to express the complicated emotions Americans felt concerning the atomic era. As the United States government used heavy propaganda to push the positive effects of atomic energy and weaponry, it was difficult for many Americans to express the fears that they were being forced to hide in this cultivated environment. Stanley Kubrick's film *Dr. Strangelove: Or, How I Stopped Worrying and Learned to Love the Bomb* is arguably the greatest satirical film ever made, and it directly addressed the conflicting emotions of fear and amusement the atomic era produced (Figure 15). Kubrick originally sought out to write a screenplay and direct a movie based on the Peter George novel *Red Alert*. However, during the screen writing process Kubrick came to fully realize his vision of a black comedy aimed at the ridiculous nature of the Cold War. Kubrick explains the moment in which he came up with the idea: "I found that in trying to put meat on the bones and to imagine the scenes fully, one had to keep leaving out of it things which were either absurd or paradoxical, to

keep it from being funny; and these things seemed to be close to the heart of the scenes in question."[89] For Kubrick, the only logical way to tackle the scenarios presented in the Cold War was through satire. The atomic era consisted of a wild mix of entertainment coupled with fear, and in no way can an honest Cold War film be a completely serious venture.

Figure 15: Still photo from Dr. Strangelove, directed by Stanley Kubrick. This picture depicts the movie's famous ending, in which Major T. J. "King" Kong, played by actor Slim Pickens, rides an atomic bomb like a horse while the weapon hurdles towards the U.S.S.R. Source: Dr. Strangelove Or: How I Learned to Stop Worrying and Love the Bomb, directed by Stanley Kubrick, 1964, Culver City: Columbia Pictures, 2011, DVD.

Much of the absurdity Kubrick saw in the Cold War was based on the theory of mutual assured destruction (M. A. D.). M.A.D. is the idea that the Cold War existed due to each side of the War promising to retaliate any assault with the use of nuclear weapons, and the cause of which would result in a ruined world and no real winners. *Dr.*

[89] Rob Nixon, "The Big Idea Behind Dr. Strangelove," *TCM* (2017), accessed on March 22, 2017, http://www.tcm.com/this-month/article/71595%7C0/The-Big-Idea.html.

Strangelove challenges this concept. Military strategist and physicist Herman Kahn wrote about M. A. D. in his 1960 book *On Thermonuclear War,* positing that, should MAD continue, the Cold War would result in a "doomsday device" that would wipe out humanity.[90] This idea assumed that neither the United States nor the Soviet Union would stop until they had invented the ultimate killing machine, thus leading to the destruction of all of mankind.

Kubrick tackled the absurdity of MAD with the concept of his very own "doomsday device" in *Dr. Strangelove.* In the film, when the Soviets learn that the United States plans on dropping an atomic bomb in their territory, they retaliate by claiming to have a doomsday device that will annihilate the world. This claim provokes General Buck Turgidson, portrayed by actor George C. Scott, to proclaim: "Mr. President, I'm not saying we wouldn't get out hair mussed. But I do say no more than ten to twenty million killed, tops, uh, depending on the breaks." The line is meant to show the ridiculousness of military strategy. General Turgidson is stating that there cannot possibly be a doomsday device, and the only damage the Soviets could do is kill up to twenty million U.S. citizens. In Kubrick's view, the military regards American lives as nothing but pawns in a global game of chess. The Soviet Union may retaliate on a move against them, but they cannot clear the board, only eliminate a few million lives, thus it is concluded that there is no real reason for atomic testing and the Cold War to end. Had the American military had any regard for American lives, per Kubrick, atomic testing would have ended long ago.

[90] Herman Kahn, *On Thermonuclear War* (Princeton: Princeton University Press, 1960), 144-155.

Being involved in the Cold War only puts millions of Americans' lives in the line of fire rather than keep them protected.

Popular music also used satire to confront the atomic bomb. The absurd notion that Americans found the atom bomb beautiful was directly challenged with the 1961 song "Fallout Filly."[91] Written and performed by Chris Cerf, the song parodies many of the previously mentioned songs by explaining that the narrator himself has fallen in love with an actual atomic bomb, not a woman with the qualities of the powerful weapon.[92] While the song is a parody speaking about the songs of the mid 1950s, it is still quite relevant in trying to understand the times. For instance, the song parodies existing material that is sufficient enough that it warrants a response. Enough music was produced during the 1950s that the writer could use material to create an amusing song. Secondly, the song succeeded because the audience had ample familiarity with the type of music Cerf parodied. Numerous lyrics in "Fallout Filly" demonstrate just how absurd these types of songs are. The second verse states that the narrator's love interest, the titular Fallout Filly, is not popular with a crowd because "when she opens her mouth to speak, out comes a mushroom cloud." This lyric is about the explosion of the atom bomb. Once it has been released, or its mouth opened, a mushroom cloud erupts, signifying an explosion. In the third verse, the narrator sings that the girl "sets my Geiger counter heart a-tickin', when she does the nuclear jive. Radiated women in molecules of U 235." This verse has plenty to unpack. First of all, the narrator admits that he has a Geiger counter

[91] Chris Cerf, "Fallout Filly," *The Harvard Tabernacle Choir Sings at Leningrad Stadium*, 1961.
[92] Chris Cerf is an accomplished satirist who made his mark not long after "Fallout Filly's" debut. Son of Random House President Bennett Cerf, Chris was the vice president for the Harvard Lampoon, a popular parody newspaper that is still recognized today. Chris would later appear on the National Lampoon Radio Hour and be a writer on the famed television comedy Saturday Night Live.

heart, or simply he is fixated on the atom bomb, and its being close to the radiation of uranium is the only thing that gets his heart beating. Americans at the time were enamored with the atom bomb, as well as uranium.[93] The line that mentions "U 235" is in reference to the atomic number of the element uranium. The fact that the woman the singer is describing possesses this number is further evidence that he is not singing about a human being, but the atomic bomb itself.

Music combated fear in ways other than in satire, as Christian music during the late forties and early fifties often tackled the subject of the bomb to contest the savior qualities many Americans were ascribing to the weapon. The Swan's Silvertone Singers, an all-black gospel group composed of former coal miners, sang the 1950 song "Jesus is God's Atomic Bomb" to remind Americans that while the bomb was powerful, God was even mightier.[94] The song opens by asking "Have you heard about the blast in Japan, how it killed so many people and scorched the land?" The singer then reiterates that the bomb "can kill your natural body, but the Lord can kill your soul." The lyrics aim to confront the idea that while the atomic bomb can kill you, it cannot prevent you from reaching heaven. Only God's almighty power can actually harm your soul, even if the bomb can reduce you and entire cities to ash. The similarly titled "Jesus Hits Like an Atom Bomb" also seeks to deliver the same message, as well as remind listeners to focus on the pending judgement day rather than current world affairs. Originally recorded by Lowell Blanchard and the Valley Trio as a country song in 1950, the song also became popular

[93] For more on the uranium rush, please consult pages 39-46 of this document.
[94] "Jesus is God's Atomic Bomb: Swan's Silvertone Singers," *Atomic Platters,* 2005, accessed March 22, 2017, http://www.atomicplatters.com/more.php?id=88_0_1_0_M. This website is based upon a box set of music centered around the atomic era, and consists of artist biographies, record label histories, and behind the scenes information on the songs that are featured on the album.

as a gospel song performed by the black group The Pilgrim Travelers, who recorded their rendition the very next year. The opening lyrics state that "Everybody's worried 'bout the atomic bomb, but nobody's worried 'bout the day my Lord will come." The message here is that Christians are too focused on the Soviet Union and their emerging nuclear program rather than doing God's will and being good Christians. The song also likens judgement day to the atomic blast, stating in the chorus "when [God will] hit, great God a-mighty, like an atom bomb," meaning that God's wrath upon the world will leave similar destruction on the land. Towards the end of the song, judgement day is again compared to the atom bomb with the line "God told Elijah he would send down fire, send down fire from on high. He told the brother Noah by the rainbow sign, they'll be no water, but fire in the sky," restating that the bible warns that the end of days will not come from a flood but through a calamity of fire raining down from the heavens. The song seems to hint that rather than literal balls of fire controlled by God that the Earth's destruction may be via the atom bombs launched by man. In this case, the message of the song is that the construction of such weapons is a sign that judgement day is coming, and the listener had better get right with God or else he will be denied salvation.

Judgement day is the topic of numerous other Christian songs during the atomic era, not just with "Jesus Hits Like an Atomic Bomb." The 1950 country song by Bradley Kincaid "Brush the Dust from that Old Bible" again reminds the listener to get close to God before the inevitable end of days. Kincaid was known to perform songs and sermons on a Christian radio station based in Springfield, Ohio, and performed the song during

these segments regularly.[95] Kincaid makes no secret that he thinks that the atom bomb is the fire falling from the sky in the bible when he sings the lines "that the world will be destroyed again some time, fire and brimstone so they say, will take all our lives away, when that atom bomb's placed on the firing line." Kincaid then goes a step further by saying that America, as well as much of the world, is lost in sin due to their fascination with the bomb. "If our statesmen only knew what this world is coming to, they would never let war be their goal. For the world is lost in sin all because of wicked men, and the atom bomb will take every soul." Unlike the song "Jesus is God's Atom Bomb," Kincaid seems to suggest that the atom bomb's power is an extension of God's very own, and just as it can vaporize people and buildings, it can also wipe away a man's soul in its explosion. The 1947 gospel song *Atom and Evil* also claims that the atom is a work of God, and compares it to the first man in the bible, Adam, who is led astray by the evils of the serpent and Eve. The song states that "Now atom was a sweet young innocent thing, until the night that Miss Evil took him under her wing. Now Atom was an honest, hard workin' man, he wanted to help out the human clan. But Evil got him drunk on prejudice and hate, and she taught him how to gamble with humanity's fate." The lyrics point to the incredible powers scientists were ascribing to the atom during the time period as being the good things that the Atom could do, but the construction of the atomic bomb was an evil act, thus it had been morphed into a creature that is feared. Just as Satan disguised as the serpent tempted Eve and transformed her and Adam from innocent people into

[95] "Brush the Dust from that Old Bible: Bradley Kincaid," *Atomic Platters,* 2005, accessed March 22, 2017, http://atomicplatters.com/more.php?id=125_0_1_0_M.

sinners, scientists have wickedly transformed one of God's innocent creations, the atom, into a weapon of sin and hatred.

A major focus of Americans' fear towards the bomb derives from the secrecy of the Manhattan Project. The Project, only revealed to the American public after the bombings in Japan, fueled concerns Americans had about governmental secrecy, the use of public tax dollars, and how the government used propaganda to market itself. A direct result of these feelings of anxiety is seen in George Orwell's classic novel *Nineteen Eighty-Four.* Though not American, the British citizen was an outspoken opponent towards totalitarianism and felt that the Manhattan Project endangered America's democracy. Orwell initially confronted his feelings of anxiety with the Manhattan Project and the state of global politics in his 1945 essay "You and the Atom Bomb." In the essay, Orwell invents the term "Cold War" to describe the tense state of affairs between the United States, Russia, and China as postwar "superstates."[96] Orwell begins the essay by humorously postulating why the atom bomb was not a topic of greater discussions, writing "Considering how likely we all are to be blown to pieces by it within the next five years, the atomic bomb has not roused so much discussion as might have been expected." Orwell points the blame on the U.S. government, and its secretive nature concerning the Manhattan Project as well as the way it controls what information is leaked to the public. "Such information as we—that is, the big public—possess on this subject," he writes, "has come to us in a rather indirect way, apropos of President Truman's decision not to hand over certain secrets to the USSR." The Cold War, in Orwell's view, harms America,

[96] George Orwell, "You and the Atom Bomb," *Tribune,* October 19, 1945, accessed March 22, 2017, http://www.orwell.ru/library/articles/ABomb/english/e_abomb.

and by extension the world, because leaders such as President Truman are more concerned in keeping secrets safe from their enemies than keeping their public informed. This is very similar to the way Stanley Kubrick felt about how the American government treated its citizens as pawns; the focus of the Cold War is between the major players and in order to beat the Russians the United States is willing to manipulate, lie to, and keep information hidden from the people that make up the very fabric of the democratic nation.

Orwell directly criticizes the obsession Americans and the British had with power and their dominance over the enemy with future technology like the atom bomb. In *Nineteen Eighty-Four*, he describes power and the future as "Always, at every moment, there will be the thrill of victory, the sensation of trampling on an enemy who is helpless. If you want a picture of the future, imagine a boot stamping on a human face—for ever."[97] The atomic bomb and the emerging technology of the post-war era meant wars could be deft and swift, destroying an enemy army with one simple detonation as opposed to years of conflict with soldiers in the field. In Orwell's opinion, complete domination in warfare is a byproduct of the intoxication of power. The bomb and its incredible power does not just put fear into other nations, but puts them in a submissive role in which the only escape is to build a competing bomb of one's own. This places the world into eternal conflict, eventually erupting into a global nuclear war that stamps out a helpless human race.

[97] George Orwell, *Nineteen Eighty-Four* (London: Secker & Warburg, 1949), 337

The United States' Office of Censorship is criticized in *Nineteen Eighty-Four* as Orwell uses the fictional Ministry of Truth to confront the hazards created by censorship by the government. The Office of Censorship existed between 1941 and 1945, and was created to prevent secret American plots during the Second World War from leaking out, in particular those concerning their most highly prized weapon, the atomic bomb. The Office of Censorship tirelessly erased evidence about the atom bomb from media, often demanding that the press and broadcasters to voluntarily censor any information concerning the bomb that may have been uncovered. Byron Price, Director of The Office of Censorship, proudly claimed that the bomb and its development were the best kept secrets of the war, and that because of the Office the United States was able to succeed.[98] Regardless of the level of threat, the U.S. government still shut down any stories that may tip off the enemy on the project. One infamous example comes from a 1944 Superman comic issue that was denied publication because it featured a then fictionalized atomic bomb. The story had Superman's nemesis, Lex Luthor, devise an atomic bomb that could destroy buildings, something of much less strength than the actual weapon of mass destruction. As the comic was pending publication however, DC offices were contacted by the Office of Censorship and asked to immediately withdraw the publication of the issue. The Defense Department were willing to erase even fictitious mentions of the bomb so as not to tip off the Germans or the Japanese. The comic ultimately appeared in 1946 with minor alterations.[99] This event proves that the Office of Censorship was going to great lengths to conceal American military secrets, and Orwell and others were correct

[98] Associated Press, "No News Leaked Out About Bomb," *Lawrence Journal-World,* August 8, 1945.
[99] Wallace Harrington, "Superman and the War Years," *Superman Home Page,* 2017, accessed March 22, 2017, https://www.supermanhomepage.com/comics/comics.php?topic=articles/supes-war.

in their accusations that the American government was exercising extreme control over the media, even fictitious stories found in comic books.

Americans also feared that atomic energy, particularly in the destructive force of the bomb, would in some way turn back the progressive clock of humanity and this fear was most evident in science fiction horror films of the 1950s. Perhaps the most prominent example comes from the 1953 film *The Beast From 20,000 Fathoms,* directed by Eugene Lourie. The movie tells the story of atomic bomb testing in the arctic circle awakening a massive, 30-foot tall beast that has been frozen for thousands of years. Upon emerging, the monster causes terror by destroying entire cities along the North American east coast. The beast is similar to Godzilla, in that he is an ancient creature, roused and strengthened by manmade weaponry, and seeks to destroy humans and the Earth. Unlike the Japanese monster, the beast is not so much vengeful as it is instinctive. The beast attacks without knowing, eats what moves, and goes where it pleases. The beast does not target just the United States, but anyone that gets in its way. The beast is a cautious reminder of how savage humanity may be if it continues to use atomic energy. The images in the film of humans fleeing in terror from a towering monster suggests a de-evolution back to the prehistoric era, in which cavemen were threatened by dinosaurs of colossal size.[100]

The 1954 film *Them!* by director Gordon Douglas features a nest of ants irradiated due to nuclear testing in New York, and the giant insects begin to rampage through Los Angeles (Figure 16). Even though testing is done far from civilization, it can come back to literally bite you. The ants are not a prehistoric species like the beast from

[100] This statement of course alludes to the thought many Americans had during the age that "cavemen" existed during the time of the dinosaurs, and not perpetuating that these peoples do indeed exist.

Figure 16: Still photo from the 1954 film *Them!* Directed by Gordon Douglas. Source: *Them!*, directed by Gordon Douglas, 1954, Burbank, California: Warner Bros. Pictures, Inc.

20,000 fathoms, but an evolved form of insect. *Them!* envisions humanity devolving to a smaller part of the food chain, where a once harmless insect now hunts mankind. In the film, atomic energy does not aid humanity and expand its lifespan, but threatens to destroy humanity. There is a scene of great irony in the film in which the World Health Organization declares that it is on the verge of eradicating human disease. The message is hopeful and cheerful, yet the announcement is coming from a television set inside of a destroyed convenience store that has been destroyed by ants. This scene mirrors the events of the age. Science, media, and the government all aided in preaching positive messages about radiation and the atom, yet the only evidence Americans had of the atom's power was through catastrophic events such as the bombings in Japan. The atom had been heralded as a possible candidate to rid the world of cancer, of providing the Earth with a limitless supply of energy, and even creating riches beyond measure, yet the only promise that the atom had actually fulfilled was in its use of a weapon of mass destruction. News reports like the one in the film attempted to distract Americans by pointing at the incredible possibilities of the atom, but the destructive nature of it was the only tangible evidence that Americans could grasp. The scene mimics the idea that fear and destruction of the

atom bomb was all around, yet amidst the chaos were the desperate pleas from the government and some media that hope was in the future.

The Incredible Shrinking Man suggests that radiation can threaten the masculinity of a man, and de-evolve him to the size of the tiny atom rather than grant him the power of an atomic bomb. The film, released in 1957 and directed by Jack Arnold, features a man that is exposed to a radioactive cloud on a boating trip, causing him to shrink at an alarming rate. The radiation disrupts the man's molecular structure, and is irreversible. The protagonist loses his job, the ability to drive a car and his girlfriend due to the horrific nature of the cloud. At the end of the film, the man is nearly atomic size, all but forgotten in the world, and must survive life on his own. This ending greatly mimics the post-apocalyptic views many had during the time and afterwards, of a single survivor tasked with navigating a strange new world alone or die trying. The film speaks to the fears of losing one's masculinity. By shrinking Scott, loses all the characteristics that make him a respectable prewar American man, according to Cyndy Hendershot. Hendershot explains that the man of the prewar era must be a prime example of a true American. He must be a hard worker, successful, and independent.[101] In the novel in which the film is based, written by Richard Matheson, the protagonist feels insecure about not making enough money to support himself and his wife, thus he goes into business with his brother. The film tackles this scenario with a slight twist, with his wife stating "your brother provided the boat," reminding Scott that even that was leant to him. As Scott shrinks, he becomes much more of a child than a man, magnifying his anxieties

[101] Cyndy Hendershot, "Darwin and the Atom: Evolution/Devolution Fantasies in 'The Beast From 20,000 Fathoms,' 'Them!,' and 'The Incredible Shrinking Man,'" *Science Fiction Studies* 25 (1998), 329.

of not being sufficiently masculine. Scott depends on his wife for survival and income after he loses his job. At one point in the film, Louise begins to mother Scott as he becomes fussy, forcing him to exclaim "I'm not a boy! You can't treat my body like a little boy's!"[102] In the film, Louise slowly begins to replace Scott with Butch the cat. The cat's name is highly masculine, and a reminder of what it means to be a quintessential fifties man. Louise begins to reject Scott's affections, and eventually lying in bed with the cat while Scott must sleep in a dollhouse. Later, Butch attacks Scott, forcing him to escape to the basement. By shrinking in size, Scott cannot hold a job, he cannot provide for himself or his wife, and he cannot protect himself even from the family pet. Scott shrinks so much in size due to radiation that by the film's close he hardly ceases to exist. Should this radiation reach all of humanity, no one would be left to populate the world. The film implies that because of radiation, the house pets that once thought of humans as masters will suddenly have the upper hand, and it will be mankind that is at the mercy of the housecat and not the other way around. *The Incredible Shrinking Man* is the ultimate example of mankind's fear of losing dominance and becoming stunted due to the effects of radiation.

By 1957, the emotions towards the atom bomb and atomic energy in general took a sharp turn towards fear. While caution for the atom bomb, radiation, and war had almost always been present, the reality of the atom bomb had sunk in as the fifties drew to a close. Several events led up to the fact that the atom bomb was indeed dangerous,

[102] Hendershot, 329.

that it did not offer absolute protection for the United States, and that the mythical properties of the atom previously prescribed did not actually exist.

Much of the fear towards the atom bomb was due in large part to how American President Dwight D. Eisenhower and his administration believed the production of atom bombs should be handled. In *Blowing on the Wind*, Robert A. Divine states that in the early 1950s, the possibility of global nuclear warfare was such a terrifying and immediate issue that the United States was too scared to confront the problem openly.[103] Eisenhower and the American leadership were concerned that stating this outright may cause the American public to erupt in massive panic. Instead, Divine posits that Eisenhower played down nuclear warfare, and instead focused on the less frightening but still serious issue of the dangers of nuclear testing. The culmination of this was Eisenhower's two-year suspension ban of nuclear testing, which he formed on August 21st. According to Divine, Eisenhower desired the Comprehensive Test Ban to act as a "magic talisman" of sorts, or an item used to escape from the real possibility that there could be total destruction of the nation, if not the globe, from nuclear warfare.[104] By using the Comprehensive Test Ban, nuclear testing would be out of memory for a time, tensions would ease, and the nuclear threat would severely lower.

Eisenhower had right to fear that nuclear testing on its own could cause disaster and harm. Two major testing mishaps occurred in 1957 that weighed heavy on the consciousness of both the President and the American public. On September 29, the

[103] Robert A. Divine, *Blowing on the Wind: The Nuclear Test Ban Debate: 1954-1960,* (New York: Oxford University Press, 1978), Viii.
[104] Divine, *Blowing,* 323.

Kyshtym disaster occurred in the Soviet Union, the highest measured disaster on the International Nuclear Event Scale (INES) at the time. Eisenhower did not learn of the disaster until November 4th, when Soviet defector Zhores Medvedev published a report concerning the event. Medvedev exaggerated the event to a small scale, using superfluous words such as "massive" and "tragic" to bring a more emotional impact to his report.[105] Even still, the Kyshtym accident was a terrible event that served as an example for how other plants could behave in the event of an emergency.

The second testing disaster, the Windscale fire, happened on October 10th, 1957, in which a nuclear plant went up into flames and spread radioactive material from a British nuclear testing site into civilian populated north west England. The fire raised several concerns, primarily concerning how to detain a fire caused by nuclear energy. The BBC reported at the time that the British Prime Minister, Harold Macmillan, established three new committees whose role would be to investigate the fire and how to prevent it from occurring should new nuclear plants be constructed.[106] Engineers warned firefighters that applying water to the hot graphite and uranium in the Windscale plant could cause a catastrophic explosion due to the combination of hydrogen and carbon monoxide.[107] Eventually the fire was handled with water and carbon dioxide coolants, yet concerns were still plentiful as such a fire had not occurred before. The aftermath of the Windscale fire was just as troubling. High amounts of radionuclides were released into

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[105] Jim Thomson, "The Mayak Plant, Chelyabinsk—a Brief Historical Review," *Journal of the Institution of Nuclear Engineers and the British Nuclear Energy Society* 12 (2016): 54.
[106] "Inquiry Publishes Cause of Nuclear Fire," *BBC*, November 8, 1957, accessed March 22, 2017, http://news.bbc.co.uk/onthisday/hi/dates/stories/november/8/newsid_3181000/3181342.stm.
[107] Richard Wakeford, "The Windscale Reactor Fire of October 1957," *Journal of the Institution of Nuclear Engineers and the British Nuclear Energy Society* 3, (2007): 299

the atmosphere during and after the accident that the UK implemented a local milk distribution ban to limit the consumption of radioactive materials through milk. Further tests conducted decades after the fire concluded that as many as 200 cancers originated in the residents of the areas affected by the Windscale fire.[108]

The world also became leery of even more impressive technology than the atom in 1957, with all eyes aimed at the heavens. On October 4th, the Soviet Union launched Sputnik 1, the first artificial satellite to orbit the Earth, officially beginning the Space Race and placing the Soviets in a comfortable lead (Figure 17). Americans became increasingly more concerned about potential space warfare than simply the atomic bomb. Robert A. Divine writes that Sputnik conjured up a multitude of fears surrounding American life. Concerns over the state of American education, national security, science and space exploration all became popular topics. Eisenhower's confidence in the American standard of the late 1950s became criticized as being a sign of poor leadership, and John F. Kennedy and Lyndon B. Johnson's firm stance on improving America and increasing federal aid led to Kennedy's election by a fearful American people. According to Divine, this furor over Sputnik was only put to rest in July 1969, when Neil Armstrong took his first steps on the moon. With that, America had succeeded in the eyes of a panicked American populace.[109] Eisenhower did not think that Sputnik posed much of a risk to America, despite the public and his staff's anxiety. After a private meeting on the day of Sputnik's launch, the President decided that there would be no immediate changes to the United States' space program. Most importantly, Eisenhower wished to avoid

[108] Wakeford, 303.
[109] Robert A. Divine, *The Sputnik Challenge,* (New York: Oxford University Press, 1993), vii.

giving the impression to the Soviets and to the American public that the States was in any sort of space race with the communist nation. The President believed that by doing so America would appear to, according to Divine, "belittle the Russian accomplishment," and in the case of losing such a race, panic would spread throughout America at even greater levels.[110]


The New York Times.

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HOFFA IS ELECTED TEAMSTERS HEAD; WARNS OF BATTLE

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Navy Picks Up Radio Signals—Report Sighting Device

Device Is 8 Times Heavier Than One Planned by U.S.

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FARRIS CONFIRMED

ARGENTINA TAKES

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SATELLITE SIGNAL BROADCAST HERE

Ex-Premier Mollet Accepts Bid To Form a New French Cabinet

City Sifts Charge That Schuyler, Brooklyn Councilman, Sold a Job

Warsaw Crushes New Protest; Clubs, Tear-Gas Rout Students

Figure 17: Cover of The New York Times from October 7th, 1957, the day Sputnik I was reported to have been launched. Source: "Soviet Fires Earth Satellite into Space: It is Circling the Globe at 18,000 M.P.H.; Sphere Tracked in 4 Crossing Over U.S," The New York Times, October 4, 1957.

Eisenhower chose to tackle Sputnik in a respectful, calm way that was not well received by the American public. His demeanor, according to Divine, "failed to defuse the growing sense of public alarm." Because he was viewed as a military hero, Americans expected a much tougher and strategic approach to the Russian space program; instead, Eisenhower appeared to concede victory to the Soviets just as the space race had begun. Reporters forced Eisenhower to admit during his press conference on the day of Sputnik's launch that the Soviet's had rockets capable of launching warheads thousands of miles across the globe and strike the United States, creating even greater tension among citizens.[111]

Perhaps one of the most glaring events of 1957 that signifies American fears towards the atom bomb and atomic warfare was the leak of the Gaither report on November 7th. Eisenhower had assigned a panel of mostly civilian experts and

[110] Divine, *The Sputnik…* 5-7.
[111] Divine, *The Sputnik…* 8-9.

consultants (which went by the lengthy name of The Security Resources Panel of the Office of Defense Mobilization Science Advisory Committee) to evaluate the U.S.'s defensive and offensive military capabilities. Eisenhower states that the panel had been formed to bring new perspectives and background experiences to examine the major problems within the government.[112] The panel, after finishing its investigation, recommended more than $44 billion to improve these areas, and stated that the U.S. was under immediate threat of being attacked by a nuclear weapon. It also concluded that while the number of Soviet nuclear weapons was only one-third that of the United States, it was being produced at far quicker rate than the U.S. with approximately the same amount of spending of the States. Furthermore, the panel concluded that by 1959 the Soviets would have the ability to launch 100 intercontinental ballistic missiles at the United States and devastate the nation's population due to how unprepared American citizens were. Based on these findings, the panel recommended building fallout shelters to accommodate the entire population.[113]

Eisenhower did not fully agree with the report. He noted that the panel failed to take into consideration overseas bases that the United States had established, which would provide significant protection from any intercontinental missiles. Furthermore, America's allies and the "free world" would not allow the Soviet Union to launch such an attack, and such a devastating response in retaliation was enough for the Soviet's to discount such an action.[114] Regardless, the Gaither report had a noticeable impact on the American psyche. Because the report appeared to American citizens shortly after

[112] Dwight D. Eisenhower, *Waging Peace,* (New York: Doubleday, 1965): 220
[113] Eisenhower, 220.
[114] Eisenhower, 220-223.

Sputnik, the report was that much more convincing.[115] The White House Press Secretary to Eisenhower, James C. Hagerty, continuously performed damage control during interviews to reinforce that the Report did not reveal America's weaknesses. "[T]he report says just the opposite," he said during an "off the cuff" interview. The *New York Times* commented that, despite what many readers of the newspaper believed based on the Report, that "[America is] strong enough for the next year or two or three to be a deterrent to Russian aggression and more than a match for any potential enemy. But it is not the present that is the source of worry. It is the future, and the near future at that."[116] These comments, both from the newspaper and from Press Secretary Hagerty, prove that Americans who had read the report were concerned over the country's defenses, and needed frequent reassuring that the United States was safe from a nuclear attack. Although it was made clear through these interviews that America was safe at the moment the Report was published, the future was certainly in jeopardy. Thus, any attempt at pacifying the worries of Americans was done with little success as there was still a very real possibility in the very near future.

If there was no nuclear energy, and the atom bomb did not exist, the Cold War could have been even more deadly, argues Richard Rhodes. "How many more people would have died using conventional weapons," he states, if the United States and the Soviet Union had declared war on one another. "[B]y making war too terrible, changed the whole outcome and made impossible this prospect of worldwide war."[117] Many

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[115] Steven L. Rearden, "Reassessing the Gaither Report's Role," *Diplomatic History* 25 (2001): 153.
[116] "The Gaither Reports Again," *The New York Times,* December 31, 1957, 15.
[117] Richard Scheinkin, "Learning to Live with the Bomb We Watch Godzilla Movies, 'Nuke' Our Food, and Wear Bikinis," *Toronto Star,* August 4, 1995.

scientists believe that the earth could not withstand a World War with nuclear weapons because the damage to infrastructure, to military, and to the population would cause entire nations to crumble within days.

As the once American exclusive nuclear technology spread across the world, fear that it could be redirected to harm the United States persevered. Gone were the positive views of beauty, power, and prosperity. Even if the atom could do wondrous things, such as provide cancer treatments and sustainable energy, the reality of deadly radiation, power plant meltdowns, and atomic bomb attacks dominated news headlines, and thus the imaginations of late fifties Americans. After the Soviets launched Sputnik I, the atom's reign as the pinnacle of science and technology was usurped, and the eyes of Americans everywhere shifted from the nuclear horizon and towards the stars.

Conclusion

The Atom Bomb is Forever

"The Making of the atomic bomb is one of history's most amazing examples of teamwork and genius and poise under pressure. But it's also the story of how humans created a weapon capable of wiping our species off the planet. It's a story with no end in sight. And, like it or not, you're in it." -Steve Sheinkin.[118]

As of 2017, we are seventy-two years removed from the droppings of the atomic bombs on Hiroshima and Nagasaki. The nineteen fifties have come and gone, and new technologies have replaced what was once the pinnacle of technological achievement that was the atom bomb. Since then, the United States has landed me on the moon, the internet was invented, and the world has entered into a digital age. New terrors have replaced the Soviet Union in the form of radical Islamist terrorists, North Korea and China.

Despite all that has changed, much as remained the same. Nuclear weapons continue to be present in the everyday consciousness of American citizens. In 2003, the U.N. Security Council sent inspectors into Iraq to discover if the country indeed had

[118] Steve Sheinkin and Jay Colvin, *Bomb: The Race to Build—And Steal—The World's Most Dangerous Weapon,* (New York: Roaring Brook Press, 2012): 236

armed nuclear weapon, leading to the Second Gulf War. As of the time of this writing, North Korea continues to conduct unsanctioned nuclear weapons testing, threatening the peace of the Pacific.

Nuclear weapons, in conjunction with terrorism and man-made disasters, are still a high ranking fear among Americans today. A poll conducted by researchers at Chapman University in October of 2016 collected a random sample of 1,511 adults from across the United States and included 79 different fears across a variety of topics, features few fears that rank higher than a nuclear weapons attack. The poll concludes that 31.5 percent of Americans fear a nuclear weapons attack in the United States, as well as 27.5 percent are afraid of a nuclear accident or meltdown of a power plant. Among the fears that rank higher are corrupt government officials (60.6 percent), government restrictions on firearms and ammunition (38.5 percent), and reptiles (33.2 percent). Overall, a nuclear weapons attack ranks at the 18th highest ranked fear in the United States out of 79, or in the top 25 percent Americans have today. While this may not seem as alarming when first analyzing the data, it is curious that such fears have persisted since the 1950s even as the Cold War has ended and new technologies have been developed to shift focus away from the nuclear bomb. Even the use of military drones within the U.S. (21.7 percent) ranks lower.[119]

The 2016 election of Donald Trump as the President of the United States has contributed to fears of nuclear weapons in the American public. Evidence of this is seen

[119] "Chapman University Survey of American Fears," *Wilkinson College of Arts, Humanities and Social Sciences,* October 11, 2016, accessed March 22, 2017, https://blogs.chapman.edu/wilkinson/2016/10/11/americas-top-fears-2016/

in the increased sales of fallout shelters since he won the election. Gary Lynch designs fallout shelters in Dallas, Texas, that can cost "several million dollars," and sales of his luxurious shelters have jumped 700 percent since November, 2016. Lynch explains that many fear that the President's temperament and relations with foreign countries may result in nuclear warfare. There is even fear from Trump supporters that catastrophe may be in the near future. Lynch states that "There's some people who maybe even voted for Donald Trump and may be worried some of the riots are going to get out of hand and there's going to be social or civil unrest."[120] For many Americans, any form of conflict between the President of the United States and other countries, or even the American people, can lead to such a catastrophe that fallout bunkers would be necessary to survive. Americans perceive the power of the President to be extremely powerful, with the capability to order nuclear weapon attacks at a moment's notice. Even though nuclear weapons have never been used in any sort of warfare since the Japanese bombings in 1945, those living in 2017 still consider nuclear warfare a threat.

The atom bomb also maintains its presence in popular culture to this day with television shows, movies, video games, comics, and music still referencing the weapon. The acclaimed television show "Manhattan" ended its two season run in 2015, which focused on the scientists involved in the Manhattan Project and the creation of the first atom bomb. The video games Fallout 4 and Wasteland 2, each depicting a desolate America after a Soviet Union attack with an atom bomb, released in 2015.

[120] Gordon Dickson, "Luxury bomb shelter business bombs as customers get ready for "Trumpocalypse," *Lexington Herald Leader*, January 30, 2017.

Even Godzilla continues to be popular in both the United States and Japan. In 2014, a new film simply titled "Godzilla" released in the States, directed by Gareth Edwards. In 2016, a Japanese based film *Godzilla Resurgence* debuted, becoming the 31st film in the franchise. While the atom bomb no longer has the presence in the films as it did when *Godzilla* first premiered in 1954, the towering beast maintains its role of protector of Japan and continues to wield his atomic breath.

While Americans no longer dream of a future in which the atom may cure the world's problems, there remains a consciousness in which Americans believe some other technology will. Most Americans believe that eventually some technology will be able to rid the world of disease, eliminate pollution, or make travel nearly instantaneous. These ideas are much more realistic than those people held in the 1950s, but their similarities are undeniable. The atom in the fifties served as a means of envisioning the future as well as making sense of present day events. With the advent of the atom, the world could do away with the harsh realities of the Great Depression, the World Wars, of cancer and other diseases, and bring about a peaceful resolution. It was only after the failures and the dangers of the atom were brought to light, as well as the emergence of more powerful weaponry such as the hydrogen bomb and space travel, that such fantasies concerning the atom ended. Today's Americans look back at the atom bomb with glasses tinted in realist curiosity: the age of the bomb unreal expectations and very concrete dangers.

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