

ADAPTING TO ATLAS

A study on the evolution of nuclear policy as portrayed by the development and deployment of Atlas missiles, 1945-1965.

Francisca Seele 3685934
M.A. American Studies
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Utrecht University
Supervisor: dr. D.A. Pascoe
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Abstract

The period after World War II and the beginning of the Cold War are characterized by significant changes in the United States government and military. Changes in the international environment and the development of nuclear weapons brought the United States into a position in which it had to adapt to new strategic challenges. This thesis researches how the development of Atlas missiles by the United States Air Force and their deployment to Francis E. Warren Air Force Base portray the evolution of United States nuclear policy between 1945 and 1965. The first chapter focuses on the history of Francis E. Warren Air Force Base and its transformation into a nuclear missile site. The next sections then place these findings in a broader context by examining changes in the strategic environment, the evolution of nuclear policy, and the development of nuclear weapons. From these chapters a conclusion is derived that will be discussed in the final chapter. Research for this thesis was conducted at the University of Wyoming in Laramie, at Francis E. Warren Air Force Base in Cheyenne, and at Utrecht University in the Netherlands. The thesis draws on a number of sources including books, articles, archival material, and an interview. The result of this research shows that policymakers initially were reluctant to incorporate nuclear strategy into military policy. Policymakers mainly began to embrace nuclear strategy when the strategic environment changed and the United States became vulnerable for attack. However, policymakers only began to embrace the Atlas when technological advancements made the development of this missile feasible.

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Prelude: Talking to a Missileer

On November 18, 1956, Soviet leader Nikita Khrushchev spoke to Western ambassadors at a reception in Moscow. Khrushchev expanded on the struggle between capitalism and communism, and he used a Russian expression which at the time was translated to “I will bury you.”¹ In the United States this statement was perceived as a serious threat that was directly aimed at their country, some even viewed it as a warning of a nuclear war.² However, the statement was not intended as such a threat, according to Khrushchev. The leader later explained that he meant to express that the communist system would simply outlive the capitalist system, and he argued that the Soviet Union was on the right side of history.³ In addition, the phrase might have been interpreted incorrect as the Russian saying lacks a clear English translation. Various scholars argue that the phrase should have been understood as saying “we will be present at your funeral” or “we’ll give you a hard time.”⁴ However, while there might be a debate on the exact meaning of the phrase and on the intentions of Khrushchev, it is clear that his speech had a significant impact on the perception that Americans had of the Soviet Union and the Cold War.

Rhetoric and discourse are often used during conflict in an effort to frame the situation. Being able to shape the perception of an audience is a powerful tool for it can generate public support.⁵ During the Cold War, both the capitalist and the communist blocks used language to influence their own people as well as the adversary. Khrushchev used a Russian saying to influence his own people, while he later shifted his statement in order to sound more appealing to the American people. The United States used framing as well; a significant example of the use of

1 Flora Lewis, “Bringing in the East,” *Foreign Affairs* 69, no.4 (1990): 16.

2 James Stuart Olson, *Historical Dictionary of the 1950s* (Westport: Greenwood, 2000), 157.

3 Ibidem.

4 Matt Schudel, “Victor Sukhodrev, Polished Interpreter for Soviet Leaders, Dies at 81,” *The Washington Post*, May 17, 2014.; Robert Deis, “We Will Bury You! (Or Something Like That.)” *This Day In Quotes*, last modified November 18, 2013, <http://www.thisdayinquotes.com/2011/11/we-will-bury-you-or-something-like-that.html>.

5 Michael V. Bhatia, “Fighting Words: Naming Terrorists, Bandits, Rebels and Other Violent Actors,” *Third World Quarterly* 26, no. 1 (2005): 9.

rhetoric in the Cold War is the notion of the Soviet Union being an “Evil Empire.” President Reagan used this term to describe the Soviet Union in a speech he gave on March 8, 1983.⁶ In the same speech, the President described the United States as being a nation of freedom. He portrays the situation as a conflict between good and evil, and between a blessed nation and a godless empire.⁷ Reagan used rhetoric to shape a more simplistic version of reality in order to generate support for his cause. His effort was successful as the frame he created was accepted by at least a part of his target audience, the American people.

Krushchev's statement and Reagan's speech had a significant impact on the perception that American people had of the Soviet Union and the Cold War. However, various events and personal experiences shaped perception as well. The experiences of retired missile mechanic Jim Widlar attest to these observations, as he states that he viewed the United States as being “the defender” in the conflict, while he describes the Soviet Union as “the Evil Empire.”⁸ Widlar was a child in elementary school when the Cold War took shape, and he remembers being informed about the situation through events such as the Korean War and Khrushchev's remarks. Widlar states that he recalls Khrushchev's comments and that the phrase “We will bury you” was “referring to the United States.”⁹

Even though the conflict can indeed be described as a 'cold' war, Americans were still personally affected by the strained relationship between the United States and the Soviet Union for the threat of attack was ever-present during the conflict.¹⁰ The prospect of a nuclear war was cause for civil defense: measures by the American government to prepare the people to survive a nuclear

6 Melvyn P. Leffler, *For the Soul of Mankind* (New York: Hill and Wang, 2007): 353.

7 Thomas G. Goodnight, “Ronald Reagan's Re-Formulation of the Rhetoric of War: Analysis of the 'Zero Option,' 'Evil Empire,' and 'Star Wars' Addresses,” *Quarterly Journal of Speech* 72, no. 4 (1986), 401.

8 Jim Widlar, interview by Francisca Seele, e-mail, June 26, 2014.

9 Ibidem.

10 Bo Jacobs, “Atomic Kids: Duck and Cover and Atomic Alert Teach American Children How to Survive a Nuclear Attack,” *Film and History* 40, no. 1 (2010): 25.

attack.¹¹ Widlar refers to civil defense when he is asked whether the Cold War affected him in his daily routine or personal life. He states that he remembers the civil defense drills, and in particular the Duck and Cover drill when he was in school as a child.¹²

In addition to these factors, other events made a significant impact as well. The recent crash of flight MH-17 of Malaysian Airlines on July 17, 2014, prompted Widlar to expand on one of his earlier answers to the question on how he experienced the Cold War. In an email sent on July 22, 2014, Widlar writes: “This week the downing of MH-17 brings back the memories of the two Korean Air flights 902 & 007 that were downed by the Soviets.”¹³ In 1978, Korean Air lines flight 902 was forced to land after being shot by Soviet air defense for entering Soviet airspace, claiming two fatal victims. Korean Air Lines flight 007 was attacked by the Soviet Union in 1983 over the Sea of Japan causing the plane to crash, killing 269 people. The international tension that has now arisen as a result of the downing of flight MH-17 reminds Widlar of the tension that was present during the Cold War, and it is clear that these events have made a lasting impact on his perception of this period. Widlar ends his email stating that “It seems like we are seeing the start of Cold War II.”

Proud to serve his country, Widlar became a missile technician during the war.¹⁴ He was stationed at Francis E. Warren Air Force Base (F.E. Warren AFB) in Cheyenne, Wyoming, between June 27, 1961 and October 24, 1964. F.E. Warren AFB played a significant role in the nation's defense as it became home to various nuclear missiles beginning in the 1960s, among which the Intercontinental Ballistic Missile (ICBM) Atlas. Widlar was assigned to an Automatic Program Checkout Equipment (APCHE) crew with Launch Maintenance when he was deployed at this base. He describes his function as follows: “We performed periodic maintenance on every Atlas-D every 90-days. The duties also included loading and offloading missiles that arrived and departed by

11 Ibidem, 28.

12 Widlar, interview.

13 Ibidem.

14 Ibidem.

aircraft.”¹⁵ In addition to his tasks at F.E. Warren AFB, Widlar also assisted in the launch of four Atlas-D Missiles at Vandenberg Air Force Base near Lompoc, California.

On May 11, 1962, Widlar assisted in the launch of Atlas 127D at Vandenberg Air Force Base. This missile, with the codename “Cannonball Flyer,” was the first launch on which Widlar assisted as a mechanic. In an email sent on July 26, 2014, Widlar expands on this event: “Our launch was a success and the missiles test vehicle landed on the island of Eniwetok 4385 natural miles down range twenty seven minutes after launch from Vandenberg Air Force Base, California. It landed .5 nautical miles of the target.” Eniwetok Atoll, now know as Enewetak, is part of the Marshall Islands and was often used by the United States for various nuclear tests. Widlar points out that thirteen days after this successful launch, Mercury Astronaut Scott Carpenter from Boulder, Colorado, became the second man to orbit the Earth. He did so on an Atlas 107D missile.

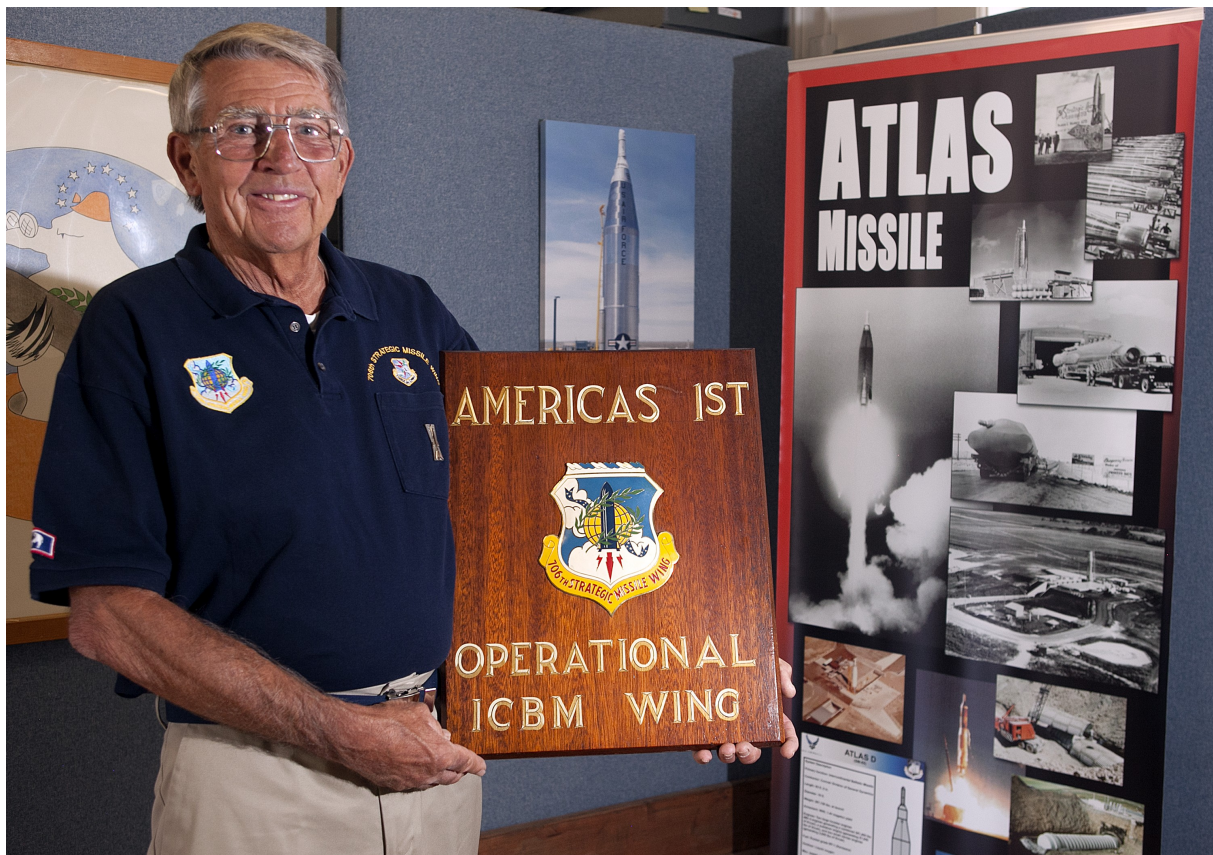
During his period at F.E. Warren AFB Widlar was also sent on temporary duty to Vandenberg Air Force Base to assist in the launch of Atlas 39 (58-2219) as a member of the launch maintenance crew. Unfortunately, this launch was not a success as he states that “the launch was a failure with a propellant leak and an explosion in the thrust section [with] the missile impacting the pacific 99 nautical miles down range.” Widlar extends on the difficulties of this weapon, as he describes the Atlas as a “high maintenance weapon system that contained 40.000 components and needed 250 pieces of support equipment for a launch.” Regardless of the failed launch and the missile's difficulties Widlar still keeps this missile in high regard: “Titan, Jupiter, Saturn, Peace Keeper, and Space Shuttle are gone but the Atlas was the first ICBM and is still flying after 600+ launches.”¹⁶ In addition, while they were not always successful, the missiles did fulfill their ultimate purpose successfully. Wildar emphasizes this in an email sent on July 25, 2014: “One other point we were

15 Ibidem.

16 Widlar, interview.

always reminded of was that the ICBM was the best weapon system ever developed because it achieved its goals as a deterrent without ever being used.”

Nuclear weapons played a significant role in the Cold War, but these weapons were not merely a tool for international politics. Nuclear weapons were a means for people to defend their lives and their country during a time in which these were threatened. The Cold War affected people on different levels and for a missileer such as Widlar, nuclear weapons were a livelihood while at the same time these missiles enabled him to fight for his country.



Atlas missile Mechanic Jim Widlar at Warren ICBM and Heritage Museum. Picture courtesy of Jim Widlar.

Introduction

The end of World War II and the coming of the Cold War are characterized by periods of rapid change in the United States government and military. Changes in the executive branch of the government were an effort to strengthen defenses as a reaction to the fundamentally changed strategic environment.¹⁷ The Second World War had left Europe in ruins, while power vacuums and decolonization led to instability in the world order. At the same time the United States' relationship with the Soviet Union changed from allies to adversaries. The two nations clashed over many factors, including the future of Europe, nuclear weapons, and ideology. As the relation turned hostile, the United States began to strengthen its defenses.

The development of nuclear weapons brought the world into the nuclear age, which meant that the United States had to adapt to changes in the conduct of war. The various branches of the military all incorporated nuclear weapons in their war strategies, and both the Navy and the Air Force developed missile programs.¹⁸ The Air Force had already started its missile program as early as 1945, and it aimed to create both short and long range missiles. In October that year the Air Force called upon aircraft contractors to develop such weapons, and contracts were handed out in early 1946.¹⁹ The development of long range missiles was plagued by financial, technological, and cultural difficulties. However, changes in the world caused for the long range missile programs to continue, in addition to a technological breakthrough due to the development of thermonuclear weapons.²⁰

The changes in the United States government had a significant impact on the Francis E.

17 Douglas T. Stuart, "Ministry of Fear: The 1947 National Security Act in Historical and Institutional Context," *International Studies Perspective* 4 (2003): 294; Charles A. Stevenson, "The Story Behind the National Security Act of 1947," *Military Review* 88, no. 3 (2008): 13.

18 Christopher Gainor, "The Atlas and the Air Force: Reassessing the Beginnings of America's First Intercontinental Ballistic Missile," *Technology and Culture* 54, no. 2 (2013): 349-355.

19 Ibidem, 350.

20 David N. Spires, *On Alert: An Operational History of the United States Air Force Intercontinental Ballistic Missile Program, 1945-2011* (Colorado Springs: Air Force Space Command United States Air Force, 2012), 6.

Warren Air Force Base (F.E. Warren AFB) in Cheyenne, Wyoming. As a result of the 1947 National Security Act jurisdiction of the base shifted from the Army into the newly formed Air Force. The base, then still called Fort Francis E. Warren, was renamed Francis E. Warren Air Force Base.²¹ A decade later, in 1957, it was announced that the Atlas missiles would be deployed to the base. The deployment of the ICBMs meant that the base shifted from Air Training Command to Strategic Air Command.²² These developments had a significant impact on the people of Cheyenne, for the prosperity of the town depended on the presence of the base. In the fall of 1960 F.E. Warren AFB became the first certified and operational ICBM unit in Strategic Air Command.²³ In 1965 the last Atlas missile was deactivated on the base, only to be replaced by the new Minuteman missiles.

Changes with regard to military policy at F.E. Warren AFB were not merely implemented from above, as there was a certain interplay between local forces and military planners. The base had been threatened with closure on several occasions in the past, but local government and the Chamber of Commerce made successful lobbying efforts to secure the continuation of the base.²⁴ The base was of significant economic importance for the Cheyenne area, and the deployment of nuclear weapons would serve as a guarantor for employment and economic prosperity.

The purpose of this thesis is to examine how the development of Atlas missiles by the United States Air Force and their deployment to Francis E. Warren Air Force Base portray the evolution of United States military policy between 1945 and 1965. The first chapter will examine the role that F.E. Warren AFB played in the nation's defenses, with a focus on nuclear weapons. The second chapter will analyze how two defining factors of the Cold War, namely nuclear weapons and the struggle between the United States and the Soviet Union, came to define the Cold War. The third

21 Stephen L. Holland, ed., *From Mules to Missiles: A History of Francis E. Warren Air Force Base and Its Predecessors Fort David A. Russel and Fort Francis E. Warren* (Cheyenne: Francis E. Warren AFB, 1987), 9-1.

22 Ibidem, 10-1.

23 Ibidem.

24 Gerald m. Adams, *Fort Francis E. Warren and the Quartermaster Corps in World War II, 1940-1946* (Cheyenne:Gerald M. Adams, 1994), 213.

chapter will focus on nuclear policy, examining both the incorporation of nuclear weapons into policy and the actual development of Atlas missiles. The findings of these chapters will be combined and discussed in the conclusion.

The developments in the United States military with regard to nuclear strategy have been the subject of research among various scholars. However, research has mainly focused on the separate aspects of these developments. David N. Spires, for example, has explored the history of the ICBM program in his book *On Alert: An Operational History of the United States Air Force Intercontinental Ballistic Missile Program, 1945-2011* (2012). While the author does mention changes in government policy, he does not expand on the rationale behind these changes. In *The Evolution of Nuclear Strategy* (2003), author Lawrence Freedman discusses the strategic aspects of nuclear warfare, but he does not go into detail on the implementation of these strategies. In this thesis, nuclear strategy and a historical overview on developments in the military will be combined to come to a greater and more complete understanding of the United States' attempt to adapt to the nuclear age. Using F.E. Warren AFB as a case study will exemplify the practical implications of changes in policy, while it will at the same time demonstrate the influence of local forces in policymaking. In addition, the research on F.E. Warren AFB will reveal the different levels on which people were affected by policymaking.

In order to research the developments in government and military policy, both primary and secondary sources will be examined. The primary sources for the chapter on F.E. Warren AFB will mainly consist of archival material from the American Heritage Center at the University of Wyoming. This archive has various documents that belonged to, among others, Wyoming Congressmen and Senators. In addition, newspapers that were published around the dates at which significant changes for the base occurred will be researched. Finally, source material from F.E. Warren AFB itself, such as photographs and historical overviews, will be analyzed as well. With

regard to changes in government and military policy, primary sources will consist of policy papers, such as those issued by the National Security Council. Secondary literature will mainly consist out of books and articles written on the various elements of this thesis. This paper will offer a new perspective on the evolution of nuclear policy for it will relate policy making at the federal level to the implementation of this policy at local level.

Chapter 1: Francis E. Warren Air Force Base

F.E. Warren AFB is the oldest continuously active military base in the United States, and in 1958 it became the nation's first ICBM base under Strategic Air Command, following to be the first operational ICBM base in 1960.²⁵ The base currently hosts the 90th Missile Wing, which is a unit of the Air Force Global Strike Command. The mission of this unit is to “defend America with the world's premier combat-ready ICBM force.”²⁶ The base is home to an arsenal of nuclear weapons, more specifically to 150 Minuteman III ICBMs. Through the deployment of these weapons, which started in the 1950s with the allocation of Atlas missiles, the base has been given the name “home of the missileer.”²⁷ The base holds pride in both its nuclear status and in the bond that has formed between the base and the nearby town of Cheyenne, Wyoming.²⁸ This chapter will explore the origins of this pride by examining the history of the base and the developments that have taken place with regard to the deployment of Atlas missiles to the base.

The purpose of this chapter is to examine how F.E. Warren AFB has played a role in the defense of the United States, with a focus on nuclear weapons. This subject will be analyzed on both a policy and a cultural level. The first section of this chapter will expand on the early history of the base. Through this research historical patterns regarding the status of the base will be revealed. The second section will focus on the base as it made its transition from the Army to the United States Air Force, and on the public reaction to these developments. The final section will expand on the rise and demise of the Atlas missile at F.E. Warren AFB. This chapter will show the relevance of F.E. Warren AFB, both for the nation and for the local population.

25 “90th Missile Wing Heritage,” PDF file, *F.E. Warren Air Force Base*, n.d., <http://www.warren.af.mil/shared/media/document/AFD-140415-065.pdf>, 3.

26 “Mission,” *F.E. Warren Air Force Base*, n.d., <http://www.warren.af.mil/main/welcome.asp>.

27 Ibidem.

28 Ibidem.

1.1: Historical Developments

F.E. Warren AFB in Cheyenne, Wyoming, has played a significant role in the defense of the United States ever since it was constructed in 1867. This paragraph will examine its history up to its transition into the United States Air Force.

1.1.1: Fort D.A. Russel

F.E. Warren AFB was established in 1867 as fort D.A. Russel. Ideas for the construction of this base originated in 1862, as President Lincoln and Congress “set forth plans for a military installation in the Wyoming territory to protect the Union Pacific Railroad from hostile Indians.”²⁹ Beginning in 1862, Lincoln and Congress signed a series of acts called the Pacific Railroad Acts, which ordered the construction of a railroad and telegraph line across the country.³⁰ A clause in the 1866 Pacific Railroad Act directed the construction of Fort D. A. Russel and the founding of the town of Cheyenne, which would become the capital of Wyoming.³¹ In 1867, General Granville M. Dodge, chief engineer of the Union Pacific Railroad, and General C.C. Augur, Commander of the Department of the Platte, selected the locations for the fort and the town. Construction began in the same year, and the military base was given the name Fort D.A. Russel, after a Civil War hero.³² It is clear that the military base and the town of Cheyenne have been connected to each other ever since they were founded.

The base's initial objective was to protect the construction and operation of the Union Pacific Railroad. In addition, troops were instructed to keep order in the newly founded town of Cheyenne

29 Francis E. Warren Air Force Base Cost and Management Analysis Branch, *Economic Resource Impact Statement* (Cheyenne: Francis E. Warren Air Force Base, 1985), 3; “History of F.E. Warren AFB,” *F.E. Warren Air Force Base*, last modified April 6, 2010, <http://www.warren.af.mil/library/factsheets/factsheet.asp?id=4464>.

30 “Pacific Railroad Acts,” *Central Pacific Railroad Photographic History Museum*, last modified September 24, 2009, http://cpr.org/Museum/Pacific_Railroad_Acts.html.

31 Holland, 5-1.

32 Holland, 5-2.

and to provide “troops and supplies for the Indian Wars campaigns and other forts in the region,” although the Indian Treaty of 1865 had already removed part of the threat in the area.³³ The main adversaries of the base at that time were thus unruly townsmen and hostile Native Americans.³⁴ First Lieutenant John Bradshaw expands on the first instance in which Cheyenne indeed asked the base for aid, as he states that the fort had to rid the town of a group of “gamblers, saloon girls, saloon keepers, and gunslingers who were dead set on taking advantage of the railroad workers.”³⁵ In 1876 the fort first became involved in combat, as it played a part in the Sioux War against, among others, Sitting Bull and Crazy Horse.³⁶

The objectives of the base shifted in subsequent years. During the Spanish-American War, which started in 1898, units from Fort D.A. Russel took part in the invasion of Cuba. In addition, troops were sent to the Philippines, “initially to fight the Spanish and later to fight the native insurgency.”³⁷ From this conflict, the troops took back a Queen Mary Tudor cannon and two church bells, called the Bells of Balangiga. These bells are displayed at the base, although they have been reason for dispute between Philippine Catholics and the United States government as the former claims rightful ownership over these 'trophies of war.'³⁸

In the period that followed the base became involved with other conflicts as well. For example, in 1913 troops were sent out to defend the American border in Texas from hostile Mexicans. Then, during the First World War, the number of troop at the base grew substantially as the United States declared war on Germany in 1917. People in Wyoming, as well as Wyoming legislature, were quite in favor of the war, and many men enlisted.³⁹ While supporting the United

33 Brett Boyce et al., “Wyoming Military Historic Context, 1920-1989,” PDF file, *Wyoming State Historic Preservation Office*, October 8, 2009, <http://wyoshpo.state.wy.us/pdf/MilitaryContext.pdf>, 226.

34 Boyce et al., 12.

35 Holland, 6-1.

36 Ibidem; Boyce et al., 33.

37 Boyce et al., 13.

38 Leonardo Y. Medroso, “The Bells of Balangiga: An Appeal for Support,” *Diocese of Borongan*, n.d., http://www.cbcponline.net/borongon/html/balangiga_bells.html.; “History of F.E. Warren AFB.”

39 Holland, 7-2; Boyce et al., 14.

States' interference in world affairs during the Second World War, people in the state of Wyoming preferred isolationism as the war came to an end.⁴⁰ The period after this war went by fairly uneventful, apart from the change in name of the base.

1.1.2: Fort D.A. Russel Becomes Fort F.E. Warren

Wyoming Senator Francis Emroy Warren held a large responsibility for the prosperity of the fort. Francis E. Warren was a politician and a war hero who received the congressional medal of honor for his participation in the Civil War.⁴¹ Warren has a long standing history of contributing his efforts in service of the state, beginning as the city mayor on the Cheyenne City Council. In 1890, as Wyoming joined the Union, Warren became the state's first Governor. The Republican was able to trade this position for that of Senator the same year.⁴² In 1905, Warren became Chairman of the Senate Military Affairs Committee, a position that gave him a substantial amount of power. In addition, Warren had important connections, and he was able to consider President Theodore Roosevelt a friend.⁴³ From 1890 until his death in 1929, Warren was able to use his position and his connections to favor Fort D.A. Russel. As Boyce et al. state: "He became a Chairman of the Senate Military Affairs Committee, favored a large standing Army, and worked diligently to have as many troops as possible stationed in Wyoming."⁴⁴ Periods after war in the United States are often characterized by trends of reorganizing and downsizing the military, this was also the case after the Spanish-American War and the Second World War. However, while the military was downsizing after the Spanish-American War, Warren was able to get the fort to be declared as a permanent base. The fort was even able to expand its troops and facilities as a result of Warren's efforts.⁴⁵ Warren had

40 Ibidem.

41 "Senate History: 1921-1940," *United States Senate*, n.d., http://www.senate.gov/artandhistory/history/minute/Last_Union_Vet.htm.

42 Holland, 7-5.

43 Ibidem; Boyce et al., 12.

44 Boyce et al., 11.

45 Ibidem, 13; Holland, 7-5.

proved to have been of huge influence on the prosperity of the fort, and he was able to save the fort from closing on several occasions until his death in 1929. In 1930, by presidential decree, the name of the fort was changed from Fort D.A. Russel to Fort Francis E. Warren.⁴⁶

While the interwar period was a stable time for the fort, the start of the Second World War brought a period of change. As the war began, Congress passed a law that would increase American defense forces. In line with this law, Fort Francis E. Warren was converted into a Quartermaster Corps Training Center.⁴⁷ The fort doubled in size as a result of the transformation, which was accompanied by a multi-million dollar investment.⁴⁸ The investment was well welcomed by the people of Cheyenne. Holland argues that “Chambers of Commerce, businessmen, the Commerce and Industry Department, City Mayors, and the states' political leaders sought to secure the establishment of military installations in order to give work to building craftsmen. Expansion of Fort Francis E. Warren was the principal fruit of this quest.”⁴⁹ Their quest succeeded, as the investments transformed Cheyenne into a “wartime boomtown.”⁵⁰ During and shortly after the war the fort was given an additional function, as it became a Prisoner of War camp that housed German and Italian soldiers. This camp was eventually deactivated on April 27, 1946.⁵¹

1.1.3: Francis E. Warren Air Force Base

Fort Francis E. Warren faced an uncertain future after World War II as the military was downsizing. Colonel Gerald M. Adams explains this in his 1989 book *The Post Near Cheyenne: A History of Fort D.A. Russel, 1867-1930*: “The uncertain future of Fort Francis E. Warren continued through 1946 and well into 1947. The army was being reduced to a fraction of its wartime size; and some of

46 Holland, 7-5.

47 Ibidem, 8-1.

48 Boyce et al., 17.

49 Holland, 8-1.

50 Ibidem.

51 Boyce et al., 68; Holland 8-1.

the oldest and most established posts were being deactivated.”⁵² The people of Cheyenne were worried for the future of the fort, as the town depended on the military presence for its economic prosperity. Boyce et al. confirm this, as they describe that this reasoning was able to keep the fort open when a case of rheumatic fever threatened its existence: “Congressional representatives and military policymakers decided to keep the base open on account of the economic consequences that the base's closing would have on the local economy.”⁵³ It is clear that the fort played a significant role in the prosperity of Cheyenne, and closing of the fort would be a blow to Cheyenne's economy and the prosperity of the state of Wyoming.

Various changes in policy in 1947 and 1948 seemed to secure the continuation of the fort, but closure still remained a viable option. In 1947 it became clear that an Aviation Engineering School would be located at the base.⁵⁴ In the same year it was announced that the fort would be transferred from the jurisdiction of the Army to the newly founded United States Air Force as a result of the National Security Act of 1947.⁵⁵ However, the Air Force was not immediately convinced of the value of the fort and plans were made to either transfer the fort back to the Army or to close the fort. As a reaction, and in accordance with the fort's relation with the town of Cheyenne, “the Cheyenne Chamber of Commerce even went so far as to send seven representatives to Washington on a lobbying mission to keep the fort open and 'fight for the fort.’”⁵⁶ In addition to the Chamber of Commerce, a Wyoming congressional delegation made efforts as well to convince policymakers to ensure continuation of the fort.⁵⁷ At the same time, the strategic international environment was changing as the relation between the United States and its former ally the Soviet

52 Gerald M. Adams, *The Post Near Cheyenne: A History of Fort D.A. Russel, 1867-1930* (Cheyenne: High Flyer Publications, 1989), 212.

53 Boyce et al., 99.

54 Holland, 9-1.

55 Adams, 212.

56 Boyce et al., 99.

57 Adams, 213.

Union turned hostile. More specifically, the Berlin Crisis of 1948 played an instrumental role in these developments as this event prompted the Air Force to expand its forces to counter the threat that the Soviet Union posed.⁵⁸ President Truman visited Cheyenne and the fort on June 6, 1948, and soon after this visit it was announced that the fort would remain open. In the same month the Aviation Engineering School was officially placed under Air Training Command. Holland states that “by this official recognition of operation, the continuation of the base as an Air Force installation was assured.”⁵⁹ As a result of the efforts made by the Cheyenne Chamber of Commerce and the Wyoming congressional delegation, combined with the evolving international environment, the future of the fort again seemed secured. Now a part of the United States Air Force, the fort was renamed Francis E. Warren Air Force Base.

The period between 1948 and 1957 went by fairly uneventful for F.E. Warren AFB. In the years that followed the transfer from the Army to the Air Force, the base saw relatively little action. New housing units were built, which benefited the local economy. The base provided logistic support to the Korean War efforts and it operated in various non-military activities as well, such as aid relief after a blizzard. At the same time the base kept its function as a technical training school, and it facilitated the training of various foreign allied personnel as well.⁶⁰

1.2: Home of the Missileer

F.E. Warren AFB became the first Intercontinental Ballistic Missile base in the late 1950s, a development that was welcomed by the people of Cheyenne. The purpose of this section is to explore these development on both a cultural and a policy level.

58 Ibidem.

59 Holland, 9-2.

60 Ibidem.

1.2.1: Small Scale Military Industrial Complex

In November 1957 it was announced that F.E. Warren AFB was selected to become a nuclear missile site that would host the Atlas ICBM, and a period of relative calm made place for a period of change. The news first arrived to the public on November 22, 1957, as the newspaper “the Wyoming Star Tribune reported that Francis E. Warren Air Force Base would become an Atlas ICBM missile headquarters under the Strategic Air Command with missile launch sites to be constructed in the surrounding countryside.”⁶¹ This decision would be accompanied by a multi-million dollar investment in the base; an investment that was gladly welcomed by the people of Cheyenne. Not only would this development mean prosperity for the town, the continuation of the base was again reassured. The newspaper the Wyoming State Tribune expanded on these developments in a November 22, 1957, article called “Atlas First Rocket on U.S. ICBM Development Program.”⁶² The writer of the article, Stanley J. Shustar, states that “Cheyenne will be the site of a \$65.000.000 Intercontinental Ballistic Missile base.”⁶³ However, Shustar writes that it was only assumed that the Atlas was the missile that would be deployed to Wyoming. In addition, he points out that, at that moment, the United States had not fully developed an ICBM and that all test flights had failed so far.⁶⁴

An article in New York Mirror Magazine from June 29, 1958, was able to expand further on the matter. In this article, which is called “Missile-Slinging Cheyenne!,” author James H. Winchester focuses on the economic benefits for Cheyenne as well, stating that Strategic Air Command was going to invest around \$100.000.000 in the base.⁶⁵ He further lays down the

61 Adams, 219.

62 Newspaper Article, Atlas First Rocket on U.S. ICBM Development Program, November 25, 1957, box 28, folder 10, coll. 00631, Frank A. Barrett Papers, American Heritage Center, University of Wyoming.

63 Ibidem.

64 Ibidem.

65 Newspaper Article, Missile-Slinging Cheyenne!, June 28, 1958, box 28, folder 10, coll. 00631, Frank A. Barrett Papers, American Heritage Center, University of Wyoming.

economic benefits for the town, stating that “the economic impact on the area will be tremendous.”⁶⁶ Winchester cites an industrial consultant to the Cheyenne Chamber of Commerce who estimated that, during construction, the population would increase by 20,000 people who would bring additional revenue to the town through their spendings. The economic benefits were also expected to continue after construction: “When the units become operational, it will take nearly 5,000 missilemen and civilian technicians to run them, representing better than a \$15,000,000-a-year payroll alone.”⁶⁷ In addition, Winchester cites various townspeople and political figures – such as Senator Frank A. Barrett, Mayor of Cheyenne Worth Story, a housewife, and a secretary – who all emphasized the business opportunities that would come along with the missiles.

Winchester identifies three reasons why the base near Cheyenne was selected to host nuclear missiles, and all these reasons concerned the location of F.E. Warren AFB. The first reason had to do with the town's elevation, and the author argues that the 6,000 foot, or around 1.8 kilometers, elevation of the town was beneficial for the launch of ICBMs. As the Atlas missile was a ballistic missile as opposed to a guided cruise missile, the rocket was unable to change course after launch and its course was thus determined by mere physics. Winchester explains how the position of the base was favorable for such a launch: “Any missile launched from Cheyenne has a mile-high advantage to start – for the lower atmosphere where the air is thickest usually makes the strongest drag on a missile.”⁶⁸ The second reason the author identifies was the setting of the base. He states that there was plentiful space for the construction of new launch sites, while the existing facilities would allow for SAC to save approximately \$20,000,000 on construction. The third reason concerned the course of the missile: “The third major consideration in Cheyenne's selection is the fact that missiles when fired toward the north – where they will all be aimed – will have little danger

66 Ibidem.

67 Ibidem.

68 Ibidem.

of interfering with anything in the skies en route as they make their initial climb to higher altitudes. There's practically nothing between Cheyenne and the North Pole but barren space.”⁶⁹

Cold War culture and perceptions are present in the article as the author clearly defines the purpose of such weapons and the reaction of the public to the deployment of ICBMs to F.E. Warren AFB. For example, Winchester outlines the course that such weapons would follow: “Screaming through the fringes of outer space, at better than 15,000 m.p.h., they can drop their thermonuclear nose cones on Moscow, or anywhere else in Russia for that matter, with pinpoint accuracy, only thirty minutes later.”⁷⁰ The article is accompanied by an animation that shows a missile being launched from Cheyenne on course to the Soviet Union with an arrow pointing towards Moscow. While the author acknowledges the Soviet Union as the enemy, and as he points out the danger that this enemy now will pose to Cheyenne as a result of the deployment of missiles, he writes that the people of Cheyenne did not feel threatened in their safety. Winchester states this as follows: “Most people in Cheyenne are aware that the new missile installation almost automatically makes them a 'primary target' in case of war. The common reaction to that, however, is 'Well, what area isn't these days?’”⁷¹ Indeed, the majority of the townspeople that the author cites in his article stated that they do not feel worried, and one even felt that the Air Force will protect the town if it would indeed be a primary target. Only a high school sophomore, Gail Owens, admitted that she is worried about a possible attack. Another article in the Wyoming State Tribune from June 9, 1958, called “Atlas Base Cited As Key Factor in Missile Defense” did mention a protester at the groundbreaking ceremony two days earlier.⁷² Boyce et al. even states that there was “a handful of local protesters” at this groundbreaking ceremony, but it is clear that the majority of the people seemed to ignore the danger

69 Ibidem.

70 Ibidem.

71 Ibidem.

72 Newspaper Article, Atlas Base Cited As Key Factor in Missile Defense, June 9, 1958, box 28, folder 10, coll. 00631, Frank A. Barrett Papers, American Heritage Center, University of Wyoming.

and instead celebrated the economic benefits.⁷³

1.2.2: Policymakers and Leaders

The timing of the decision to deploy ICBMs to F.E. Warren AFB is remarkable, for it seems to have been a reaction to the developing missile gap between the United States and the Soviet Union in which the latter was gaining the upper hand. On October 4, 1957, the Soviet Union launched the satellite Sputnik into space with the use of an ICBM as its delivery vehicle. At that time the United States had not been able to launch an ICBM itself, and the country feared a Soviet lead in technology.⁷⁴ On November 7, 1957, the Science Advisory Committee of the Office of Defense Mobilization presented a report to the National Security Council in which the Committee warns for a technological advantage for the Soviet Union. This report, which was unofficially named the Gaither Report after its chairman Horace Rowan Gaither, called for the development and deployment of ICBMs in order to win a coming arms race against the Soviet Union.⁷⁵ As the decision to deploy nuclear weapons to F.E. Warren AFB was announced two weeks after the presentation of the Gaither Report and around seven weeks after the launch of the Sputnik, it seems as though the deployment of these weapons was in direct response to these events. Adams even connects these events in his book in a manner which implies causality.⁷⁶ This is partly true, as the deployment was approved by the Eisenhower administration on November 22, 1957.⁷⁷ However, the Department of Defense had already made this decision as early as May, 1957.⁷⁸

Construction of the nuclear missile launch sites began in April 1958 and was met with enthusiasm from leading figures in the state and in the military. Such leading figures form a

73 Boyce et al., 109.

74 John Lamberton Harper, *The Cold War* (Oxford: Oxford University Press, 2011): 113.

75 Freedman, 151.

76 Adams, 219.

77 Boyce et al., 108.

78 Holland, 10-1.

showcase of how the development of ICBMs affected the nation on different levels. For example, on June 7, 1958, Wyoming Senator Frank A. Barrett and Chairman of the Joint Chiefs of Staff General Nathan F. Twining were both present at the official groundbreaking ceremony of the construction of the base. In his speech at the ceremony, Barrett mainly focuses on the base itself. The Senator has nothing but praise for both the military installation and the state itself:

The human mind is unable to fully comprehend the magnitude of the project that we are dedicating here today. This beautiful valley at the foot of those majestic mountains has been the scene of many historic events in the building of our western empire. (...) No one would have dreamed, even a few short years back, that we would be spending tremendous sums of money to build a site for that massive vehicle of the skies – the mighty Atlas.⁷⁹

The Senator further expands on the destructiveness of the weapon, while also emphasizing its contribution to peace. General Twining discusses the deployment of nuclear missiles in more general terms. While shortly addressing F.E. Warren AFB, he chooses to focus on the struggle against communism and the battle between the Soviet Union and the Free World:

As far as we can determine, international communism remains dedicated to achieving its goal of world domination. The military, economic and scientific strength of the Soviet Bloc has in fact increased to the point where international communism is now supported by the power capable of achieving control of the world unless the Free World continues to maintain a strong, modern defensive strength.⁸⁰

Twining pushes for strong defense and he expands on both a military and a ideological battle between the two superpowers. The different approaches of Barrett and Twining portray the different levels at which the Atlas made an impact on the American people. Barrett views the developments from a local perspective as he emphasizes the benefits for the state of Wyoming. From a different

79 Speech, Senator Frank A. Barret's remarks at the ground-breaking ceremony at F.E. Warren AFB, 1:30 p.m., June 7, 1958, box 28, folder 9, Coll. 00631, Frank A. Barrett Papers, American Heritage Center, University of Wyoming.

80 Speech, Address by General Nathan F. Twining Chairman of the Joint Chiefs of Staff Before the Chamber of Commerce, June 7, 1958, box 28, folder 9, Coll. 00631, Frank A. Barrett Papers, American Heritage Center, University of Wyoming.

viewpoint, Twining sees the developments as beneficial for the strategic position of the United States. Both men portray a significant role that the Atlas played in the Cold War.

1.3: Work and Weapons

The initial joy over the construction brought to Cheyenne by the arrival of nuclear weapons soon made way for disappointment as economic benefits for the town initially did not meet expectations. However, the townspeople would soon embrace the base's new mission. The objective of this section is to expose the changes that the arrival of nuclear weapons made to F.E. Warren AFB and to Cheyenne.

1.3.1: Initial Setbacks

The deployment of Atlas missiles was announced as a decision that would be beneficial to the town and the people of Cheyenne. However, once construction was under way it became apparent that this development was not merely positive. While the missiles were to attract new employees, a significant part of the existing civilian personnel at the base was laid off. In addition, there was an initial loss in population as more people seemed to leave the base than the amount that would come for the missiles. In a letter to Senator Gale McGee on February 24, 1959, over a hundred townspeople complain about the layoffs and the negative effect that the coming of the missile base has on the prosperity of the town. The signatories of the letter especially protest the negative effect of the relocation of the technical training school at the base:

Senator Barrett, at the time, now Mr. Barrett, told us what a great blessing the new missile base would be for the city; how so many more people would be moving to town. The Chamber of Commerce agreed with him. We were not to notice the loss of the schools as they moved from the base. The schools did move, eight to ten thousand military men. These were followed by hundreds of families of civilians. We were told that these would shortly be replaced. But what happened? What is happening? Very few military have come in. (...) The

situation is desperate. There are 1100 to 1200 vacant living places in Cheyenne. (...) There are dozens of store buildings empty.⁸¹

Senator McGee took the letter serious and brought the issue under the attention of Major General of the United States Air Force Director of Legislative Liaison W.P Fisher. Fisher acknowledges the issue in a letter back to McGee, but he does not offer a solution as he seems to view the problems as collateral damage as a result of the change in the mission of the base.⁸² Fisher states that it is the intention of the Air Force to minimize the impact of such a mission change on the nearby communities, but he does stress the importance for the Air Force to “maintain the best possible defense posture and hold expenditures to the minimum acceptable levels.”⁸³ With this letter, the difference between national and local interests is again made clear.

The construction of missile sites at F.E. Warren AFB did not only cause issues for the people of Cheyenne as the base itself faced difficulties as well. The housing situation took a remarkable turn in the latter half of 1958 as the empty homes made place for a housing shortage for construction personnel from Consolidated Vultee (Convair), the contractor of the Atlas. This contradiction can be explained through the time period for which these houses would be occupied; construction personnel and their families would stay for a limited period of time and not all houses were suited for such an arrangement.⁸⁴ The base was plagued by more setbacks and various other issues caused a delay in the construction in 1959 and 1960. Boyce et al. expand on this: “A variety of factors impeded the progress, including the remote locations of the missile sites, the novelty of the construction plans, the inexperience of the construction personnel, and constant modifications to the

81 Letter, Henry Johnson et al. to Senator Gale McGee, February 24, 1958, box 2, folder 3, coll. 09800, Gale McGee papers, American Heritage Center, University of Wyoming.

82 Letter, Major General W.P. Fisher to Senator Gale McGee, April 2, 1958, box 2, file 3, coll. 09800, Gale McGee papers, American Heritage Center, University of Wyoming.

83 Ibidem.

84 Letter, George A. Calvart to Colonel Friederic, August 4, 1959, box 2, folder 3, coll. 09800, Gale McGee papers, American Heritage Center, University of Wyoming.

construction documents.”⁸⁵ The authors also touch upon various issues with the workers, the contractors, and the companies that were involved. Eventually the first launch site, Warren I, opened in the fall of 1960, six months later than planned.⁸⁶ It is clear that the great expectations were not always met in this project.

1.3.2: The Atlas Arrives

After extensive testing at Cape Canaveral, Florida, and Vandenberg Air Force Base, California, the first Atlas-D missiles started arriving at F.E. Warren AFB in the fall of 1959.⁸⁷ Boyce et al. view this development as a pivot point in the history of the base: “The missiles' arrival symbolized a new era of space-age technology and its distance from the installation's origins as a horse cavalry Army fort of the nineteenth century.”⁸⁸ Over the course of the next two years a total of 24 Atlas-D and -E missiles were deployed to Cheyenne, first by trailer convoy over the road, later by airplane as well. These weapons first became operational in 1960 when the launch facilities were finished and the 546th Strategic Missile Squadron “was certified as the first operational ICBM unit in the Strategic Air Command.”⁸⁹

The United States had not fired any nuclear weapons in a conflict after World War II, but nuclear weapons did fulfill a duty. The missiles at F.E. Warren AFB played a significant role in the Cuban Missile Crisis as these weapons were made ready for launch during the conflict: “The 389th Strategic Missile Wing was placed in an increased state of readiness due to the Cuban crisis on 21 November 1962. All missiles were placed in launch ready status.”⁹⁰ On May 21, 2014, a report on

85 Boyce et al., 112.

86 Ibidem.

87 Boyce et al., 110; Holland, 10-1; Adams, 220.

88 Boyce et al., 110.

89 Holland, 10-1.

90 Holland, 10-2.

the operational aspects of the Cuban Missile Crisis at F.E. Warren AFB from 1962 was declassified.⁹¹ The report concludes that the operation went by successful: “During November 1962, the Cuban Crisis posed no problems which affected the carrying out of our mission of keeping 24 Atlas D and E missiles in the 'green' at 13 sites located within a 70 mile radius of Warren AFB, Wyoming in Colorado, Nebraska and Wyoming.”⁹² The report further notes all the regular operations and regulations that were discontinued because of the crisis. For example, training programs and exercises were canceled.⁹³ The report also comes with recommendations as a result of the experience with the Cuban Missile Crisis, such as that it proved to be unnecessary “to hold maintenance personnel on the job 24 hours a day.”⁹⁴ As a positive remark, the report states that morale of personnel was good during the crisis. Although the report does not address the Cuban Missile Crisis apart from how it affected F.E. Warren AFB in an operational manner, it is evident that the base contributed to one of the most significant events of the Cold War.

The Atlas missile began to lose its prominence as the Minuteman missile began to rise. When this process was set in motion the leading figures in Wyoming and Cheyenne, Senators McGee and J.J. Hickey, and Mayor Story, all began with their lobbying efforts to bring the Minuteman to F.E. Warren AFB. These men made these efforts in order to attract economic prosperity and guarantee the continuation of the base, efforts that have been made at many occasions during the history of the base. Both McGee, Hickey, and Story wrote letters to United States Secretary of the Air Force Eugene M. Zuckert in which they emphasize the suitability of F.E. Warren AFB and the people of Cheyenne with the Minuteman missile.⁹⁵ Such efforts again reveal a

91 “Cuban Crisis Report,” PDF file, *Air Force Historical Research Agency*, no date, courtesy of Jim Widlar.

92 *Ibidem*, 1.

93 *Ibidem*, 2-3.

94 *Ibidem*, 5.

95 Letter, Mayor Worth Story to United States Secretary of the Air Force Eugene M. Zuckert, March 27, 1961, box 31, folder 3, coll. 09800, Gale McGee papers, American Heritage Center, University of Wyoming; Letter, Senator Gale McGee and Senator J.J. Hickey to United States Secretary of the Air Force Eugene M. Zuckert, May 12, 1961, box 31, folder 3, coll. 09800, Gale McGee papers, American Heritage Center, University of Wyoming.

pattern that continues to repeat itself over the history of F.E. Warren AFB. The Minuteman was indeed deployed to F.E. Warren AFB and the last Atlas missile was deactivated in 1965.



Atlas missile 34D (58-2205), F.E. Warren's first operational ICBM, arrives in Wyoming per trailer convoy, n.d. Note that the sign on the right states: "Cheyenne Wyoming. Home of the Cheyenne Frontier Days, and the Atlas ICBM." Picture courtesy of Jim Widlar.



An Atlas missile is loaded onto a United States Air Force Aircraft, n.d. Picture courtesy of Warren ICBM and Heritage Museum.

1.4: Conclusion

F.E. Warren AFB has been through a continuous pattern since its founding in 1887 as Fort D.A. Russel. Continuation of the base was assured as long as its strength was required in periods of war and conflict. However, the existence of the base became threatened in times when its strength was less needed. This was generally the case in periods after wars in which less need for defense resulted in budget cuts and a downsizing military. F.E. Warren AFB has been threatened with such peacetime measures on various occasions, such as after the Spanish-American War, World War I, and World War II. Throughout its existence the base has been able to fight against such measures, and this fight was often fought through the continuous efforts of Senators, mayors, businessmen, and townspeople who relied on the base for economic prosperity.

This continuous pattern was clearly present when it was announced that Atlas missiles would be deployed to the base. This decision would lead to investments in the base, as well as economic benefits for Cheyenne. In addition, the shift from a technical training facility to a nuclear missile base would act as a guarantor for the continuation of the base. However, differences between local and national interests were revealed when the economic benefits for the town initially appeared to be less than expected and military leaders were not concerned with these issues. This underlines the different manners in which Atlas missiles affected people. In the end, the people of Cheyenne and their leaders were mainly interested in economic stability and gain. While it is made clear that these people were proud to host the Atlas missile, they were more than ready to move on to the Minuteman for this missile would bring new construction to the base and the town, leading to economic benefit. The base has continuously been a valuable asset in the nation's defense, but even a valuable asset has no permanent guarantee for survival. The next chapters will place these developments in a broader context by looking at the changing strategic environment and the

evolution of nuclear policy and nuclear missiles. The focus will shift from local interests to national interests.

Chapter 2: Elements of the Cold War

The Cold War has been a defining period in the history of international relations. For over forty years, the ideological and strategic struggle between the United States and the Soviet Union has been on the forefront of the international environment. The Cold War has left its mark on current international politics to the extent that various scholars are now beginning to question whether there might be coming a new Cold War.⁹⁶ Some scholars even wonder whether the Cold War ever actually ended as the two countries still clash over conflicting interests and as tensions are still high.⁹⁷ This chapter will go back to the beginning of the Cold War to research how two instrumental elements of this period of time took shape; namely nuclear weapons and the clash between the United States and the Soviet Union.

The aim of this chapter is to examine how nuclear weapons and divisions between the United States and Soviet Union became instrumental in the formation of the Cold War. The first section of this chapter will examine the purpose of nuclear weapons during and following World War II. Examining this purpose will reveal how nuclear weapons began to play a role in the Cold War. The second section will focus on the postwar world order in order to show the formation of the opposing sides in the Cold War. This chapter aims to outline the backdrop against which nuclear weapons were developed and policy was created.

2.1: The Purpose of Nuclear Weapons

As nuclear weapons were developed, scholars and policymakers started to examine the role that these weapons could and should play in military policy. This section will focus on the development of strategy with regard to the purpose of nuclear weapons.

96 Michael G. Roskin, "The New Cold War," *Parameters*, 44, no. 1 (2014): 5;

97 Greg Clary, "The Cold War Is Over, Right?," *CNN Politics*, last modified February 23, 2014, <http://politicsticker.blogs.cnn.com/2014/02/23/the-cold-war-is-over-right/>.

2.1.1: World War II

The United States began the development of nuclear weapons during the Second World War. Scientists had explored the process of fission in the lead up to the war, and it became apparent that this technology could be exploited in order to create an explosion.⁹⁸ The United States feared that Germany would use the technology to develop a nuclear weapon, and as a response the country started its own weapon program.⁹⁹ In collaboration with the United Kingdom, the United States commissioned the Manhattan Project: a 2 billion dollar “secret effort to build an atomic bomb.”¹⁰⁰ In 1942 this project succeeded in creating the first sustained nuclear chain reaction, and in 1945 a nuclear weapon with the codename Trinity was successfully tested in New Mexico.¹⁰¹

The exact purpose of the nuclear weapon was not clear at the time of its development. Henry Stimson, who was Secretary of War between 1940 and 1945, confirms this in his memoirs:

It was our common objective, throughout the war, to be the first to produce an atomic weapon and use it. The possible atomic weapon was considered to be a new and tremendously powerful explosive, as legitimate as any other of the deadly explosive weapons of modern war. (...) The exact circumstances in which that weapon might be used were unknown to any of us until the middle of 1945.¹⁰²

When 1945 came, and tests demonstrated the magnitude and destructiveness of the weapon, United States' leaders felt they had a trump card in their hands.¹⁰³ However, strategies concerning waging a nuclear war were not yet extensively researched. Freedman argues that “the eventual strategic use of the bomb was determined by the conditions prevailing at the time at which the bomb first became

98 Lawrence Freedman, *The Evolution of Nuclear Strategy* (Basingstoke: Palgrave Macmillan, 2003):14.

99 Ibidem, 14; Mary Beth Norton, *A People and a Nation* (Boston: Wadsworth Cengage Learning, 2012): 743.

100 Norton, 743.

101 Freedman, 15; Norton, 743.

102 Henry L. Stimson and George McBundy, *On Active Service in Peace and War* (New York: Harper, 1948), 613.

103 Harper, 53.

available.”¹⁰⁴

When the weapon indeed became available, the conditions were such that the United States decided that it had to be used to bring a swift end to the Second World War.¹⁰⁵ President Truman employed the weapon to both use and show its power. On August 6, 1945, the first nuclear weapon to be used in combat was dropped on the Japanese city of Hiroshima, and a second bomb was employed to destroy Nagasaki on August 9. On August 15, Japan surrendered to the Allied Forces. While there is debate on whether these attacks actually caused the end of the war, it became clear that nuclear weapons possessed both military and psychological power.¹⁰⁶

2.1.2: Deterrence¹⁰⁷

The concept of deterrence was one of the first strategies to be developed with regard to the use of nuclear weapons. With nuclear deterrence, threat of the use of nuclear weapons is used to deter the adversary from performing a given action. Quinlan explains it as follows: “The power of nuclear weapons conferred a uniquely enormous ability to display the prospect of disadvantage.”¹⁰⁸

However, whether this strategy works depends on a set of assumptions and requirements, among which the elements of credibility and rationality. The holder of nuclear weapons must have the will to use them if necessary in order to make a credible threat.¹⁰⁹ In addition, this threat will only work if the adversary is rational, for this adversary must want to avoid the destruction of its country or territory.¹¹⁰

The first scholar who explored the concept of deterrence in the context of nuclear weapons

104 Freedman, 16.

105 Michael Quinlan, *Thinking About Nuclear Weapons: Principles, Problems, Prospects* (Oxford: Oxford University Press, 2009), 6.

106 Quinlan, 6; Norton, 760.

107 Note: this section has similarities with an earlier research paper. Francisca Seele, “The Relevance of Nuclear Deterrence,” Unpublished paper (University of Wyoming, 2014).

108 Quinlan, 21.

109 Quinlan, 23.

110 Fred Charles Iklé, “Can Nuclear Deterrence Last Out the Century?” *Foreign Affairs* 51, no. 2 (1973): 269.

was Bernard Brodie. In his 1946 book *The Absolute Weapon: Atomic Power and World Order*, Brodie states that “Thus far the chief purpose of our military establishment has been to win wars. From now on its purpose must be to avert them. It can have almost no other useful purpose.”¹¹¹ The author argues that nuclear weapons should not be launched in war; rather, they should be used as a threat to prevent war from happening. At the time of writing the United States was the only actor with a nuclear capability, and deterrence initially was thus intended as a means to deter conventional weapons. Deterrence would continue to have this intention, and the proliferation of nuclear weapons would only extend this concept to cover the prevention of nuclear war as well.¹¹²

The Soviet Union gained a nuclear capability in 1949, causing for the United States to lose its monopoly on nuclear weapons. As a result, the United States was now itself vulnerable for attack. RAND researcher Albert Wohlstetter addresses this vulnerability in his 1959 article “The Delicate Balance of Terror.”¹¹³ With this article, Wohlstetter exposes the difficulty of implementing the policy of deterrence. He argues that deterrence is not automatic, and it requires effort to deter a war.¹¹⁴ In order to have a working deterrence a focus must be on retaliation: “To deter an attack means to be able to strike back in spite of it.”¹¹⁵ Wohlstetter addresses the issue of rationality in his article, and he argues that this indeed is a fundamental condition of deterrence. With regard to the then present conflict, the author believes that the Soviet Union is rational.¹¹⁶ This assumption would later be questioned, and it would grow out to be a significant point of criticism of deterrence.

In his 1979 article “Deterrence Theory Revisited,” Robert Jervis identifies three waves of thinking about nuclear strategy, each corresponding to a particular time period in history.¹¹⁷ The first

111 Bernard Brodie, *The Absolute Weapon: Atomic Power and World Order* (San Diego: Harcourt Brace Jovanovich, 1946), 76.

112 Quinlan, 21.

113 Albert Wohlstetter, “The Delicate Balance of Terror,” *Foreign Affairs* 37 (1959).

114 Ibidem, 212-2.

115 Ibidem, 213.

116 Ibidem, 231.

117 Robert Jervis, “Deterrence Theory Revisited,” *World Politics* 31, no. 2 (1979): 289-291.

two of these waves occurred in the time period that is central in this paper, namely 1945-1965, and Brodie and Wohlstetter each represent one of these waves. The first wave occurred in the early years of the nuclear era, the 1940s. Brodie would have been part of this wave which, apart from establishing the basics, did not have much impact on the formation of national security according to Jervis.¹¹⁸ The second wave created theories that became conventional wisdom.¹¹⁹ Wohlstetter's article exemplifies this wave, as he treated deterrence as a concept that required effort and as he set up theories on how to create and maintain an effective deterrence. Jervis argues that, until the third wave came along in the 1970s, few scholars questioned the validity of the theories of the second wave.¹²⁰ Nuclear thinking in the 1970s was characterized by a more critical outlook on concepts such as deterrence. The next section will evaluate how developments in the international environment led to the formation of the Cold War.

2.2: The Postwar Environment

The United States and the Soviet Union both experienced World War II in a different way, and for both these countries their experiences have been instrumental in the shaping of the postwar world. This section will give an insight into these experiences in order to explain how the behavior of both countries led up to the Cold War.

2.2.1: The United States Rises

The United States emerged as the most powerful nation in the world after the Second World War.

While Europe was in ruins, the United States had successfully kept combat off of its mainland.

Historian Mary Beth Norton argues that its geographic location helped keep the territory secure, and

118 Ibidem, 289.

119 Ibidem.

120 Ibidem.

journalist Robert D. Kaplan agrees in his book *The Revenge of Geography* (2012).¹²¹ Kaplan promotes the significance of geography in policymaking and he uses geopolitical arguments to explain the course of history. The author states that the United States has benefited from its location, as it is situated protected by oceans and friendly neighbors. Kaplan even states that “it is the Atlantic that declares a different foreign and military policy for the United States compared to that of Europe.”¹²² Harvard Professor Stephen M. Walt adds to this, as he argues that the United States owes a significant part of its success to 'luck' with its geopolitical characteristics. The United States was able to keep its distance from the many wars that were fought out in Europe, and he states that the country's “global primacy was ensured after the other great powers fought two devastating world wars.”¹²³

As the United States was able to remain isolated from combat it was able to avoid the devastating effect that the war had on the European economy. The United States was even able to make a profit out of the war as its production flourished and as it had plentiful resources.¹²⁴ Apart from its economic advance the United States also had the upper hand in terms of military power, especially with its monopoly on nuclear technology. However, while the war had allowed for the United States to rise as a superpower, the effect it had on the international environment and world order was cause for concern for the United States. According to Norton, “Washington officials nevertheless worried that the unstable international system, an unfriendly Soviet Union, and the decolonizing Third World could upset American plans for the postwar peace.”¹²⁵ It were these factors that brought the United States into its next conflict: the Cold War.

121 Norton, 768; Robert D. Kaplan, *The Revenge of Geography: What the Map Tells Us About Coming Conflicts and the Battle Against Fate* (New York: Random House, 2012).

122 Kaplan, 47.

123 Stephen M. Walt, “The Myth of American Exceptionalism,” *Foreign Policy* 109 (2011): 73.

124 Norton, 768.

125 Norton, 792.

2.2.2: Two Superpowers Clash

The Second World War had significantly different effects on the world's two superpowers: the United States and Stalin's Soviet Union. While the war allowed for the United States to rise in economic and military power, it had an opposite effect on the Soviet Union. As for all of Europe, the war had a devastating impact on the Soviet Union and the country had to cope with enormous losses in manpower as well as with the destruction of its cities and industry. While the geographical position of the United States had been a benefit, the Soviet's location formed a vulnerability. Except for the cold, the Soviet Union had little natural borders and it had limited access to harbors.¹²⁶ The country distrusted its neighbors and feared invasion, as had happened many times in its history. The Second World War served as a confirmation of these fears. While the United States pressed for Europe to rebuild its economy, the Soviet Union preferred for these countries, and especially Germany, to remain weak. These differences between the United States and the Soviet Union left both countries with clashing economic and strategic needs in the postwar world.¹²⁷

A factor that was inseparably linked to these clashing needs and the conflict as a whole was the difference in ideology. As Norton argues “the Cold War was fundamentally a bipolar contest between the United States and the Soviet Union over spheres of influence and world power.” The United States promoted capitalism and democracy, while the Soviet Union argued that communism was the best and most logical belief system. Both these countries aimed to spread their ideology in an effort to strengthen their security and increase their influence in the world. As the war came to an end, the defeat of notably Germany and Japan led to power vacuums while decolonization gave way to new regimes. These developments brought the United States and the Soviet Union opportunities to spread their power, and both countries aimed to pull nations and regimes to their

¹²⁶ Kaplan, 167.

¹²⁷ Norton, 768.

side.¹²⁸ Tensions between the countries rose, and relations between these former allies became hostile. Ideological conviction and self-interest brought the relationship into a downward spiral. Both countries got involved in major wars, such as in Korea and Vietnam. Proxy wars and intelligence operations determined the fate of various regimes in the Third World, and economic bargaining and soft power were used as means of persuasion. Finally, the Cold War was characterized by the nuclear arms race that was fought in an effort for strategic superiority.¹²⁹

Historian John Lamberton Harper argues that neither country intended for the conflict to begin, but both sides had a share in the start of the Cold War.¹³⁰ Fellow historian Melvyn P. Leffler agrees, also emphasizing human agency in the onset and the progress of the war: “Truman and Staling could and did articulate the reasons for national self-restraint. (...) But they could not control their own fears and instincts, their passions and aspirations. The structure of the international system and their ideological mind-sets overcame their initial desire to sustain their nations' collaboration.”¹³¹

2.3: Conclusion

Developments during and after World War II had a defining effect on the formation of the Cold War. This chapter has argued that two developments in particular grew out to play an instrumental role in this conflict, namely nuclear weapons and the struggle between the United States and the Soviet Union. When nuclear weapons were developed during the Cold War it was not yet apparent that these weapons would play a significant part in a long battle against the Soviet Union. However, as the theory of deterrence began to take shape as the purpose of this weapon, it also became clear that the target of deterrence would indeed be the Soviet Union. Developments in the international

128 Norton, 768; Leffler, 79-80.

129 Harper; Leffler.

130 Harper, 38.

131 Leffler, 79.

environment form an explanation to this development. The United States grew out to be a superpower as a result of World War II while the Soviet Union suffered enormous losses. Clashing ideologies and a difference in experience subsequently caused for these countries to shift from allies to adversaries. The findings of this chapter provide background information which creates a broader understanding of the issues that were central to the Cold War. The next chapter will examine the development of nuclear weapons and nuclear policy during this period of time.

Chapter 3: Policy and Weapons

The development of nuclear weapons during the 1940s accompanied the development of nuclear policy. Theories on how to use nuclear weapons emerged as the United States attempted to adapt to the change in warfare. British defense strategist Micheal Quinlan discusses these developments in his book *Thinking About Nuclear Weapons: Principles, Problems, Prospects*.¹³² Quinlan describes how the extreme destructiveness of nuclear weapons “carried the potential of warfare past a boundary at which many previous concepts and categories of appraisal – both military and political – ceased to apply, or even to have a meaning.”¹³³ It is evident that Quinlan views the development of nuclear weapons as a pivot point in the history of military policy.

The development of nuclear strategy and its incorporation in military policy is subject for debate among scholars. While Quinlan argues that the development of nuclear weapons represents a shift in strategy and policy, other authors state that policymakers were reluctant to incorporate such weapons in their war plans. For example, professor of War Studies Lawrence Freedman and military historian David Alan Rosenberg both expand on the reluctance of policymakers, as they present various factors that withheld a reliance on nuclear weapons. This chapter will focus on the development of nuclear policy and nuclear weapons under the Truman and Eisenhower Administrations.

The main question that this chapter will try to answer is how nuclear weapons were incorporated into policy under President Truman and President Eisenhower. The first section will outline the development of military policy with regard to nuclear weapons, and it will become clear that policymakers were reluctant to incorporate nuclear weapons into national security until the Soviet Union gained a nuclear capability. The second section will discuss the development of the

132 Quinlan.

133 Ibidem, 9.

Atlas missile, and it will be made clear how the journey of this weapon corresponds to developments at the national security level. This chapter will show that the significance of nuclear weapons was overlooked until it became valuable in response to the United States' vulnerability to Soviet nuclear weapons.

3.1: Nuclear Weapons and Policy

The magnitude and destructiveness of nuclear weapons were supposed to represent a change in warfare, and the actor that possessed such a weapon would have a trump card in hand. However, policymaking in the 1940's and 1950's shows that this theory did not immediately fare well in practice. This section will analyze how military policy changed, or did not change, as a result of the nuclear weapon.

3.1.1: Limitations in the Post War Period

While Jervis argues that the first wave of scholars who thought about nuclear strategy did not have an impact on the formation of national security, other factors such as technological developments and intelligence estimates were taken under consideration by policymakers. Rosenberg adds to this notion as he expands on the development of nuclear strategy in policymaking in his article "The Origins of Overkill: Nuclear Weapons and American Strategy, 1945-1960."¹³⁴ The military historian argues that certain factors were responsible for the development of nuclear strategy, among which the work of strategic theorists.¹³⁵ However, he argues that while these strategists were able to shape public opinion, they "had little relevance in the 1945-1960 period to the pragmatic concerns of operational planners."¹³⁶ Factors that had a larger impact on the role of nuclear strategy in national

134 David Alan Rosenberg, "The Origins of Overkill: Nuclear Weapons and American Strategy, 1945-1960," *International Security* 7, no. 4 (1983).

135 Rosenberg, 10.

136 Ibidem.

security were technological change and intelligence estimates. However, while these factors were taken under consideration when making policy, they actually had a limiting effect on the role of nuclear weapons in policy.¹³⁷

Limited technological developments in the 1940s meant that policymakers were not immediately able to extend the role of nuclear weapons in national security, even though technological possibilities would eventually allow for nuclear weapons to play a significant role in military policy. Freedman confirms this statement as he argues that the nuclear weapon did not play a central role in national security immediately after the Second World War.¹³⁸ There were various issues that halted the development of war policy that would include such a weapon, most notably the scarcity of nuclear weapons and their limited range.¹³⁹ Rosenberg expands on this, stating that “the nation's stockpile and delivery capability were extremely limited.”¹⁴⁰ The historian argues that the United States had two nuclear weapons at the end of 1945, and this expanded to only fifty in 1948.¹⁴¹ Nuclear weapons were expensive to produce, and therefore their use would remain reserved for major conflicts. In addition, long range missiles and the lighter thermonuclear bombs were not yet available at that time, meaning that the heavy weapons had to be delivered by plane.¹⁴² These planes had a limited range, and Freedman argues that “it would be necessary to gain access, perhaps by conventional military operations, to overseas bases” in order to be able to deliver the weapons to their target.¹⁴³

Incorrect intelligence estimates with regard to the development of Soviet nuclear weapons caused for the United States to overestimate its strategic advantage. Even though nuclear weapons

137 Ibidem, 10-1.

138 Freedman, 48-50.

139 Ibidem, 48.

140 Rosenberg, 14.

141 Ibidem.

142 Ibidem; Freedman, 48.

143 Freedman, 48.

were not immediately incorporated in military policy, policymakers did assume that the sole possession of these weapons translated into greater strategic power. A study by the United States Army itself explains this: “Sole possession by the United States of the atomic bomb made a large-scale war very unlikely. The judgment was general that it would be foolhardy for a power lacking nuclear weapons to engage in war against one that had the bomb and could deliver it.”¹⁴⁴ In addition, the United States was convinced that it would be able to maintain its monopoly on nuclear weapons for a considerable amount of time, for they thought that the Soviet Union would take several years to develop its own weapons.¹⁴⁵ This conclusion was based on the assumption that the Soviet Union lacked the means and technology to gain a nuclear capability. However, unbeknown to the United States, the Soviet Union was actually able to use American technology through an extensive espionage effort.¹⁴⁶ In addition, perceived American hostility combined with its strategic superiority caused for the Soviet Union to put its own weapon program in high gear.¹⁴⁷ The United States was unaware of these Soviet developments and therefore lacked the impetus to extend the role of nuclear weapons in policy. The United States Army study expands on this: “Implicitly, estimates at the time demonstrated the simple fact: The United States did not know what the Soviets were doing or had decided to do about strategic force development.”¹⁴⁸

Rosenberg addresses other issues that influenced the development of policy with regard to nuclear weapons, and such issues had a predominantly negative impact on the importance of nuclear weapons in national security. He places emphasis on how the secrecy between agencies was counterproductive for the development of policy on the weapons. In addition, information about the

144 “History of Strategic Air and Ballistic Missile Defense Volume 1 1945-1955,” PDF file, *U.S. Army Center of Military History*, January 6, 2014: 7.

145 Ibidem, 8.

146 Kate Brown, *Plutopia: Nuclear Families, Atomic Cities, and The Great Soviet and American Plutonium Disasters* (Oxford: Oxford University Press, 2013), 75-80.

147 “History of Strategic Air and Ballistic Missile Defense Volume 1 1945-1955,” 8.

148 Ibidem, 9.

weapon was kept secret as well, causing for policymakers to miss information to base policy on.¹⁴⁹ The historian also expands on President Truman's moral reservations about the use of the weapon, arguing that Truman only saw the use of nuclear weapons as a last resort.¹⁵⁰ Combined with post-war military cut backs and demobilization, Truman was a restricting factor in the development of nuclear policy. It is clear that, while nuclear strategy was being developed, various limitations prevented for this strategy to be incorporated into military policy.

3.1.2: Strategy Becomes Policy

Beginning in 1947, a number of events caused for the United States to increase reliance on nuclear weapons in military policy after an initial period of restraint. However, while nuclear weapons were being incorporated into military plans, this happened only gradually as various factors that initially halted this development were, for a significant period of time, still in effect. Rosenberg argues that nuclear weapons first made their way into policy in 1947. As part of the Joint Outline Emergency War Plan BROILER, policymakers composed a target list for nuclear weapons. The goal was to “disrupt the Soviet will to wage war,” as the United States still lacked weapons to bring a definitive blow in the case of war.¹⁵¹ The author states that such a list was also part of the plans that followed BROILER, named FROLIC and HALFMOON, in which the focus lay on “atomic air offense”.¹⁵² Journalist Eric Schlosser expands further on HALFMOON in his book *Command and Control: Nuclear Weapons, the Damascus Accident, and the Illusion of Safety* (2013). Schlosser states that HALFMOON was “the first emergency war plan directed at the Soviet Union. It assumed that the Soviets would start a war in Europe, prompted by an accident or a misunderstanding.”¹⁵³ However,

149 Rosenberg, 11.

150 Ibidem.

151 Ibidem, 14.

152 Ibidem, 12.

153 Eric Schlosser, *Command and Control: Nuclear Weapons, the Damascus Accident, and the Illusion of Safety* (London: Penguin Press, 2013), 82.

in line with his convictions, Truman halted these developments and opted for war plans that centered around conventional weapons.¹⁵⁴ In 1948 Secretary of Defense Forrestal brought such plans back to life as a reaction to the Berlin crisis.¹⁵⁵ The same year Strategic Air Control developed its own plan that involved nuclear weapons. Though limited, nuclear policy gradually began to take shape.

The Soviet Union gaining a nuclear capability in 1949 pushed the United States towards embracing nuclear policy and advancing technological developments. The United States expected that the Soviet Union would not gain a nuclear capability earlier than 1955, and it came as a shock that the Soviet Union successfully tested its first nuclear device as early as 1949. Freedman argues that this development forced Truman into making policy with regard to nuclear weapons, as he states that while the Soviet nuclear capability “discouraged doctrines based upon atomic weapons as a uniquely American advantage, it also locked the United States into a nuclear strategy.”¹⁵⁶ Freedman states that the United States mainly reacted by improving technical capabilities of its nuclear weapons in order to surpass the Soviet Union. And while technological limitations initially caused for military planners to refrain from incorporating nuclear weapons into policy, technological developments caused the opposite. Together with changes in the international environment and rising tensions with the Soviet Union, technological developments at the end of the 1940s and the beginning of the 1950s caused for the United States to view its nuclear arsenal as a significant part of its war planning.¹⁵⁷ The production of nuclear weapons became more feasible as fissile material could be used more efficiently. In addition, the development of long range bomber planes formed the solution to the earlier discussed problem with the delivery of nuclear weapons.¹⁵⁸

154 Ibidem.

155 Ibidem, 13.

156 Freedman, 60.

157 Rosenberg, 51.

158 Freedman, 61.

The development of the thermonuclear weapons was embraced by Truman as a reaction to the Soviet threat. A thermonuclear weapon, also called hydrogen bomb, H-bomb, or fusion bomb, would be able to generate a larger explosion while the weapon itself would be lighter than traditional nuclear weapons.¹⁵⁹ The thermonuclear weapon was controversial for a number of reasons, and a debate between prominent figures George Kennan and Paul Nitze highlighted the difference in opinion among strategists.¹⁶⁰ Truman eventually authorized the development of the thermonuclear weapon out of fear that the Soviet Union would gain the upper hand with regard to nuclear weapons.¹⁶¹

3.1.3: Eisenhower Goes All Out

The role of nuclear weapons in military policy grew as President Truman made way for President Eisenhower in 1953. Truman had begun to rely more on nuclear weapons after 1949, but Eisenhower was more willing to use these weapons and had substantial more experience with nuclear technology.¹⁶² Rosenberg explains it as follows: “Where Harry Truman viewed the atomic bomb as an instrument of terror and a weapon of last resort, Dwight Eisenhower viewed it as an integral part of American defense, and, in effect, a weapon of first resort.”¹⁶³

Eisenhower's comfortable approach towards nuclear weapons became apparent in his policies. In 1953 Eisenhower presented his New Look policy in which, among other changes, the military would cut back on manpower and would instead rely on nuclear weapons to win a war.¹⁶⁴

The United States Army Study on the “History of Strategic Air and Ballistic Missile Defense” argues that this policy was a reaction to the Soviet Union catching up on the United States:

¹⁵⁹ Ibidem, 61-64.

¹⁶⁰ “History of Strategic Air and Ballistic Missile Defense Volume 1 1945-1955,” 18.

¹⁶¹ Ibidem, 64.

¹⁶² Rosenberg, 21-2.

¹⁶³ Ibidem, 28.

¹⁶⁴ Freedman, 77.

Soon after the Soviet explosion of a thermonuclear device in August 1953, the National Security Council embodied the 'New Look' strategy in NSC 162. Approved by the President in October 1953, the paper identified the threat by the Soviet Union as being 'total,' gave the Soviet Union the capability of making a nuclear air attack against the United States, concluded that national defense must have the highest priority in national strategy (...).¹⁶⁵

Eisenhower's trust in nuclear weapons became even more clear when the policy of massive retaliation was presented in a speech by Secretary of State John Foster Dulles to the Council on Foreign Relations in January 1954.¹⁶⁶ The policy of massive retaliation entailed that the United States would be willing and able to respond to an act of aggression with a massive nuclear strike. Such a policy was possible, among other reasons, because of the development of thermonuclear weapons.¹⁶⁷

From 1955 and onward it became clear that the United States was beginning to lose the advantage as the Soviet Union became technically more advanced. As a result, the United States became more vulnerable to a Soviet attack. These estimates were mainly brought forward by two reports from the Science Advisory Committee of the Office of Defense Mobilization. The first report was called "Meeting the Threat of Surprise Attack," or unofficially the Killian Report after its chairman Jamer R. Killian. This report, which was presented to the National Security Council in 1955, revealed that intelligence estimates showed that the Soviet Union was moving forward fast with the development of missiles.¹⁶⁸ In addition, the Killian Report emphasized that the United States was in a vulnerable position due to a lack of defensive capability.¹⁶⁹ As a reaction to these findings the missile programs of the different branches of the military were all accelerated. The second report, from 1957, was called "Deterrence and Survival in the Nuclear Age," or the Gaither

165 "History of Strategic Air and Ballistic Missile Defense Volume 1 1945-1955," 28.

166 Freedman, 72.

167 Freedman, 72-3.

168 "History of Strategic Air and Ballistic Missile Defense Volume 1 1945-1955," 34.

169 Freedman, 149.

report. This report, which has already been discussed in chapter one, warns for Soviet technical developments as well.¹⁷⁰

The launch of the Sputnik by the Soviet Union on October 4, 1957, seemed to confirm the findings by both the Killian and the Gaither report. The Eisenhower Administration again sped up missile development as a result of this event. However, Boyce et al. argue that Eisenhower knew through espionage that there was in fact not a missile gap between the Soviet Union and the United States, but this information was to remain a secret and the President was thus unable to inform his people. As a result, public outcry pressured the President into taking action, and again more money was allocated to missile development.¹⁷¹ It is clear that both parties now put all their efforts into the development of nuclear weapons, and the nuclear arms race was in full swing. Nuclear weapons were fully incorporated into military policy.

3.2: The Atlas

The development of the Atlas missile was connected to changes on a local and a national level. The purpose of this section is to show how this weapon came into existence.

3.2.1: MX-774

For a long time the ICBM was not seen as a viable option for a delivery system. The United States Air Force commissioned the development of several missiles as early as 1945, but various limitations and resistance from within the Air Force itself caused for missiles to be neglected in their development. The focus was rather on manned jet bombers that would be able to reach the Soviet Union. From a cultural perspective the preference for the latter is explainable, as the airmen took

¹⁷⁰ Ibidem, 151.

¹⁷¹ Boyce et al., 107.

pride in their work manning aircrafts.¹⁷² The idea of a weapon that would go off at the push of a button did not appeal to these airmen.¹⁷³ The technical capabilities at the time formed a limiting factor in the development of ballistic missiles as well. It was believed that the development of an ICBM would take at least ten years, and the costs for research and development would not be feasible. The Air Force would need to overcome technical difficulties as it particularly struggled with the weight of the warhead and with the missile's re-entry system.¹⁷⁴ Apart from the limitations set from within the Air Force, strategists and politics also slowed down development. Prominent strategist Vannevar Bush discouraged the idea of ICBMs for he argued that the weapon would not be very effective and would only bring massive costs.¹⁷⁵ Lastly, as shown in the previous section, government resistance toward nuclear policy caused a lack of support for the development of nuclear weapons. All in all, the development of long range ballistic missiles promised to be an overly expensive and difficult project.

The MX-774, forerunner of the Atlas, had a particularly bad start as the weapon was not favored by the Air Force. However, its contractor played an instrumental role in keeping the missile program running. In 1946 Convair was given a \$1.4 million contract by the Air Force to study two missiles, one of which the MX-774. The missile's project manager, Karel J. Bossart, set out to create a better version of the German V-2 weapon.¹⁷⁶ Bossart made progress on the issues with the re-entry systems of the missiles, arguing that only the nose-cone needs to re-enter the atmosphere as opposed to the entire missile.¹⁷⁷ The project manager also made progress with the engines: "By swiveling the engines, Bossart obtained better control of the rocket's flight."¹⁷⁸ Although the MX-774 was still

172 Gainor, 348.

173 Spires, 6.

174 Ibidem, 8; Gainor, 352-360.

175 Gainor, 352.

176 Jacob Neufeld, *Ballistic Missiles in the United States Air Force, 1945-1960* (Washington, D.C.: Office of Air Force History, 1990), 45.

177 Neufeld, 47.

178 Ibidem.

troubled by various technological limitations, Convair and Bossart made great progress on the missile.

Military budget cuts issued by the Truman Administration and Congress in 1946 and 1947 forced the Air Force to drop almost a third of their 28 missile programs, including the MX-774.¹⁷⁹ When this was announced Convair decided to continue its development with the use of its own funds. Convair “was allowed to launch the three prototype MX-774 rockets already completed.”¹⁸⁰ The contractor tested these missiles on the ground for several months before they were launched into the air.¹⁸¹ These launches were a moderate success, and the missiles were able to reach an altitude of one hundred miles before coming back down.¹⁸² After these tests, the company “elected to use company funds to keep the MX-774 project afloat as a low priority item.”¹⁸³ Convair took care of the MX-774 until the project was picked up again by the Air Force in 1951.

4.2.2: The Atlas

The Air Force was able to pick up the MX-774 again in 1951 after a series of events made development rational and feasible. First, a RAND study showed that ballistic missiles would be the most reliable delivery system for nuclear warheads compared to winged missiles, for there was no defensive measure against it.¹⁸⁴ The study further showed that “significant advances in rocket engines and guidance systems made long-range missiles technologically feasible.”¹⁸⁵ This statement corresponds to the findings of Bossart, who made significant advancements on rocket technology with the MX-774. Costs were still an issue with the ballistic missile, but in 1951 the Korean War

179 Gainor, 352.

180 Ibidem, 351.

181 Spires, 8.

182 Ibidem.

183 Ibidem, 9.

184 Gainor, 354.

185 Neufeld, 68.

caused for the military budget to be loosened. With a larger budget and a RAND recommendation the Air Force was able to rehire Convair to further the development of the MX-774. The MX-774 was given a new project name, namely MX-1593, later renamed Atlas.

While the Atlas had been revived as a reaction to improved conditions, the missile was still a low priority project that was met with skepticism when the Air Force picked the project back up in the early 1950s. Prominent figures such as Donald N. Yates, Director of Research and Development on the Air Staff, opposed a priority position for Atlas, mainly for budget considerations.¹⁸⁶ Even Eisenhower's New Look policy did not benefit the Atlas, for defensive weapons were given preference.¹⁸⁷ In addition, a RAND analysis argued that the technical abilities of the Atlas were exaggerated by Convair when the company pitched it to the Air Force: "RAND's analysis indicated that Convair had been too optimistic in its accuracy expectations, achievable weights, and the amount of funding required for the project."¹⁸⁸ Also, Gainor points out that there was still a reluctance in the Air Force to embrace ballistic missiles. The people who were making the decisions were clearly not in favor of the Atlas.

Starting in 1954, a series of events allowed for the Atlas to change its low priority status into a high priority status. Instrumental factors that contributed to this shift in policy were the increasing threat of the Soviet Union and the introduction of the thermonuclear weapon.¹⁸⁹ As a result, the Atlas was gaining support among scholars and advisers. In 1954, both RAND and the by the Department of Defense commissioned Strategic Missiles Evaluation Committee recommended the government to build the Atlas. Gainor argues that the RAND report especially focused on the newly invented thermonuclear weapons, stating that the report "strongly supported building Atlas based on what

186 Neufeld, 71.

187 Spires, 12-4.

188 Neufeld, 73.

189 Spires, 13.

was called the thermonuclear breakthrough of lighter and more powerful thermonuclear bombs.”¹⁹⁰ The thermonuclear weapon was lighter than previous nuclear weapons, while also having a notable wider range. This meant that its delivery system, the ballistic missile, did not have to be as big as contemplated while it also did not have to be as accurate.¹⁹¹ In addition, issues with the re-entry system of the warhead were resolved, which meant that the Atlas now had few technological obstacles to overcome.¹⁹² Spires argues that following these development “the Air Force had awarded the Atlas its highest research and development priority, 1-A, and the secretary of defense had declared Atlas of 'critical importance' in early 1955.”¹⁹³ Then, following the Killian and Gaither reports as well as the Soviet launch of the Sputnik, the development of Atlas missiles was further stimulated. Without any more notable obstacles, the Atlas was taken into production and deployed to various bases in the United States. One of these bases was F.E. Warren AFB, which had the honor of becoming the first operational ICBM unit in Strategic Air Command in 1960.

3.4: Conclusion

The development of nuclear weapons can be seen as a pivot point in United States military history. However, it took a while for the actual pivoting to occur as policymakers were initially reluctant to incorporate nuclear weapons into military policy. The slow development of nuclear policy can be explained through various factors, but leadership was notably the most influential. President Truman was initially simply unwilling to accept nuclear weapons as a part of war. Other factors played a significant role as well, such as limited technology, means, and intelligence. Strategies on how to use nuclear weapons were developed by scholars, but these strategies were not picked up by policymakers until the 1950s. The slow development of policy corresponds to the development of

190 Gainor, 357-8.

191 Ibidem, 359.

192 Ibidem, 360.

193 Spires, 21.

the Atlas missile. Plagued by lack of government and military interest, the Atlas owes its existence for a large part to contractor Convair as this company kept on backing its development. While the Air Force eventually picked up the project again, full support did not come until 1954 when technological breakthroughs made the project feasible.

Through various developments at the end of the 1940s the role of nuclear weapons in military policy began to increase. Strained relations between the United States and the Soviet Union, international tensions, and technological progress were all cause for President Truman to embrace nuclear weapons. The significant role of nuclear weapons then grew larger as President Eisenhower came into office, although he focused his attention on other weapons than the Atlas. Pressured by a growing threat from the Soviet Union, Eisenhower was willing to incorporate nuclear weapons as a central element in the defense of the country. With his New Look policy, Massive Retaliation, and crash programs to develop missiles throughout the 1950s, Eisenhower changed military history.

Conclusion

The development and deployment of Atlas missiles was a process that was affected by many factors and events. In its turn, the Atlas affected many elements of the Cold War as well. As a result, examining this process reveals many different aspects of American culture and policy between 1945 and 1965. This thesis set out to examine how the development of Atlas missiles by the United States Air Force and their deployment to Francis E. Warren Air Force Base portray the evolution of United States military policy between 1945 and 1965. By combining the findings of the different chapters in this work it can be argued that the United States for a long time struggled with adapting to the Cold War and the Nuclear Age. The Atlas missile gives a comprehensive insight into the battles within the government over strategy and policy, as well as a look into the issues that occupied the international environment and local communities with regard to the Cold War and nuclear weapons.

The first chapter of this thesis has examined the role that F.E. Warren AFB has played in the nation's defense. By researching this question, the chapter has given an insight into the implementation of military policy, specifically into the deployment of Atlas missiles. It has been shown that the base has followed a certain pattern as a result of military policy, where economic opportunity and uncertainty over the continuation of the base alternated. The second chapter of this thesis has given an insight into two significant aspects of the Cold War, namely nuclear weapons and the struggle between the United States and the Soviet Union. The findings of this chapter make it possible to place the development of nuclear policy and nuclear weapons in a broader context. In addition, taking the background of the Cold War into consideration helps with the understanding of the choices that were made with regard to nuclear weapons and their deployment to F.E. Warren AFB. The third chapter discussed the development of two inseparable elements, namely nuclear policy and the Atlas missile. It has become clear that nuclear weapons and the Atlas have both had to struggle for government support. However, even when the government started to pick up on

nuclear policy, the Atlas missile still stayed a weapon of low priority until well into the 1950s.

It has become clear that the incorporation of nuclear weapons into military policy was initially halted by various limitations, and in line with this the development of Atlas missiles was halted as well. However, while the evolution of nuclear policy and the development of nuclear weapons appeared to be synchronized, this was definitely not the case for the Atlas. One limiting factor in nuclear policy turned out to be instrumental in the development of nuclear weapons: leadership. A change in leadership caused a change in policy, which then influenced the development of nuclear weapons. However, the Atlas was limited by more than leadership, as technological capabilities proved to play a decisive role in the support for the development of the Atlas. The Atlas gives an insight into the struggles of the Cold War while at the same time the broader context of the Cold War is essential to explain the development of the Atlas missile.

This thesis adds a new dimension to existing literature for it has combined decision making at a national level to the implementation of these decisions at a local level. In this effort, archival material and primary sources have been researched alongside a substantial body of secondary literature. The findings of this thesis provide the opportunity to look at decisions that were made in light of the Cold War from a new perspective, creating a greater understanding. However, as the research discusses a wide range of events and developments, many details have been omitted for the sake of the continuation and readability of the story. It would be interesting for further research to zoom in more on one aspect of the Cold War, such as the Korean War, and its impact on nuclear weapons and nuclear policy. Follow up research can also be shifted to the next period in time, as the deployment of the Minuteman and the Peacekeeper to F.E. Warren AFB also caused quite a stir in Cheyenne.

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