# Homeland defense: looking back, moving forward

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## ABSTRACT

A concern for homeland defense has been with us since the inception of the Republic. However, it has changed in focus and emphasis depending on the nature of the threat we perceived. In the earliest decades the threat was from invasion by a Britain that still did not accept the results of the Revolutionary War. Later the focus shifted to concern about possible attack by ships, and during WW I and WW II, by submarines. With the advent of the intercontinental nuclear-armed bomber in 1950, our focus changed again. When we could be attacked by ballistic missiles after 1960, our concern focused on that threat. Now that we have seen that damaging attacks can be brought to the homeland "under the radar screen", by terrorist operations, the focus has shifted again. We are now entering an era when we must address potential homeland attacks with weapons of mass destruction (WMD) that may be delivered by a range of means, depending on the source of the attack. In response to this full spectrum of attack modes, the U.S. has implemented a three-stage defense policy that integrates overseas "offense" and homeland "defense". This framework for defense analysis and planning is likely to be with us into the indefinite future.

**Keywords:** Homeland Defense, Homeland Security

## 1. INTRODUCTION

While the concept of "defending the homeland" is an idea dating back through the better part of human history, the term "homeland defense" only recently entered the lexicon of public discourse. The first American use of the term "homeland defense" in the current era was made in a report submitted by the National Defense Panel in 1997. The report, titled Transforming Defense: National Security in the 21st Century, argued that this new focus on guarding the homeland was essential, due to the changing nature of threats against the American people. They warned:

"…The proliferation of nuclear, chemical, and biological weapons and their delivery means will pose a serious threat to our homeland and our forces overseas. Information systems, the vital arteries of the modern political, economic, and social infrastructures, will undoubtedly be targets as well." (Transforming Defense: Executive Summary).

This document was followed by a series of additional studies explicitly addressing "homeland defense", including analyses from the Hart-Rudman Commission, the Gilmore Commission and papers from the Center for Strategic and International Studies. Additionally, some organizations and individuals like Congressman Ike Skelton have adopted variations of the phrase, like "Homeland Security".

## 2. EARLY ATTACKS AND FEAR OF ATTACKS ON THE UNITED STATES

### 1.1 The War of 1812

The War of 1812 has largely receded from our attention over the decades, but it constitutes the first time the Republic was actually invaded or attacked after the Revolutionary War. British forces had a considerable period of success even taking Washington and burning it.

### 1.2 The Mexican-American War (1846)

The war with Mexico was a war of several firsts. It was the first offensive war the United States intentionally undertook. Other wars until this time had been defensive, responding to the attacks of others.

Technologies, Systems, and Architectures for Transnational Defense, Mark K. Hamilton,
Editor, Proceedings of SPIE Vol. 4745 (2002) © 2002 SPIE · 0277-786X/02/$15.00

The war itself was the culmination of over a decade of skirmishes between the U.S. and Mexico over control of the Southwest. Officially, the war begins in 1846 when Mexican troops cross the Rio Grande and attack U.S. forces stationed in what is now Texas. The fighting ended in 1847 with U.S. forces occupying Mexico City.
The battles of Palo Alto and la Palma were the first U.S. Army operations to be reported by the telegraph. Also, railroads and steamboats were used for the first time to support logistics operations. In this war, U.S. surgeons also introduced ether as an anesthetic. Combat photography made its first appearance in the war with Mexico. It was also the first time that the Colt revolver was used by forces in combat. The U.S. gained control over Texas, New Mexico, and California as a result of this conflict.

### 1.3 The age of harbor and coastal defense

In the last half of the 19th century "homeland defense" meant defensive fortifications for the United States. Any adversary would have to come across the oceans, and the country sought security of the homeland through fortification of the maritime frontiers, ports, and harbors. Fortifications were viewed by both the public and Congress as a way to avoid foreign entanglements and war. Fortification construction became a substitute for foreign policy for many decades.

The United States had a long shoreline and a relatively weak navy, and the superior destructive power of heavy guns on shore versus those afloat led to the construction of literally dozens of defensive sites around the perimeter of the country. Manning could be relatively modest, a caretaker force unless some national emergency called for the "reserves" to go to their guns. Money to support construction of these sites was voted by Congress in several bills starting in the 1790s, and lasting into the 1900s. In 1905 Taft Board authorized additions of electrical lighting, communications and searchlights to the system of guns and concrete batteries scattered around the country. Even as late as the 1940s there was a program of "Harbor Defense Modernization".

## 3. HOMELAND DEFENSE IN WORLD WAR I

### 3.1 Pancho Villa and the Punitive Expedition

This is a strange episode in the history of homeland defense. Pancho Villa, a Mexican revolutionary attacked Columbus, New Mexico in a pre-dawn attack in 1916. It isn't clear just what he intended to accomplish. What did happen was that he lost 350 men in the subsequent skirmish with a battalion of U.S. Army troops stationed in Columbus. Following the attack, the "Punitive Expedition" was undertaken by Gen Pershing to try to find and capture or kill Villa in Mexico. For six months, some 6000 U.S. troops scoured Northern Mexico, with very little to show for the effort. Villa never was captured, and was killed by a Mexican assassin at his home in 1923.

### 3.2 The Zimmerman telegram

The Zimmerman Telegram is not an attack, *per se*, but rather a proposal for an attack on the U.S. The German Ambassador, Authur Zimmerman, sent the telegram to the Mexican government on January 16, 1917. The telegram proposed that the Mexicans stir up trouble on the border to keep U.S. troops tied down and out of the war in Europe. The reward Zimmerman offered Mexico was a return of some of the territory lost in 1847, after the Allies were defeated and Germany could dictate peace conditions.

At the time, the transatlantic cable on which the message had to travel passed through England. There the message was intercepted, and decrypted in London's Room 40. The decoded message was brought to the attention of President Wilson, and is considered to have been a major contribution to the decision of the U.S. to enter the war.

### 3.3 U-boat operations against the United States

Although one would think that the New York Harbor was always safe from a foreign military invasion, there have been times in recent history when enemy forces operated just outside of the harbor. The Germans had planned an invasion of the New York Harbor as early as 1899 when the idea of a joint army-navy assault of New York Harbor involving the landing of two to three battalions of infantry and one battalion of engineers on Long Island was envisioned. After seizing New York, the German plan called for troops to then split and proceed north to Boston and south to Norfolk.

Although the invasion plan never materialized, U-boats conducted operations in American coastal waters during World War I. During this time, the German submarine U-156 sunk a vessel 10 miles offshore of Fire Island, Long Island. A steel net was sunk across the Verrazano Narrows between Brooklyn and Staten Island to keep German submarines out of the inner harbor. German submarines were able to plant mines around Sandy Hook, and 16 tug boats based at Staten Island were turned into minesweepers. Working in pairs, they swept the ocean every day for 100 miles out from Sandy Hook, finding and exploding a large number of floating mines.

## 4. HOMELAND DEFENSE IN WORLD WAR II

### 4.1 The attack on Pearl Harbor

The dawn attack on U.S. forces at Pearl has been massively documented and that material need not be repeated here. Suffice to note that the attack was focused on U.S. military forces, not the civil infrastructure in Hawaii. Thus, even though many civilians were killed, they were not the primary targets of the raid.

A bomber offensive against the United States was also envisioned by Hitler in 1940. This plan involved the use of the long-range Messerschmitt Me-264 "America Bombers" that would be based out of the Azores. This plan failed to materialize, as the Nazis never captured the Azores and only built one Me-264 aircraft. Their lack of a long-range bomber force also hindered their air operations against the Soviet Union and may have contributed substantially to loosing the war on the Eastern Front.

### 4.2 The shelling of Goleta, Ca

For several months after the attack on Pearl Harbor, there was a sense of unease and vulnerability along the west coast of the U.S. Most of the country's Pacific fleet had been lost at Pearl, and further Japanese intentions were not clear. They had rampaged through the Far East with virtual impunity; it was possible they would actually attack the United States' homeland.

This concern was heightened by a shelling incident in February of 1942 that did very little damage, but was a concern just because it happened, and represented a wake-up call. A Japanese submarine shelled the coastal town of Goleta, causing limited damage to some oil rigging. Residents were upset, but no one was hurt, and the Japanese appear not to have ever seriously contemplated trying to invade the United States. John Belushi's movie "1941" is a parody of this incident.

### 4.3 The Shelling of Fort Stevens

Fort Stevens (renamed for a Civil War general) was established in 1850 by executive order at the mouth of the Columbia River in Oregon. Construction of the large earthworks was begun in 1863, and completed two years later. The Fort was rebuilt in the 1890s to make room for a new gun line. A new garrison building was erected at this time.

When a Japanese submarine fired several shots towards Battery Russell in June 1942, the post became the only U.S. fortification in the lower 48 states to come under fire by a foreign power since 1814. The post was closed in 1947 and is now a state park.

### 4.4 Defense of Los Angeles harbor

The U.S. entered WW II with a substantial array of coastal and harbor guns still operational. A representative site is that at Fort Macarthur overlooking the Los Angeles Harbor. Construction of the site was authorized in 1914. The post was named after a Civil War Medal of Honor winner, Lt Gen Arthur Macarthur (father of Gen Douglas Macarthur). Fort Macarthur was the headquarters for defense of the Los Angeles area, and even into the bomber era was the command site for the numerous Nike missile sites installed around the city.

The battery Osgood-Farley was constructed at Ft Mac during the years 1916-1919. Each gun was constructed as an independent tactical emplacement that could operate on its own in the event one or the other was knocked out during action. The site was originally equipped with two 14" disappearing carriage guns that launched a 1560-lb explosive projectile out 14 miles.

Additional smaller caliber guns were added to the Fort's armament during the Second World War. At this time, the site was also host to a radio station and switchboard room. Part of the installation was gas-proofed in support of this mission.

The big guns were only fired a few times over the decades. The concussion from the huge weapons had a tendency to level wooden structures anywhere within a quarter-mile radius of the gun site. In addition, by the time of the Second World War, the San Pedro area where the Fort was located was beginning to be built-up with substantial civilian facilities. The gun firings were particularly upsetting to civilians and did considerable glass damage in the town.

By the 1940s, the Army Coast Artillery Corp was antiquated with its turn-of-the-century mission of defending the United States against the large naval vessels that never came. By the end of the war, the technological advancements of long-range aircraft, missiles, submarines, and atomic bombs led the Army to eliminate the Coast Artillery Corp and the Army's role in harbor defense. Ultimately, the era of coastal defense was overcome by the airplane, and the Fort Mac site was declared surplus. The big guns were dismantled and cut up for scrap sometime after 1946. The Fort facilities themselves remained operational in support of other Army missions (Nike missile defense) until 1974. The site is now host to a museum and is a Los Angeles County Park.

**4.5 U-boat attacks on coastal shipping**

In 1941, Admiral Doenitz, Commander-in-Chief of German U-boats, believed that "a U-boat could steam directly into the throat of New York Harbor, on the surface, at night, without being challenged". As for the nets and shore batteries, he doubted their effectiveness, if they even existed at all. This statement was largely true in 1941; U.S. homeland and coastal defenses were inadequate to the challenge of U-boat operations at the outset of the war. Mayor Fiorello La Guardia wondered, "if the Republic could even guarantee the defense of Coney Island".

The effectiveness of the harbor defenses against submarine intrusion was limited by the lack of radar, hydrophones, and the magnetic detection loops that would be added in mid-1942. These overdue improvements in coastal defense were implemented in a rush after German submarines had begun their attacks on shipping in American coastal waters in 1942. After the U.S. entered World War II on December 7, 1941, Doenitz implemented his plan named "Operation Drumbeat", ordering several of his submarines across the Atlantic to directly attack the United States on December 12, 1941.

After crossing the Atlantic Ocean, the German U-boats began their assault on American shipping on Jan 12, 1942, when Captain Hardegan and his crew of the U-123 sunk the "Cyclops" off Nova Scotia. The war entered New York waters on Jan 14, 1942, when the U- 123 sunk the "Norness" 60 miles off Montauk Point, Long Island.

On the next evening, the U-123 was following a parallel course westward along the south shore of Long Island, towards New York City. The U-123 steered a course of 110 degrees, away from the city, until a ship was sighted at 1:40 a.m., Jan 15, 1999. The British tanker "Coimbra" was sunk 61 miles east of Ambrose light, within sight of residents of the south shore of Long Island. Other ships were regularly sunk within sight of the coast. Explosions could be heard and burning wrecks could be seen from the shoreline at night. Dead bodies, debris and oil washed ashore on east coast beaches.

Despite this continued carnage, blackouts were never implemented as they were along the coasts of England and Germany. This gave the German submarine crews a tremendous advantage in being able to spot cargo ships running along the coast at night with their lights extinguished. A "dim-out" was eventually mandated, but even with the lights dimmed out, patrolling boats were able see the glow of New York from a distance of 25 miles off shore. The U-boats merely waited offshore, intercepted ship radio transmissions to locate potential targets, and torpedoed any large ship that would come into view.

As part of "Operation Pastorius" a team of four German saboteurs were infiltrated into the United States by the submarine U-202 at Amagansett, Long Island on June 13, 1942, and another four landed in Ponte Vedra, Florida on June 16, 1942. All were armed with explosives and plans to destroy factories, bridges, tunnels, and power plants. This may sound familiar; it is the same kind of attack now getting attention in today's homeland defense efforts.

One member of the group that landed eventually turned himself over to the FBI and confessed the entire story. All eight saboteurs were arrested and six were executed in Washington D.C. on August 8, 1942.

By mid-1942, the Navy eventually used both proven and new, innovative ways to defeat the U-boat menace. Convoys, patrol aircraft, HF-DF radio intercept, and additional patrol craft made it more difficult for the submarines to attack shipping as they had in early 1942. Radio Direction Finding Stations were established at Jones Beach LI, Sea Isle City NJ, and Montauk LI. These stations would home in on the Enigma-coded messages transmitted by the German U-boats. Additional technology and resources such as sonobouys, magnetic loops, hydrophones, surface and B-17 aircraft mounted radar were all thrown into the battle. U-boat sightings by patrol aircraft, Civil Air Patrol volunteers, blimps, Pan Am Clippers, Eastern Airliners, and merchant vessels all aided to the intelligence effort of locating German U-boats operating of the U.S. coast.

By 1943 the U.S. Navy had developed the antisubmarine techniques needed to drive the U-boats away from U.S. shores, but the cost to the U.S. was substantial before the ASW campaign was successful. Only a few of the fleet of German U-boats that made the trek to American waters were responsible for the sinking of a total of 397 ships in the first six months of 1942. There were 171 ships sunk off the Atlantic Coast from Maine to Florida, 62 sunk in the Gulf of Mexico, and 141 in the Caribbean. A total of 2,403 persons were killed and 1,178 were wounded.

### 4.6 The Japanese Balloon Assault

Surely one of the most audacious air campaigns ever conceived, the Japanese "Fugo" balloon campaign was also the first international bombing effort to cross a major ocean. Conceived in the early 1940s by a Japanese military engineer, the balloon campaign resulted in over 9000 balloons being launched. The devices rose to an altitude of 30,000 feet and rode the jet stream (largely unknown to the U.S. at the time) all the way to North America. They carried both explosive and incendiary bombs and were intended to set the forests of the American West ablaze. In the event, hundreds of the balloons did make it to the North America. Some have been found as far to the east as Michigan, and as far north and south as the Yukon and Mexico, respectively. Only one did any significant damage, a balloon that landed in Bly, Oregon killing several children and a minister's wife.

## 5. HOMELAND DEFENSE DURING THE EARLY YEARS OF THE COLD WAR

### 5.1 The focus changes again: nuclear –armed bombers

The Second World War ended with the United States in a dominant defensive position. U.S. forces were forward deployed across both oceans, and the U.S. had a monopoly on both long-range bombers and the atom bomb. This era of near-absolute security did not last for long.

The Soviet Union had obtained B-29s at the end of the war in the Pacific and immediately set about reverse-engineering them to produce a look-alike bomber. They also embarked on a major program to develop their own atomic bomb, helped in substantial measure by the information fed back by spies operating in the Manhattan Project. By 1949 the Soviets had both the bomber and the bomb, and could threaten the U.S. homeland. Early in the 1950s, U.S. "homeland defense" focused on the threat of the Soviets' nuclear-carrying bombers.

### 5.2 Responses to the Soviet bomber threat

In response to the bomber threat, the U.S. undertook a massive program that extended over several years. The program had several elements, and can only be seen in its true extent in retrospect. First, the need for warning was important. The United States possessed a huge coastline and border with Canada, and Soviet attackers could come over the pole along a number of tracks into the industrial heartland of the country.

Second, air defenses were needed that could reach out and shoot down attacking Soviet bombers as far as possible from their targets in the U.S. The attrition defenses of the Second World War were considered inadequate – if even a single atom bomb carrying Soviet bomber got through, the devastation would be immense. The Air Force had to be able to reach out far enough and fast enough to kill every attacker. For those lone bombers that might sneak through long-range wide area defenses, point defenses were needed. A major surface-to-air missile program was undertaken to ring major military and industrial sites in the U.S. with point defenses.

A major command and control network was also needed to bring all of these defensive pieces together and make them work on short time-lines. Finally, passive civil defense was instituted to help save lives in the event that a nuclear bomb did reach its target and detonate.

**5.3 Surveillance and warning**

In 1952 a group of senior personnel met at Lincoln Laboratory to consider ways to improve the air defense of North America. The group included such note worthies as Drs. Robert Oppenheimer and Isador Rabi. The 1952 Summer Study undertook assessment of the vulnerability of the United States to surprise air attack. The greatest threat appeared to be the potential for a Soviet attack over the North Pole. Because of the very limited radar coverage across Canada at the time, it was concluded that a fleet of Soviet attackers could fly almost to the Canada/U.S. border before any one would see them.

The study concluded that it was feasible and desirable to install a network of surveillance radars stretching across all of North America from Alaska to Greenland to deal with the Soviet bomber threat. In the Fall of 1952, the DoD gave its blessing to the study conclusions, and set in motion the acquisition and deployment of first the Distant Early Warning (DEW) line, and then radar lines across the heart of Canada and lower down to provide warning for the major U.S. and Canadian population centers. In 1957, the DEW line became operational.

**5.4 Area defense: Air interceptors**

The air defense of the country was initiated in 1940, although at the time only carrier-based aircraft could reach the homeland. One of the four original air forces, First Air Force was initially activated as the Northeast Air District on Dec. 18, 1940 at Mitchell Field, Long Island, N.Y. It was re-designated First Air Force on April 9, 1941. In the first months of World War II, First Air Force was responsible for the air defense of the entire eastern seaboard of the United States. In January 1942, the command commenced shore based anti-submarine operations flying Boeing B-17 Flying Fortresses from Langley Field, Virginia.

Neither the Japanese nor the Germans ever developed the long-range bombers they would have needed to directly attack the U.S. homeland by air in WW II. Thus, it was in the early years of the Cold War that the first serious bomber threat to the U.S. arose. In dealing with this threat, the air defenses of the U.S. were invigorated with a number of new jet aircraft, and an extensive array of radars and command and control assets.

First Air Force, underwent transformation, including being shut down when the Cold War threat changed from bombers to missiles. But in 1985, it was reinstated at Langley AFB in Virginia. Since that time, its mission has been to provide, train and equip combat ready forces for the air defense of the North American continent. Upon its reactivation, First Air Force was composed of units of the active Air Force and the Air National Guard. Because of its unique mission and its binational responsibilities, First Air Force works closely with the Canadian Air Forces.

Today, with its headquarters at Tyndall Air Force Base, near Panama City, Fla., First Air Force is one of four numbered air forces assigned to Air Combat Command. It has responsibility for ensuring the air sovereignty and air defense of the continental United States. As the CONUS geographical component of the binational North American Aerospace Defense Command, it provides airspace surveillance and control and directs all air sovereignty activities for the continental United States. First Air Force has been an Air Combat Command organization since June 1, 1992. Its subordinate units are located throughout the continental United States. Since October 1997, all combat and support elements have come from the Air National Guard.

**5.5 Point defense: surface-to-air missiles**

Beginning in 1945, the U.S. Army had developed a surface-to-air bomber defense missile (called Nike-Ajax) that came to be deployed throughout the U.S. and Canada in the early 1950s. Roughly 250 Nike sites were deployed during the height of concern about the Soviet bomber threat, each with several interceptor missiles. Over 10,000 of the missiles were eventually produced, and it was widely deployed by NATO allies in the air defense role. The mission of Nike within the continental U.S was to act as a "last ditch" line of air defense for selected areas: it was a point defense system deployed around critical areas (e.g., Washington D.C., Los Angeles).

In the late 1950s, this missile technology was extended to a series of higher-altitude and faster-accelerating missile interceptors including the Nike-Hercules and Nike-Zeus that had capability against first-generation single-warhead, undecoyed ICBMs. In January 1958, the Nike-Hercules advanced system was the only capability the U.S. possessed that was even close to being effective against ballistic missiles. The Air Force had studies and technology, but no systems under development.

The mature version of the Nike missile, Nike-Hercules was much more effective than the Ajax version had been, and could carry either a nuclear or high explosive fragmentation warhead. It possessed a lateral range of 75 miles and an altitude ceiling of over 150,000 feet. It has been tested successfully against target drones moving at over 2000 mph. The Hercules went operational in June 1958, and was initially deployed around SAC bases to defend the bomber fleet. Nike Hercules was also deployed in the hundreds throughout Europe during the 1960s and 70s. These missiles were deployed both under U.S. control, and by allied nations.

**5.6 Command and control**

The Semi-Automatic Ground Environment (SAGE) was developed by the Air Force to integrate the various elements of the warning system with the defensive forces: jet interceptors and Nike missiles. It was the first automated system to manage the air defense of an entire nation, although many of the elements of an effective air defense capability were identified and developed by the British starting in WW I.

In previous air defense systems, such as that of Britain in WW II, all data handling was done by hand. However, the vast amount of data that could be generated by hundreds of radars forced the Air Force to pursue major upgrades in available computer technology to seek to automate much of the processing and display of warning data.

The Whirlwind computer, which had been under development at the MIT Digital Computer Laboratory in the early 1950s provided the technical foundation for believing that a "semi-automated" system was feasible. In 1953, IBM won a competitive source selection to build the computer that ultimately served as the heart of the SAGE system.

**5.7 Civil defense**

The need for national programs of civil defense was dictated by the threat of modern aerial warfare waged against civilian populations. Before the outbreak of World War II, Germany, Japan, and Britain began to organize civilians to prepare for possible air raids, which included the construction of bomb shelters.

The U.S. had limited civil defense operations in effect on a national level during World War II. However, with the advent of the Cold War, it was considered essential to prepare the U.S. population to deal with a possible nuclear catastrophe in the event that deterrence and active defense failed to prevent a Soviet attack.

The Federal government first passed the Civil Defense Act in 1950 and then established the Civil Defense Administration. The agency was succeeded first by the Office of Civil Defense (1961-1964) and later by the Defense Civil Preparedness Agency. In 1979 the latter was incorporated into the new Federal Emergency Management Agency (FEMA). This independent agency, with headquarters in Washington, D.C., was set up to consolidate federal programs that respond to disasters and emergencies.

The Defense Civil Preparedness Agency and later the Federal Emergency Management Agency (FEMA) was charged with responsibility for educating the public and for preparation of stocked fallout shelters. After 1962 and the close brush with nuclear war precipitated by the Cuban Missile Crisis, the U.S. Office of Civil Defense required the posting of fallout-shelter signs where 50 or more persons could take shelter from radioactive fallout resulting from a nuclear attack. Programs concerned with the threat of nuclear war have been the focus of continuing controversy, because of the immense damage expected to result from such an event. Plans to evacuate city populations to rural areas, for example, were effectively shelved in the early 1980s, because they were rejected by many state and city governments as unfeasible and unrealistic.

### 5.8 The interstate highway program

We mention in closing another element of homeland protection undertaken in the 1950s: the Interstate Highway System. Initiated under President Eisenhower, the program was justified on the basis of the need to be able to be able to move troops and equipment rapidly to different parts of the country in the event of invasion, or the need to load and ship forces overseas. Throughout WW II, the rail system was critical for U.S. transportation of war materials, and the limitations of the U.S. highway system were evident. The Interstate Highway system was initiated to help resolve those problems.

## 6. HOMELAND DEFENSE IN THE MATURE YEARS OF THE COLD WAR

### 6.1 Concern shifts to ballistic missiles

By the mid-1950s both the Soviet Union and the United States had undertaken development of offensive intercontinental ballistic missiles of various sorts. Coming as it did on the heels of the extensive effort to actively defend against bomber attack, it was natural that the U.S. sought to actively defend against missile attack. In the early years of the ICBM it appeared that such a defense was both technologically and economically feasible. It was only later that defensive technology was overwhelmed by the scale of the ballistic missile threat that the nation turned to Mutual Assured Destruction (MAD) as its primary defense against Soviet missiles.

### 6.2 Early debates over the ballistic missile defense mission

The early demonstration of ballistic missile technology by the Soviets led both the Air Force and the Army to undertake programs to develop defenses against these weapons. In 1957 when the USSR announced that it had successfully test-fired an ICBM, the U.S. was still in the midst of extensive debates about what kind of defenses were needed.

Inter-service wrangling over the ownership of the mission was also a problem. By the beginning of 1958, the continual contention between the Air Force and the Army over ballistic missile defenses reached the point where the Secretary of Defense (Neil McElroy) interceded. Arguably, the Army had the best case to assume the mission at the time, based on the experience they had acquired working with the Nike series of bomber defense missiles

In the late 1950s, this technology was extended to a series of higher-altitude and faster accelerating missile interceptors including the Nike Zeus that had capability against first-generation single-warhead, undecoyed ICBMs. In January 1958, Nike Zeus was the only capability the U.S. possessed that was even close to being effective against intercontinental ballistic missiles. The Air Force had studies and technology, but little in the way of systems under development.

Based on the Army's Nike programs, McElroy decided that the ballistic missile defense mission should be the Army's responsibility, and accordingly assigned them the mission on 16 January 1958. The mission remains there to this day, although the division of labor has never been clean because the Air Force operates the warning systems (Ballistic Missile Early Warning (BMEWS) radars and later in the 1960s, satellites), and battle management centers (Cheyenne Mountain) for continental defense.

### 6.3 The Early ballistic missile defense program

These early debates on ABM deployment also focused on the question of whether the system should be a wide area population and economic infrastructure defense, or a more selective defense of the nation's ballistic missile deterrent (the "secure second strike force" in the nomenclature of nuclear strategy). "Second strike" was the posture of being able to absorb the first massive strike from the Soviets, and strike back with sufficient capability to destroy Soviet society. The defense configurations needed to address these disparate missions (civilian "homeland defense" or securing second strike forces) are substantially different.

A study in 1957 by a Presidential Commission (the Gaither Committee) had concluded that active defense of cities and the nation's economic infrastructure against ballistic missiles was essential as soon as technically feasible. Others argued that the first priority was to protect the nation's primary nuclear deterrent: SAC's bomber bases.

Where the ICBM defense system should be deployed was also a bone of contention, and began a debate that continues to the present day. Defenses against attacking bombers had been deployed around the periphery of the country, concentrated around cities and other sites of economic concern (dams, ports, nuclear power plants). Air defense missiles were set up to provide barrier coverage of possible Soviet bomber intrusion on great-circle routes. However, ICBMs had the potential to just leap over these barrier defenses and attack point targets deep within the country.

Part of the problem arose from the fact that the U.S. ICBM program was perceived to be lagging that of the Soviets: it was projected to be the early 1960s before the U.S. would achieve even a limited offensive capability to match the Soviet missiles. In the meantime, the best defense was the deterrence effect of SAC bombers. However, SAC bases were held to be themselves vulnerable to a Soviet ICBM first strike. Thus a ballistic missile defense capability was needed to protect the nation's deterrence force until ICBMs entered the U.S. inventory and reestablished the strategic balance. That was the reason Nike Hercules was first deployed in defense of SAC bases. In fact it is now known that the Soviets were engaged in a massive deception campaign at this time and did not have operational ICBMs until years later. However, the propaganda about a "missile gap" wound up influencing the 1962 Presidential election.

**6.4 The demise of civilian defense**

In the mid-1960s, the U.S. undertook development of the weapon that was to complicate this argument by making population defense virtually impossible. That weapon was the multiple independently targetable reentry vehicle (MIRV). MIRVed boosters had several independently targetable nuclear reentry vehicles. MIRVing of the ICBM fleet posed a challenge that terminal phase defenses (like Nike Zeus) are still struggling to overcome.

The U.S. fleet began by putting three RVs on the Minuteman III ICBM, and proceeded to MIRV both its submarine-launched missiles (Trident), and the new MX ICBM. When the Soviets got their MIRV production underway, they deployed new generations of missiles carrying ten or more RVs. The Soviet inventory of RVs was to grow to over 6000 before it leveled-off.

Along with MIRVing of the fleet came deployment of decoys to confuse the surveillance networks and (if effective) cripple the ability of ABM point defenses to discriminate between the actual RV and the decoys that would be boosted along the same trajectory. This technology so complicated terminal defenses (e.g., like Nike) that it led to a decision in the early 1980s to examine the entire ballistic missile trajectory, including boost phase as a target for ballistic missile defense. If a booster could be shot down while all of the MIRVed RVs were still attached, the defense would be much more effective than just in the terminal stage.

The limited terminal defense ABM system the U.S. was developing was rendered inadequate by the MIRVing of the U.S. and Soviet ballistic missile fleets. When the ballistic missile fleets only carried one reentry vehicle per booster, defense might be achievable; when *thousands* of RVs were in play, terminal defense of the entire nation became technically and economically unachievable.

The rationale for ballistic missile defense shifted to deterrence enhancement. By the end of the 1960s, it was clear that in a MIRVed world, area defense was unaffordable. Only small areas could be effectively defended. Under negotiation for a decade, in 1972 the ABM treaty was signed, further constraining the role of defenses to be deployed at no more than two sites. The system proposed to enhance deterrence was first called Sentinel, and later Safeguard. Two types of missiles were employed in Safeguard. The first was a high-altitude system called Spartan. It was a derivative of the earlier Nike-Zeus and carried a nuclear warhead. The concept was to set off this warhead above the atmosphere. It was called the *exoatmospheric element*, intended to work up to 100 miles altitude. If not killing incoming warheads directly, it would at least destroy the decoys that accompanied the real warheads.

The second missile in Safeguard, Sprint, was an extremely fast *endoatmospheric* system intended to attack RVs within the atmosphere (under 20 miles altitude) after the decoy balloons and chaff had been stripped away by atmospheric friction. Sprint was also nuclear-tipped.

**6.5 The Strategic Defense Initiative**

Under limitations of the 1972 ABM Treaty with the USSR, a single site of 100 missiles was deployed at Grand Forks in 1976, along with a battle management radar, the Perimeter Attack Radar Characterization System (PARCS). The system was intended to enhance deterrence by protecting U.S. silo-based ballistic missiles from a surprise attack, but was never considered to be adequate to the challenge. In the end, Safeguard was declared operational one day and shut down a few months later. There were both concerns about the vulnerability of the PARCS radar to high altitude EMP (HEMP), and an assessment that the proliferating numbers of MIRVed boosters had rendered the Safeguard system too sparse to be useful.

In March 1983, President Regan reinvigorated the search for an effective ballistic missile defense with his "star wars" speech that initiated a huge program that to some extent still shapes the debate and technologies under investigation today. The realization that terminal phase defenses (especially as limited by the 1972 ABM Treaty) could not cope with a massive MIRVed, decoyed ballistic missile attack forced reconsideration of a concept first proposed in studies in the 1960s: boost phase intercept. By catching ICBMs during their initial boost phase, the entire launch load (multiple RVs and decoys) could be destroyed.

The Strategic Defense Initiative changed several aspects of the search for ballistic missile defense that had been underway since the 1950s. First, it reopened discussion of the proper role of ABM defense in the nation's overall strategic posture. In the era of single-RV boosters, the Gaither Committee had argued for wide area population and economic infrastructure protection. With the advent of MIRVed and decoyed boosters, that goal had proven unattainable. The focus for Safeguard had been much narrower: augmenting the deterrence posture of the nation by initially protecting bomber air bases, and later missile silos.

SDI opened consideration of a deterrence posture that was a mixture of strategic defensive and offensive forces that might be more stable than the existing (early 1980s) reliance on Mutual Assured Destruction that involved only offensive forces. The concept was that if the secure second strike capabilities of both sides could be made *really secure* by deploying defenses, then fewer missiles and warheads would be needed to maintain deterrence. Instead of thousands of warheads on both sides, perhaps only a few hundred would be needed, if they were well protected.

SDI also opened examination of the options for defending against ballistic missile attack throughout the flight trajectory. The earlier generations of defenses had evolved out of the Army's work on terminal air defense. The Air Force was more comfortable with the idea of reaching out to defend at long range, and along the entire path the attacker took. Thus the Air Force became the dominant service in the SDI, and began examining options for attacking a ballistic missile throughout its flight from boost phase to reentry.

The technical solutions for defense during reentry continued to look much as they had in earlier years, but boost phase and mid-course intercept technologies exploited a variety of new ideas. Some of these died after a brief flurry of activity (space relay of ground-based laser beams; X-ray lasers), but others continue to be pursued today (air- and space-based lasers, kinetic kill vehicles).

The Strategic Defense Initiative never deployed an operational ABM system of any sort. However, the immense amount of analysis and technology developed under the program between 1983 and the early 1990s formed the foundation for the programs (and framed the elements of the debate) underway today. Why today's programs look the way they look is because the primary threat (the USSR) gave up the Cold War, and because Saddam Hussein showed us that short and intermediate range ballistic missiles can also be a serious problem.

**6.6 The emergence of theater missile defense**

Arguably, German use of the V-2 against England was the first employment of medium-range ballistic missiles in combat. The Scuds in the hands of Saddam Hussein at the beginning of the Gulf War in 1990 differed little in technical capabilities from the German V-2.

Iraq had obtained the missiles from the Soviet Union and had modified them for longer range (by reducing the payload) to use against Iran. When the Gulf War started it is estimated that Iraq still possessed anywhere from 300 to 700 Scud-B missiles.

The initial strikes were against Israel, intending to force that country to enter the war and thus to probably disrupt the coalition of middle-eastern states the U.S. had coaxed into joining in a war against Saddam. The concept of deterrence was turned on its head because of the unique political chemistry of the Coalition arrayed against Iraq. Iraq *wanted* Israel to strike back. In the end, Israel stayed out of the fray, but "Scud hunting" in response to these attacks, and those on Saudi Arabia, began to consume massive numbers of air sorties, to very little effect. The Patriot missile, originally designed as an air defense interceptor had been under modification by the Army to deal with short and medium range ballistic missiles. Although testing was not complete, the system was pressed into duty in both Israel and Saudi Arabia, with mixed results.

Scud hunting (by air) and Scud terminal defenses (Patriot) were promoted in the media as an effective response to the continued launching of these weapons, but in fact the results achieved were minimal. Originally, the Patriot had been designed as a point defense system (e.g., for airfields), not for wide area (e.g., population) defense. More often than not, even when successful intercepts of incoming Scuds were made, the debris continued to follow the approximate ballistic trajectory and still landed in built-up areas where some damage was done. Fortunately, the warheads were all high explosive, not biological or chemical, both of which were known to be available to Iraq.

The focus of SDI effort through the late-80s had resulted in inadequate preparation for the missile war in the Gulf. The war emphasized the importance of *Theater Ballistic Missile* defense (TBM). It was a subject that had gone largely ignored, in spite of the attempts to upgrade Patriot. The post-Gulf War focus for TBM has taken the shape it has because the use of Scuds by Iraq raised several problems that simply had not been anticipated in earlier planning for war against the Soviet Union. In the first place, it proved to be much more difficult (and important) to protect civilian populations from "terrorist" use of ballistic missiles than had been anticipated. It also proved to be much more difficult than anticipated to prevent even intercepted missiles from impacting on non-military assets.

The U.S. inability to stop Scud launches came close to fracturing the coalition more than once. Israel threatened air attacks against Baghdad (inevitably across Jordan because of limited aircraft range); later they proposed covert ground operations into the south of Iraq. U.S. and British Special Forces apparently did undertake such ground operations, but even an optimistic assessment only gives them credit for a handful of Scud kills, compared with the hundreds of missiles Iraq retained in its inventory. In the end the "Great Scud Hunt" of 1991 was not effective, and reinvigorated the issue of ballistic missile defense.

**6.7 National missile defense**

One of the major studies of the nascent ballistic missile threat in recent years was the Commission to Assess the Ballistic Missile Threat to the U.S., the Rumsfeld Commission. The findings of the Commission are most notable for their characterization of the changing nature of ballistic missile proliferation.

Prior to the Rumsfeld analysis, intelligence assessment had judged it highly unlikely that rogue states would be able to acquire long-range ballistic missiles within the next 15 years. After the reassessment by the Commission, it was concluded that North Korea in particular could have ICBMs within five years, and other states (Iran and Iraq) perhaps within ten years. One of the most important observations made by the Commission was that the nations seeking this long-range capability for attack with WMDs were engaged in a concerted effort to conceal their progress. Because of these concealment efforts, it is possible that the U.S. would not have much warning time before such systems become operational.

Based on this assessment that the threat of rogue states could be much nearer in time than previously anticipated, the Commission made several specific recommendations for improving the U.S. defense posture. A major recommendation was that the U.S. proceed with a ballistic missile defense system without delay. This recommendation was high on the list of priorities when the Bush Administration took office in 2001. However, another threat to the U.S. homeland was about to escalate in importance.

## 7. GROWING AWARENESS OF ASYMMETRIC THREATS TO THE HOMELAND

### 7.1 The birth of modern terrorism

Terrorism, understood as a political act, was first recognize and named in the aftermath of the French Revolution. Maximilien Robespierre was the leader of the Committee of Public Safety, charged with making France safe for the new government. He instituted a reign of terror that consumed innocent and guilty alike until some 40,000 had been guillotined. In 1794, the fire he started consumed Robespierre himself.

"Terrorism" is used in both a general and in a specific, political context. Political terrorism is an act of violence that is planned, calculated, and systematically executed to achieve some political objective. Terrorism in general involves the use of force or violence against persons or property in violation of the criminal laws of the United States. Terrorists by their nature are largely immune to the threats of being countered by conventional U.S. military capabilities; thus, deterrence that may be effective in dealing with states is less useful in dealing with both domestic and international terrorist groups.

Terrorism became a major factor in modern life in the 1960s when the era of airplane hijackings began. This gradually evolved into midair plane bombings, suicide truck and car bombings, and totally random massacres. In the 1990s, there were fewer incidents, but they were becoming more deadly, and were increasingly focused on disrupting the United States and its international position. Although the majority of terrorist incidents in the 1990s continued to employ conventional explosives, the possibility that chemical, nuclear, or biological weapons could become part of the terrorists' armamentarium made the escalating actions of these people a growing concern for homeland defense.

### 7.2 The end of mutual assured destruction (MAD)

For decades, nuclear *offensive forces* (ICBMs, SLBM, bombers) have been viewed as the first line of *defense* for the nation. Through the contorted logic of Mutual Assured Destruction, *offensive* forces (the ability to inflict damage on one's enemy) have been viewed as *defending* the homeland. The logic of MAD works as long as a number of conditions are met:

- The enemy forces are commanded by rational leaders
- The enemy has valuable assets that we can threaten to destroy
- Our threat is believable
- The enemy leaders maintain positive control over their offensive forces

When dealing with globally distributed terrorist networks, or internal dissidents committed to employing weapons causing massive death and damage, it appears that none of these conditions is fulfilled any longer. Thus, *threatening offensive action* is no longer a substitute for *defense of the homeland.*

### 7.3 The Long-term strategy for homeland defense

In developing a long-term strategy for integrated employment of both offensive and defensive assets to protect the homeland, we must look at a defense-in-depth approach that starts at the origin of the threat. Threats can be (and are being) addressed at their source, wherever in the world they arise. Secondly, attacks that are set in motion can be preempted and prevented from reaching their targets. Finally people should be prepared to deal with the damage caused by successful attacks that may make it through these multiple levels of defense.

*Threatening offense* is no longer an effective substitute for integrated homeland *defense-in-depth*. And a focus on a limited array of attack modes (e.g., just ships, just bombers, or just missiles) as in previous eras of homeland defense is no longer possible. Our enemies can bring WMDs to bear on the country (or construct them here) by a variety of means. Homeland defense in the 21st century must deal with the fact that oceans no longer protect us the way they did in the 19th and first half of the 20th century. It is unlikely that this new calculus of offense/defense will change for the foreseeable future.