One military historian has called Capt Lance Sijan the “model on how to behave as a POW.” A POW is a prisoner of war. Sijan was a US Air Force pilot in the Vietnam War. He was only two years out of the Air Force Academy when the North Vietnamese shot him down on his 52nd mission. It was 9 November 1967.

Sijan landed with a broken leg, a damaged hand, and a fractured skull. Yet when radioed by a search-and-rescue team, he refused help. He said he didn’t want anyone placed in mortal danger on his account. He tried without success to grab a steel cable the rescue aircraft lowered to pull him out of the jungle. Antiaircraft fire forced the rescue aircraft to leave after 33 minutes. Sijan was stranded in enemy territory.

For more than six weeks, Sijan eluded the North Vietnamese in their jungles. He had to drag himself along the ground because of his broken leg. Finally, the North Vietnamese captured him. But Sijan escaped. When caught again, he was tortured. But he never gave his captors more than his name. They moved him to a POW camp in Hanoi, the North Vietnamese capital. Because of the mistreatment, his health gave out. He died 21 January 1968 as a POW.

The United States took a number of steps to honor Sijan. President Gerald Ford awarded him the Medal of Honor in 1976. The Air Force promoted Sijan to the rank of captain. The Air Force Academy named a cadet dormitory Sijan Hall. And the Air Force grants the Lance P. Sijan Award to those members who show similar bravery and professionalism.
The Role of Air Power in the Cuban Missile Crisis

Many conflicts took place during the Cold War. There was the bloodless Berlin Airlift. There was the bloody Korean War. Then came the Cuban Missile Crisis in 1962. This event was the closest the United States and the Soviet Union got to nuclear war—war involving the atomic bomb or the hydrogen bomb. The hydrogen bomb, invented in 1953, was even more powerful than the atomic bomb.

Cuba had become a Communist country in 1960. In 1962 the Soviets sent bombers, fighters, and shiploads of equipment and men to build missile sites there. The Soviets wanted to intimidate the United States in its own backyard. Cuba is only 90 miles south of the southernmost point of Florida. Had the United States allowed the Soviet Union to keep these missiles in Cuba, the Soviets could have struck the US mainland with little warning.

How Aircraft Were Used During the Cuban Missile Crisis

The United States carefully watched developments in Cuba. US Air Force pilots went on aerial reconnaissance in the U-2. These pilots were from Strategic Air Command’s (SAC) 4080th Strategic Reconnaissance Wing. They took photographs of Soviet missile bases in Cuba.

You read about the U-2 spy plane in the last lesson. It was a single-engine, high-altitude aircraft. Its purpose was to gather information on enemy activities. It could fly at altitudes above 55,000 feet. Its glider-like wings worked well in the thin upper atmosphere. It was first tested in 1955.

Reconnaissance missions can be dangerous. Maj Rudolf Anderson Jr. had already provided the US government with photos of missile sites. He went on another mission over Cuba on 27 October 1962. The Cubans shot him down with a surface-to-air missile (SAM). Anderson was the only American to die in the Cuban Missile Crisis.
FIGURE 2.1
This map shows the location of Russian aircraft and missiles around Cuba in 1962.
President John F. Kennedy ordered a naval blockade of Cuba on 24 October. A **blockade** is isolating a country, city, or harbor with ships or troops so that no traffic can leave or enter. Soviet ships could no longer enter Cuban ports. At the same time, SAC prepared to deliver nuclear bombs. These two moves let the Soviets know how seriously the United States took the Soviet missiles.

Now a big question arose: would the Soviets try to break through the blockade and risk war?

**The Outcome of the Cuban Missile Crisis**

Twenty Soviet ships were sailing toward Cuba when Kennedy set up the blockade. About 500 miles from the United States, the Soviet ships turned away. One reason the Soviets backed down: they had fewer nuclear weapons than the Americans.

A few days later Soviet Premier Nikita Khrushchev ordered the missile sites dismantled. American U-2s flew over Cuba to make sure the Soviets kept their word.

The crisis had passed. But the standoff started an arms race between the Americans and Soviets. An **arms race** is a *competition for military supremacy*. Each party in an arms race tries to produce larger numbers of weapons and a better military force than the other.

The Soviets wanted to make sure the United States could not force their hand again. They poured money into building their nuclear stockpile. The United States was equally determined to keep its superiority. The arms race accelerated after the Cuban Missile Crisis. It continued until after the Cold War ended in 1989.
The Role of Air Power in the Vietnam War

America’s gradual entry into the Vietnam War marked another phase of the Cold War. After World War II, France tried to regain control of its colonies in Indochina—Vietnam, Laos, and Cambodia. Japan had occupied these colonies during the war. France was fighting Vietnamese forces led by Communist Ho Chi Minh. In July 1950 the United States supplied money to the French effort.

In 1954 France withdrew from Vietnam after a serious military defeat. The Geneva Accords of 1954, an international agreement, split Vietnam in half along the 17th parallel. Soon the country fell into a civil war as the north tried to occupy the south. To the north were the Communists. Their allies were the Soviets and the Chinese. To the south were Vietnamese who opposed communism. The United States soon began providing military training and supplies to South Vietnam.

Not until 1961, however, did US forces see combat in Vietnam. About 11,000 troops, including Airmen, saw action in the early 1960s. They served mostly as advisers to South Vietnamese forces.

In 1964 things really heated up. North Vietnamese patrol boats attacked the USS Maddox. The American destroyer was off the North Vietnamese coast in international waters. International waters are areas of the seas where ships from any nation have the right to travel. The North Vietnamese thought the destroyer was involved in secret US raids along their coast.

Congress quickly passed the Tonkin Gulf Resolution. It allowed President Lyndon Johnson to order the military to strike back at North Vietnam. This was not a declaration of war. But it led to a huge land- and air-based campaign that lasted until 1973. At the war’s peak, the United States had more than a half-million troops in Vietnam.
Ways the USAF Trained the Vietnamese Air Force

Communist ground troops were the main threat to South Vietnam. For much of the war, these troops, called Viet Cong, conducted guerrilla warfare. That’s a type of fighting in which small bands of fighters hit more-powerful forces by surprise. The Communists didn’t have much air power. Even so, the US Air Force trained members of South Vietnam’s Vietnamese Air Force (VNAF). Given their experience in World War II and the Korean War, the US Air Force knew how to effectively bomb supply routes and hit enemy troops.

The focus of the US Air Force was threefold. It gave the VNAF practice in tactical air operations. VNAF pilots flew as passengers with American pilots to study needed skills. And the US Air Force developed ways to fight guerrillas from the air. Eventually, it introduced reconnaissance and airlift operations.

The Geneva Accords prohibited the use of fighter jets in Vietnam. So at first the US Air Force trained the VNAF pilots to fly propeller aircraft. These slower-moving aircraft were actually well suited for reconnaissance missions. The VNAF could buzz low over the jungles to spot guerrilla movements. But the North Vietnamese kept crossing the 17th parallel into South Vietnam. This was a violation of the Geneva Accords. So the Air Force taught the VNAF how to fly jets. If one side could break the rules, the United States reasoned, then so could the other.
Ways the US Used Air Power in the Vietnam War

The US Air Force conducted tactical air missions throughout the Vietnam War. The theater was small. The targets were even smaller. In the end, however, it was strategic bombing that forced the North Vietnamese to negotiate an agreement to end the war.

Operation Rolling Thunder

President Johnson ordered the Air Force not to strike sites linked with the Soviets or Chinese. Johnson didn’t want any Russian or Chinese advisers killed. He did not want to draw those two powerful countries into a full-scale war. (This had happened with Chinese troops during the Korean War.) The US conducted limited tactical air strikes on railroads, oil depots, and warehouses. Their purpose was to wear down the North Vietnamese without provoking the Soviets and Chinese.

These tactical strikes, called Operation Rolling Thunder, took place from 1965 to 1968. They weren’t as successful as the United States hoped. Because they were limited, the strikes gave the north too much opportunity to rebuild and repair. Several hundred US personnel were shot down and became POWs. These men were held for many years and most were severely mistreated. Meanwhile, regular North Vietnamese Army troops entered South Vietnam through Laos and Cambodia.

The Tet Offensive

In January 1968 the North Vietnamese and Viet Cong surprised US and South Vietnamese forces with the Tet Offensive. The offensive got that name because it occurred over the Tet holiday, which is when the Vietnamese celebrate the lunar new year. Communist troops and guerrillas attacked 36 major cities in South Vietnam. The US Air Force airlifted troops to the front lines, attacked enemy soldiers, and bombed supply routes.

When the enemy surrounded 6,000 US Marines at their base in an area called Khe Sanh, air power helped save the day. For two months, US cargo planes airlifted supplies. US aircraft also dropped 110,000 tons of bombs around Khe Sanh and blew up 3,000 enemy supply trucks. The Tet Offensive ended when US and South Vietnamese forces expelled the North Vietnamese from the south’s major cities. Many North Vietnamese troops retreated north across the 17th parallel.

Operations Linebacker I and II

When President Richard Nixon took office in 1969, US tactics in Vietnam changed. Nixon wanted to get American troops out of Vietnam. He wanted to turn the effort over to South Vietnamese forces. He began dramatically cutting the number of US ground forces. But in 1972, the North Vietnamese tried another invasion similar to the Tet Offensive. Nixon told his military leaders to do whatever was needed to drive the North Vietnamese out of the south for good. The very short, but devastating strategic-bombing phase of the war began.
In 1972 Air Force B-52s and Navy aircraft pounded North Vietnamese supply routes. The United States called this action Operation Linebacker. During this phase, US aircraft bombed many targets that were off limits during Operation Rolling Thunder. For a while, the North Vietnamese seemed willing to discuss a treaty. But they changed their minds.

In reply, Nixon ordered Operation Linebacker II in mid-December. B-52s flew over North Vietnam with 15,000 tons of bombs. The B-52s relentlessly bombed targets that had been off limits for years. Fifteen bombers were lost during the operation. In January 1973 the North Vietnamese signed a peace treaty with the United States. The final US troops withdrew. Unfortunately, in 1975, the Communist North Vietnamese violated the treaty. They invaded the south, and took over South Vietnam anyway. This time the US did not help. Congress prohibited President Gerald R. Ford from spending money to do so.

**Significant Aircraft Used by the USAF During the Vietnam War**

A quiet star of the war was the helicopter. Vietnam saw a new use for these aircraft. Units of helicopters transporting ground forces were referred to as “air cavalry.” This was a reminder of the fighting units on horseback from previous centuries.

The helicopter is a delicate aircraft compared with fighters and bombers. The military lost 5,000 of them in the war. But it was a very effective aircraft in the jungles of Vietnam. It could drop troops at the front lines so they wouldn’t have to make long marches through thick undergrowth. It could hover while delivering supplies. Because it didn’t need a runway, it could pick up the wounded in the field.
Other aircraft also saw action in Vietnam. In the early years of the war US and VNAF pilots flew B-26 bombers. Another combat plane was the T-28, an aircraft originally built to train pilots. The “T” in T-28 stands for “trainer.”

But in 1964 and 1965 Communist ground forces began to attack US bases. The US Air Force brought over B-52 bombers and F-105 Thunderchief fighter jets. It sent F-4 Phantoms into aerial combat with Soviet-built North Vietnamese MiGs.

Three other important aircraft were high-tech. These were the EC-121, the EB-66, and the F-100F Wild Weasel. The EC-121 was a radar-equipped cargo plane. The EC-121 searched for enemy MiGs over the skies of Vietnam. EC-121 crews could tell US and VNAF fighters where to find MiGs.

The EB-66 jammed enemy radar by sending out electronic pulses. Radar on the F-100F fighter could spot the location of enemy radar and send a missile right at it.
A1C William Robinson: From POW to Second Lieutenant

A1C William Robinson was a member of a search-and-rescue team during the Vietnam War. He flew in an HH-43 helicopter.

On 20 September 1965 Robinson’s group set out to rescue a downed pilot in North Vietnam. They flew 80 miles to the site with an armed escort. Enemy fire hit both US aircraft. Rules from headquarters forbade the escort to return fire. So it headed back to base. Enemy forces shot down Robinson’s helicopter. It crashed into the jungle. The crew was taken prisoner.

Robinson spent eight years as a POW. The captors didn’t treat the prisoners’ wounds. They tortured the prisoners instead. They denied the POWs adequate food. They exposed them to all kinds of weather. All POWs spent time in solitary confinement. During solitary confinement, a prisoner is held in a cell alone and not allowed to talk to anyone.

Robinson described this as “weeks, months, and years of boredom punctuated by moments, hours, and days of stark terror.” But he survived. During his incarceration, he received “informal” Officer Candidate School training. When he returned to the United States, he was offered and accepted a direct presidential appointment to the rank of second lieutenant. He received many awards, including the Air Force Cross.
Lessons the USAF Learned From the Vietnam War

During the first few years of the war, the United States did not use air power consistently. From time to time it halted the bombing raids. During these pauses, the United States tried to get the Communists to stop fighting. Instead, the North Vietnamese used the time to repair their supply routes and communication lines.

This experience taught the US Air Force that it must thoroughly defeat an enemy. It must not spare locations where Soviet and Chinese advisers might be stationed. During Operations Linebacker I and II, B-52 bombers pounded supply routes and Communist positions until the North Vietnamese were compelled to talk.

A1C William Pitsenbarger: A First-Class Hero

A1C William Pitsenbarger (1944–1966) was a crewman aboard an HH-43 helicopter that went on search-and-rescue missions. He was a pararescueman. His job was to care for the wounded and get them out of the jungle.

Pitsenbarger performed this role bravely on 11 April 1966 near Cam My, Republic of Vietnam. On that day, his job was to care for Soldiers who were under fire in South Vietnam. He treated the wounded in the middle of the action on the jungle floor. He placed the casualties in hoists to lift them 100 feet in the air to the chopper. When the enemy launched a major assault, he joined the firefight. Wounded three times, he continued fighting and helping others. He died in action that day.

The Air Force awarded Pitsenbarger the Air Force Cross. But Soldiers who were at the firefight that day asked that he receive a higher honor: the Medal of Honor. The secretary of the Air Force presented the medal to Pitsenbarger’s father in 2000.
The Top-Secret Mission of CMSgt Richard Etchberger

CMSgt Richard Etchberger (1933–1968) started out as a radar operator. He learned fast. During the Vietnam War, his superiors asked if he’d like to join a top-secret mission called Project Heavy Green.

The project was a joint mission of the US Air Force and the Central Intelligence Agency (CIA). The military needed a radar site close to the border of North Vietnam to better direct bombing runs. The site was in Laos, a country that was neutral, not taking sides. Because Laos was neutral, no US military member could be stationed there. So anyone wanting to take part in the mission had to resign from the military and secretly join the CIA. Etchberger did just this.

From 1967 to 1968, Etchberger and 18 other Americans worked at the secret radar station in Laos. They directed 25 percent of all bombing missions over North Vietnam. But then the North Vietnamese forces learned of their site. They launched an air attack on 12 January 1968. That didn’t succeed. So they launched a ground attack from 10 March to 11 March 1968.

Etchberger and his fellow workers fought as best they could. But many were injured or killed. Etchberger escaped enemy fire. He continued to fight until a helicopter came to pick up the survivors. He loaded his fallen friends one by one until it was his turn. He was fatally shot only after he boarded the copter.

After his death the Air Force awarded Etchberger the Air Force Cross. In a secret Pentagon ceremony in 1969, it was accepted by his wife Katherine.
A1C John Levitow Earns a Medal of Honor


The AC-47 gunship he was on came under heavy fire. (The crew later found out their ship had 3,500 punctures from enemy fire.) A mortar shell exploded on the ship’s right wing. The explosion sent shrapnel through the body of the plane. It wounded many crewmen.

Forty pieces of shrapnel hit Levitow. Even so, he saved the life of one of his comrades who was about to fall through an open cargo door. When Levitow saw a loose flare headed toward the ammunition supply, he threw himself on top of it. He threw the flare out the cargo door barely a second before it exploded.

Levitow spent two months recuperating. Then he went on 20 more missions. For his brave act in 1969, he received the Medal of Honor in 1970. No other Airman of his rank or lower had ever received that award—the nation’s highest military medal.
Maj Robert Undorf and the Rescue of the *Mayaguez*

Maj Robert Undorf was another Airman who served with honor during the Vietnam War.

Undorf was an on-scene commander in 1975 for the rescue of the US merchant ship *S.S. Mayaguez* and its crew. Cambodian Communists grabbed the ship in May 1975. It was 60 miles off the Cambodian coast.

The Cambodian Communists took the *Mayaguez* to Koh Tang Island off the Cambodian coast. President Gerald R. Ford dispatched a force of roughly 200 Marines to retake the vessel and rescue the crew. The Marines expected light resistance on Koh Tang. But they soon found themselves in a tough firefight with up to 200 Cambodian troops. Three of their eight helicopters crashed and two others were disabled.

Meanwhile, a Marine boarding party seized the *Mayaguez* but found no crew members aboard. US aircraft carried out a bombing strike on the Cambodian mainland. After that, the Cambodians released the *Mayaguez*’s crew.

Getting the Marines off Koh Tang was another matter. While they fiercely defended their position, Maj Undorf flew above the battle in an OV-10 forward-air-control aircraft. He directed supporting fire from USAF aircraft and helicopters on the scene. He then directed the rescue of the Marines from the island while continuing to bring in supporting fire. This was tricky, because at the end only three helicopters were available to pick up the Marines. More than once, Undorf himself made several strafing passes against Cambodian troops.

For his intelligent and brave execution of duties Undorf earned the Silver Star and the Mackay Trophy. The Air Force gives the trophy for the most outstanding flight by an Airman each year.
TSgt Wayne Fisk earned two Silver Stars in the Vietnam War. He was a pararescueman.

Fisk earned his first Silver Star for taking part in a raid to try to rescue POWs in 1970 from the Son Tay POW camp in North Vietnam, in enemy territory. He earned his second Silver Star helping US Marines fight Cambodian Communist forces.

Fisk was a member of the assault force that recovered the Mayaguez, its crew, and the entrapped Marines. During this operation, he traded fire with an enemy sniper while trying to recover a Marine’s body. This made Fisk the last US serviceman to engage the enemy in Southeast Asia.

Gen Daniel James Jr.: The Military’s First African-American Four-Star General

Gen Daniel “Chappie” James Jr. (1920–1978) was the first African-American to attain four-star general rank. He received a bachelor of science degree in 1942 from Tuskegee Institute and completed the Civilian Pilot Training Program.

During World War II James trained pilots, including the famous Tuskegee Airmen. He flew 101 combat missions in Korea. He went on 78 missions in Vietnam. He led one operation in Vietnam in which US Airmen shot down seven MiGs. This was a record during the Vietnam War.

James received his fourth star in 1975. At that time, he was commander in chief of the North American Air Defense Command and the Aerospace Defense Command. He directed all strategic aerospace defense forces in the United States and Canada.

He retired in 1978 as a special assistant to the Air Force chief of staff.
How the USAF Gained an Increasingly Significant Role in Other US Military Operations During the Cold War

The mission of the US Air Force expanded during the Cold War. Although its main role was still to deliver the atomic bomb, it took on new missions. These included a lead role in the Berlin Airlift, rescuing US citizens in harm’s way, and securing Europe by helping rearm Germany.

The US public’s desire to avoid heavy casualties led to more reliance on air power to support US goals. In addition, the Air Force’s ability to attack more precisely and with less risk of losing aircraft made air power an attractive option.

US and NATO Military Operations

The United States and NATO nations had two big fears during the Cold War: a Soviet ground attack and Soviet nuclear weapons.

The US and NATO took steps to increase security. They accepted West Germany into NATO in 1955. West Germany bordered Soviet-controlled East Germany. As a member of NATO, West Germany was a geographic barrier to Communist expansion. The US and NATO also rearmed West Germany to a limited extent. Remembering World War II, most people were still wary of Germany.

Starting in 1957 the United States began placing nuclear bombs all over Western Europe. It was the Air Force’s job to deliver these weapons if needed. The purpose was to keep Soviet ground forces at bay. Soviet ground forces were far more numerous than NATO forces.

Other Significant Military Operations During the Cold War

Besides coordinating operations with NATO, the United States conducted missions of its own during the Cold War. Four of these involved saving civilian lives or establishing democracies.

Operation Eagle Claw

On 4 November 1979 Islamic “students” raided the US embassy in Iran. They took more than 90 US diplomats hostage. In return for the hostages’ release, the Iranians demanded the US government return the Shah of Iran. He was in the United States for surgery. The unpopular Iranian leader had fled his country earlier that year.

Negotiations to gain the hostages’ release failed. So President Jimmy Carter ordered a military rescue. Operation Eagle Claw began—and ended—on 24 April 1980. Eight Navy helicopters took off from the aircraft carrier USS Nimitz in the Persian Gulf. They headed for a patch of Iranian desert from which they planned to launch the rescue. Three of the helicopters had mechanical problems. The mission was canceled. As the remaining aircraft were leaving Iran, one of the helicopters and a USAF cargo plane collided. Five Airmen and three Marines died.
Months later on 20 January 1981—the day President Ronald Reagan assumed office—the US and Iran reached an agreement to free the last 52 hostages. (Iran had released some earlier.)

The US military learned from the experience. It needed to better coordinate joint ventures between different branches of the military. In 1987 Congress passed a law that set up the US Special Operations Command. Its purpose was to conduct special operations, which often involve more than one branch of the military.
Operation Urgent Fury

On 13 October 1983 Communists in the government of Grenada overthrew the prime minister and took over the island in the Caribbean. Many suspected Cuba and the Soviet Union were behind the plot.

The Communist takeover put at risk some 600 American students attending a medical college in Grenada. It also endangered hundreds of other Americans living on the island. President Ronald Reagan sent US troops into Grenada on 25 October to rid it of communism and to bring home the American citizens. The mission was dubbed Operation Urgent Fury.
Many US Air Force aircraft took part in the mission. One was the AC-130, a gunship that gave cover to troops securing an airfield in Grenada. The AC-130 took on enemy foot soldiers and attacked antiaircraft systems. Another aircraft was the EC-130, which can broadcast to enemy radio and TV receivers. In Grenada, the EC-130 crews relayed radio messages to local people so they’d know what was happening. The C-141 Starlifter ferried home the students, plus nearly 11,000 other Americans.

The US and troops from several Caribbean nations ousted the would-be Communist government. By 15 December they restored security. The US troops could go home.
Operation El Dorado Canyon

Libya, a country in North Africa, was a center of anti-US terrorism in the 1980s. In one Libyan bombing of a club in Germany, for instance, two US servicemen died. On 14 April 1986 Operation El Dorado Canyon targeted five military sites in Libya. President Reagan authorized the mission. The operation was a joint venture of the US Air Force and Navy.
Britain let the Air Force use one of its bases as a launching pad for the operation. US aircraft flew seven hours to reach Libya. The flight took longer than usual because France wouldn’t let the Air Force fly over French airspace. This added more than 1,000 miles each way to the trip. One plane involved was the F-111 Aardvark, whose wings sweep back in flight to enable the craft to reach faster speeds. KC-10 and KC-135 refueling tankers accompanied these fighters on the 6,400-mile round-trip flight. The flight was the longest for any combat mission in Air Force history up to this time.

Other aircraft played a role as well. The EF-111 jammed Libyan radar. Navy aircraft such as the A-7, A-6, and F-14 joined the Air Force aircraft from carriers in the Mediterranean Sea.

The mission succeeded, although the Libyans shot down one US aircraft. Libya eased off from backing terrorism for several years. But it continued to pose a terrorist threat.

**Operation Just Cause**

Panamanian military leader (and dictator) Manuel Noriega held power in his Central American country in the 1980s. At the time, the United States protected the Panama Canal in accord with a long-standing treaty with Panama. The canal is a 50-mile route through which ships travel between the Atlantic Ocean to the Pacific Ocean. Members of Noriega’s Panama Defense Forces (PDF), however, regularly seized, beat, and harassed US military personnel. In 1989 the PDF even detained nine school buses filled with American children from nearby US bases. Noriega was also involved with smuggling illegal drugs.

In response to these threats, the United States undertook Operation Just Cause. President George H. W. Bush said the purpose was to “safeguard the lives of Americans, to defend democracy in Panama, to combat drug trafficking, and to protect the integrity of the Panama Canal treaty.”

Just Cause was a joint operation of the Air Force, Army, Navy, and Marines. The Air Force’s new F-117 Nighthawk stealth fighter saw its first combat duty. Furthermore, the Air Force delivered 9,500 paratroopers in the largest airdrop since D-Day in 1944. The mission ran from December 1989 until February 1990. US forces arrested Noriega on 3 January 1990. He was convicted in a US court of drug trafficking and money laundering. A Panamanian court convicted him of murder. In February 2007, he was still in a US prison in Miami, with one report saying he might be released in September.
Key Developments in Aircraft, Missile Capability, and Nuclear Capability During the Cold War

Between 1945 and 1989, both the United States and the Soviet Union spent billions on defense. Because of this huge investment, the United States made several advances in aircraft, missiles, and nuclear power during those years.

Aircraft Developments

The Douglas X-3 Stiletto was introduced in 1952. It was different from the X-1 and X-2, which you read about in Chapter 6, Lesson 1. While the X-1 and X-2 were rocket-driven, the X-3 was jet-driven. And while the X-1 and X-2 had to be launched like a glider in mid-air, the X-3 took off from the ground.

Engineers built the X-3 to be the first jet aircraft to break Mach 3. But in 20 tries, it failed to do so. So the designers went back to the drawing board. They came up with three new aircraft: the F-104 Starfighter, the experimental X-15, and the reconnaissance aircraft SR-71 Blackbird.

The F-104 flew 1,404 mph in 1958 and reached an altitude of 103,395 feet in 1959.

The X-15 tested two kinds of limits: speed and altitude. Like the first jets in the X-series, the rocket-propelled X-15 had to be carried into the air for release. But it soon broke records. The X-15 flew at speeds that exceeded 4,000 miles an hour. It soared more than 50 miles into the sky. Pilots tested the X-15s from 1959 until 1968.
The SR-71 was the fastest (2,193 mph) and could reach the highest altitudes (85,068 feet) of all reconnaissance planes.

The Bell X-5 first flew in 1951. It had a jet engine. Its main experimental function was its wing design. The X-5 had wings that could sweep back up to 60 degrees during flight. The sweptback-wing design meant faster flight. The F-111 that dropped bombs over Libya during Operation El Dorado Canyon in 1986 had the same swing-back wing design.

As the B-52 fleet aged, the Air Force modernized its bomber fleet. It upgraded the B-52s to accept air-launched cruise missiles. And in 1984 it accepted the first B-1 Lancer long-range bomber. The B-1 could carry twice the payload of a B-52. The Air Force thought the B-1’s range, speed, and ability to attack at low altitude would allow it penetrate Soviet defenses. Its design called for a maximum speed of Mach 2.1 (1,400 mph) and a range of 6,100 miles without refueling.
Missile and Nuclear Developments

At the end of World War II, the Germans invented and used the V-2 ballistic missile. A ballistic missile is one that free-falls after a self-powered flight. During the final months of the war Germany fired thousands of these rocket-driven missiles. The missiles flew 100 miles into the sky before plunging to Earth at speeds as high as 3,600 mph. They carried 2,000-pound warheads. A warhead is the explosive tip of a missile.

Based on captured V-2 technology, the US developed its own ballistic missiles after the war. Their purpose was to deliver nuclear weapons on the Soviet Union and its allies. Ballistic missiles were rocket or jet propelled. They weren’t guided by radar. Once they finished their forward, upward motion, they plummeted to Earth much like a bomb dropped from a plane. The Soviets likewise developed a series of increasingly effective missiles aimed at the US and other NATO countries.

Other Cold War era inventions were smart bombs and cruise missiles. Smart bombs are dropped from an aircraft and guided to their targets by laser or other precision-delivery devices. They have fins to stabilize them in flight. Cruise missiles are both guided and propelled. The first cruise missile was the German V-1 from World War II.

In the 1950s US researchers invented a jet-propelled missile. The Northrop SM62 Snark could fly for 6,300 miles at Mach 0.94. This was nearly the speed of sound. The rocket-propelled GAM 63 Rascal was smaller and more controllable than the Snark. SAC bomber crews could guide the Rascal by radar from up to 100 miles away. This distance better protected bombers from antiaircraft fire.
Both the Snark and the Rascal carried nuclear warheads, although the Snark was originally fitted with conventional explosives. The Northrop SM62 Snark led to more-advanced cruise missile designs.

The US used cruise missiles in 1991 during the first Persian Gulf War. They can fly low and turn sharp corners. They are so accurate they can be directed to fly through a specified window of a building.

In an effort to cool Cold War tensions, the United States and the Soviet Union entered into a series of arms-control agreements. These accords limited and reduced the numbers of specific types of nuclear weapons—especially ballistic missiles.

How the Cold War Ended

In the decades of the Cold War, the United States and the Soviet Union never fought face to face. Neither side used nuclear weapons. They avoided total war.

But each side spent billions of dollars building up arms. This meant billions of dollars weren’t going toward the everyday needs of civilians: better schools, better roads, and better power plants. This failure to pay attention to its people’s needs severely weakened the Soviet Union.

The country’s economy suffered. People had to wait in line to buy basic foods, such as bread. The people in the Communist countries of Europe also began to demand more respect for human rights. They wanted freedom of speech, freedom of religion, and the freedom to travel to other countries.

The Cold War came to a critical point in 1989. Soviet leader Mikhail Gorbachev had come to power in 1985. He tried to reform the Communist system by freeing the economy and improving human rights. But the effort came too late for Soviet communism. The Soviets’ Eastern European allies saw their Communist governments fall one by one. In most cases, democracies took their place. East Germany and West Germany reunited into one democratic country. The Soviet Union broke apart into 15 independent countries, including Russia. Gorbachev was unable stop the disintegration of the Soviet Union.

After four decades of tension, the contest of wills was over. The United States and its democratic allies in NATO had won.

Some people thought the Cold War’s end would bring a long period of peace. But instead, the ending of the Cold War ushered in a whole new era of regional conflicts. This would challenge the US and NATO in a much different way than the Cold War did.
CHECKPOINTS

Lesson 2 Review

Using complete sentences, answer the following questions on a sheet of paper.

1. What was an aircraft used during the Cuban Missile Crisis and how was it used?

2. What did President John F. Kennedy set up around Cuba when the Soviets were building missile sites on the island nation?

3. Which country was better equipped with nuclear weapons during the Cuban Missile Crisis—the United States or the Soviet Union?

4. What did Congress pass that gave President Lyndon Johnson the right strike at North Vietnam?

5. Which aircraft was the new quiet “star” of the Vietnam War?

6. What lessons did the USAF learn from the Vietnam War?

7. What important lesson did the US military learn from Operation Eagle Claw?

8. What was special about the X-5 aircraft?

Applying Your Learning

9. Why do you think the US and NATO won the Cold War?