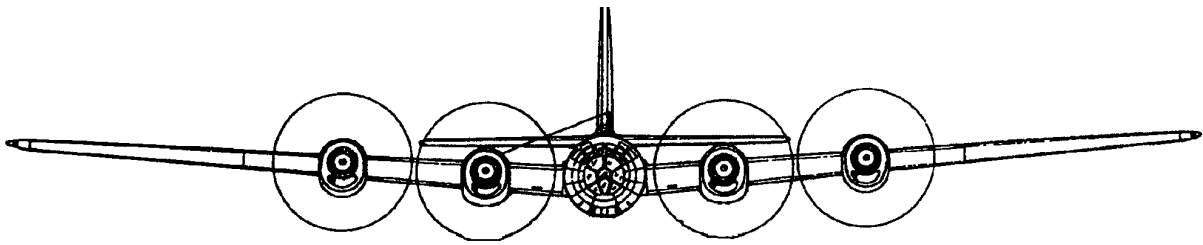


The History of the B-29 Superfortress



**Text of the Plaques at the B-29 Memorial
Formerly the Great Bend Army Air Field
Great Bend, Kansas**

By Linda McCaffery, B-29 Historian

The B-29 Memorial

Honoring the Past...Educating the Future

The B-29 Memorial was built to honor the sacrifices made by people in the past to ensure freedom for future generations. Until the 1990s, the Great Bend Army Air Field was typical of many historic places on the verge of being forgotten. Then in 1997, the B-29 Memorial Committee was formed to raise the funds to build a lasting memorial, not only to the Great Bend Army Air Field and the B-29 Bomber, but to all of America's veterans and military installations.

Symbolism of the Design

From the ground, the intersecting arches represent the emblem of the Global 20th Air Force. Looking up 18 feet through the arches gives one the feeling of being inside the plane, peering through windows in the nose. From the air, the design represents the view through a Norden Bombsight. The huge shadow cast by the sculpture gives one the sense of standing under the plane when it is coming in for a landing. The memorial is built on the site of the headquarters building and was surrounded by scores of other military structures. Imagine the activity in 1944. Men and women are busy completing endless paperwork. Behind you engines roar as B-29s take off and land, and mechanics repair planes in the big hangars.

The Boeing B-29 Bomber . . . The Superfortress

In June 1939, the world was on the verge of war. American military planners recognized the need for a bomber capable of carrying a large bomb load over a great distance. From this demand came the largest, most expensive and technologically advanced aircraft of World War II, the Boeing B-29 Bomber. The B-29 was rushed into production without the usual period of testing and modification of new systems. The result was unfortunate, as B-29s and crews were lost due to mechanical failures. In spite of the difficult beginning, the B-29 would play a major role in ending the world's most horrible war.

Concept

In February 1940, four aircraft companies received letters from the Army Air Corps (predecessor of the Army Air Force which was established June 20, 1941) requesting proposals for a new long-range heavy bomber. The Boeing Airplane Company and Consolidated-Vultee Aircraft Company submitted proposals. Commanding Officer of the Army Air Corps, General Henry H. "Hap" Arnold, authorized the funds for both companies to build prototypes and begin wind tunnel testing. Consolidated's prototype was given the designation "XB-32, the Dominator." Only 114 B-32s were built, with few used in combat. It was Boeing's revolutionary design, the XB-29, that the Army Air Corps preferred. The plane would be called "the B-29 Superfortress."

Test Flights

In May 1941, before the first XB-29 flew, the Army Air Corps ordered 250 planes. According to General Kenneth B. Wolfe, it was "a three billion dollar gamble." Test flights began in September

1942 with Boeing's legendary test pilot Edmund "Eddie" Allen at the controls. The Project Officer, Col. Donald Putt, reported it was an excellent plane and that it was "unbelievable for such a large plane to be so easy on controls." But there was a major concern; the engines overheated and often caught fire. During a test flight February 18, 1943, Eddie Allen called the control tower at Boeing Field, Seattle, to report an engine fire. His next transmission reported he was coming in with a wing aflame. Forty-five seconds later, power failed at Boeing Field. The B-29 had ripped through a transmission line and crashed into a packing plant. All 11 men on the plane were killed, along with 20 others on the ground. The problems with the engines would continue to cost lives as the plane entered combat in 1944.

The B-29 Goes to War

In spite of the crisis, the B-29 project continued. General Arnold established the "B-29 Special Project" to oversee the continued development and production of the bomber. He risked his professional reputation by promising President Franklin Roosevelt that at least 150 B-29s and their crews would be ready to fly missions from India and China by the spring of 1944.

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B-29 Specifications

Cost	1942 Average Cost: \$893,730.00 1945 Average Cost: \$509,465.00
Wingspan	141 Feet 3 Inches
Length	99 Feet
Height to Tail	27 Feet 9 Inches
Weight	Empty: 70,140 Pounds Loaded: 135,000 Pounds
Engines	Four Wright R-3350-23 Cyclone 18-Cylinder Radial Engines Producing 2200 Horsepower
Maximum Range	3250 Miles at 25,000 Feet With Full Fuel and 5000 Pound Load
Maximum Speed	375 mph at 25,000 Feet
Normal Cruising Speed	200-250 mph
Rate of Climb	38 Minutes to 25,000 Feet at 110,000 Pounds Gross Weight
Fuel Capacity	5566 US Gallons in Four Wing-Tanks & 2560 US Gallons in Four Bomb Bay Removable Tanks
Bomb Load	5000 Pounds Over 1600 Mile Radius at High Altitude

Armament Ten 50 Caliber Machine Guns and One 20mm Cannon.
Gun Turrets Were Controlled by Gunners Through the Central-Fire Control (Electronic Gun System)

Eleven-Man Crew Aircraft Commander or Command Pilot
Pilot or Co-Pilot
Bombardier
Navigator
Flight
Radio Operator
Radar Operator
Central Fire Control Gunner
Left Side Gunner
Right Side Gunner
Tail Gunner

Different Versions of the B-29

The majority of B-29s were used as bombers. However, there were other versions used for different types of missions.

YB-29

The YB-29 was the early version of the B-29. It featured a Hamilton Standard three-bladed propeller and was painted. Only 14 YB-29s were built and one, the *Hobo Queen*, was sent to England as a decoy. The plane stayed in England for two weeks before flying to India to join the 462nd Bomb Group.

Soviet Tupelov Tu-4

Three B-29s were forced to land in the Soviet Union, America's World War II ally, between July and November 1944. Ironically, one of the B-29s was named the *General H. H. Arnold Special*. The crews were released, but the planes were kept, dismantled, and copied. The carefully-copied B-29 appeared at the Tushino Air Show in August 1947 as the Tu-4.

B-29 Silver Plates

The Silver Plates were B-29s modified to carry atomic bombs. The first Silver Plates were deployed to the 509th Composite Group commanded by Colonel Paul Tibbets and were used to drop two atomic bombs on Japan, in August 1945.

KB-29 Tankers

In 1948 the Wichita Boeing plant began to convert B-29s to tanker aircraft (KB-29). The B-29s were converted by installing 2,500-gallon fuel tanks in the bomb bays. The tankers were used for air-to-air refueling. The specialized YKB-29T was capable of refueling three jet fighters at the same time.

WB-29 Weather Watcher

On May 25, 1946, Air Weather Service's first B-29 mission was flown. The first flight over the top of a hurricane was made October 7, 1946, and on March 17, 1947, the first flight to precisely locate the North Pole occurred. WB-29s flying from Guam confirmed the Soviet Union's first atomic bomb test in September 1949. The last year of service for the WB-29 was 1957.

SB-29 Air Rescue Service

The Air Rescue Service was established in March 1946. Only 16 B-29s were modified to SB-29s. They were used extensively during the Korean Conflict, flying long-range rescue-escort missions for their sister aircraft. They were sometimes called "Super Dumbo" because they were always listening for distress calls.

Production of the B-29 Bomber

Production of the B-29 Bomber would be a challenge for the Boeing Airplane Company. It was an experimental and highly sophisticated aircraft, built mostly by unskilled labor. Not only was labor hard to find, so were materials, and the B-29 required massive amounts of both. For each B-29, 27,000 pounds of sheet aluminum and 1,000 pounds of copper were needed. There were 600,000 rivets, 9 1/2 miles of wiring, and 2 miles of tubing.

The Boeing plants at Renton, Washington, and the newly purchased and expanded Wichita plant were unable to meet the demand for B-29s. Two other plants were established to build B-29s. They were Bell Aircraft and Glenn L. Martin Companies. Other companies supplied major B-29 components. For example, General Electric made the central fire-control system, Wright Aeronautical Corporation made the engines, Hamilton Standard made the propellers, and B. F. Goodrich made the tires. Also, a number of modification centers were established because Boeing could not slow production to make modifications on completed airplanes.

Number of B-29s Built

Boeing Airplane Company, Renton, Washington Plant: 1,001 Built
Boeing Airplane Company, Wichita, Kansas Plant: 1,595 Built
Bell Aircraft Company, Marietta, Georgia: 652 Built
Glenn L. Martin Company, Omaha, Nebraska: 515 Built
Total 3,943

Of the 3,943 B-29s built, 562 were lost in World War II and Korea in combat and accidents.

Americans Go To Work Building Airplanes

The impact on communities with war factories was tremendous. Wichita's population, for example, increased from 115,000 in December 1941 to 192,000 in July 1945. Only 3% of Wichita's 1939 population worked in the aircraft industry; by 1943, the number had risen to 50%. There were 700 employees working for Boeing Wichita in 1940. In 1943 there were 29,000; 45% of the employees were women. "Rosie the Riveter" was the nickname for women factory workers. Thousands of "Rosies" left their kitchens and traditional jobs, exchanging their skirts for pants to build bombers, tanks, and ships. Like men, they felt it was their patriotic duty, and the pay was good. One woman was thrilled with her first paycheck, \$18.56 for one week's work! The plants operated, round the

clock, in three shifts. The communities responded and became twenty-four-hour cities. Bowling alleys, restaurants, and beauty shops stayed open to meet the needs of the factory workers.

Security: “Loose Lips Sink Ships” (and Airplanes)

Because the B-29 project was classified, security was an important issue. Employees wore colored badges indicating their work station and payroll numbers. They had to enter through designated areas and be checked by security guards. They were warned not to discuss their work. In the early stages of the project, it was forbidden to photograph a B-29. The airfields would also have similar security measures.

Production Success

The manufacturing success of B-29s was amazing. The first test flight of a B-29 was in September 1941; fifteen months later only 100 B-29s had been built. Production increased rapidly, with 3,000 B-29s built by June 1945. In April 1945, the four plants were producing 300 B-29s a month. Production peaked in July 1945 with 375 planes per month.

By November 1945, Boeing and the other B-29 production plants were finishing the last of the aircraft and reducing their workforces. The job was finished. Boeing Airplane Company returned to making commercial aircraft and many “Rosies” went back to their kitchens. Few, however, who were involved with the beautiful B-29 Bomber would ever forget the experience...or the war years.



Training B-29 Crews

As Boeing Airplane Company organized to build the B-29 Bombers, the training of crews began. The task of training was assigned to the 2nd Army Air Force Training Command. Four locations for new B-29 training bases were chosen near the Wichita, Kansas plant: Great Bend, Pratt, Smoky Hill, and Walker Army Air Fields. Four additional training facilities were built in Nebraska at McCook, Grand Island, Harvard, and Fairmont. The 509th Composite Group, the atomic bomb group, trained at Windover, Utah. Many other airfields played important roles in the training of B-29 personnel, including Wright Patterson, Ohio; Pyote and Dalhart, Texas; Davis-Monthan, Arizona; Herrington, Kansas; Kearny, Nebraska; Clovis, New Mexico; and Peterson, Colorado, Army Air Fields to name a few. Construction crews transformed wheat fields and deserts to airfields in record time.

Air Field Communities

The impact on communities with airfields was similar to those with war industries. The population increased rapidly, stretching housing, medical, and educational facilities to the limit. In August 1944, for example, Walker Army Air Field had 5,936 military and 659 civilian personnel. The population of nearby Hays was 6,385. In Great Bend, two young couples shared a converted chicken house, while four other couples lived in a basement and shared one bathroom. All of the couples were just glad to have found a place to live. In spite of the strain, the communities tried to make the men and women feel welcome, for they also had family members far from home. The Red Cross and USO provided entertainment, or a quiet place to write a letter. Families invited soldiers to join them for church and Sunday dinner. Many lasting friendships developed, along with romances that led to marriage.

Crew Training

As the construction continued, the first crews began to arrive in July 1943. They had completed specialized training and now individual men would begin the process of becoming a special team, an eleven-man combat crew.

The first problem was the lack of B-29 aircraft. Many early crews trained on war-weary B-17s and B-26s. The training included hours of ground school to familiarize the crews with the new aircraft and its complex systems. Practice missions included both day and night flights. To simulate a mission, B-29s flew to Cuba or surrounding islands. Many of the pilots had experience with four engine bombers and quickly applied their skills to piloting the B-29. Navigators rehearsed guiding the ship to a practice bombing site and back to base. Bombardiers practiced with the advanced Norden Bombsight, dropping sacks of flour or dummy bombs on selected targets. Due to the complexity of the B-29, there was a unique crew position, the flight engineer. His job was to monitor the aircraft systems, a task usually done by the pilot and copilot on other aircraft. Gunners also attended ground school to learn the characteristics of the armament and to hone their skills. In the air they practiced shooting at drones and canvas sleeves towed behind airplanes. Flying some of the tow planes were Women Airforce Service Pilots, (WASPs).

Ground Crews and Support Staffs

While the air crews trained, an often overlooked, but equally important group of specialists were organizing. They ranged from highly skilled mechanics and armorers to the bomb group's cooks and clerks. Their role is sometimes forgotten as attention focuses on the bomb crews, yet the ultimate success of missions rested upon the skills of these men. Mechanics, for example, knew the lives of air crews depended on their abilities and dedication. They often worked long hours preparing planes for the next mission, and when they weren't preparing for the next mission, there were always engines to rebuild and airframes to repair.

Ready to Go To War

After three to six months of training, the crews were assigned to overseas duty. Part of a bomb group's personnel left by ship, while bomb crews usually flew their B-29s to their new bases. Few knew their destination until they were on the way and opened their orders. The first bomb wing, the 58th, was scheduled to leave bases in Kansas March 10, 1944. The head of the Army Air Force, General Henry "Hap" Arnold would be there to witness the departure. There were, however, many obstacles to overcome by March 10, 1944.

The Battle of Kansas

President Franklin Roosevelt promised China's Generalissimo Chiang Kia-shek that B-29 Bombers would be in India and China by January 1944 to begin Operation Matterhorn, the air war against Japan. Later, General Arnold was forced to revise the plan and set a new goal, March 10, 1944. The first bomb wing, the 58th, had begun training in July 1943 at the four Kansas airfields: Smoky Hill (Headquarters), Pratt, Great Bend, and Walker Army Air Fields. The training had been difficult due to the lack of B-29s. Many crews had fewer than twenty B-29 hours when they left for combat in March 1944. In fact, by mid-January only 96 B-29s had emerged from factories, but on many days, only 16 were flyable. On January 15, 1944, the 20th Bomb Command's assessment concluded that they did not have one combat-ready B-29. General Arnold, unaware of the gravity of the situation, planned to witness the departure of the 58th Bomb Wing, but upon his arrival, March 9, 1944, there

were no B-29s ready to depart. Because early B-29s were intended to be used for training purposes, they needed significant modifications to be combat-ready. There was a critical shortage of parts and mechanics to complete the needed upgrades. In fact, some planes needed fifty-four major modifications. The modifications ranged from the electrical system to the tires, plus the continuing problem, the engines. In spite of these difficulties, General Arnold knew the commitment had been made, and he would make sure it was fulfilled.

The Battle

General Arnold's aide, General B. E. Meyer, was placed in charge of the special project, commonly known as the "Battle of Kansas." Getting the B-29s into combat became the Army Air Force's top priority. When military mechanics could not complete all of the work, Boeing was asked to send as many trained technicians and mechanics as possible. Boeing complied, even though it slowed production. To add to the crisis, the weather turned bitterly cold. There were few hangars at the newly built Kansas airfields, so most mechanics had to work outside. High altitude suits and gloves helped, but many worked for only 20 minutes before needing relief.

The Battle of Kansas is Won

General Arnold compared the importance of "the Battle of Kansas" to the Battle of Stalingrad. It was a battle that had to be won and it was. It was won by people willing to work long hours in terrible conditions because they knew "the Battle of Kansas," like the war, had to be won no matter what the sacrifice.

Long Journey to War

On March 26, 1944, Colonel Leonard Harmon, 58th Bomb Wing Commander, took off from Smoky Hill Army Air Field. By April 15, 1944, the last 58th Bomb Wing's planes had left cold Kansas behind. It's new home was 11,530 miles away, on bases near Calcutta, India. On June 5, 1944, the B-29 crews flew their first combat mission. It would be fourteen long months before the last mission was flown.



B-29s Go To War : Operation Matterhorn

The 20th Air Force

The B-29s were assigned to the 20th Air Force under the Command of General Henry "Hap" Arnold, Chief of the Army Air Force.

58th Bomb Wing

- 40th Bomb Group
- 444th Bomb Group
- 462nd Bomb Group
- 468th Bomb Group

73rd Bomb Wing

497th Bomb Group
498th Bomb Group
499th Bomb Group
500th Bomb Group

313th Bomb Wing

6th Bomb Group
9th Bomb Group
504th Bomb Group
505th Bomb Group
509th Composite Group

314th Bomb Wing

19th Bomb Group
29th Bomb Group
39th Bomb Group
330th Bomb Group

315th Bomb Wing

16th Bomb Group
331st Bomb Group
501st Bomb Group
502nd Bomb Group

Attached Units

3rd Reconnaissance Squadron
4th Emergency Rescue Squadron
41st Photographic Reconnaissance
55th Reconnaissance Squadron LRW

20th Bomb Command in India and China

By May 8, 1944, 130 58th Bomb Wing B-29s had arrived at their new bases near Calcutta, India. They were assigned to the 20th Bomb Command under the leadership of General Kenneth B. Wolfe. General Wolfe had been in India since January 13, 1944, to oversee the construction of airfields in India and China. The biggest challenge was the construction of four 8,500-foot dirt runways being built by three hundred thousand Chinese laborers near Chengtu, China. The Chinese airfields would be essential to reach targets in Japan. It was only 1,200 miles from India to the forward bases in China. There were, however, the Himalayan Mountains, “The Hump,” in between. The route was called “the Aluminum Trail” for all of the pieces of airplanes that had not survived the dangerous journey. The B-29s would have to help Air Transport Command ferry gasoline and supplies from India to China, since there was no land route available.

The first B-29 mission was flown on June 5, 1944, against Japanese-held rail yards in Bangkok, Thailand. Ten days later, the first mission was flown against the Japanese home islands. The target was the Imperial Iron and Steel Works at Yawata on northern Kyushu Island. The 58th Bomb Wing

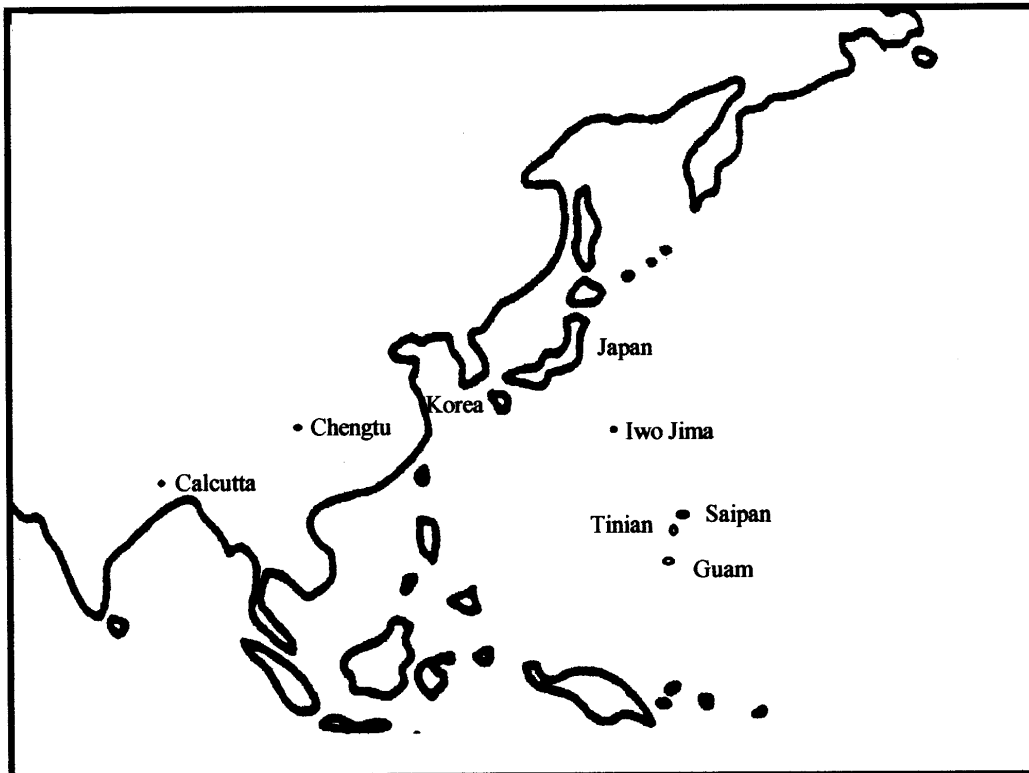
would fly 72 missions, averaging 16 hours and covering 3,200 miles, before being transferred to Tinian Island in the spring of 1945.

21st Bomb Command in the Mariana Islands

While the 58th Bomb Wing was flying missions from India and China, United States Army and Marine units were assaulting the Mariana Islands of Saipan, Tinian, and Guam. The Marianas were closer to Japan and would not be as difficult to supply. Before the islands were completely secure, Army Engineers and Navy Seabees began constructing B-29 airfields in anticipation of the arrival of the first bomb wing, the 73rd. The 73rd Bomb Wing would be assigned to the 21st Bomb Command under the leadership of General Haywood Hansell and later, General Curtis LeMay. The first B-29 to arrive was *Joltin' Josie* of the 498th Bomb Group on October 12, 1944. Unfortunately, *Josie* and her entire crew would be lost on April 1, 1945. The 73rd Bomb Wing would eventually be joined by four more bomb groups: the 313th, stationed on Tinian; the 314th and 315th, both stationed on Guam; and the 58th, transferred from India to Tinian.

Iwo Jima

Midway between the Marianas and Japan was Japanese-held Iwo Jima Island. The Japanese had radar stations and fighter aircraft on the island. They could track the B-29 formations and attack them when they were in range. The island needed to be taken from the Japanese. It would also serve as an emergency landing field for damaged B-29s and as a base for American escort fighter planes. The 4th Marine Division assaulted the island on February 19, 1945. Twenty-six days later, the island was secured. By the end of the war, 2,251 B-29s had made emergency landings on Iwo Jima.



Fire Bombing

The early B-29 missions focused primarily against military and industrial targets. The results proved unsatisfactory. In early 1945, General LeMay tested a new tactic. The defensive gun system would be removed, leaving only the tail gun. The planes would fly at 5000 to 6000 feet, loaded with incendiary bombs. If the B-29s could not destroy their specific targets, they would return to attack military and industrial targets, along with the surrounding city. This was a crucial and devastating decision. The first incendiary mission against Tokyo was March 9-10, 1945. The resulting firestorm killed 84,000 people. Over the next two weeks, 120,000 Japanese would die in incendiary raids. Twenty B-29s were also lost. In some cases, entire crews were killed. Those who were able to bail out of the planes often faced a terrible ordeal, being taken prisoner or executed.

The Atomic Bombs and the Last Mission

While the missions were being flown against Japan, scientists in the United States were turning scientific theory into the world's most terrifying weapon, an atomic bomb. The 509th Composite Group, commanded by Colonel Paul Tibbets, had been training at Windover Army Air Field, Utah, for one specific mission...dropping an atomic bomb.

Personnel from the 509th Composite Group began arriving on Tinian Island in May 1945. They did not fly regular missions and became the source of speculation. Their purpose became clear on August 6, 1945, when the *Enola Gay*, piloted by Colonel Tibbets, dropped an atomic bomb (nicknamed *Little Boy*) on Hiroshima. The result was unbelievable. One single bomb instantly destroyed 48,000 buildings and killed 78,000 people. Three days later, August 9, *Bock's Car*, piloted by Major Charles Sweeney, dropped a second atomic bomb on Nagasaki, with similar results. While these dramatic events were taking place, regular B-29 missions continued. The last B-29 combat mission was flown August 14, 1945.

Japan Surrenders

The decision to surrender was made at the final meeting of the Japanese Supreme War Council. The council was divided between surrendering or continuing to fight. The Emperor of Japan, Hirohito, settled the debate when he said he could not see his people continue to suffer. On August 15, 1945, the Emperor informed his people that Japan had agreed to the demand for an unconditional surrender. Operation Olympic, the invasion of Japan planned for November 1, 1945, was canceled. The official surrender took place aboard the *USS Missouri* on September 2, 1945. World War II, the world's most horrible war, was over.

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Cold War

As World War II ended, a new kind of war began between the world's two superpowers, the Soviet Union and the United States. It was a war of nerves rather than of bullets...a cold war. To counter the military threat, three major operational commands were formed: the Strategic Air Command (SAC), Air Defense Command (ADC), and the Tactical Air Command (TAC). The B-29 Bombers were an important part of the new structure and were stationed in the United States, Europe, and the Far East. Crews trained for war and hoped for peace. In 1950 the Korean Conflict began and the B-29s returned to combat.

Korean Conflict 1950-1953

The Korean Conflict started on June 25, 1950, when North Korean troops crossed the 38th Parallel in an attempt to unify North and South Korea. Three days later the 19th Bomb Group, stationed at Anderson Field, Guam, flew the first B-29 bombing mission. This would be the first of 251 missions flown by the 19th Bomb Group over the next three years. In response to the deepening crisis, General George E. Stratemeyer organized the Far East Air Force Bomb Command on July 8, 1950, with headquarters at Yakota Air Base, Japan.

B-29 Units Involved in the Korean Conflict

19 th Bomb Group	Anderson Field, Guam and Kadena Air Base, Okinawa
22 nd Bomb Group	Kadena Air Base, Okinawa (Temporary Duty)
92 nd Bomb Group	Yokota Air Base, Japan (Temporary Duty)
98 th Bomb Group	Yokota Air Base, Japan
307 th Bomb Group	Kadena Air Base, Okinawa
31 st Strategic Reconnaissance Squadron	Johnson Air Base, Japan (Renamed 91 st SRS)

Combat

General Stratemeyer tried to maintain a force of 100 B-29s, but was rarely able to meet this goal. The B-29 crews flew both bombing and reconnaissance missions. A new threat to the Superfortress and crews appeared in the skies on November 15, 1950...the MiG-15. Unlike piston engine fighters of World War II, the small jet fighters had the speed and altitude to match the B-29. The American F-84 Thunder Jet and F-86 Sabre Jet provided some protection, but aircraft and crews were still lost. The B-29 Bomb Groups flew a total of 21,000 aircraft sorties, losing 34 aircraft.

Cease Fire July 27, 1953

The same day the Korean Conflict ended, the last mission, (a “paper route”) was flown. Two RB-29s from the 91st Squadron dropped propaganda leaflets over North Korea. With the coming of jet aircraft, the B-29 as a bomber became obsolete. Yet the B-29 continued to serve the Air Force until 1960, mostly in support capacities, as tankers and reconnaissance planes.