

# The B-29 Strategic Air Campaign Against Japan

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I plan to give you a summary of the accomplishments of the B-29 campaign from China and the Marianas, a description of the development and characteristics of the airplane, the command structure, the evolution of tactics, the necessity for the atomic bombs, and a description of the second atomic bomb mission, which was nearly a disaster.

First, all that many people know about the B-29s is that they dropped two atomic bombs on Japan. Let's see what else they did.

In the 14 months of their operations, from June 1944—when B-29 operations began in China—to August 15, 1945 when Japan announced its surrender, B-29s flew 380 combat missions, consisting of 31,000 sorties and dropped 171,000 tons of bombs and mines, with the loss of nearly 500 airplanes and 3000 air crew members.

Through this strategic air warfare campaign, the B-29s achieved the following:

- Heavy damage to 602 major Japanese war factories.
- Destruction of 83% of their oil refinery capability.
- Destruction with incendiaries of the industrial centers—the sites of their widely dispersed war production—of 66 Japanese cities, including about 20 square miles of Tokyo.

These mines, which were dropped at night by radar from about 5000 feet, were ingeniously designed and highly effective. They completely blockaded shipping in and out of and around Japan the last few months of the war.

By the time the atomic bombs were dropped we had nearly run out of strategic targets in Japan. For the last missions of the war, on August 14, our targets were shifting to transportation hubs, such as marshaling yards. Had the war gone we would soon have wiped out the ability of the Japanese government to distribute food and other supplies to their people. From the shipping blockade and the imminent destruction of their railroads and roads, millions of Japanese would have suffered starvation had the war gone even another six months.

- Sinking of 1,250,000 tons of Japanese shipping and virtually halting their sea traffic—this through the U.S. navy mines dropped by B-29s of the 313th Wing, of which my group was a part. This was called "Operation Starvation," which was planned by U.S. Navy experts.

With this summation of the B-29s' impact on Japan, I want to review briefly the history of the development of the B-29 Superfortress bomber.

Following after the development of the B-17, the "Flying Fortress," and the B-24, the "Liberator," in the late 1930s, the Army Air Corps initiated the development of the B-29 in late 1939, after the war in Europe broke out.

Its specifications required an operational range about double that of the B-17 and B-24, with a higher speed, pressurized cabins, remote controlled guns, twice their bomb loads, and many other refinements.

In the two years that the development required, up to the first flight in 1942, great problems of design had to be solved.

Further, as lessons from the aerial warfare in Europe and the Pacific came in, and new equipment and accessories, such as radar, were developed, they were incorporated.

Over 1300 production changes to the specifications were made.

The major new characteristics incorporated in the B-29 design included:

- An innovative, high-load wing design.
- Pressurization;
- A tricycle landing gear;
- A revolutionary armament design with remotely- controlled turrets.
- And a radar navigation and auxiliary bombing system.

A major problem was an engine to handle the weight and achieve the required speed of this new design.

The Air Corps picked a Wright Cyclone R-3350, an air-cooled, 18 cylinder radial engine capable of producing 2200 horsepower at takeoff, with twin turbochargers, regulated by an electronic system.

Although this basic engine had been developed and tested in 1937, only the test engine existed in the middle of 1940.

The need of further development of this engine to be fully effective was fraught with great difficulty—it plagued the program, in diminishing degrees, until 1945.

From the start of mass production in 1942 through 1945, nearly 4000 B-29 were manufactured in three aircraft plants at a cost of about \$670,000 each. (What a contrast in price between that and the present B-2 stealth bomber which costs a couple of billion dollars each!)

Actually, the B-29 program was the most expensive of any weapons program of World War II, including the Manhattan Project which developed the atom bombs.

In the concept of the development of the B-29, it was envisaged as a bomber which could be used in the war in Europe, in addition to the B-17s and B-24s. But, by 1943 it was clear that those other airplanes were adequate for the European theater and, because of its long-range capability, it would be the most effective strategic bomber for the war against Japan.

President Roosevelt's was concerned in 1943 as to whether the Chinese government could hold out against the Japanese assault on their country. Hence he prodded the Joint Chiefs of Staff to decide in 1943 that the first wing of B-29s would be based in the spring of 1944 in India, where the British agreed to build rear bases for them with forward staging bases which the Chinese would build for them in southwestern China. The Joint Chiefs also directed the U.S. commanders in India and China to provide logistical support. Thereafter the Joint Chiefs also directed the Pacific theater commander to seize the Marianas Islands in the western Pacific from the Japanese in the summer of 1944 and, with Navy construction battalions and Army engineers, to build five bases for the B-29s on Saipan, Tinian, and Guam and to thereafter provide logistical support.

Now, as to the 20th Air Force organization, which was unique and unprecedented.

It functioned directly under the Joint Chiefs of Staff with General Arnold in Washington as its commander.

But the theater commanders could ask the Joint Chiefs to direct the diversion of some of the B-29s' effort in an emergency—which did happen for several missions in China and India and one notable case in the Pacific, which was during the Okinawa campaign when the navy was being battered by kamikazes flying from the southern Japanese islands of Kyushu and Shikoku. Some of the B-29 missions during April 1945 were devoted to bombing the airfields in Japan from which the kamikazes were being launched.

Now, further to the 20th Air Force organization. It was divided into two bomber commands: the XXth in India/China and the XXIst in the Marianas Islands.

The XXth Bomber Command, which consisted of only one wing, the 58th, deployed from its training bases in Kansas in the late spring of 1944 to its bases in India. These pioneers of the B-29 combat operations were plagued with difficulties. The air base facilities available to them in India and in their advanced staging bases in China were relatively primitive. Also, they had to ferry all their gasoline, bombs, and other supplies from India over "the Hump," of the Himalayas mountains to China.

Although from the advanced bases in China, the 58th Wing's B-29s could barely reach western Japan, from those bases and the ones in India, they could reach many Japanese targets in Manchuria, Taiwan, and in occupied areas of China, Indochina, and Malaysia; in particular, Singapore. In raids on Singapore, the B-29s sank the only floating capital-ship dry-dock outside Japan, and destroyed the largest land-based dry-dock as well. From China they bombed a steel mill at Mukden, Manchuria, and supported McArthur's Philippine invasion in late 1944 by destroying a major Japanese air depot on Taiwan, severely limiting the number of Japanese aircraft that could reach the Philippines. Further, they destroyed the Japanese small arms ordnance depot at Rangoon, Burma, which helped eliminate the effectiveness of the Japanese army in that country.

So, the 58th Wing, despite the handicaps and difficulties, carried out a number of useful missions. Further, their experience contributed to the needed ongoing modifications of the B-29 airframe, engines, equipment, and operational tactics. Still, considering the effort and resources involved, the results were limited and often disappointing. Some critics began claiming that the B-29 couldn't perform the strategic bombing mission for which it was designed.

But, with the capture of the Marianas a base was built on the western part of Tinian for the 58th Wing and its four groups, to which they redeployed in April 1945 and became part of the XXIst Bomber Command

Now as to operations in the Marianas. They started in November 1944 by the 73rd wing based on Saipan.

The wing my group was in, the 313th, deployed in January to the north field on Tinian which was then the largest airfield in the world. It had four parallel runways, 8500 feet long, with over two hundred hardstands for our planes.

The 314th wing deployed to Guam in February.

And the 315th Wing also deployed to Guam in May, completing the buildup to 5 wings with 21 groups and about 1000 airplanes.

There were plans for the 8th Air Force to redeploy in the late summer from England—reequipped with B-29s—to Okinawa, but that redeployment had just started when the war ended.

Now, as to my involvement, I joined the 9th Group when it was organized as a B-29 outfit in May 1944 at McCook, Nebraska, where we trained for 6 months before deploying to Tinian.

I was the deputy group commander until early March when my group commander was moved up to be the wing chief of staff and I was moved up to be the commander of the group, which consisted of 2200 men and 45 B-29s. I was 29 at the time. Yet, I was still older than all but a few others in the group.

Getting such a command assignment and being promoted to full colonel at that age—which I was after being in command for three months—was not unusual for those of us who had joined the Air Corps before the war.

I graduated from flying school and got my wings six days before Hitler invaded Poland and started World War II.

Then the whole Air Corps was about 26,000 officers and men of which 2000 were pilots.

Six years later, in 1945, the Air Corps had become the Army Air Forces and had expanded nearly 100 times to 2.2 million men. Hence, those of us who were in early had the opportunity to go up rapidly in responsibility and in rank—if we proved ourselves and survived, which I fortunately did.

Now to the evolution of the major part of our operations which occurred from the Marianas.

General Hansell, was the first commander of the XXI Bomber Command which was based there from November 1944 on.

He, along with many senior air officers, had believed that Germany could be defeated through high-altitude precision strategic bombing without an invasion of Europe. They felt frustrated because the strategic air forces in Europe had not been concentrated against Germany, and that was because a major part of the force had been moved to bases and targets in the Mediterranean area, for which they blamed the failure of their concept. So now, Generals Arnold and Hansell, and others, hoped to prove their theory in the Pacific in the strategic air operations against Japan.

So, General Hansell pursued the tactic of high altitude precision bombing during the early missions in November and December of 1944, and January of 1945—to limited effect.

That winter, over Japan, the jet stream was encountered for the first time; it sometimes reached 200 miles an hour at 30,000 feet making accurate bombing impossible.

Further, the Japanese islands were often overcast with layers of clouds and accurate weather forecasts were also impossible.

Then, the climb to bombing altitude of over 30,000 feet was a heavy strain on the engines which were still giving trouble, and caused many aborts. So, not much was achieved.

As a result, General Arnold replaced General Hansell with General LeMay in late January 1945.

General LeMay continued the pattern followed by General Hansell for a few weeks.

But, facing similar disappointing bombing results, he decided upon a major change in tactics; namely, low level night incendiary raids on the industrial centers of Japan's cities.

I had just taken over as group commander a few days before the initial night mission on March 9th with these new tactics and I led the group on that first low level—7000 foot altitude—night incendiary attack on Tokyo. You can't really appreciate the shock it was to the aircrews at the briefing to be told they were going over Tokyo at 7000 feet altitude, but that was an essential part of General LeMay's new approach; he figured that the few Japanese night fighters and their anti-aircraft guns would not be able to be very effective at low altitude.

There were 300 B-29s launched for that mission.

Until we reached Japan we flew at around 2000' and then climbed to bombing altitude when we were approaching the mainland.

We flew individually in sort-of a stream of airplanes.

Our group was about 1/3 of the way back in the stream We were briefed to go nearly to the mouth of Tokyo bay, then turn to the northeast for about 30 miles before turning on our northwest axis of attack on the industrial center of Tokyo.

The whole time were on this dog-leg pattern Tokyo was in view and in flames; it looked to us like we were headed into Dante's inferno or through an open door of a blast furnace from which we might not come out.

But we did come through it, as did most of the others; and the command's losses were a very tolerable 5%.

General LeMay's gamble had worked remarkably well.

Sixteen square miles of Tokyo industrial center were burned out in that first night raid

. In the following ten days General LeMay repeated the tactics in a "blitz" of four more night incendiary missions against Nagoya, Osaka, and Kobe.

The psychological and physical impacts on the Japanese were enormous. They could no longer dream of winning the war, but their military leaders were still determined to fight on.

As an example of the power of the firestorm these raids created, I want to relate one spectacular incident which occurred to one crew of our group on the Osaka mission.

By the time our group was over the target, most of the others had dropped their incendiary bombs and the firestorm was raging with huge thermal thunderheads boiling up all around.

After one of our crews dropped their bombs, they hit one of the huge thermals which threw their airplane up from 5000 to 12,000 feet. The pilot completed a barrel roll and, when he got full control of the airplane, it was at 4000 feet and going 480 miles an hour.

It got back to Tinian all right but we had to change the wings which looked like washboards! This incident was both a tribute to pilot skill and to the B-29's ruggedness

After this "blitz" we were out of incendiary bombs for several weeks during which we resumed daylight missions.

But another important development at this time was the capture of Iwo Jima, a vital island halfway from the Marianas to Japan.

Iwo provided us with a extremely valuable haven for our damaged airplanes to land and, from then until the end of the war, B-29s in distress for one reason or another landed there 2000 times. Further, it also provided the base for the VII fighter Command which had P-51 fighter planes which accompanied us to Japan

from April on to help take care of the dwindling Japanese fighter force. So, Iwo—which cost the Marines the heaviest casualties of all of their battles— was invaluable to us.

In regard to Iwo, our group held one of its annual reunions in Washington, D. C. in 1997.

By prearrangement, our 400 reunion attendees were bused to the great Iwo Jima memorial where we were at first serenaded by the Marine Corps band.

Then, on behalf of our group and of all B-29 groups, I gave a talk thanking the Marines for their sacrifices in taking Iwo and emphasized its importance to us.

Thereafter, to our surprise, four veterans of the Iwo battle took to the microphone to thank us for helping end the war without an invasion of Japan. It was a very moving ceremony!

Now, back to our ongoing operations.

From March on we stepped up our new mixture of types of missions.

We flew daylight precision bombing missions, but at lower altitudes.

We flew night and sometimes daylight fire bombing missions.

And, starting in late March, we flew the night mining missions.

The last few months of the war, with all five wings in place and the bugs worked out of our engines, General LeMay could put 800 B-29s over Japan in multiple missions any day or night that he chose to do so, with little opposition from the Japanese.

Their defenses slacked off due to several factors, including, as was disclosed after the war, hiding over 9000 of their remaining fighter planes to use as kamikazes against our invasion forces.

Amazingly, the last two months of the war our combat losses were less than the losses from B-29 accidents in the training command in the States!

I choose to fly a mission, my 16th, on my 30th birthday

It was a night incendiary raid on the industrial center of the city of Maebashi, which we bombed not long after midnight the beginning of my birthday.

Then, it took the usual 7-plus hours to get back to Tinian.

But, from the announcement made a couple of hours after we arrived there, it was clear that we had passed the Enola Gay en route to Hiroshima as we were returning from Japan.

A memorable birthday and obviously a momentous day for mankind.

Now, as to the use of the atomic bombs.

As you are aware, a number of academics and others have claimed that we needn't have dropped the atom bombs, that the Japanese were ready to surrender without them.

But postwar research—especially in the last 10 years from declassified records from Washington, Tokyo, and Moscow—have confirmed the vital need for both of the bombs, to provide the Emperor with a face-saving rationale for his decision to surrender over the adamant objections of the hard-line militarists in his government who wanted to fight on for their vaunted honor, even at the cost of millions of additional Japanese lives.

A book, published in 1999, titled "Downfall, The End of the Imperial Japanese Empire." by Richard B. Frank, an excellent historian, was based on such research and persuasively reached that conclusion.

He also disclosed that Stalin—after his entry into the war on August 9th by attacking Japanese forces in Manchuria, Korea, and Sakhalin Island north of Japan—had planned to invade Japan later in August.

He planned to overrun Hokkaido and thereafter Honshu from the north, which probably could have been accomplished readily, because the Japanese had concentrated most of their forces in the southern island of Kyushu to deal with our planned invasion in November. Soviet forces might have reached Tokyo way before we even launched our planned invasion. And what a mess that would have been for the Japanese and for our plans to occupy and reorient Japan which, as it turned out, we were very successful in doing.

Hence, another benefit of the dropping of the atomic bombs was the ending of the war before such a Soviet military campaign could be carried out.

And, as is now well known, our planned invasion of Japan would have been met with fanatical resistance with enormous casualties for the Japanese as well as for our troops.

So, the Japanese who unleashed the winds of war by their attack on Pearl Harbor reaped the whirlwind in our B-29 strategic air campaign, including the atomic bombs—and that whirlwind, though it cost many Japanese lives, likely saved many, many more by creating the conditions for the war's end in August 1945.

Finally, I want to cover the incredible story of the second atom bomb mission on August 9th. I think that you will find it interesting and amazing.

This account is based on the book, published in 1997 titled "War's End" by Charles Sweeney, who was the pilot of the plane that dropped the second bomb.

The first atom bomb mission to Hiroshima went perfectly—from an operational point of view.

Sweeney was determined to make the second equally perfect; but circumstances intervened to make it anything but.

Like the first mission, there were 3 airplanes involved: Sweeney's with the bomb, one with electronic instrumentation piloted by a Captain Bock, and one with photographic equipment, piloted by a Lt. Colonel Hopkins, the group operations officer.

The principal target was Kokura on the northwest corner of the southern Japanese island of Kyushu.

The secondary target was Nagasaki about 100 miles southwest of Kokura.

The operational plan called for flying individually to a rendezvous area at 30,000 feet off the southeast corner of Kyushu.

After the mission briefing, Sweeney went over to Hopkins and started to describe the flight pattern he wanted set up for the rendezvous. Hopkins cut him short, saying "Look major, I know all about that. I know how to make a rendezvous. You don't have to tell me how to make a rendezvous" and walked away

Some time later, when Sweeney's crew had got into their airplane, and just before starting engines, the engineer said to Sweeney: "Major, we have a problem."

The problem the engineer had just discovered, was that the electric pump for transferring gas from the 600 gallon rear bombay tank wouldn't work.

And it was clear to Sweeney that to change the pump, or to move the bomb to another plane would take many hours; thus this became a serious quandary as what to do.

Sweeney climbed out of the plane and consulted Colonel Tibbets, who said it was Sweeney's decision.

Sweeney thought for a few minutes and decided to go ahead on the basis that, if everything went all right, he could do without the 600 gallons in that tank by landing at Okinawa, if necessary.

So the mission was launched.

When Sweeney arrived at the rendezvous point Captain Bock shortly pulled up on his right wing; but there was no sign of Lt. Colonel Hopkins.

Sweeney had been briefed to wait only 15 minutes, but he was so determined to get everything right that he ended up stretching it to 45 minutes. He was also under orders not to break radio silence.

It was learned later that Hopkins was at 39,000 feet and, when he couldn't find Sweeney, he had broken radio silence calling back to Tinian with the question "Has Sweeney aborted?"

This got garbled and interpreted on Tinian as "Sweeney has aborted" and led to the cancellation of the air-sea rescue arrangements between Kyushu and Okinawa.

Because of the delay at the rendezvous point, by the time Sweeney, with Bock in tow, got to Kokura, which had been clear, it was now partially obscured with broken clouds and smoke.

He made three tries at getting a clear run on their aiming point—to no avail.

Flak was getting more accurate and Japanese fighter planes were trying to reach their altitude for a shot at them.

Further, after the third run, the engineer said that they were too low on gas to stay there any longer.

So, Sweeney headed for Nagasaki.

When they got to Nagasaki, which had also been clear earlier, it was now covered with 90% cumulus clouds.

But they did get a break in the clouds on their first run and dropped the bomb between two large armament plants, though they were two miles north of the designated aiming point.

Having finally delivered the bomb they headed for Okinawa 350 miles away. The engineer then calculated that, with the remaining gas, they would have to ditch in the ocean short of Okinawa by 50 to 75 miles.

They tried to alert air-sea rescue on the frequency given but got no response—because, unbeknown to them, as mentioned earlier, it had been canceled.

Fortunately, Sweeney had been trained by Tibbetts in a technique of "flying on the step;" that is, taking advantage of the wing design in a gradual descent, getting the most distance with the least use of fuel.

In addition, he reduced the engines' speed to 1600 rpm, well below the minimum specifications even though that risked engine damage.

Fortunately, all of this worked!

When they came within sight of Yontan Air Base on Okinawa, Sweeney called the tower with a Mayday distress message. But there was no response; the tower was obviously not receiving him.

He could see a lot of traffic at the base and, of course, he needed to clear the way to make a straight-in approach and land.

Just then, his engineer called to him: "Major, all gauges read empty;" and, at that moment, the right outboard engine quit.

Sweeney ordered his crew to fire all the flares, some 20, that they had aboard, meaning "fire," "dead & wounded aboard," "about to crash," etc.

That got the attention of all the aircraft in the air as well as the emergency crew on the ground.

The traffic pattern got cleared and Sweeney made a straight-in, rather high, approach, landed fast, bounced up, and came down again, at which time the left outboard engine quit.

He then used the reversible propellers on his two remaining engines and full brakes to get the plane stopped just before he reached the end of the runway.

He turned off onto a taxiway and shut everything down.

When they opened the nose wheel door, an emergency airmen poked his head in and asked "Where are the dead and wounded?" Sweeney answered: "Back there" and waved his arm toward Japan.

Shortly thereafter, the engineer measured the gas left in the tanks and found only eight gallons!

How's that for a dramatic, messed-up flight?

The people of Kokura might feel like putting up a monument to Hopkins and the people of Nagasaki might feel like burning him in effigy.

Incidentally, the B-29 Hopkins was flying was nicknamed the "Big Stink;" how appropriate!

In conclusion, I want to point out that victory over Japan was achieved with some help from our allies but mainly by the combined actions of all of our military services, backed by our homefront which developed our weapons and gave us such strong backing. But the timing of the Japanese surrender in August 1945 rather than months or even a year later, was due to the physical damage and psychological impact of the B-29 strategic bombing and mining campaign, topped off by the two atomic weapons

Now, I would also like to say some things about Japan.

I was stationed there for seven months in 1947. Also, in the past 25 years I have traveled six times in Japan, three times renting a car for a month and traveling widely. These trips I have much enjoyed and I admire many of the aesthetic aspects of Japanese culture, particularly their arts and crafts, and traditional gardens and architecture. The Japanese are a talented and hard-working race. We succeeded in reorienting them in major ways. But they have really never faced up to their culpability in World War II. Many of them, along with many peacenik groups in this country, have tried, with some success, to portray themselves as victims in World War II because we dropped the two atom bombs—while ignoring the fact that these bombs, by ending the war, saved hundreds of thousands of Japanese, as well as American, lives and also ignoring the tens of millions of innocent Chinese, Filipino, Indonesian and other Asiatics that their troops mercilessly slaughtered. Further, they still carry an especially strong superiority complex. I think that they may be capable, in certain circumstances, of reverting to their vicious, fanatical Bushido war spirit as they

did in the 1930s and 1940s. Therefore, geopolitically, I want to keep Japan dependent on us in our security treaty. I am leery of turning them loose.

Thanks for listening to this presentation.

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