

# FLYING

S A F E T Y

**Lt Gen Benjamin O. Davis**

**Gen Jimmy Doolittle**

**BGen Chuck Yeager**

**BGen Paul W. Tibbets**

NOVEMBER 1991

## WWII Heroes



# On the homefront — 1941



CHERYL ROBINSON  
Staff Writer

**Thanksgiving Day, 1941, was just like most holidays — a day to give thanks for blessings, peace, and the safety of loved ones. But most of all, the people were thankful the growing war in Europe was not on American soil.**

■ And so, America woke up on Sunday, December 7th, to a clear, beautiful, and unseasonably warm morning. The *New York Times* quoted Navy Secretary Knox with the state-of-the-Navy message on page one:

"I am proud to report that the American people may feel fully confident in the Navy. In my opinion, the loyalty, morale, and technical ability of the personnel are without superior. On any comparable basis, the United States Navy is second to none."

Then, abruptly, later that same day, America was told the shocking

news on the radio: "War — Japan launches reckless attack on US!"

In less than 1 day, our lives had turned to turmoil and insecurity. Americans were now plagued by fear of bombings on the homeland.

There were air alerts and blackouts from coast to coast. Air raid tests showed citizens had very little idea of what to do when bombers came. But they also showed the country was quick and eager to learn.

Enemy planes were reported coming in, and the air raid alarms were sounded. Some say these air alerts were "phony tips," and others say they were just "test" alerts. There were dozens of casualties during these air alerts, mostly from auto accidents in the darkened streets.

Across the country, Americans reacted in various ways to the air alerts. In San Diego, companies painted windows black to save the vital night shift work.

In New York, fire sirens wailed, but their sound did not carry far, and nobody heeded them. New York City had 10 million windows to black out and needed 30,000 men to turn out its street lights all at once.

In San Francisco, some windows were blackened and others were not. Sandbags were piled against street-level windows at the Pacific Telephone & Telegraph Building because it was a vital communication center.

Seattle had practiced blackouts, but on the first blackout night, 2,000 citizens went on a window-smashing spree and broke the fronts of 26 stores which did not turn out their lights.

Most cities were not actually blackened, but merely a haze of lights and neon signs during the blackouts. However, stores did sell more black cloth (to cover windows), candles, and flash lights to replace electric lights than ever before.

Families who had been looking forward to seeing their sons, brothers, grandsons, nephews, uncles, and cousins home for Christmas did not know whether they would see them for Christmas or ever again. Soldiers' furloughs were drastically cut or canceled altogether. Girlfriends and wives didn't know what the future held, if anything. In just a few short days, everything had become so uncertain to most Americans.

Life in America changed the moment President Franklin D. Roosevelt uttered these words, "A state of war exists!" ■



# **Flying** **SAFETY**

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page 4



page 16



page 22

## SPECIAL FEATURES

As we commemorate the 50-year anniversary of World War II, *Flying Safety* magazine takes a look back at the events leading up to the war, we remember some of the aircraft, and we interview some of our Air Force heroes.

**IFC** On the Homefront — 1941

2 A Surprise Attack!

4 Brig Gen Paul W. Tibbets

10 Gen Jimmy Doolittle

13 Yesteryear's Air Force

16 Brig Gen Chuck Yeager

22 Lt Gen Benjamin O. Davis, Jr.

25 The Hump Airlift and Flight Safety

28 Dumb Caption Contest Thing

**IBC** Dumb Caption Contest Winner

## DEPARTMENT OF THE AIR FORCE • THE CHIEF OF SAFETY, USAF

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# A SURPRISE ATTACK!

## Pearl Harbor Created More Than a Surprise!

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CHERYL ROBINSON  
Staff Writer

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This year, the 50th Anniversary of the Japanese attack on Pearl Harbor, marks one of the worst military defeats our Nation has suffered.

On Sunday, December 7, 1941, while talks between the Secretary of State and the Japanese diplomats were still underway, and without making a formal declaration of war, the Japanese skillfully executed a well-planned surprise attack on Pearl Harbor.

Less than 2 hours after the initial onslaught, practically the entire U.S. Pacific Coast fleet was either on the ocean floor or drifting helplessly on its surface. When the smoke cleared, our military and naval forces had suffered 3,435 casualties and the loss or severe damage of 188 planes, 8 battleships, 3 light cruisers, and 4 other fleet vessels.

The attack on Pearl Harbor did two things: (1) It brought the United States into World War II, and (2) it resulted in the eventual formation of the world's greatest Air Force.

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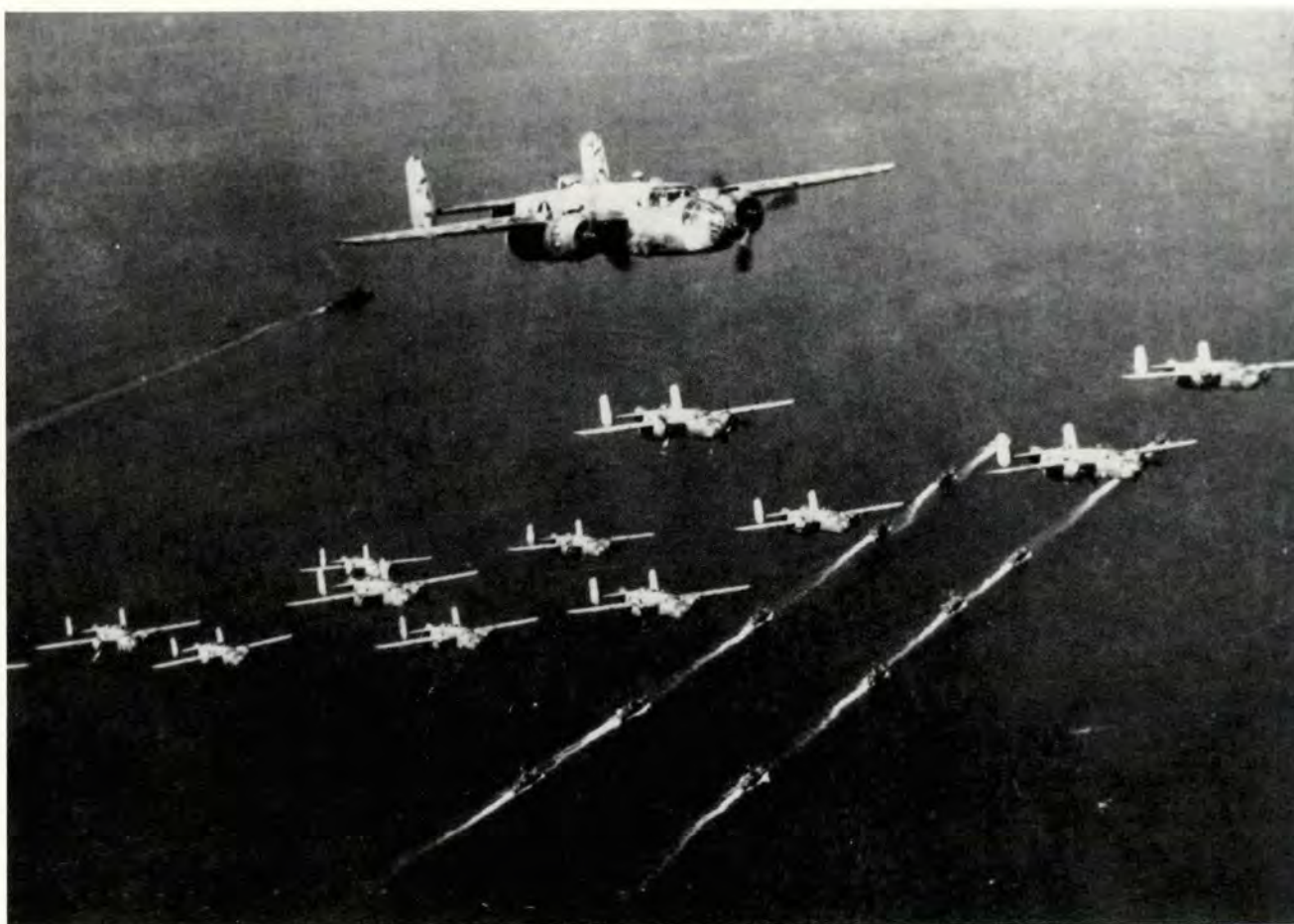
### A Fledgling Force

■ At the time of the attack on Pearl Harbor, the Army Air Force (AAF) was the youngest and the most important member of the country's military structure. The Army Air Force was created on June 20, 1941; however, it rapidly expanded in late 1941 as the war in Europe progressed.

The AAF had about 300,000 people and 12,000 operational planes — only 600 of which were suitable for combat. The AAF was made up of eight air forces — four in the U.S. and one each in the Philippines, Hawaii, Alaska, and the Caribbean. The Japanese attack destroyed half the Hawaiian Air Force, which had less than 200 combat planes. The first few months of the war saw the Air Force on the defensive.

The Army Air Force boosted its





These North American B-25 medium bombers are en route to bomb the Japanese while the sea forces are on the move. Aircraft were indispensable auxiliaries to battle fleets in World War II.

yearly pilot quota to 33,000. Training centers were straining under a heavy load and had to expand to meet increased demand for technical specialists.

### A New Plan

The Air War Plans Division undertook the preparation of an air war plan on an unprecedented scale. On December 15th, only 8 days after the attack on Pearl Harbor, the group came up with a new "Air Estimate of the Situation and Recommendations for the Conduct of the War."

An increase in bomber strength reflected the loss of sea power in the Pacific. A proposed increase in transports reflected the loss of control of sea lanes and the growing dependency upon air transportation.

Stateside planners had new problems to solve. Hidden, carefully camouflaged emergency airports were now used instead of the regu-

lar airports, whose administration buildings and straight runways could be easily distinguished from the air. Our airplanes were now in small groups in level fields, well concealed by leaves and branches, and were almost impossible to find from the air.

Tactics changed as new aircraft built on new designs made it to the front lines. The firepower of the new pursuit aircraft had increased nearly 600 percent. Our airplanes now had a different appearance: Six machine guns and one 37mm cannon were mounted on the Bell P-39 to fire streams of bullets and tracers.

The light bombers, A-20As and A-24s (dive bombers), worked with the ground troops as air support. The medium bombers, North American B-25s and Martin B-26s, were used for short-range bombardment. The heavy bombers, Boeing B-17s and Consolidated B-24s, were high flying and used for

long-range work where huge, destructive 1,100-pound and 1-ton bombs were needed.

The biggest airline in the U.S. was now operated, not by a commercial company, but by the Air Service Command of the Army Air Force. They keep tactical units throughout the world supplied with new parts and ready for action. By 1942, the AAF had plans to expand to a million members. And another 130 million Americans were united by a common cause against a common enemy.

### A Proud Force

The attack on Pearl Harbor gave the whole nation more than just an entrance into World War II. It gave us AMERICAN PRIDE which spread from the east coast to the west coast. And it gave the United States the opportunity to form the WORLD'S GREATEST AIR FORCE! ■

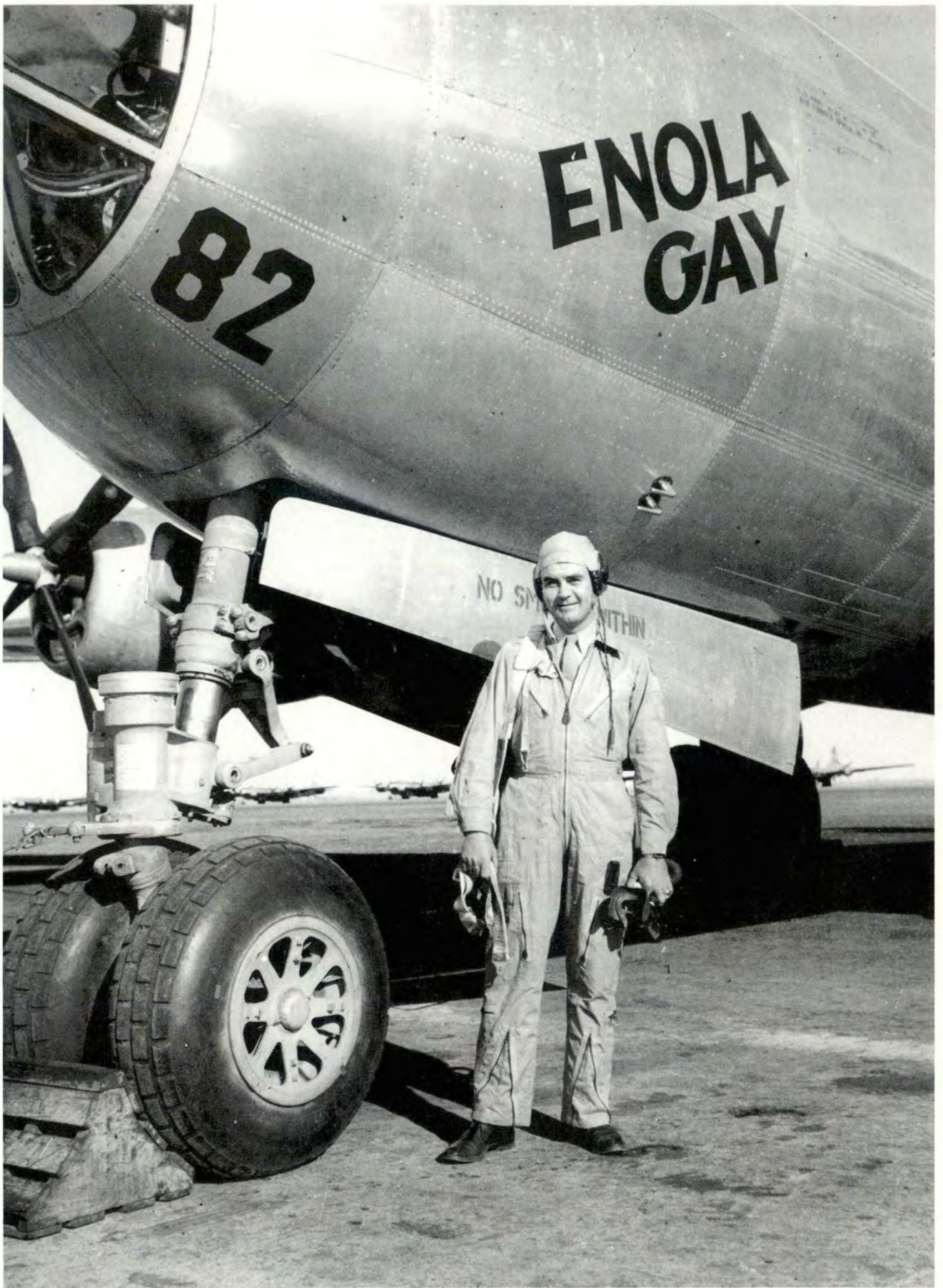


PHOTO COURTESY OF BGEN TIBBETS

## Brigadier General

# Paul W. Tibbets

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■ On 6 August 1945, a B-29 took off in the early morning darkness from the Pacific island of Tinian. Its mission was to make the first atomic strike in history. At 0815, the *Enola Gay* released its deadly weapon — seconds later, there was a brilliant flash, and the city of Hiroshima was destroyed. The pilot of the aircraft was a 30-year-old full colonel named Paul W. Tibbets. Much has been written about Paul Tibbets and the Hiroshima bombing, but there is more to Brig Gen Tibbets than his involvement with the atomic bomb.

### A Man of Many Talents

In 1942, 27-year-old Major Paul Tibbets, assigned to the 97th Bombardment Group in England, led the first daylight raids over German-occupied Europe. He continued to lead these daring B-17 missions almost daily during the summer and fall of 1942. His reputation as a skilled and gutsy pilot quickly came to the attention of the top brass including Gen James Doolittle and Gen Dwight D. Eisenhower.

In November, the 97th Bombardment Group was transferred to North Africa under Gen Doolittle. During this time, Lt Col Tibbets led raids against German bases in North Africa. His B-17s played havoc with the enemy supply lines in Tunisia. On Christmas Day, 1942, he led an 18-airplane attack on the Tunisian port city of Biserte devastating the German resupply facilities. When President Franklin D. Roosevelt heard of the success of the B-17 raids, he was so impressed he ordered the promotion of Tibbets' boss to brigadier general. Gen

Doolittle was also impressed and chose Lt Col Tibbets to head his bombardment section.

In 1943, the B-29, which had been on the drawing board since 1940, was plagued with design problems. Military planners were depending on the long-range bomber to bring the war to the Japanese homeland, and although few people knew it, it was needed to deliver the atomic bomb. When the YB-29 caught fire and crashed in February 1943, killing the program's chief test pilot, Eddie Allen, and 10 top technicians, the fate of the aircraft was in doubt. But full-scale production was already underway and so much depended on a long-range bomber, it was decided to continue production and improve the design.

When Gen Hap Arnold, Chief of the Army Air Force, told Doolittle he needed an experienced bomber pilot to replace Allen, without hesitation, he recommended Tibbets. For more than a year, Tibbets, now a lieutenant colonel, flight tested the XB-29 and eventually, most of the bugs were worked out of the controversial aircraft.

By 1944, development of the atomic bomb had progressed to the point where it was time to form and train a force to deliver it. On September 1, 1944, Gen Uzal Ent, Commander of the Second Air Force, chose Lt Col Tibbets over a colonel and a brigadier general to command the 509th Composite Wing — the world's first nuclear strike force. There were several reasons Lt Col Tibbets was selected over the others.

His work on the B-29 left little doubt he was the best-qualified pilot for the job, and his superb leadership abilities were clearly shown during the bombing raids in Europe and North Africa. He also had the endorsement of Hap Arnold who called Lt Col Tibbets "the best damned pilot in the Air Force."

In 1945, as it turned out, Gen Ent



*"Special Mission 13 went so smoothly it was boring. We didn't have any trouble. Everything went like it had been planned. I just went along for the ride."*

made the right decision. The flight of the *Enola Gay* went off flawlessly.

### After the War

After the war, Col Tibbets emerged as one of the most experienced bomber pilots and certainly the most famous. He was the logical choice to flight test the B-47, the world's first jet bomber. Convinced the sleek 600-mph aircraft should replace the giant 10-engine B-36, he appeared before many military committees and took every opportunity to speak on its behalf.

His argument was, in spite of its tremendous range, the B-36 would be extremely vulnerable to attack from modern jet fighters. Although the B-47's jet engines were fuel guzzlers and the aircraft did not have the range required for SAC's global mission, the problem could be solved by air refueling. Several B-29s were already being converted to tankers, and the KC-135 was on the drawing board. Largely as a re-

*continued*



*"We didn't fly right over the target! We came up to the bomb release point at 31,400 feet when we let it go. We were well back of the target. After release, I turned around and got out of there the best I could."*



## Gen Tibbets

continued

sult of his testimony, the Air Force decided to purchase the B-47 and phase out the B-36 fleet.

For nearly 3 years, he flight tested the B-47 until the first of more than 2,200 of the 100-ton bombers built was delivered to SAC. In the years that followed, he would fly the B-47 as both a wing commander and a division commander.

*Flying Safety* magazine was honored and had the pleasure of interviewing Brig Gen Paul W. Tibbets. We share with you here some history, insight, and reflections from Gen Tibbets.

### BRIG GEN PAUL W. TIBBETS ON . . . SPECIAL MISSION 13

**FS** *The Hiroshima mission was designated "Special Mission 13." How did you choose the crewmembers for this mission?*

**Brig Gen Tibbets** I did not choose all of the crewmembers. Gen Ent assigned a B-29 squadron to me that had already been trained. This formed the nucleus, and they were moved to Wendover, Nevada. But I

wanted the guys I had flown with in Europe because I knew, no. 1, my bombardier could drop a bomb, and, no. 2, my navigator could get me there.

**FS** *The Enola Gay — did you physically go to the production plant yourself and decide exactly what airplane was going to be the one you were going to use?*

**Brig Gen Tibbets** I was in the production plant one day talking to a Manhattan Project engineer about a modification to the B-29 aircraft. One of the production line superintendents said he knew of a good, solid aircraft — tail no. 4486292. He explained that after its first test flight, it had only one squawk on it. When the Air Force accepted and flew it, it had *no* squawks! The production line superintendent said that's a good airplane, and I took it!

**FS** *Were the designated B-29s designed with a special release system, or were they modified for the weapon later on?*

**Brig Gen Tibbets** The weapon had to be hung by a single lug. Because it was so big, we had to go up in the tunnel and reshape it so it could hold the pressure. What that meant was losing almost 50 percent

of the tunnel when they put that lug up there. (The tunnel was the safe path to get from the front to the back of the aircraft over the bomb bay. — Ed.)

There were a lot of other modifications that went into the aircraft. I stripped a lot of the armament out of it. I had learned while I was working in Alamogordo with the B-29 that if I had altitude, the enemy couldn't catch me. So, I took 7,200 pounds of weight out of the airplane — turrets, armor plate, and ammunition. I left the tail guns in just in case someone snuck up behind me.

But other than that, I came away convinced if I had 5,000 more feet of altitude, I wasn't going to worry about any Japanese fighters.

**FS** *Would you address some of the difficulties you experienced, both personally and technologically, with Special Mission 13?*

**Brig Gen Tibbets** It went so smoothly, it was boring. We didn't have any trouble. Everything went like it had been planned. I just went along for the ride.

**FS** *This wasn't true for the second mission to Nagasaki, was it?*

**Brig Gen Tibbets** No! They didn't



Courtesy Air Force Museum

listen to me. The aircraft commander didn't take command of his airplane.

**FS** *When you were over the target and approximately 43 seconds went by, did you think the bomb was a "dud"?*

**Brig Gen Tibbets** We didn't fly right over the target! We came up to the bomb release point at 31,400 feet when we let it go. We were well back of the target. After release, I turned around and got out of there the best I could.

I had talked to J. Robert Oppenheimer, Nuclear Physicist and Scientific Director, and asked him what I needed to do to separate myself from that explosion. He said, "You have to get tangent to the ever-expanding shock wave." "Okay, what's that?" I asked. He said "Turn 159 degrees, and you'll be tangent." I called it 160.

I practiced until I could do it. I had 53 seconds maximum time based on other practice units we had dropped. Every time we dropped a practice unit, we did exactly the same thing — whether I was flying the airplane or another of the pilots was. I developed the maneuver because I knew how to

handle that airplane better than anyone else, and I knew how far I could take it.

I had discovered that as I flew steeper and steeper into this turn, no. 1, the more airspeed I lost, so I had to drop my nose to keep my airspeed up. And, no. 2, when I finally got in there, the tail was starting to stall because there was so many G forces on it, and it was starting to talk to me through the yoke. I got to the point where I knew that was about as far as I better push it. And I taught the other guys. I took them up and let them get the feel for it.

**FS** *When the bomb went off — when it finally detonated — what went through your mind?*

**Brig Gen Tibbets** I was as reasonably sure as anyone could be that this mission would be successful. According to Oppenheimer, the possibility of failure on the fuzing mechanism was "one in a million." I wasn't worried about that. I was a little apprehensive about it exploding before it left the aircraft. That was a possibility. Also, was the bomb going to explode at 1,500 above the ground as it was supposed to?



*"Everything we did, we did carefully and safely. We couldn't afford to make mistakes! Everything was carefully planned out."*

As I was turning the airplane around to get out of there, I kept hearing my bombardier saying, "She's falling straight, she's falling straight." My next thought was "When will it explode?"

As I got my airplane turned around and was leveling out in the turn, the sky went brilliant, and then I actually tasted the bomb. I had quite a few dental fillings, and I experienced electrolysis. I tasted lead right away. **I knew it had gone off!** I didn't have much time to think about it because the shock wave hit us.

**FS** *It sounds like everything went so well. Was there ever a time you felt troubled?*

**Brig Gen Tibbets** Oh, yes, a little bit! But not bad because, excuse my expression, I was 30 years old, I was shot in the ass with confidence, and there wasn't anything I couldn't do. That's how simple it was. Tell me to do it. I'll go ahead and do it. I'll work it out.

**FS** *You didn't get to see the cloud itself but the gunner did?*

**Brig Gen Tibbets** The tail gunner saw the explosion. As soon as the shock wave hit us, I went right into the turn to come back as we were

*continued*



*"I was convinced the bomb would end the war if it was successful! I couldn't see how any nation could stand up to this weapon."*

## Gen Tibbets

continued

directed. We had been given hand-held cameras to take pictures as quickly as we could because they knew they wouldn't be able to get a reconnaissance aircraft up for a couple of days to do anything. I did see the cloud after we turned around.

**FS** Was it bigger than you had expected?

**Brig Gen Tibbets** I don't know what to tell you I expected. I'd been given a theoretical figure by Oppenheimer that it's going to explode with an equivalent of 60,000 tons of TNT. I'd never seen a thousand tons of TNT. So, when we saw the damage on the ground, it was mind-boggling — it was bigger than I had ever imagined. The city was there when we flew in — just as clear as clear can be. When we turned around back over it — the only thing we could see was little fingers out on the edge. We had taken out 3½ miles.

**FS** Did you think this detonation was going to end the war?

**Brig Gen Tibbets** I was convinced

that it would end the war if it was successful! I couldn't see how any nation — the Japanese or anyone else — could stand up to that weapon. They really didn't have the defense for it. So, how long were they going to let their cities be wiped out with these weapons?

We saved all kinds of lives. I was briefed very carefully about the prisoners of war in the neighborhood of Hiroshima. We didn't know where they were. There was a total of 20,000 prisoners who had been condemned to death. They were going to be executed in two increments — one on the 28th of August and the other one a couple of weeks later in September. They were just going to murder them! And so, when I was asked, do you have any reservations about dropping the bomb, I said no! I didn't want to kill any prisoners, but I didn't know where they were. As it turned out, they had been moved clear away.

**FS** How many of the original crew are left?

**Brig Gen Tibbets** There are 5 out of 10 crewmembers still living. In addition to the standard seven-member crew required on a B-29, we had two crewmembers to "nurse maid" the bomb and one to sweep the radar frequencies.

**FS** Did the Japanese sweep you?

**Brig Gen Tibbets** No. We got the Japanese intelligence reports later, and it had been confirmed many times. They did just what I wanted them to do. We had been reported approximately 75 miles away. We had been reported in the air raid warning at Hiroshima. Approximately 5 minutes after that, they decided we were a reconnaissance aircraft, and they sent the all-clear signal.

**FS** Would you address safety on this mission? It had to have been unique considering the weapon you were carrying

**Brig Gen Tibbets** Everything we did, we did carefully and safely — certainly! We couldn't afford to make mistakes. Everything was carefully planned out. It was not necessarily planned by me or by my people. We had the Manhattan Project people there — some of them were good engineers, and with their

help, I don't think we left anything unturned. We never even broke the skin on anyone.

I want to emphasize the fact that we didn't make a move until we were quite sure we knew what we were doing — no matter what it was! We couldn't afford a mistake! We knew what we were doing, and we had considered everything that could happen in advance. We had a reaction for everything that we could anticipate. Nothing would catch us with "our pants down." We would have been ready for it!

### HIMSELF

**FS** You entered the Army Air Corps in 1937, and 6 years later, Gen Hap Arnold was calling you "the best damned pilot in the Air Force." And only 8 years later, you were commanding the 509th Composite Group. Would you address this great success in such a short time period?

**Brig Gen Tibbets** I don't know about being the best pilot in the Air Force, but let's put it this way. I got forced into getting a lot of experience early, and I lived through it. As a lieutenant colonel, I put the 509th together.

**FS** We know you have a reputation for "saying it like it is." Your comments, please.

**Brig Gen Tibbets** That's what my effectiveness report says — I was very outspoken. I was a little bit abrasive. I took on a couple of gentlemen who turned out to be four-star generals. That didn't help. I never believed in trying to "butter anyone up" on anything.

**FS** How did you get along with General Curtis LeMay?

**Brig Gen Tibbets** Excellent. Excellent. No problem.

**FS** What about the first meeting you had with him on Guam?

**Brig Gen Tibbets** There was no problem. I had known General LeMay for a while. I taught him all about the B-29. I spent 8 days with him on that training. We got very well acquainted at that time.

He listened very carefully and patiently. As far as Special Mission 13 was concerned, he didn't have any choice. He had been told from Washington what was going to happen and that was it! He wanted to

make sure he understood what I needed in the way of help. I never had any trouble with LeMay.

**FS** *Have you had any contact with any of the Japanese leaders of WW II?*

**Brig Gen Tibbets** I met with the gentleman who led the attack on Pearl Harbor — Mitsuo Fuchida. He was a guest of mine in Tampa, Florida. We had a good talk about it. He said, "Paul, you did just exactly what you planned to do — you fooled the hell out of us." I said, "You fooled us, too!"

**FS** *Is there anything else you would like to add?*

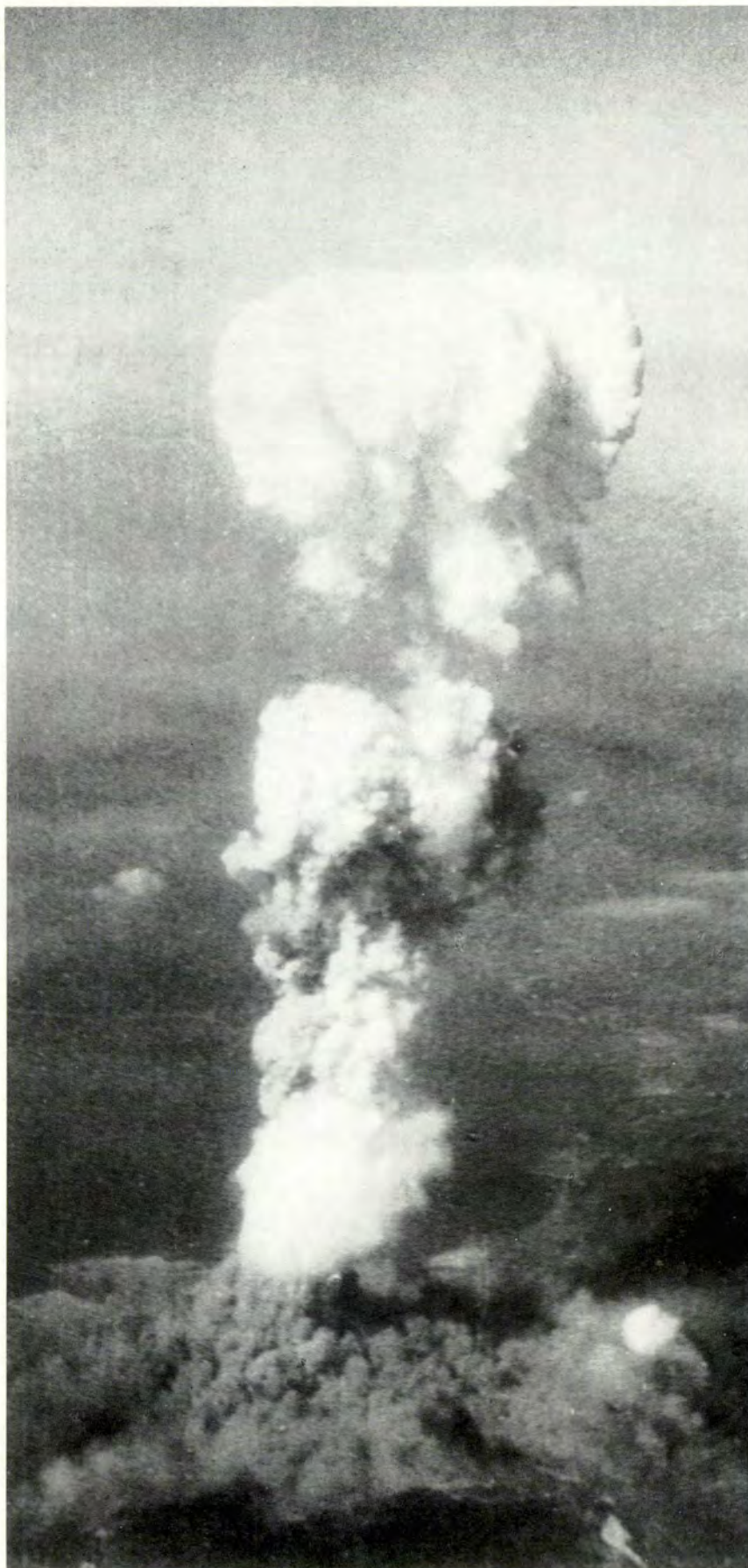
**Brig Gen Tibbets** I had a good time in the Air Force. I had a good career. I enjoyed every minute of it! ■

### For Your Information

There have been many articles and books written about the nuclear attacks on Hiroshima and Nagasaki. Some are more accurate than others. The scope of the inaccuracies range from minor errors and misconceptions to downright fabrications, including a report Col Tibbets was in a lunatic asylum or had become insane from guilt. In fact, he remained on active duty for more than 29 years and was promoted to the rank of brigadier general.

After his retirement in 1986 as the President of Executive Jet Aviation, Inc., an air taxi service, Brig Gen Tibbets wrote his account of the atomic strikes. In his book, "The Flight of the Enola Gay," he sets the record straight, exploding the many myths which have grown during the past 46 years. This book should be required reading for any aviation historian. As Brig Gen Tibbets puts it: "*This is the way it was.*"

Said General Tibbets of the mission to drop the first atomic bomb, "We couldn't afford to make mistakes."



# GENERAL JIMMY DOOLITTLE



**MAJOR ROY A. POOLE**  
Editor

■ Imagine you're a pilot in the Army Air Corps in early 1942. You've logged about 200 hours on training flights in the North American B-25. What's the most dangerous thing you can think of?

How about loading your bomber with 2,000 pounds more than it was designed for? Then try a takeoff in less than 500 feet — from the pitching deck of an aircraft carrier. If you survive the takeoff, you have to fly at less than 300 feet above the ocean for 600 miles to your target, the capital city of the enemy. You'll fly without escort all the way, and after dropping your bombs, you must fly another 1,000 miles or more to find

a safe place to land. Your landing will be made after dark, in a foreign country which the enemy may or may not have under control. Any volunteers?

Yes, there were. And fortunately for all of them, the first person to step forward was a man who had spent a lifetime turning the unsafe and dangerous into the safe and doable — Lt Col Jimmy Doolittle. He had been hand-picked by Gen "Hap" Arnold, Chief of Staff of the Army Air Forces, to serve as a troubleshooter solving serious technical problems. Why choose Jimmy Doolittle? His background says it all.

## **A Born Problem Solver**

Born in 1896, Jimmy's first years were spent in the Klondike territo-

ry of Alaska. As a teenager, he grew up in Los Angeles, California, where boxing, motorcycles, and flying became his passions. He joined the Army Air Service to become a pilot and fight in Europe. The Army had other ideas, however, and Jimmy saw World War I end from a state-side assignment.

He was selected as part of General Billy Mitchell's team to sink the *Ostfreisland* as a demonstration of air power. Jimmy then worked out the details for a coast-to-coast flight. His first attempt ended on takeoff from a Florida beach. A wheel had stuck in the soft sand and cartwheeled his airplane into the surf. For Jimmy, this was not an unfortunate accident, but a wholly preventable incident — if proper planning was ac-

completed. He succeeded a short time later on his flight from Florida to California, setting a record for the first person to cross the width of the country in less than a day.

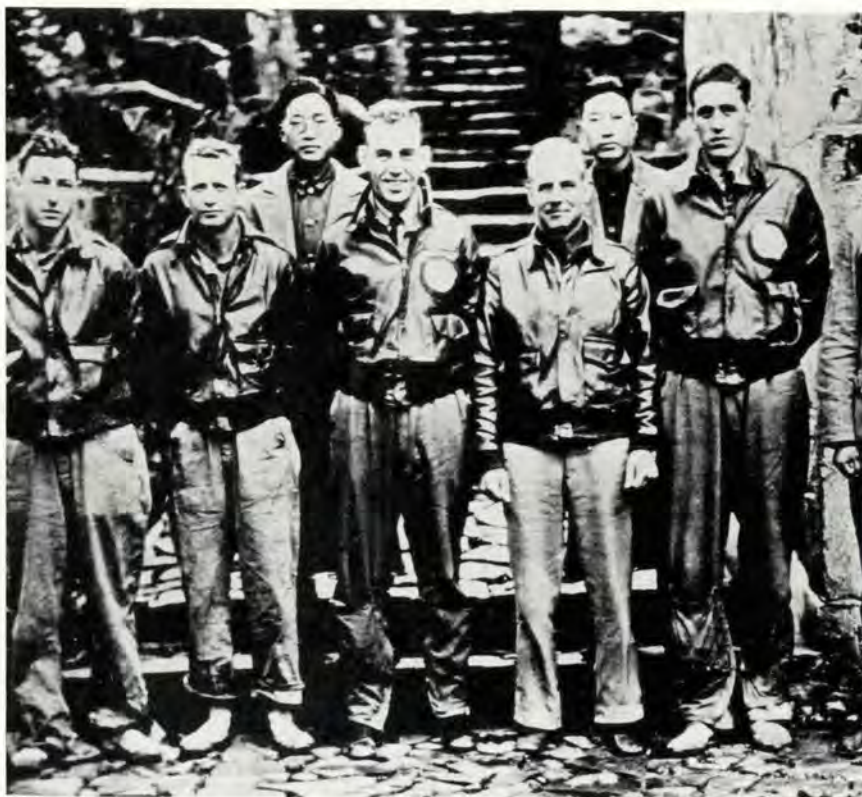
Jimmy next found himself conducting test flights at McCook Field near Dayton, Ohio. Here, his keen interest in problem solving led him to apply to the Massachusetts Institute of Technology to work for a Masters of Science degree. With typical hard work, he earned the degree in 2 years and was immediately accepted into the doctoral program. He was near completion of his degree in just 1 year but was ordered to return to McCook to test newly designed airplanes to their limits. In 1925, he finally completed his thesis and was awarded one of the nation's first Doctor of Science in Aeronautics degrees.

In the coming years, Jimmy Doolittle would become the first pilot to perform an outside loop; the first pilot to take off, fly, and land an airplane using instruments alone; the first to cross the country in less than 12 hours; and he set a world speed record of 306.99 miles per hour in the dangerous *Gee Bee* airplane. His skill at solving seemingly impossible problems was irrefutable.

### The Days After Pearl Harbor

One of Jimmy Doolittle's first problems to solve for Gen Arnold was the bad reputation being given to the new Martin B-26 *Marauder*. The pilots were convinced the rash of recent accidents was caused by the B-26's design, and they had nicknamed it the "Murderer."

The pilots were waiting by the edge of the runway when Doolittle arrived in a B-26. To their surprise, one engine was shut down (myth no. 1 was erased). After talking to the pilots about what *they* thought the B-26 could not do, he took off, shut down an engine, and then turned into the dead engine (myth no. 2 erased). Before making some more single-engine landings, he made a series of tight turns with the engine still feathered (myth no. 3 erased). The B-26 *Marauder* had just lost its nickname.



Jimmy Doolittle's own Tokyo bombing crew with Chinese friends shortly after bailing out on the night of April 18, 1942. Left to right: SSgt. F. A. Braemer, bombardier; SSgt. P. J. Leonard, engineer/gunner; Chinese friend; 1Lt R. E. Cole, copilot; Jimmy Doolittle, pilot; Chinese friend; and 1Lt H. A. Potter, navigator.

### The B-25B Special Project

The next problem to face Lt Col Doolittle was how to launch a retaliatory attack against the Japanese homeland. President Roosevelt was anxious to restore the morale of the Nation and confidence in the military after the surprise attack on Pearl Harbor. Naturally, Gen Arnold turned to Jimmy Doolittle. "Jim, what bomber do we have that will get off in 500 feet with a 2,000-pound load and fly 2,000 miles?"

The following day, Gen Arnold heard from Doolittle. The only plane capable of this mission was the North American-built B-25 *Mitchell*. And it could only do it with additional fuel tanks installed. On January 18, 1942, Lt Col Doolittle was given the job of preparing for the raid on Tokyo.

Preparations were to be a continuous series of problem solving. From the rear-facing tail guns which were replaced with broomsticks to save weight while confusing the enemy,

to replacement of the lower gun turret with fuel tanks, the problems seemed never ending. The pilots had to be continually trained to make the short takeoff runs. If their training lapsed, they slipped into the older techniques suitable for long Army runways. The top-secret Norden bombsight could not be allowed to fall into Japanese hands, so a replacement was made from \$2 worth of aluminum.

Everything had to be done in secrecy. The mechanics at McClellan Field, California, could not be told why the carburetors were adjusted improperly (to maximize range at the cost of engine life) or why extra fuel tanks were installed in crawlways and turrets. The Chinese leaders were not told when or why some aircraft would be arriving in desperate need of fuel. Even the pilots did not know of their destination until they were on board the aircraft carrier *Hornet* and well clear of San Francisco Bay.

continued

# General Jimmy Doolittle

continued



Not one member of the first mission to bomb Tokyo doubted the first pilot to take off would be Jimmy Doolittle. In the no. 1 aircraft, he would have the shortest roll from the pitching deck of the *Hornet*.

## Task Force 16.2

Although they launched earlier than desired, Jimmy Doolittle's mission went nearly exactly as planned. He made the first takeoff from the *Hornet* in pitching seas, circled the ship one time, and set out for Tokyo, 675 miles away. The remaining 15 aircraft got safely airborne and began the long trip to Tokyo at 300 feet or less above the waves. One or two managed to keep sight of another raider for a while, but eventually, the bombing runs on Japan's industrial and shipping targets were made by individual aircraft.

With the exception of one aircraft, all pilots turned their B-25s toward China and the hoped-for radio beacons to guide them to a safe landing. One pilot, realizing there was not enough fuel to reach China, turned northwest and safely landed near Vladivostok, Russia. The others crossed the Chinese coastline to find no radio beacons. The Chi-

nese thought the incoming airplanes were Japanese and turned them all off. Over China, on a dark night, in the midst of storms, 12 of the raiders ran out of gas and their crews bailed out. Two raiders ditched their aircraft along the coast.

Of the 80 crewmembers, 3 died during the bailouts, 8 were captured by the Japanese (1 would die of mistreatment and 3 would be executed), and 5 were interned by the Russians who claimed neutrality with the Japanese. Their sacrifices were not in vain. The real and psychological impact on the Japanese people changed significantly the way in which the Japanese military was to fight the remainder of the war.

## Safety Through Leadership

America's first strike against Japan will long be remembered as a dangerous mission. At many points along the way, it could have become extremely unsafe. But under the

leadership of Lt Col Jimmy Doolittle, the entire mission was flown with confidence. He analyzed each of the problems and then found the best solution. The pilots learned carrier takeoff techniques from a carrier-qualified naval pilot. Problems in engine performance were solved with initiative and expertise. Every contingency was covered because they knew their lives could depend on a single element.

Sitting below decks on the *Hornet* the night before the raid, Lt Col Doolittle asked if anyone wanted to back out of the mission. No one would. The backup mission pilots offered bribes to the designated pilots in order to take their place. No one would give up a seat. If the Boss was going to lead the mission, they wanted to be on it.

Safety and leadership and mission were the keys to success on April 18, 1942 — just as they are today. ■

# YESTERYEAR'S AIR FORCE



## A Photo Album of Our Past

*P-47 Thunderbolt*



*P-51 Mustang*



*P-39 Air Cobra*



*P-61  
Black Widow*

T-6 Texan



A Bad Guy



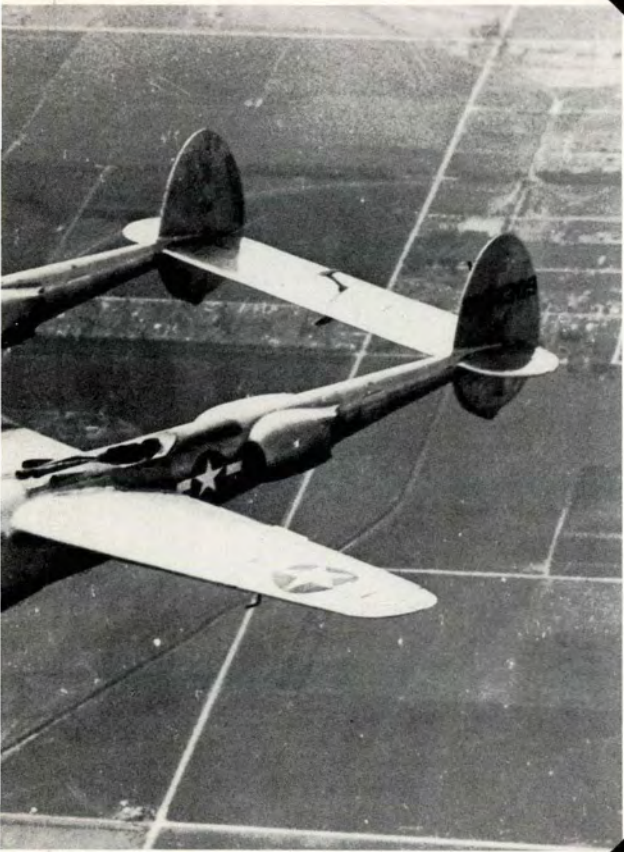
BF-109 Luclar



P-40 Warhawk



B-17 Flying Fortress



P-38 Lightning



B-26 Marauder



C-46 Commando



C-47 Gooney Bird  
another Bad Guy



B-29 Super Fortress



A6M5 Zero



**BRIGADIER GENERAL**

# CHUCK YEAGER

**CMSGT ROBERT T. HOLRITZ**  
Technical Editor

■ Shortly after noon, the blue Cadillac pulled into a reserved parking place in front of the operations building of the Air Force Flight Test Center at Edwards AFB, California. The license number, BELL X-1A, told everyone it belonged to Brigadier General Chuck Yeager.

A country boy from Hamlin, West Virginia, General Yeager began his military career in 1941 as an enlisted aircraft mechanic. Before WW II was over, he was a double ace, bagging 12 enemy aircraft, including 5 in one mission. One of his victories

was an ME-262 German jet fighter.

He graduated from test pilot training in 1946, and less than a year later, on 14 October 1947, at the age of 24, he made aviation history in the Bell X-1 when he became the first person to fly faster than the speed of sound.

We spent a morning with General Yeager and talked with him about his 48 years of flying and his philosophies. In spite of the fact he is one of the world's most famous aviators, his down-to-earth manner set the tone for the interview.

## World War II

**FS** General Yeager, where were you on December 7th 1941?



Photograph by Robert King

**BRIG GEN YEAGER** I enlisted in the Army Air Corps in September 1941 and went to boot training in Ellington Field, Texas, which was easy for me because I played in a high school marching band.

I went from there to Mather Field in northern California to learn maintenance. I went from there to Moffett Field in November 1941 and worked as a crew chief on T-6 trainers.

On December 7, 1941, when the war started, it was a real fiasco. A group of us were out goofing off somewhere in one of the local communities when the word came over the radio Pearl Harbor had been hit, notifying all military guys to go back

to base.

At Moffett, we lived eight guys to a tent and, as I recall, Jimmy Stewart was a sergeant. He was head of my squad. We were really apprehensive about the west coast being invaded by the Japanese. They issued us rifles and .45s. I tell you, it was worth your life. Most of these guys had never been around weapons before, and things got pretty interesting.

We had a big dirigible hangar at Moffett down by the bay. I think every poor little log or anything floating in the water near the hangar got blasted with everything anybody could shoot with. Within 2 or 3 days, they were even talking about putting flexible gunnery rings in the back seats of T-6s with .30 caliber machineguns. That was the atmosphere at the time.

After about 6 weeks, they moved me to Victorville Army Air Base (now George AFB) as a crew chief on AT-11s which is a bombardier trainer. In those days, the crew chief did everything on the airplane. You changed the engines, worked on the automatic flight control systems, hydraulic systems, and brakes. You name it — the crew chief did it.

### Learning to Fly

**FS** How and when did you get into pilot training?

**BRIG GEN YEAGER** To qualify for the aviation cadet program, you had to be at least 20 years old and have at least 2 years of college. Around the beginning of December 1941, I saw a notice on the bulletin board asking for volunteers for pilot training. It said if you are 18 and have a high school diploma, you can apply for pilot training under the flying sergeants program. When you graduated, you became a rated pilot and were promoted to staff sergeant. Well, I was 18 and had a high school diploma, so I signed up for the program. Within 3 days, I was scheduled for a physical and evaluated by a "head shrinker." That was on December 4, 1941, and when the war started on December 7th, I said I'm not too sure I made the right decision.

I took my first flight in an airplane when I was still a crew chief at Vic-

**"The secret of my success is that I always managed to live and fly another day."**



torville. Until then, I had never even been in an airplane except the ones I worked on. One day after I changed an engine on my airplane, my engineering officer asked me if I wanted to go along on the test hop. During the flight, he shot some touch-and-go's. It was February, and the air was rough, and after about 15 minutes, I was really sick and threw up all over my airplane. The pilot was pretty disgusted with me. I didn't think I had much of a future in flying. I never flew again until I was called up for pilot training in June 1942.

**FS** What was it like during flight training?

**BRIG GEN YEAGER** It was really not easy for an aviation student. They had a hazing system. When we reported in to Ryan Field in Hemet, California, I was a corporal. We had staff and tech sergeants in the flying sergeants program, some of whom had been at Pearl Harbor and the Philippines during the Japanese attacks. They had a lot of ex-

perience. When they walked into an environment where upper class cadets could put these folks at a brace, things got out of hand. Discipline was bad — there was poor morale — even fights. Finally, the commandant realized the situation could not continue and put an end to hazing.

When we were assigned instructors, we had four aviation cadets and one aviation student, as we in the flying sergeants program were called. I was younger and less educated than the cadets, but I had one thing going for me. I knew that airplane. So it was easier for me to learn to fly. Some of the academic work was a little tough, but I managed okay. Looking back, that was one of the few times in my career that left a bitter taste in my mouth.

**FS** I understand in those days training was almost the most dangerous part of flying.

**BRIG GEN YEAGER** It was. Not necessarily in flight training. Because flight training in the 1942 time period was supervised by a lot of

*continued*



Photograph by Robert King



**"Everything we do here at the flight test center is looked at very closely because the airplanes we fly here are very expensive, and you are always operating on the ragged edge."**

## Gen Yeager

continued

good old heads from the '30s with barnstorming experience. They were good pilots and supervisors. I don't recall any major accidents during flight training. During my combat training, though, we lost a lot of pilots. But consider the kind and amount of flying we did. For example, in 1 month, I flew 116 missions going out bombing, strafing, dive bombing, and dogfighting. In this type of environment, you are going to have a lot of accidents.

But we were training for combat, and the things you did then, by today's standards, made you a flying safety risk. But it is better to learn your limitations during training than waiting until you are in actual combat.

The pilots that survived training were very good when they engaged in actual combat. Those we lost in training I'm sure we would have lost in combat anyway and may have taken someone else with them. When I was Director of Aerospace Safety at Norton back in the '70s, I looked at some of the accident rates. In 1943, the Army Air Corps had 22,800 major aircraft accidents totally unrelated to combat.

**FS** Sir, your career spans three major wars. You were a double ace during WW II, and you logged 127 combat missions during Vietnam. How has air combat changed over the years?

**BRIG GEN YEAGER** Well, a lot. If you look back and study the World War II aces, especially in Europe, you'll see only about 11 percent of the fighter pilots who were involved in combat against the Germans shot down 90 percent of the

airplanes. One of the common factors of this 11 percent was, almost without exception, everyone grew up as a rural kid. No. 1, they had excellent eyesight, and they understood deflection shooting because they hunted a lot. Running rabbits and quail taught them lead and deflection shooting. And that made it easy for instinctive shooting with the planes of World War II. And another thing we learned as rural kids was to be self-sufficient. You did with what you had. And you were very aggressive, too — because you had to be.

But things have changed over the years. In the latter part of WW II and in Korea, lead computing gun sights like the K-14 used in the P-51 made it easy to lead a guy and do it right. We no longer had to depend on instinct. We had to train a little to learn the new equipment. Today, because of computer enhancement



**"As a flight commander, I really had more control over flying safety than the squadron commander because I was closer to my pilots, and I could see a situation developing because of aggressiveness or competition, and I could put an end to it."**



Photograph by Robert King

and things like that, you can slap a pilot in an F-16 or F-15E and he doesn't have to go out and train dive bombing like we used to, to learn how to hit the target. Now, on his first mission, he can hit the target. As far as the ability of our pilots, there's been no change that I've seen. Today, they're a lot better because they have better equipment and it's easier to do their job.

### On Safety

**FS** *You've been in the aviation safety business for a long time, and you are familiar with today's programs. Can you summarize how safety was viewed when you started flying?*

**BRIG GEN YEAGER** Safety programs really didn't exist in the old days as we know them today. They existed only in the instinct to stay alive. There is nothing worse than two pilots trying to impress each other with their airplanes, especial-

ly if they are aggressive types. That's where supervision comes in.

Today, as far as flying safety is concerned, you start as low as you can on the command chain, either element leader or flight leader. That's the thing I noticed as I progressed up the ladder. As a flight commander, I really had more control over flying safety than the squadron commander because I was closer to my pilots, and I could see a situation developing because of aggressiveness or competition, and I could put an end to it.

The problem I've seen in today's Air Force is we have very few professional wing commanders. Unfortunately, most wing commanders are assigned to the position merely to fill a block to make general, and they don't come up through the system — they can't recognize situations developing that turn out to be accidents. The lower you can get fly-

ing safety supervision, the better off you are.

One of the big changes that has taken place since I was involved in the research flying back in the late '40s and '50s is safety review boards. Here at the test center, a pilot doesn't just go out and test an aircraft. There is a lot of hard looking as to what are the possibilities. Everything we do here at the flight test center is looked at very closely because the airplanes we fly here are very expensive, and you are always operating on the ragged edge. In the old days, we paid for progress with lives — and we paid a lot — but it was the only way we could get it. Today, with simulators, computers, safety review boards, and good supervision, you can go years without any loss of life or aircraft.

**FS** *You mention the human element — could you look back and re-*

*continued*



Photograph by Robert King

**"When you get older and higher in rank, with the responsibility for the aircraft and pilots, you have got to be callous. When I made general in 1968, my old boss, General Albert Boyd, told me 'You can't be a good general and have friends between 7:30 and 4:30.'"**

## Gen Yeager

continued

*flect on the most fatal characteristic you have seen in pilots?*

**BRIG GEN YEAGER** You can detect bad traits in a pilot. Some you can correct by training — others you can't. It's difficult to tell a pilot, "You can't fly my airplane anymore." But compared to telling his wife he won't be coming home, it's easy. As you get older and higher in rank with the responsibility for the aircraft and other pilots, you have got to be callous. When I made general in 1968, my old boss, General Albert Boyd, told me, "You can't be a good general and have friends between 7:30 and 4:30."

**FS** What are your thoughts on the restructure of the Air Force and the composite wing?

**BRIG GEN YEAGER** General McPeak has the right idea. There is just too much fat. We can't afford the luxury of having five air bases operating in one state at 20 percent capacity. That's just poor management. I'm glad to see them get rid of air divisions. They're nothing but a bottleneck.

### The Best

**FS** Who was the greatest pilot you have ever known?

**BRIG GEN YEAGER** Well, pilot ability depends a lot on experience. Women pilots are just as good as men, given an equal amount of experience. I have flown with pilots from just about every air force in the world. Working with Pakistan during the war with India during 1971 through 1973, I used to fly with the F-86s. There was a Pakistani pilot with 7,000 hours in the -86. He was probably the best F-86 pilot I've ever

seen because he had 7,000 hours. Basically, the ability of a pilot depends on his experience.

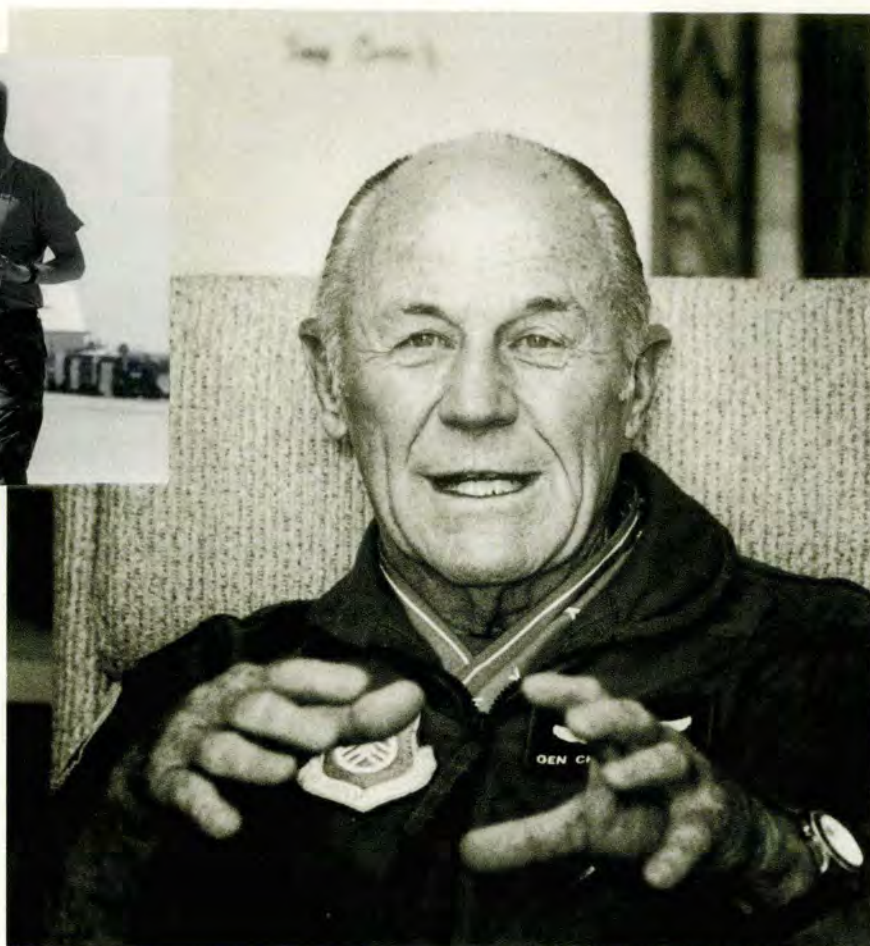
**FS** In the successful pilot — one that you would want as a wingman — what characteristics would you look for?

**BRIG GEN YEAGER** There are a lot of characteristics. Certainly the ability to see and to remain calm under terse conditions. I'd want a guy that's a professional. Today, airplanes are much easier to fly. On the other hand, they are much more complex. You have to know everything there is to know about the airplane you fly. What it boils down to is the guy who is a professional, one who knows his equipment and how to use it, is the one you want as a wingman.

We need to put professional guys in the cockpit and leave them there. We've got to streamline into a lean fighting force, and let those profes-



**"There's nothing wrong with putting a guy in the cockpit and teaching him to be a professional and keeping him there for 20 years. You may end up with a squadron of 16 full colonels, but that's okay because you'll have an elite force of professionals."**



Photograph by Robert King



sional guys stay in the cockpit. There's nothing wrong with putting a guy in the cockpit, teaching him to be a professional, and keeping him there for 20 years. You may end up with a squadron of 16 full colonels flying airplanes, but that's okay because you'll have an elite force of professionals.

**FS** *What is your favorite aircraft?*

**BRIG GEN YEAGER** I think you can ask any pilot and he'll tell you the newest, the latest. Just like a new car. I've flown F-18s and the F-20 a lot. The newer the aircraft, the easier it is to do your job. I have some nostalgia with the P-51 because it was the first plane I flew in combat, and I still fly a P-51. But when I get back in the P-51 and fly it, I say to myself, "How did I ever do so good in an aircraft that's so hard to fly." You get spoiled flying modern-day jets. They're easy to fly — really easy. The systems are sim-

pler in the older aircraft, but they were a lot harder to fly.

**FS** *What do you see as happening to combat aircraft as we enter the next century?*

**BRIG GEN YEAGER** Well, basically, what we are getting into now is marrying stealth technology into advanced aerodynamics and propulsion systems. That's what we're going to be using in the next 20 to 25 years. It's going to be mind-boggling with what you can do with that equipment. In my opinion, stealth is the secret to survival. With the development of air-to-air missiles today, you better not let the enemy know you're around or he's going to get you. We've come full circle. During WW II, pilots depended on visual acuity to find the enemy. You can see something with radar farther than you can with the eyeball. Now, getting into ECM equipment jamming radar and

stealth technology, what's coming back in? Eyeballs. I can see a B-2 at 30 miles. I can't see it with radar, but I can with my eyeballs.

### Still Serving

At 68, General Chuck Yeager is a consultant for the Air Force Flight Test Center and still regularly flies some of the hottest aircraft in the inventory. In 1976, a year after he retired from active duty, he was presented a special peacetime Congressional Medal of Honor for his work with the Bell X-1. He has written several books, including his autobiography, entitled "YEAGER," which has sold more than 3 million copies. As he stepped to the F-16 that afternoon on the ramp at Edwards AFB for a proficiency flight, I heard one of the test pilots remark, "There goes the best test pilot ever!" **YEAGER!** ■

## LIEUTENANT GENERAL

# Benjamin O. Davis, Jr.

Many people contributed to winning World War II in many different ways. Some saw their contributions not only in the light of battle, but in the promise of the future of the United States Air Force. *Flying Safety* was honored to recently talk with retired Lieutenant General Benjamin O. Davis, Jr. As you shall see, his battles were not always fought in the air.

PHOTOS COURTESY OF 1361 AAVS/DOA



Colonel Benjamin O. Davis, Commander, 332d Fighter Group, taking questions from pilots who will shortly join him on an escort mission to the heart of Germany.

MAJOR ROY A. POOLE  
Editor

■ Taking a break from the week's training schedule, Captain Benjamin O. Davis, Jr., headed for a restaurant in Tuskegee, Alabama. Midway through supper, the other patrons stopped as suddenly as Captain Davis at the radio's announcement. None of them listened more intently. Pearl Harbor had just been attacked by Japanese naval air forces.

A West Point graduate, Captain Davis agreed with conventional wisdom that such a feat by the Japanese should have been impossible. Now, the basic training he was taking to earn his pilot wings was a lot more serious. Not that he *ever* took it lightly.

### The First Black Squadron

America's policy makers in the early 1940's felt blacks were incapable of the skills required to fly. And even if they could be taught to fly, decision makers reasoned, blacks could never learn to operate as a cohesive, segregated unit. When a few leaders of vision decided to test these "theories" by creating the Nation's only black squadron, the 99 FIS, Benjamin Davis applied at his post at Ft Riley, Kansas. The flight surgeon, unaware of the forming squadron, found Captain Davis suffered from "epilepsy" (as a convenient way to keep him out of white pilot training programs). Captain Davis traveled to Montgomery Field, Alabama, for a "good" physical which allowed him to enter flight training at Tuskegee Institute,

south of Montgomery, at the age of 28.

By the summer of 1942, the 99th was assembled at Tuskegee. Since this was to be an all black squadron, everyone, from pilots to mechanics to armorers, had to be recruited and trained. Captain Davis was selected to command the 99th in August, and preparations were laid for departure from Alabama and arrival in North Africa by 11 November. They would be flying the already aging P-40 Warhawk against some of Germany's best and newest fighters. The 99th was led by an inexperienced commander, it had no flight leaders with experience, and every day for the ground support troops was on-the-job training.

### Building Pride

Despite the urgencies of a growing war, old prejudices kept the 99th on the ground in Alabama. They would not join the battle until 15 April 1943. But during this time, Benjamin O. Davis showed how strong leadership can protect the lives of those under his command.

While waiting for the orders to go, the 99th trained on the ground as a unit, with pilots and mechanics working to achieve maximum results. They took advantage of the gunnery ranges near Eglin Field in Florida to sharpen their skills. Before they left for North Africa, the pilots each had more than 200 hours in the P-40. They even conducted routine 25-mile hikes as a unit. To say they knew each and every member of the squadron was an understatement. They also knew their commander very well.

A frequent theme from Captain Davis was, "What we do today will affect blacks far into the future. We must always comport ourselves so as not to bring disrepute to our unit or our fellow airmen." There were likewise no doubts about who was responsible for the safety of the squadron — the Commander. Sure, there was a flying safety officer, but Captain Davis led the program, as surely as he led the squadron.

### Black Airmen in Combat

The 99th's first taste of combat in North Africa brought them against



Gen Benjamin O. Davis pins the Distinguished Flying Cross on his son, Col Benjamin O. Davis, Jr. following many successful missions into German airspace.

much faster and more agile German ME-109 fighters. Despite the uneven match against their P-40s, not one pilot was lost to the enemy — a clear sign of the squadron's discipline in the heat of battle. Later, two more squadrons of black pilots would be added to form the 332d Fighter Group. The P-40s would be replaced by Republic P-47s and eventually by North American P-51s (see page 13).

Through these transitions, now Colonel Davis recognized the importance of safety to the successful accomplishment of the missions. Some would be very difficult to do under the best of circumstances, but they were "doable."

He recalled how other commanders of white units lost their jobs over the simple failure to apply the safety principles outlined by higher headquarters. His commitment to his fellow pilots caused him, as a group commander, to lead

many of the most dangerous missions until he was satisfied the squadron commanders would do it exactly as he had.

The missions to escort 15th Air Force bombers to Berlin in June of 1944 required all 64 aircraft under his command to see the bombers safely to the target and back. Colonel Davis led the first three of these missions which lasted for hours and covered more than 1,600 miles. After that, he knew the squadron commanders would carry out the mission exactly as planned.

### Discipline Means Success

The discipline which he demanded of his group was singularly responsible for one of the most outstanding achievements by fighter escort units during the war. Not a single bomber under the protection of Colonel Davis' group was ever lost to an enemy fighter. Bomber crews consistently claimed the black

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The members of the 99 FIS, flying P-40 *Warhawks*, and later, as part of the 332 FG, flying P-51 *Mustangs*, trained, relaxed, and fought as a team. They all understood their actions would influence the future success of black airmen.

## LT GEN DAVIS

continued

pilots of the 332d Fighter Group "did the escort job better than anyone else."

Unlike other fighters who would leave the bombers as they began the dangerous final run through the flak to the target, the 332d pilots stayed with their bombers all the way into and out of the target area. They also refused to leave the bombers to chase after a few enemy fighters in order to gain an easy "kill." At a meeting in San Diego, California, in 1990, a veteran of bomber missions over Germany stopped retired General Davis to say "Thanks, I was one of those whose life was saved."

When there weren't bombers to

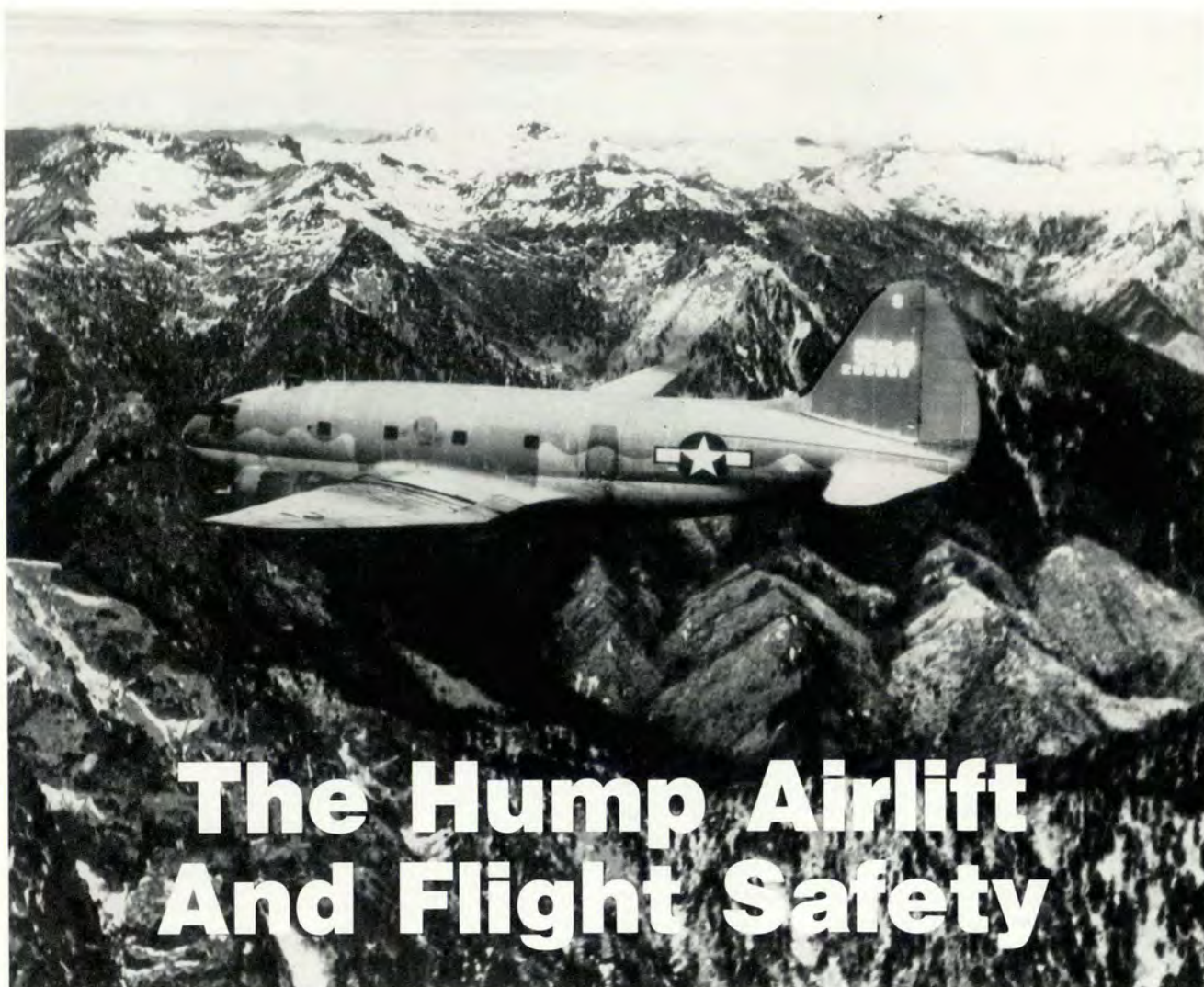
escort, the 332d continued its mission of attacking enemy ground positions. In August of 1944, the target was a German radar site in Southern France. The weather was poor, but the target had to be taken out. Using all of the leadership qualities expected of today's safety-conscious commanders, Colonel Davis weighed the stress of the mission, the preparedness of his crews, and the need to hit the target. His squadron commanders hand-picked the pilots for this mission. Their success, under conditions that seemed insurmountable, demonstrated safety and mission accomplishment can work together.

### Yesterday's Success Shapes Tomorrow's Future

The success of the 332d Fighter Group also demonstrated something else: Black airmen were the equal of any airmen in the United

States Air Force. As Lieutenant General Davis predicted, the actions of each person did have a profound effect upon blacks for years to come. Their successes enabled President Harry S. Truman to confidently issue an executive order mandating equal opportunity and treatment for minorities in the military. Secretary Symington made integration of the United States Air Force a crash program beginning in May, 1949.

Today, retired Lieutenant General Davis sees the armed forces as doing the country a greater service beyond defense. By demonstrating the effectiveness of improved relationships, we have shown the Nation equality among people is the best way to live. As one of the Air Force's most successful leaders, he proved strong personal relationships lead to tighter unit cohesion and outstanding unit success. ■



# The Hump Airlift And Flight Safety

**DR ROGER D. LAUNIUS**  
*Flying Safety, August 1987*

■ The airlift over the Himalayas between India and China during World War II was some of the toughest flying in the world. It all began when the Japanese cut China off from her allies during the spring of 1942. To keep Chiang Kai-Shek's nationalist army in the war, President Franklin D. Roosevelt announced in February 1942: "The Japanese may have cut the Burma Road, but I want to say to the gallant people of China that no matter what advances the Japanese may make, ways will be found to deliver airplanes and munitions to the armies of China."

The way Roosevelt found re-

quired the expenditure of enormous resources to airlift equipment, supplies, and personnel from British-held India 500 miles over the Himalayan mountains into western China. It was the first practical exercise of the possibilities airlift had for military operations and represents an important first step in the development of airlift doctrine.

The Hump, as the airlift was called in what must rank as an understatement of first magnitude, grew slowly at first. But as the Army Air Forces allocated more resources to the operation, tonnage delivered to China increased markedly. By December 1943, airlift forces were delivering more than 10,000 tons per month, and at the end of the war, the figures had risen to more than 50,000 tons by August 1945.

## Difficult Safety Conditions

Always this airlift was accomplished under exceptionally difficult conditions. Although most transports operating on the airlift were not attacked by Japanese fighters, several circumstances of aerial combat have been documented.

On one occasion, a C-47 transport flying the Hump actually scored a victory over an attacking Japanese Zero. When two enemy fighters attacked, the pilot dove between mountain peaks to elude them. The aircraft lost one Zero but the second stayed with it. "That character must have been trying to ram us because he never swerved," the pilot recalled. He just missed the C-47 but afterward the Zero "kept right on going, and we watched him explode

*continued*

# The Hump Airlift and Flight Safety

continued

as he hit the side of the mountain."

More important than periodic enemy attacks, the nature of the terrain and the weather made the airlift treacherous. The Himalayan mountains are some of the tallest and most rugged in the world. Peaks commonly reach 15,000 feet, and some of the highest protrude more than 20,000 feet. Most of the transport aircraft of the period were built for cruising altitudes not much higher.

Weather also contributed to the danger. It was not uncommon for sudden winds reaching almost 250 miles per hour to create turbulence so great a transport aircraft heavy with cargo might flip, roll, or plummet 3,000 feet a minute as if it were a dinghy in a typhoon. Six months out of the year, Hump aircrews contended with monsoons that drenched the countryside, created turbulence, and made operations practically impossible.

Colonel Edward H. Alexander, Commander of the India-China Wing (the unit with overall responsibility for the Hump airlift), wrote to a superior about the weather problem in 1943: "The weather here has been awful. The icing starts at 12,000 feet. Today a C-87 went to 29,000 feet on instruments, was unable to climb higher, and could not get on top. It has rained 7½ inches in the past 5 days. All aircraft are grounded."

## The Losses

In spite of these impediments, the men involved in the Hump airlift demonstrated the ability to accomplish the mission. Steadily throughout the war, tonnage increased, but, unfortunately, so did the loss of aircraft and aircrews. Between June and December 1943, for instance, there were 153 major aircraft mishaps on the Hump route, and 168 aircrew fatalities resulted.

Brigadier General Cyrus R. Smith, Deputy Chief of Staff for Air Transport Command (ATC), explained the price of increased ton-



The C-47 was one of the principal aircraft flying the hump. They were forced to fly in nearly impossible conditions with young, inexperienced crews. As a result, the early safety record was dismal.

nage delivered to China was more mishaps. He wrote in December 1943:

"We are paying for it (increased tonnage over the Hump) in men and planes. The kids here are flying over their head — at night and in daytime, and they bust up for reasons that sometimes seem silly, however, for we are asking boys to do what would be most difficult for men to accomplish; with the experience level here we are going to pay dearly for the tonnage moved across the Hump."

## Improved Safety Efforts

To ensure greater pilot proficiency, ATC immediately instituted more flight checks, a flight safety awareness program, and other safety efforts.

These efforts were moderately successful, especially in building greater safety awareness. Captain Bliss K. Thorne commented on some of the informal safety precautions he witnessed on his very first trip over the Hump in 1943.

As the aircraft reached cruising altitude, the pilot, who was a veteran of the airlift, gave Thorne the controls and went to the cargo compartment to check the 55-gallon fuel drums they were carrying. When he found three drums leaking noticeably (a common problem in the un-

pressurized aircraft at the high altitude needed to fly over the Himalayas), he jockeyed them back to the cargo door and pushed them out into the jungle below.

The meaning of this incident was not lost on the new arrival. Thorne took elaborate care to ensure his cargo was safely loaded and would remain intact throughout the flight.

In spite of this awareness, sometimes grisly mishaps took place. Sergeant Lloyd S. Gray, an engine mechanic and flight engineer working the Hump airlift from Sookerating, India, reported, for instance, a C-47 from his base exploded just after takeoff, killing the entire crew.

Those at the runway, according to Gray, said, "She was loaded with gas and ammunition, and the pilot almost refused to take off because he did not think the loading was properly done." Later, Gray added that because of the mishap, "Morale is at an all-time low here. The new men especially are practically refusing to fly."

This mishap did not stop the airlift, however. Gray probably summarized most of his comrades' feelings when he wrote in his diary, "I don't want to go (over the Hump), but duty is duty. If I had wanted to win the war from behind a desk, I would have stayed in the States."



The hump airlift was very costly in both aircraft and crews lost. Unlike this one, most of the crashes were not survivable. Crew morale was very low, and some men were practically refusing to fly.

### More Effective Safety Procedures

What mishaps such as this, and other similar ones, did was move Hump airlift commanders toward the institution of more effective safety procedures. Brigadier General William H. Tunner, who became commander of the unit managing Hump operations on 3 September 1944, forcefully moved to increase flight safety programs.

- First, he reviewed the reasons for mishaps and sought to institute procedures directed toward their elimination, while at the same time not degrading the airlift's tonnage delivery capability.

- Second, he went after larger numbers of personnel and more advanced aircraft which could operate on the route more efficiently and safely. He was successful on both counts, and the acquisition in large numbers on such high-altitude aircraft as the C-54 and C-87 transports (the latter a modified B-24 Liberator) proved especially important in this regard.

- Third, General Tunner instituted a much more efficient maintenance program which ensured the aircraft operating on the Hump would suffer from much fewer mechanical difficulties. To increase aircraft reliability while decreasing maintenance time, Tunner introduced production line maintenance (PLM).

This procedure required aircraft be towed through a succession of seven maintenance stations where specially trained crews performed specific maintenance operations. To make this feasible, each Hump base specialized in one type of aircraft repair. Consequently, maintenance operations could be more efficient and effective. At Tezgaon Field, in the Assam province of India, for example, crews specialized in C-54 aircraft and could move each through a comprehensive PLM program in 22 hours.

- To ensure the maintenance crews had sufficient spare parts, Tunner also inaugurated an impressive express aerial delivery service which supplied them with required materials from the United States in a matter of days.

Because of such innovations as these, daily utilization rates rose sharply from 7.51 hours per aircraft in April 1945 to 11.65 hours in July 1945.

- Finally, Tunner developed a comprehensive safety program. His staff prepared a statistical tracking program to determine the causes of aircraft failures, the airfields where most mishaps took place, the type of weather involved, the model of aircraft most prone to a mishap, maintenance deficiencies, and a host of other questions. Tunner

remarked in his memoirs, "To answer these and many other questions, Captain Kenneth Stiles, the India-China Division's Flight Safety Officer, set up statistical systems which were certainly the best in effect in any theater at the time, and are still good today."

### Putting It All Together

This information, coupled with more rigorous flight checks, aircrew physicals, an efficient safety awareness program, more advanced aircraft, and more effective preventive maintenance all played an important role in reducing the number of mishaps on the Hump.

During Tunner's command, the mishap rate declined rapidly. Still the Hump airlift had been costly. In almost 4 years of operation, nearly 400 aircraft were lost and more than 1,000 men were killed. General Tunner was able to organize efforts more efficiently, channel activities along certain lines, and thereby create a more efficient safety program toward the end of the war.

The lessons learned on the Hump about flight safety, and airlift in general, have proved themselves repeatedly since 1945. The operation represents an important step forward in understanding how to accomplish an important part of the Air Force mission. ■

# WRITE A DUMB CAPTION CONTEST THING



Do you want to know what "nervous" is? How about an invitation from Byron Q. Lackluster, President and Major Manipulator of the United Organization of Dumb Caption Writers of America (U.O.D.C.W.A.)? Never before have we been invited into the inner sanctum of the U.O.D.C.W.A., and we couldn't help but feel this would be a one-way trip.

The doorway to their office is marked with the curious letters, D-A-V-E. Inside the cramped office are dozens of files, stuffed with photographs and failed captions. Most are too large for the files and are either crammed inside or left to gather dust on top. Two aged electric fans with bare wires stir the dust from countless erasures in this windowless office. On Bryon's desk sits exactly 133 yellow pencils, each sharpened and marked with an identifying stripe to keep other writers from stealing them. Not surprisingly, none of these pencils are used. Instead, captions are written across the pictures with any number of colored markers.

An odd assortment of lights dangle precariously over the desk where Byron writes his best (worst?) captions. It's no surprise all of you can do a better job than Byron. Send in as many captions to this month's contest as you can, and maybe Byron will never leave his cave again. Oh, how wonderful that day will be!

To send in your entry, take a piece of carbon paper, place it between the picture above and a blank piece of paper, then carefully trace every detail of the photograph onto the paper. Finally, add your intuitively dumb caption in place of ours; BUT DO NOT SEND US THE PAGE. All entries will be judged by a still-starving panel of dumb caption experts.

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Send your entries to "Dumb Caption Contest Thing" • *Flying Safety Magazine* • HQ AFSA/SEDP • Norton AFB CA 92409-7001

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# Once Again, Thanks For Your Support!

AND THE WINNER  
FOR THE JUNE 1991  
DUMB CAPTION CONTEST IS . . .

**Jim Burt**

Academic Training  
NAS  
Corpus Christi TX



The good news is, you all sent in so many entries to the Dumb Caption Contest Thing our judges were kept busy for days, trying to pick the best of the best. The bad news is, they got so hungry the United Organization of Dumb Caption Writers of America (U.O.D.C.W.A.) almost took away the top prize with their bribe of two, day-old glazed donuts.

Luckily, before a food fight began, the judges had already picked Jim Burt as this month's winner. If he

had only followed up on his promise of chocolate chip cookies, there wouldn't have been such a disgusting display of wantonness by our judges.

Congratulations to Jim and the other Honorable Mention contestants listed below. To earn your place among the stars of Dumb Captiandom, send in your entry to this month's contest (the cookies don't even have to be homemade).

## Honorable Mentions

1. Tower, this is Zero Five Victor on final. Could you come up with a landing instruction other than "cleared to impact"?  
Jim Burt, Academic Training, NAS Corpus Christi TX
2. Lt Hassan Ben Ahmed, piloting the first all-Iraqi built aircraft, the Saddam-1, armed with two proximity-fused vertically mounted 1,000 kilo bombs, discovers after takeoff that the aircraft has no bomb release mechanism.  
Jim Burt, Academic Training, NAS Corpus Christi TX
3. "Oh, no!! I wonder what that noise is?" Bruuuup. Ping, ping, ping, whirrrr. Click, click, click. "Uh, oh! I think this thing just went into a rinse cycle!"  
SSgt John Doney, 12 ABG/CXC, Randolph AFB TX
4. Don't laugh! It's paid for!  
SSgt Kurt Schueler, 35 CRS/MACM, George AFB CA
5. "Toto, I don't think this is Kansas."  
Sgt Joel Shockley, 23 FW/DOC, England AFB LA
6. (Tower) Zero Five Victor, this is Tower — you're cleared to land. (Pilot) Tower, Zero Five Victor. It don't land. It impacts!  
Jim Burt, Academic Training, NAS Corpus Christi TX
7. (Pilot thinking) I could'a been in Falcons, I could'a been in Warthogs, I could'a been in transports. But not me . . . I applied for Test Pilot School.  
Jim Burt, Academic Training, NAS Corpus Christi TX
8. (Pilot #1) Every time I add power, this thing sucks my helmet into the intake!! (Pilot #2) You think you got trouble — guess where the exhaust goes!!  
Jim Burt, Academic Training, NAS Corpus Christi TX
9. (Pilot thinking) I don't care what the colonel says, it's a ridiculous way to melt the snow off the runway.  
Jim Burt, Academic Training, NAS Corpus Christi TX
10. (Pilot thinking) It ain't fight time — but it's flight time.  
Jim Burt, Academic Training, NAS Corpus Christi TX

B-24 LIBERATOR



**In Memory of Our Brother and Sister Aviators Who Have Paid Freedom's Price**