# Fat Man

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It is good to see you all again. Tonight I will try to tell you all a little bit about the Fat Man atomic bomb that ended the war and the mission to drop it on a second city in Japan. It was a mission that was jinxed from the very beginning and almost ended in failure.

*Fat Man* was the code name for the implosion weapon dropped on Nagasaki 60 years ago today. It was also called *Fat Boy*, *Large Boy*, and even *Little Boy's* "corpulent cousin." The explosion it created was equal to a force of 21 Kilotons. That's 42 million pounds of TNT!

In Fat Man, an explosive nuclear chain reaction occurred when the nuclear fuel, in this case a sub-critical mass of plutonium, was compressed by the process of implosion, which is the exact opposite of explosion. The implosion process was about 16 times more efficient than the Little Boy gun-type gadget. However, it was also considerably more difficult to engineer a successful implosion device.

In the implosion design, the baseball-sized plutonium core sat in the center of uranium and aluminum spheres. This "pit" in turn was surrounded by 5,300 pounds of high explosive charges which were used to compress, or implode, the pit. The entire arrangement was contained inside a cork-lined aluminum sphere and surrounded by an armor steel bomb casing. This design was first successfully tested some three weeks before at Alamogordo, New Mexico.

High explosives Assembly Team member Alvin Van Vessem told me about the time they were assembling an implosion unit in the Two Mile Mesa assembly building at Los Alamos. A visiting officer was brought in to observe the procedure while all the soldiers were very busy carrying the heavy explosive blocks over to the assembly.

> A little later in the day, my boss, Captain Schaffer, came along and said 'I've had a complaint. That officer came in here and you didn't call all the fellows to attention.' I said, 'Well sir, if you want me to do it, then I'll do it. But you better have somebody ready to clean their britches when we drop 130 pounds of high explosives!'

Los Alamos scientist Raemer Schreiber accompanied the plutonium core for the bomb on its long journey here. As he put it to me:

> The Plutonium core and initiators that I carried out to Tinian were taken by GI sedan convoy to Albuquerque, then we had two Green Hornet C-54's to Hamilton AFB, Hickam, Kwajalein, and Tinian. We lost an engine departing Hamilton and had to return and transfer to the spare. Somebody else, probably Major de Silva, was in charge. I was just the passive custodian of my little magnesium carrying case.

During the flight out here to Tinian, they ran into a storm. Schreiber was sitting in the co-pilot's seat as one of the guards came forward and tapped him nervously on the shoulder. "Sir, your box is bouncing around back there and we're scared to touch it." Schreiber went back, corralled it, got a piece of rope and tied it to one of the legs of the cots.

Los Alamos scientist Lawrence Johnston recalled that here at Tinian:

> We had the core for the Nagasaki bomb in our Quonset hut. They had a 24-hr. guard on it...After the Hiroshima explosion, the guys that had been guarding this thing all along suddenly realized that it was the guts for the next bomb and they were sort of 'freaked-out.'

Scientist Mort Camac recalled his role here on the Pit Team:

> Most of the time our group worked as a team and we shared in the work. The parts of Fat Boy that our group handled were small, few, and inert. We checked the plutonium coating by rubbing it with a napkin and then checking the napkin for radioactivity and never measured any. When our group put the parts into Fat Boy, I had the job of taking notes of our activity. When the planes with the nuclear bomb took off, I was at the center of the runway with a radiation detector. If the plane had an accident, then I would search for radiation at the plane. I was placed on the runway because I was the youngest member of our group.

When they were placing the plutonium core in the Fat Man, a member of the assembly team looked down inside the pit and noticed a small message at the bottom written by Ralph Sparks in red crayon on the inner surface of the pit. It read simply, "No Smoking!"

Before it was rolled out to the plane, everyone in the area signed the bomb, including Admiral Purnell, General Farrell, and Captain Parsons. There were almost 60 signatures, messages, and poems on it.

What I'm about to tell you concerning the second mission is based on extensive interviews and correspondence starting back in 1994 with all of the principles involved. Since this morning's message from Dick Ashworth covered a lot of what I was going to talk about tonight, I'll take this opportunity fill you in on some of the other details.

Tibbets picked Sweeney to command the mission based on friendship even though he had never flown a single combat mission. This risky decision almost proved disastrous to say the least.

After the bomb had been towed out to the loading pit on the afternoon of the 8th, it was raised into the plane utilizing the same procedures used earlier with *Little Boy*. By 8:00 PM, all of the antennas, pullout wires, electrical connections, and swaybraces had been attached.

The stage was set. *Fat Man* was ready. The final crew briefing took place just after midnight and it was short. This time there would be only two targets, Kokura and Nagasaki. Because of a large, severe weather front, the rendezvous would be over the island of Yaku-Shima instead of Iwo Jima. As with the Hiroshima mission, there was no fighter plane escort, which might have brought unwanted attention to the B-29's.

They arrived at their plane at 1:00 AM and about an hour later they started the preflight preparations. Sweeney and his flight engineer Sgt. John Kuharek started up the engines. They were running just fine, when Sweeney and Kuharek started to confer over the intercom. Before they knew it, Sweeney instructed Kuharek to shut down all the engines and told everybody to get out.

The B-29 had been loaded with over 7,200 gallons of fuel. As part of his preflight checks, Kuharek had been in the process of transferring fuel between the two auxiliary tanks in the rear bomb bay when a problem was discovered. A fuel transfer pump appeared to be malfunctioning again. This meant the 640 gallons of fuel in these two tanks was not available for use. Because of a three-hour weather "window," there was no time to replace the pump, empty the fuel, or transfer the bomb to another plane.

Sweeney flew *Bockscar* with Kuharek as flight engineer during drops of Fat Man test units on August 1st, 5th, and 8th. *Bockscar* maintenance records dated 1 August state "Check bomb bay hook-up, have to use upper tank switch to get fuel out of lower tank." The post-mission maintenance report dated on the 9th states, "Check bomb bay tank hook-up. Lower tank works erratic, appears that booster pump is at fault."

Tibbets told me that he and Dutch Van Kirk went to see Kuharek in 1995 at the 509th reunion. "John Kuharek looked at me. He said 'If I hadn't been able to transfer that fuel, I wouldn't be here talking to you, we'd have gone in the water. Sweeney didn't listen to me! What I told Sweeney was I couldn't transfer it *at normal rate*, I had to milk it out a little bit at a time. I was afraid of burning out the pump.' "

Let me say that in both a letter in 1995 and in the reissue of his autobiography in 1998, Tibbets made it crystal clear he viewed Sweeney's complaints about the fuel problem as an example of his indecisiveness and failure to command. Tibbets wrote:

> In the preflight checks, the 'fuel transfer' problem was found. When Sweeney and Kuharek came up to me on the ramp and told me, I told them

> they did not need that fuel to fly the mission as briefed. The primary purpose of that fuel and tanks was to permit the airplane to take off and fly within the center of gravity limitations. Both agreed, so I said, 'GO.' While walking to the airplane, I instructed Sweeney to go to his rendezvous point, 'make one 360 degree turn and head out for the initial point,' whether his wing men were with him or not.

Referring to veteran bombardier Capt. Kermit Beahan's previous extensive combat experience, Tibbets went on to state: "I told Sweeney to do what Beahan recommended. Sweeney said, 'If Bea wants me to fly it upside down, I'll try it.'" Most of the crew did not know about the fuel problem until well into the mission. This fuel situation would later become a major dilemma.

After a meeting with all of the people involved, the decision was reached to proceed with the mission. According to General Leslie Groves, the head of the Manhattan Project, General Farrell decided that the flight should not be held up.

Just before take-off, Admiral Purnell asked Sweeney if he knew how much the bomb cost. Sweeney answered, "About $25 million." Purnell then warned him, "See that we get our money's worth."

They finally departed late at 3:48. Fifteen minutes later, Weaponeer Navy Cdr. Frederick Ashworth opened the round pressurized door that led into the forward bomb bay from the cramped rear area of the cockpit. Bracing himself, he leaned forward and reached back into the bomb bay. He removed the two green safing plugs in the nose of the bomb, replaced them with the red arming plugs, secured these with metal clips, and then closed the door. *Fat Man* was now "live." These were the same kind of plugs used on *Little Boy*. I know that in his message today Ashworth said that his assistant, Phil Barnes changed the plugs, but in interviews I did with Dick a decade ago he said he did it. Because it was a long flight, Sweeney, co-pilot Don Albury, and third pilot Fred Olivi took turns at the controls.

St. Elmo's Fire danced eerily across the surface of their planes as they flew through the stormy darkness with their wing lights off so the Japanese could not spot them. About 8:00 AM, Sweeney notified the crew he was starting the gradual climb to 30,000 feet and they should all put on their flak suits. Co-Pilot Charles Albury wrote, "As for the flak suits, Sweeney didn't put one on. We laid them on the floor between the two pilot seats over the door at the nose wheel."

Although Dick talked about the delay at the rendezvous, I thought I'd add a few details to help round out the story. *Bockscar* arrived at the Yaku-Shima rendezvous point at 9:10. A few minutes later, Captain Fred Bock arrived with the instrument plane, *The Great Artiste*. Sweeney recounted, "One of the most beautiful sights, I remember, is Fred Bock joining up with me at that rendezvous point, which I wasn't sure I could find."

The *Bockscar* flight crew knew immediately that it was Bock's instrument plane that had joined them at the rendezvous. However, Ashworth told me he was probably the only one on the plane who did not know it was Bock's plane. Now here's a Navy man talking. "I was way back in the bilge of the plane and could not tell which plane it was that joined with us."

The problem was the photo plane flown by Maj. James Hopkins could not be found. They thought that it had been delayed or lost in a storm they had just gone through.

According to comments made by Hopkins' navigator, Hopkins was actually flying at 35,000 feet. Of the two planes, the only one of any importance was the instrument plane. These instruments would help determine the bomb yield. Ashworth wrote later, "When only one plane showed up, I told Sweeney that I wanted to be sure that we had the instrument carrying aircraft with us. Why Sweeney didn't tell me that the instrument aircraft was already with us, I don't know." According to the head of the Manhattan Project, General Groves, "Although Sweeney had identified the one plane that did arrive he did not tell Ashworth. Unfortunately, because it did not come close enough, Ashworth was unable to determine whether it was the instrument-carrying plane." Ashworth continued, "I still say that the question of what plane had joined us was an air operational detail that was rightly Sweeney's responsibility. I recall that finally I stuck my head up to the flight deck and recommended that we get out of there and get on with the operation." It is Ashworth's opinion that this long delay could have cost them the mission.

Highly decorated veteran RAF Group Captain Leonard Cheshire, one of two British observers on Hopkins' plane, later told Sweeney that he knew Hopkins was flying at the wrong altitude for the rendezvous, but did not feel it was his place to point that out to Hopkins.

What most of you probably don't realize is that the main reason for Hopkins' flight was so that Los Alamos scientist Robert Serber could operate the specialized high-speed instrumentation movie camera. Before the flight, Serber had mistakenly grabbed a life vest instead of a parachute. Hopkins stubbornly refused to allow him onboard without a regulation parachute and took off without him. An hour later, radio silence had to be broken so Serber could instruct one of the crew in how to operate the camera. However, both the camera and instructions proved too complex and it was not used.

In his autobiography, Serber wrote, "This was truly idiotic: he forgot that he wasn't on a joy ride, the plane was supposed to have a mission. The mission was to take pictures, and I was the only one aboard who knew how to run the camera…Of course, Tibbets threw a fit when he heard what happened, and…gave the pilot a piece of his mind."

When Tibbets wrote me back in 1995, he said, "Sweeney's first mistake was wasting time attempting to assemble his element. From this point on 'confusion reigned' in the cockpit. He was listening to Ashworth and consequently gave up 'command' of his plane. Nobody was really in command until Kuharek made it clear they were

critically short of fuel." Now Ashworth has taken a lot of criticism over the years from many, including Tibbets, who incorrectly assumed that he was the person responsible for the delay at the rendezvous. In a letter I received from Ashworth in 1998, he stated, "I had absolutely nothing to do with the rendezvous nor the time expended there, Tibbets' comments notwithstanding."

Now here's the point in all this. Tibbets had instructed Sweeney to wait at the rendezvous point for no more than 15 minutes. After waiting in vain for over 40 minutes burning up precious fuel, Sweeney and Bock finally pushed on to their primary target, Kokura. Sweeney admitted to me in 1995 "When I got back that night, Tibbets said to me, 'Do you remember when I said don't wait more than 15 minutes?' I said, 'Jeez, I do now.' Well, I just forgot about it…I screwed up." He added defensively, "But, that doesn't mean I didn't have every intention, in fact, every knowledge that I was going to deliver that goddamn bomb…I did wait longer than I should have.

Sweeney had been criticized over the years for waiting over the rendezvous point for as long as he did. Because Tibbets' mission had been a "textbook" flight, Sweeney obviously felt he was under tremendous pressure to make sure his mission was also perfect. However, because of the acute fuel situation, this unnecessarily long delay severely jeopardized any possibility of returning safely to an Allied base with *Fat Man* in case the mission had to be aborted. Sweeney finally dipped his wing as a signal to Bock and then turned to head out to the primary target, Kokura.

In Dick's message this morning he told about the three unsuccessful passes at Kokura. The lack of visibility was a major problem because they were under very strict orders to make a visual, not radar, bomb run.

They broke after the first pass and made a right turn toward the mountains. The antiaircraft guns had starting sending up flak. Ashworth asked Sweeney what he was going to do next. When he didn't respond, he suggested to Sweeney that they go around 120° and come in from a different direction. They tried a second time, but were still unable to drop the bomb. The flak was starting to get closer. Sweeney said, "I saw the flak on the first run. We were getting it on both sides. When I spotted it, I said I'll try to screw up their fuses. I climbed a few thousand feet. On the second run, I climbed another thousand feet. This gave Bee time to adjust his bombsight for that altitude. I was worried that they might hit us with a 'lucky shot,' so I kept changing the altitude."

Ashworth, who was the Senior Officer Specialist on the mission, said they were not worried so much about the flak as they were about the possibility of fighter planes. He wrote, "Lieutenant Beser was scanning the radio frequencies to determine if the fusing was being jammed and reported activity on fighter director circuits indicating that we might have soon been the target of fighters."

Kuharek kept Sweeney apprised of the decreasing fuel supply. The flak was now getting even closer. After three unsuccessful attempts, each from a different direction and

altitude, they finally made a decision to abandon the effort at 11:30 AM and proceed to their secondary target, Nagasaki.

In 1995, Tibbets asserted "At the risk of 'Monday morning quarterbacking' any other airplane commander would have aborted the mission after the first aborted attempt on a bomb run, told Ashworth to shut up, and asked his navigator for a 'heading home'." Ashworth rejects this criticism of their three attempts. "No! This was totally justified. It was our primary target and it was entirely possible that the wind direction on the ground might have opened up the target."

In a speech last year at Los Alamos, Ashworth readily admitted Sweeney should have told him to shut up about the couple of approaches at Kokura. However, he also stated the reason he was up there talking to Sweeney in the first place was because he felt Sweeney was not thinking of these things himself and should have been. Ashworth stated it was not something that was his responsibility. His responsibility was the bomb.

Tibbets insists the mission should have been scrubbed after the third pass and that the bomb did not have to be dropped. He told me in 1999, "When Sweeney hit the second situation with the bad weather, he should have aborted and gone back, especially if he thought they couldn't get fuel out…There was a failure of communication…I just couldn't understand why Sweeney didn't realize he was the commander of that airplane and he risked peoples lives with what he did!"

I will let Ashworth have the last word here on this long-standing disagreement.

> After the first run and no drop, I did go up to the flight deck, and suggested to Sweeney that it might be possible to see the target if we approached it from a different direction. I think that both Sweeney and I believed that we had to make the best attempt that we could. After all it was the primary target…I say categorically that I did not order either the second or third attack as inferred by Tibbets. As a matter of fact I gave no orders to anyone on the entire mission The closest that I came to that was to agree with and confirm the recommendation of the flight deck people that we make a radar approach on Nagasaki.

So they finally broke off from Kokura and headed to the secondary target, Nagasaki. *Bockscar* Co-Pilot Charles Albury wrote, "On the way from Kokura to Nagasaki the clouds were building up to our altitude and we were flying in and out of the tops."

When they arrived at Nagasaki some 20 minutes later at 11:50, they observed that the puffed clouds were between 8,000 and 10,000 feet and it was difficult to see through the breaks in them.

As Ashworth put it to me a week ago, he wasn't sure when the full impact of the low fuel problem finally dawned on Sweeney, but it was THE factor that led them to

decide they had no other choice but to try and make the bomb run using radar instead of a visual approach.

As the mission commander, it had been Sweeney's responsibility to get both the plane and its payload to the target. However, the *Fat Man* was still Ashworth's responsibility. Whether they dropped it on Nagasaki, in the ocean, or attempted to bring it back was ultimately his call.

Sweeney laid out all the options for Ashworth. While he went back to make what must have been an agonizingly difficult decision, Sweeney wasted no time and set up the plane for a radar run at Nagasaki. Ashworth could see the *Fat Man* through the small window on the bomb bay door. Radio operator Abe Spitzer wrote in his mission diary that Ashworth decided initially against a radar drop and they should risk the very slim chance of being able to return to Okinawa with *Fat Man* given the limited fuel supply. He continued:

> We were five minutes away now! I could see the Comdr was struggling within. He seemed perplexed--what to do--disregard orders—risk a return to Okinawa and the lives of the men aboard--perhaps the loss of the bomb in the ocean to save our own necks--all that weighed heavily on his mind. Desperately he made up his mind. Casting aside all consideration he informed the Major that he reversed his decision---it was Nagasaki, radar or visually but drop we will. We cheered! Nagasaki here we come--only three minutes out.

The success of the mission now depended entirely on the veteran bombardier, Capt. Beahan. It was also his 27th birthday. The plane he normally flew in was named *The Great Artiste*, in part, because of his almost legendary skills as a bombardier. Half of the total effort of the *Manhattan Project* rested squarely on his shoulders. He knew he probably had only one chance and that it was certainly under the most pressing circumstances of his career. The pressure he felt must have been tremendous!

During the five minute run, large holes finally poked through the clouds long enough for Beahan to see the ground less than half a minute before the bomb would have been dropped by radar. This provided him with just barely enough visual bombing condition to allow him to search for a suitable aiming point. As Sweeney described it to me, "At the last moment, while we were making the approach by radar, Beahan said, 'I got it! I got it! I see it!' So I said, 'Okay, you own the airplane.'" Sweeney then relinquished control of the plane to Beahan.

They had already passed over the original Aiming Point, which had been "in the city, east of the harbor" and were now over the Urakami industrial valley of Nagasaki. Beahan picked his new Aiming Point and released the bomb from 28,900 feet at 12:02 PM.

Sweeney immediately made the 155° diving left turn to escape the blast. According to Fred Bock, *The Great Artiste* "was probably 100 to 200 yards behind, and a little below and to the right at the time of the bomb release." He continued, "I distinctly remember

seeing *Fat Man* fall, at which instant the bombardier on my plane, Charles Levy released the three instrument packages from the bomb bay."

Immediately after the instruments were dropped, Bock quickly made his right turn. Ray Gallagher recalled, "We had all our gear on, our glasses, and we turned into the center of the ship and waited for that reflection." Co-Pilot Albury wrote, "The welders glasses cut down visibility so far, you could not see the flight instruments. Chuck and I both did not wear them. We found this out at Hiroshima."

Albury recalled, "To this day, I don't know if Beahan saw the Aiming Point. I do know, as he was making his last correction, the aircraft was in a slight turn and the bomb was released." Because they had been making a radar run, and since Beahan did not have any scope, the decision as to when to release the bomb would have been navigator Van Pelt's. Fred Olivi said, "I was back there in the radio compartment and when I turned around after we had just dropped the bomb, Van Pelt said to me, 'Fred, I almost dropped it! I almost dropped it!'"

They were in the turn when the bomb exploded at an altitude of 1,650'. Even with their dark, polarized goggles on, one of the crew described it as being 10 to 15 times brighter than the sun.

Dramatically for Japan, the war had finally come full circle. In an ironic twist of fate, the plutonium bomb that ended World War II wound up exploding almost directly over the large Mitsubishi armament plants that produced the torpedoes used during the Japanese attack on Pearl Harbor.

It was a performance which, in the opinion of Ashworth, "Could not have been duplicated by any, or perhaps a few, I don't know, bombardiers in the Army Air Corps. He kept his cool. What he did was a one-in-a-million performance as far as I'm concerned." Ashworth also stated that, "Van Pelt was calling up calculated dropping angles that were being calculated in his electronic bomb director so that Beahan could keep his telescope more or less synchronized."

Ashworth continued, "We were supposed to be dropping it down around the dock area of the city." They had missed the original aiming point by 1.3 miles. Ashworth continued, "By 'missing' the target, we destroyed the Steel and Arms Works, Torpedo Plant, damaged the docks, and hardly broke a window in Nagasaki City." He went on to say that, "Major General Sweeney wouldn't be a General and Admiral Ashworth wouldn't be an Admiral if Beahan hadn't done the job that he did!" The simple fact is they had gotten themselves into a real mess and it was Beahan's skills that saved the mission.

Sweeney swung the plane around so they could determine exactly where the bomb had gone off. Just after the bomb exploded, the plane was struck by five shock waves. The first one was definitely the worst. These shock waves were more noise than anything else. Because of the mountains, the shock waves were reflected back with greater intensity and numbers than the ones during the Hiroshima mission. The mountains also shielded the

residential parts of the city from some of the blast effects. This was one of the reasons that the casualty rate was about half that of Hiroshima even though the bomb yield was higher.

The ride back was a real nail-biter. About five minutes away from Okinawa, and with all their fuel tanks reading bone dry, they tried raising the extremely busy control tower. This proved to be impossible.

Due to the critical fuel situation, Sweeney wanted to get the plane on the ground as quickly as possible. Because of this, he brought in the plane at a faster than normal speed. Just as they were landing, the #2 inboard engine sputtered and died. As soon as they touched down, Sweeney and Albury used both the brakes and their special reversible propellers to help slow down the aircraft. After this harrowing landing, Sweeney turned the plane off the end of the runway just as a second engine died. He then followed a jeep that came out to escort them over to the hardstand.

Albury wrote:

> As to the landing at Okinawa, #2 engine stopped just before touchdown. We immediately put the engines in reverse and slammed on the brakes. The aircraft veered to the left…Sweeney compensated by pulling back on #1 engine in reverse, and increased the brakes on the right side and by releasing some of the pressure on the left brakes. I know because I was on the brakes with him.

After some chow and refueling, they left Okinawa at 5:30 PM and headed out for the six-hour flight back to Tinian. When they finally landed here 60 years ago at 10:30 tonight, they were exhausted having been in the air some 16 hours. Unlike the first mission, there were no cheering crowds to greet them, no hoopla, no cameras, no medals, no beer, and no hot food. The Hiroshima mission had received all the attention. This was typical, since nobody ever pays attention to a second "anything." Much like the unfortunate, forgotten occupants of Nagasaki, they were ignored. The crew scrounged some food, were debriefed, and crawled into bed.

Also at this very moment 60 years ago, Emperor Hirohito was meeting with his war cabinet to discuss the atomic bombings of Hiroshima and Nagasaki along with the Russian declaration of war against Japan, and the Russian army's subsequent immediate advance eastward through Manchuria that had occurred at the same time Sweeney and his crew were on their way to Japan. All through tonight and into the early hours of tomorrow morning the arguments raged on between the members of that war cabinet. Every time they took a vote, it resulted in a deadlock. Finally, in an unprecedented step, the Emperor was asked for his opinion in an effort to break that deadlock. The bombing of Hiroshima forced Stalin to live up to the promise he made to Truman at Potsdam and declare war against Japan. It was this declaration of war and invasion, along with the bombings of Hiroshima and Nagasaki that combined to form a critical mass, as it were, in the mind of the Emperor. It allowed him the face-saving option of blaming "The Bomb" in order to be able to make that brave move to defy his war cabinet by announcing to

them his intention to "Endure the unendurable" and accept the terms of the Potsdam Declaration thus effectively ending WWII.

In a conversation I had with Tibbets last year, he told me that you can never tell in advance how someone will act under fire. When I asked, in hindsight, if he would've picked Sweeney again for the mission, he snapped, "No! Absolutely not! I should have chosen Marquardt since George was a good pilot, he had a good crew, he had been shot at, and nobody could BS him." In the speech he gave last year after mine at the Air Force Museum, Tibbets said, "That airplane flew around for an hour and a half without anyone commanding it." He added, "I didn't have that much to do with Sweeney after Nagasaki because he was the only bad mark on the whole 509th all the time it existed." Those were pretty strong words, especially coming from Tibbets!

Considering all of the problems, however, the mission was still considered a tremendous success. They had been over enemy territory *longer than any plane in World War II* and had overcome almost insurmountable odds to bring success to a project that turned out to be the shortest time between development and combat use of any munition in the history of modern warfare! It is not that things went wrong on the second mission, but that so much went right on the first. *Enola Gay* Electronics Test Officer Morris Jeppson concurred. Thinking back on the number of things that could have gone wrong on the first mission, he stated to me, "It was very frightful. Hiroshima was a very lucky mission!"

I'll leave you tonight with part of Sweeney's 1995 congressional testimony at the height of the Smithsonian Air and Space Museum *Enola Gay* exhibit debacle, which in part, echoes what I said earlier this morning:

> The world is a better place because German and Japanese fascism failed to conquer. Japan and Germany are better places because we were benevolent in our victory. The youth of Japan and the United States, spared from further needless slaughter, went on to live and have families and grow old. Today, millions of people in America and Japan are alive because we ended the war when we did. This is not to celebrate the use of atomic weapons. Quite the contrary. It is my fervent hope that my mission is the last such mission ever flown. But that does not mean that back in 1945, given the events of war and the recalcitrance of the enemy, President Truman was not obliged to use all of the weapons at his disposal to end the war.
>
> Thank you all very much!