

Air and Space this Week

Item of the Week

TWO IMPO(R)TANT MILITARY AIRPLANE PROTOTYPES

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Tony LeVier

The anniversaries of two important developments in military aircraft development are this week: The first test flight, 92 years ago on March 20, 1932, of Boeing's XP-26 all-metal monoplane fighter plane, aka the "Peashooter," and the first test flight, 76 years ago on March 22, 1948, of the T-33 "T-Bird," the training version of the P-80 Shooting Star interceptor, both designed by Kelly Johnson and his talented team at Lockheed.

BOEING P-26 "PEASHOOTER"

STATE OF MILITARY AVIATION IN 1932

Aviation technology advanced rapidly after WWI. Designs prevailing through the 1920s were exclusively improved versions of combat biplanes, including the Aeromarine PG-1, Boeing P-12, Curtiss PN-1, Dayton-Wright XPS-1, and the Vought FU. They had open cockpits, canvas skins, and many had wooden frames.

Boeing entered into a cooperative arrangement with the Army Air Corps in 1931 to develop a more modern fighter. Boeing would design and build the airframe, and the AAC would provide the engine and instrumentation. The AAC required a single-wing design and all-metal construction, and would accept an open cockpit, external wing bracing and fixed landing gear. The resulting aircraft design was the Boeing 248, which began initial flight test in 1931. The 248 had a high landing speed; coupled with a large cowl and a high nose-up attitude on landing (it was a tail-dragger) that meant a lot of landing accidents. Boeing added landing flaps, and the resulting prototype design, XP-936 was ready for further testing. The AAC committed to buying three 936s for evaluation, provided the new version proved that the landing issues were solved.

The first flight of the XP-936 was on March 20, 1932, 92 years ago this week. The design looked promising, but required one change before the AAC would accept three test models, provisionally designated the P-26 ("P" for "pursuit," the aircraft's primary function). The aircraft, if mishandled on landing, would do a half-summersault. The back of the pilot's seat was raised to act like a "roll bar" and provide some protection, and the AAC bought three P-26As. Engine technology was advancing at this time, too, and the AAC upgraded the engine to be a fuel-injected model made by Pratt & Whitney, designating the better model as P-26B. The

P-26C model had a larger (but carbureted) engine and a better fuel system. Foreign governments took notice, and Boeing began selling P-26Cs to China and Spain.

I'm guessing it took a certain type of pilot mentality to get excited about going into aerial combat flying somethings called a "Peashooter." I mean, usually fighter aircraft have names like "Wildcat," or "Lightning," or "Airacobra," but *Peashooter*?! But that's what the pilots called it. And its combat record justified the nickname.

Two theories as to the Peashooter name are out there. Gunsights of the day were extremely primitive; the P-26 was fitted with what was basically a long, open pipe. The pilot leaned forward, looked through the pipe, and fired when he saw an opposing aircraft. Not exactly a "heads up" display! The other theory is that the two machine guns mounted on ahead of the cockpit, even with fire synchronized as to not hit the propellor, could damage the front of the aircraft just the same. The solution was to fit a long tube on the barrels of the guns through which the bullets would travel (not tightly with rifling). Either the sighting tube or the barrel tubes were the source of the nickname.

The P-26 was a big step forward from wood-and-fabric biplanes, but rapid airplane development in the late 1930s made the P-26 pretty much obsolete before Pearl Harbor. The AAC had moved on to the Curtiss P-36 or other advanced models. The Navy was a bit behind, but they were going one-wing all metal quickly, too. The P-26 was still in service in places like China and the Philippines.

ENTER JESUS VILLAMOR

Perhaps the most famous of the few successful pilots in the P-26 was Jesus Villamor. He was the son of a Supreme Court of the Philippines Associate Justice, born in 1914. He studied commerce in school, preparing to follow in the family footsteps of law and business. Young Jesus was bitten by the aviation bug early, but his father kept him on the family path, at least as long as he lived, which wasn't. Jesus' widowed mother gave him the green light, and he learned to fly. He earned his wings under tutelage of the General Manager of the Philippine Air Taxi Corporation (PATCO), William Bradford, who would soon run the aerial supply system that kept Corregidor running as long as it did. Jesus' flight instructors were all experienced WWI veterans. After the necessary solo hours, Jesus applied for his license from the Philippine Bureau of Aeronautics. He flunked.

Desire to fly, coupled with maternal support, led Villamor to apply to a flight school in Dallas, with a few other countrymen. He earned a transport pilot's license, but on his return home, there were no pilot jobs available. But he still wanted to fly, so he joined up with the new Philippine Army Air Corps (PAAC) and became a military aviation cadet. He showed considerable aptitude on the stick, and he and another cadet were sent back to the U.S. for more training in 1936. He mastered the Boeing P-12, a competitor for the P-26, and graduated from Randolph AFB on June 9, 1937. He would be commissioned as a 3rd Lieutenant in the PAAC, but before he returned home, he was sent to Detroit to join the 94th Pursuit Squadron, commanded by Eddie Rickenbacker himself. Jesus flew the P-26 with John Allison, who would

later be known as the “Father of Special Operations” and Phil Cochran, who would become the inspiration for pilots in Milton Caniff’s very popular syndicated *Terry and the Pirates* and *Steve Canyon* comic strips. Eddie, John, and Cochran; fast company indeed!

Jesus returned home in 1938. He made 1st Lieutenant in 1939, and became Director of Flight Training. One of his students would be Dwight Eisenhower and the man who would become Douglas MacArthur’s Chief of Staff. A future president and a senior military official; more fast company! If that weren’t enough, Jesus began flight training for the B-17 bomber.

Everyone could sense that war was coming. President Roosevelt issued an Executive Order on July 26, 1941, that incorporated the Philippine Army in to the U.S. Far East Army Forces (FEAF). Total personnel numbered 141 pilots, 17 non-flying officers, 1200 enlisted men and 64 aircraft.

Philippine military bases were attacked heavily by the Japanese eight hours after Pearl Harbor. Eight hours wasn’t enough time for a warning to get everyone on combat alert, and the FEAF lost half its planes on the ground. Jesus’ unit, the 6th Pursuit Squadron, based at Nichols Airfield, was one of the few air units yet unscathed. On December 10, the Japanese came back with “Nell” bombers and “Zero” fighters. The Zeros were much better planes than the P-36s facing them. Much more numerous, too. Undaunted, Jesus and four of his compatriots rose to meet the coming onslaught. Jesus was the first to take off, and he quickly collected a Zero on his tail. Off they went, with Jesus hugging the terrain in an effort to shake the pilot bearing down on him, flying a treetop level, even going beneath powerlines. No luck, until Jesus yanked his Peashooter into a sudden steep stall, skidding to bring his guns to bear. Scratch one Zero, the first confirmed kill by the PAAC. The 6th would go on to claim four Japanese aircraft, with two of them downed by our hero.

No rest for the weary. A force of 44 fighters and bombers came back the next day to wreak further damage. Jesus led four other Peashooters, all there were left able to fly, up to defend their field. Down went a Nell under Jesus’ fire, but his wingman was shot down and then strafed in his parachute. A total of two Nells went down, but three PAAC planes were lost, with only one pilot rescued.

The heroic actions of the PAAC were wonderful for the morale of the beleaguered defenders of Luzon, but it was a losing battle. Jesus and another of his squadron, and soon-to-be-KIA B-17 pilot Colin Kelly received a DFC from MacArthur on December 15. The fall of Manila was imminent, and the PAAC was soon ordered to burn their aircraft and to beat a strategic retreat to Bataan. Jesus was awarded a second DFC for his actions on December 12, the only Filipino so honored.

The Bataan forces had artillery but needed to know where to fire it. Jesus flew a successful reconnaissance mission, but then was ordered to evacuate to Mindanao at the end of February by boat. More successful recon missions followed, but the end was near. Jesus was ordered to Australia on April 14, in a B-25 Mitchell bomber.

Lt. Villamor asked the brass for planes to continue the fight, but he was assigned to the 35th Fighter Group based in Melbourne, and put to work training pilots to fly the P-40 Warhawk, a

much better (and better-named) fighter than the Peashooter. He continued agitating for planes and permission to return home to fight, and was turned down again. But he was able to reconnect with an old friend, the legendary Pappy Gunn (whom we met in an Item about how Pappy rebuilt the nose of medium bombers to turn them into ferocious strafers of shipping, [here](#) and [here](#)).

There was no way (and no planes) that now-Major Villamor would be able to fly against the Japanese over his home. But there was a way he could greatly support the war effort. He was enlisted to go behind enemy lines and support commando operations and espionage. He spent considerable time at great risk coordinating the movement of spies and guerillas on various Philippine Islands.

He was one of the very few who managed an air-to-air victory flying the P-26, let alone two of them.

TRANSITION

Boeing had its hands full building B-17s, so the improved version of the P-26, the (P-36) was built by Curtiss. It, too, was rather obsolete by the time the Pacific War really got going. War makes for rapid technological advances (or defeat). The planes that followed in rapid succession grew in power, performance, and armament, in both American and German air forces, but not so much in Japan, which had a much more meager aviation industry infrastructure. The Germans would come up with the first jet fighter the Me-262 and the first rocket plane, the almost suicidal Me-163. The UK and US tried to follow, but won the war with propeller power. But things would change soon after VJ-Day...

P-80 “SHOOTING STAR”

Clarence “Kelly” Johnson was perhaps the most important (and successful) designer of aircraft ever. At least since the Wright Brothers.

Johnson went to work for Lockheed in 1932. Lockheed had just developed the Electra, a twin-engine aircraft that would become the favorite of Amelia Earhart a few years hence. When he saw a model of the Electra in his first boss’ office, he immediately recognized that it would have serious problems with aerodynamic stability, and suggested what changes needed to be made to fix it to his startled boss. So began a legendary career.

Lockheed had been building civilian aircraft, but was a newcomer to making warplanes. Britain consulted with Lockheed before WWII began in Europe on the design for a militarized version of Lockheed’s Model 141 Super Electra. Lockheed produced a prototype of what they would call the “Hudson” bomber by adding a bomb bay and two machine guns.

The RAF liked the [Hudson](#) basic design but wanted a number of changes before they would purchase the Hudson. Johnson went to England and cranked out precise responses to each request in only three days, to the amazement of the Brits. Fortunately for all, the RAF had the same faith in the youthful Johnson that Lockheed did, and the Hudson turned out to be an important military multi-purpose airplane.

Americans knew that war was coming. The American Army Air Force wanted a high-performance interceptor aircraft, but their operation requirements were giving aeronautical engineers at the major manufacturers fits. Not so Kelly Johnson. He came up with the unique design for the P-38 Lightning twin-engine fighter. The P-38 had the range and firepower to take bombers deep into the Reich and protect them from defending fighter planes. In the Pacific Theater, the Lightning's higher ceiling and concentrated firepower devastated Japanese Zeros.

Johnson knew that there were limitations on just how fast a prop-driven plane could go, and Lockheed began initial planning for an aircraft propelled by a jet engine, the L-133, in 1939. Design work proceeded to the point they could pitch the concept to the military. It was rejected as technologically unfeasible. The AAF preferred Bell Aircraft's jet design that produced the [P-59 Airacomet](#); its first flight was in October, 1942. Jet engine technology was immature, and the Airacomet was only a bit faster than the hottest conventional fighters of the day, and much more delicate. Bell was a smaller company and had a lot of wartime business, so the AAF transferred the jet fighter development to Lockheed.

German aeronautical engineers were also quite skilled, and quite innovative. They developed the first operational jet fighter aircraft late in the War, the Me-262. It had a 100 MPH speed advantage over any Allied fighter in level flight, and had it been brought to combat as early as it might have, and more effectively employed, it would have really hurt the Allied bombing campaign. American Intelligence got wind of the Me-262 in early 1943, and its potential as an interceptor was immediately realized by General Hap Arnold, Commander of the AAF. He was aware of jet engine development by the Brits (the Halford H-1 B "Goblin") which could potentially match the performance the engines in the Me-262, and he knew of Lockheed's early L-133 jet design, so he asked Lockheed in May, 1943, to develop a jet interceptor that could match the Me-262's performance. Johnson's team submitted a design proposal a month later, and started working on a prototype for flight test. The Goblin engine had not yet been transported to the U.S., but the airframe was produced in five months and shipped to Muroc Army Airfield, arriving on November 16. The Goblin arrived soon thereafter and was mated to the airframe. The engineer that came with it advised that the air intakes were too weak to perform as designed, but was ignored; the intakes failed when the Goblin was fired up the first time and the debris was sucked into the engine, destroying it. There was only one other Goblin completed at that time; it was immediately shipped to Muroc, arriving with the new year.

Johnson was on a tight deadline – he had to roll out a completed prototype in 150 days. He and his team needed only 143. The resulting aircraft was named *Lulu Belle*, and it tested well, exceeding 500 MPH in level flight. It is now in the collection of the Smithsonian National Air and Space Museum.

The War was winding down, but the AAF and Lockheed wanted to see how the P-80 stacked up against the Me-262. It was not to be. A total of 12 pre-production versions of the Shooting Star, designation YP-80A, were made prior to VE-Day. One was modified to conduct reconnaissance, but it was lost in a crash. Famed Lockheed test pilot Milo Burcham died testing another. Four were sent to Italy, where they were sparingly used for non-combat reconnaissance.

Good as the engineering talents of Kelly Johnson and his team were, there was one important design element they didn't figure out until German aeronautic developments were made available after the War. The P-80's wings came out perpendicularly from the fuselage, just as in slower propeller-driven aircraft. That's a good design for slower-flying planes, not near-supersonic jets. That fact made the P-80 design inadequate for basing newer aircraft designs in the early 1950s. The situation was underscored by the performance of the P-80 in Korea, flying against the MiG-15, which had swept wings. P-80 pilots scored six confirmed victories over Korea, but the new Sabre quickly became the dominant U.S. fighter. The P-80s remaining were relegated to conducting photo-reconnaissance.

The P-80 could be a difficult aircraft to fly. Milo Burcham died testing one as previously related, and the top Allied ace of the War, Richard Bong, died flying one at Muroc on August 6, 1945. Flight test and training accidents with the P-80 were all too common in the years immediately following the War. Both the AAF and Lockheed recognized the need for a plane more forgiving for pilots to train on prior to flying jets in squadron service.

T-33 "T-BIRD"

Lockheed took the existing P-80 designed and added a second seat and set of flight controls, lengthening the fuselage by 40 inches or so. Thus was created the T-33 trainer, still officially called a "Shooting Star," but called the "T-Bird" by the pilot trainees who flew it. The T-33 made its first flight on **March 20, 1948, 76 years ago this week**, with Tony LeVier at the stick.

The T-33 design might not make it suitable for combat, but it was ideal for training. The necessary modifications were made and Lockheed produced a satisfactory prototype. The design was a success, and the T-33 became widely used to train pilots to fly jets. Such training, along with design refinements, helped make the P-80 a viable bridge between WWII-era planes and the increasingly-powerful high-performance jets of the late 1950s and 1960s.

When the Air Force became established as a separate Service in September, 1947, the designation for the P-80 changed to F-80 (Pursuit to Fighter). F-80s and T-33s remained in service for years to come in foreign and National Guard service. All told, Lockheed would produce a total of 5,691 T-33s, and Kawasaki and Canadair also built them under license, 210 and 656, respectively.

DIDJA KNOW?

SILVER LINING

Milo Burcham was Lockheed's Chief Test Pilot at the time the P-80 was being tested. He had made a name for himself by setting a record for flying inverted in 1933 (over four hours!). He joined Lockheed in 1941, worked on the P-80 and other wartime projects, including co-piloting the first flight of the Constellation passenger plane (designed by Kelly Johnson!) on January 8, 1943. A year later, he made the first flight of the *Lulu Belle*. He was killed testing the third YP-80 built on October 20, 1944. The fuel pump in the YP-80 was a problem, it was barely-

adequate and fragile. Burcham's plane was lost because the fuel pump failed on takeoff after the point of no return. A back-up pump was installed. On August 6, 1945, Richard Bong, America's top ace of the War, suffered a similar pump failure, and he either wasn't able to activate the back-up pump, or forgot about it; in either case, he tried to bail out, but died in the resulting crash. Test pilot Tony LeVier (see immediately below) had a similar pump failure, but he was able to get out in time, even though he suffered a broken back in the process.

Every dark cloud has a silver lining, and Burcham's death was no exception. Tony LeVier took over as head test pilot for Lockheed, and he proved to be one of the greatest ever, once his back healed. Don't take my word for it. The administrative hallway outside the NASM Director's Office had room for only one wall hanging. The Director had access to NASM's extensive aviation art collection, and he chose a portrait of LeVier to hang in that honored spot. Not Wilbur, not Orville, not Curtiss, not Rickenbacker, not Bong; LeVier. It was there for years. Nuff said. LeVier will be the subject of a future Item of the Week.

LI'L ABNER

Kelly Johnson and his team designed and created the U-2 spy plane (first flight by LeVier), the F-104 Starfighter (first flight by LeVier), the C-130 cargo plane, the Blackbird family, and the F-117 Nighthawk, among other planes. Kelly must have been a fan of Al Capp and his comic strip "Li'l Abner," because he started referring to his team and their design facility as the "Skunk Works," the place near Dogpatch where Lonesome Polecat and Hairless Joe brewed their moonshine, Kickapoo Joy Juice (not to be confused with a citrus-flavored real-world soft drink). Lulu Belle was Li'l Abner's girlfriend.

REFERENCES

P-26

NASM: https://airandspace.si.edu/collection-objects/boeing-p-26a-peashooter/nasm_A19730273000

National Museum of the USAF: <https://www.nationalmuseum.af.mil/Visit/Museum-Exhibits/Fact-Sheets/Display/Article/198089/USAFmuseum/boeing-p-26a>

HistoryNet: <https://www.historynet.com/boeings-trailblazing-p-26-peashooter-july-96-aviation-history-feature>

Aviation History: <http://www.aviation-history.com/boeing/p26.html>

Jets n' Props: <https://www.jetsprops.com/fighters/boeing-p-26-peashooter-americas-first-all-metal-fighter.html>

XP-26: https://www.joebaugher.com/usaf_fighters/p26_1.html

P-26A: https://www.joebaugher.com/usaf_fighters/p26_2.html

P-26B: https://www.joebaugher.com/usaf_fighters/p26_3.html

P-26C: https://www.joebaugher.com/usaf_fighters/p26_4.html

Boeing Model 281 (export version of P-26):

https://www.joebaugher.com/usaf_fighters/p26_5.html

P-26 Operational History: https://www.joebaugher.com/usaf_fighters/p26_6.html

P-26: https://en.wikipedia.org/wiki/Boeing_P-26_Peashooter

P-36 Wikipedia: https://en.wikipedia.org/wiki/Curtiss_P-36_Hawk

Jesus Villamor

Jesus A. Villamor and Gerald S. Snyder, 1982, *They Never Surrendered: A True Story of Resistance in World War II*, ASIN: B0000EDXVK

Hall of Valor: <https://valor.militarytimes.com/hero/6215>

Filipinas Heritage Library: <https://www.filipinaslibrary.org.ph/articles/jesus-villamor-soldier-spy>

Esquire magazine: <https://www.esquiremag.ph/long-reads/features/jesus-villamor-greatest-fighter-pilot-philippines-a00293-20200611-lfrm>

Military Wiki: https://military-history.fandom.com/wiki/Jes%C3%BAs_A._Villamor

Jesus Villamor: https://en.wikipedia.org/wiki/Jes%C3%BAs_A._Villamor

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Kelly Johnson: <https://www.lockheedmartin.com/en-us/news/features/history/johnson.html>

Kelly Johnson: [https://en.wikipedia.org/wiki/Kelly_Johnson_\(engineer\)](https://en.wikipedia.org/wiki/Kelly_Johnson_(engineer))

Hudson bomber: <https://www.lockheedmartin.com/en-us/news/features/history/hudson.html>

P-80 from War History Online: <https://www.warhistoryonline.com/aircraft/lockheed-p-80-shooting-star.html>

P-80A *Lulu Belle*: https://airandspace.si.edu/collection-objects/lockheed-xp-80-lulu-belle/nasm_A19600296000

P-80A *Lulu Belle*: <https://lockheedmartinshare.blogspot.com/2013/04/lulu-belle.html>

P-80 Wikipedia: https://en.wikipedia.org/wiki/Lockheed_P-80_Shooting_Star

Lockheed F-80C from National Museum of the United States Air Force:

<https://www.nationalmuseum.af.mil/Visit/Museum-Exhibits/Fact-Sheets/Display/Article/196116/lockheed-f-80c-shooting-star/>

T-33 from Warbird Heritage Foundation:

https://www.warbirdheritagefoundation.org/t33a_shooting_star.html

T-33 from AOPA: https://www.aopa.org/news-and-media/all-news/2015/january/pilot/f_t33

T-33: <https://amcmuseum.org/at-the-museum/aircraft/t-33a-shooting-star>

T-33 Wikipedia: https://en.wikipedia.org/wiki/Lockheed_T-33

Tony LeVier

http://nationalaviation.blade6.donet.com/components/content_manager_v02/view_nahf/htdocs/menu_ps.asp?NodeID=-175121541&group_ID=1134656385&Parent_ID=-1

<https://www.mshf.com/hall-of-fame/inductees/tony-levier.html>

Caiden, Martin, 1971, *Forked-Tailed Devil*, Ballentine Books (paperback), ISBN 0-345-31292-9

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