

Bring Down the Spyplane

MIG-17 vs. Lockheed U-2

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Han De Cai was born in 1933 into a peasant family in Anhui province, an impoverished area of China. He was a farm laborer and was also a beggar. In February 1949, after Communists liberated his village, he joined the People's Liberation Army. He was 16 years old and had one year of education. In June 1950, like many PLA soldiers, he answered Chairman Mao's call for a strong air force and volunteered to become a pilot.



Han Decai (among many others) would find that only a missile could down the high-altitude spyplane. (Courtesy Bob Bergin)

Han was sent to the air force preparatory school and then entered flight training. With less than 100 total flying hours, and about 30 in the MiG-15, he was sent into combat in the Korean War. He became an ace and one of the best-known airmen in China. After the war, he

became the deputy commander of one of the MiG-17 squadrons tasked with stopping penetrations of China's airspace by aircraft that came primarily from Taiwan.

Following the Communist takeover of China in 1949, the U.S. Central Intelligence Agency worked closely with nationalist government on Taiwan to carry out covert air operations. The earliest missions were flown by American pilots of Civil Air Transport, an airline that served nationalist China and that in time would become Air America. Political considerations soon dictated that the U.S. train nationalist Chinese pilots to fly these covert missions in B-17s, B-25s, and other World War II-era aircraft. By 1954, the CIA was readying a purpose-built airplane, the P2V-7U, a version of the U.S. Navy's P2V Neptune Maritime Patrol aircraft that was heavily modified by Lockheed's Skunk Works. These "black" P2Vs were flown from Taiwan by the Republic of China Air Force 34th "Black Bat" Squadron. They were effective at the black work they were chosen to do: Drop and supply agents, drop propaganda, and collect electronic intelligence while eluding the PLAAF MiG-17s.

Bob Bergin interviewed Han in Shanghai in February 2011, with interpreter Zhao Gang, an instructor at Yunnan University. Bergin first met Han in 1996, during a visit to China with the American Volunteer Group Flying Tigers. In October 2000, he interviewed Han about his service during the Korean War.

Bob Bergin: During the Korean War you served as a MiG-15 pilot and became an ace. Some years ago we discussed that. But we did not discuss your PLAAF career after that.

Han De Cai: Immediately After the Korean War I was promoted to be the deputy commander of a squadron. In 1954, I was sent to Dalian, to serve under the command of the Soviet air force. This was before the Sino-Soviet relationship deteriorated. I was sent there to learn night flight, and to learn to fly in challenging weather.

At that point, Chinese pilots had very little experience flying at night or in bad weather. When I first started to fly, I should have learned much more about both flying itself, and about aerial warfare. But our participation in the Korean War was imminent, and like most Chinese pilots at that time, I didn't have time to learn. Many of the things I needed, I actually learned in the war, not in training.

Before I became involved in the war, for example, I had never flown in the clouds. Even with the war already underway, we would form an echelon of 12 aircraft to fly through the clouds. We flew from 5,000 meters to 10,000 [16,400 feet to 32,800], and in the clouds we could not see each other until we finally broke out of them.

We had no other way to learn. Our simulators came quite late. We had no aircraft simulator at all until the development MiG-19. And then the simulator was just a cockpit, with nothing to make it seem real.

Russian pilots were your instructors for night flight?

It was the Russians who taught us. After I completed the training, I became an instructor to teach other PLAAF pilots how to fly at night. Then, in March 1956, I was transferred from northeast China to Wuxi airbase in Jiangsu province, in east China. The weather there was more complicated than in the northeast, and it was quite a test for our pilots. But by 1956, we were competent in night flying and all weather flying.

Was your assignment to Wuxi related to the night incursions of Taiwanese aircraft that were going on at this time?

Yes, it was related. We got the MiG-17*bis* without radar. We also received a radar equipped MiG-17 from the Soviet Union, the PF model, which was used to attack the low-altitude intruders from Taiwan. China was developing its own aircraft at his time, the Model 56, which was based on the MiG-17.

But my squadron's main target was the U-2. The U-2s conducted their reconnaissance missions in the daytime. We did our best to attack them, but the problem was the extreme altitude at which the U-2 flew: We could not reach them. They usually entered the mainland from the northeast of Shanghai.

What kind of tactics did you use against the U-2?

Chasing a U-2 made for a pretty dull flight. Every time a U-2 reconnaissance flight was detected in our sector, we sent up two aircraft to track it. We could go up to our maximum altitude of 15,600 meters [51,168 feet] but still not see the U-2, which was flying above 20,000 meters [65,600 feet].

The Russians used zoom climbs [diving, then climbing steeply] to try to reach the U-2. Did you employ that maneuver?

There was nothing we could do to try to reach the U-2 except zoom climb. I could get to 18,000 meters [59,040 feet] in a zoom climb, but that still left a big gap between my airplane and the U-2.

I recall from the Russian experience that at the top of a zoom climb, the aircraft was no longer a stable firing platform.

That's exactly the way it was. The maximum speed of the MiG-17 is Mach 1.44. I would start the zoom climb by diving from 16,000 meters [52,480 feet]. At 15,000 meters [49,200 feet] I would pull up and start to climb. When I was climbing, I tried to take my angle of climb to 15 degrees. My speed would fall off to 350 kilometers [per hour], and there was nothing I could do after that. At that speed [217 mph] the airplane became difficult to control. In the end, we had to leave the job to our surface-to-air missiles.

Did you burn up any engines, as I've heard the Russians did in zoom climbs?

That was almost unavoidable, but it didn't happen to me. We were fortunate that we were able to develop our missile artillery, and that we could use the surface-to-air missile to bring down the U-2.

Five U-2s were shot down with Russian-developed SA-2 surface-to-air missiles of an early generation, with limited range. This made the Chinese achievement quite remarkable. To hit the U-2 at its altitude, the missile practically had to be launched from almost directly underneath its flight path. How did you manage that?

It was just like guerrilla warfare. Our missile launchers were fixed on military trucks and could be moved around. We had some sense of where the priority targets of interest to the U-2s were, and that's where we located our launchers. We generally fired at the U-2 when it was within a range of 15 kilometers [49,212 feet], and we used certain tactics to bring the U-2 into that range. For example, when a U-2 was detected in an area where a missile launcher was located, we cut off all the radars in that area so the U-2 would not be alerted to their presence. The U-2 was not very maneuverable. When it started getting within range, we would suddenly turn on the radars, and it was too late for the U-2 to react.

The PLAAF's other problem at the time—also not easily solved—was the low altitude flights, particularly by the P2Vs. I understand the PLAAF used Ground-Controlled Intercept techniques. The MiGs were directed into position by the GCI controller using ground radars. To avoid detection by the P2V, the MiG would not turn on his radar until he was in position right behind the intruder.

That is exactly right. But that tactic was not effective; it really did not work very well. In fact, the P2Vs we did bring down, did not come about because of radar, but because we saw them. I can also remember an instance where a PLAAF pilot brought down a B-17 because he just happened to see the exhaust flame.

Our airborne radar was not reliable, and it had other faults. The range was short: the radar could only be used at about 1,000 meters [3,280 feet]. And because the intruders flew so low—sometimes as low as 50 meters [164 feet], there was a lot of ground clutter and it was very difficult to track them.

The radar in our MiGs was effective only if we were below the altitude of the enemy aircraft, looking up at him. If we were above him, even just slightly, and put our aircraft's nose down, the radar would pick up ground clutter, and we could not make out the target. To make the radar effective, we had to modify it, to eliminate the lower part of the scan, and use only the upper part.

The intruder could also elude the ground controller. When we turned on our airborne radar, the PV2 would detect it, and immediately dive away. Then he would drop metal foil, and that would disrupt the ground control radar, and cause the controller to lose him.

The PLAAF pilots really risked their lives flying during these night flights, chasing the intruders. We were often flying just 50 meters [164 feet] above ground level. I still remember one P2V I chased. It was April 13, 1964, a day of shame for me that I will never forget. A P2V entered China at the mouth of the Yangtze, and flew west along the river. It kept very low, sometimes just 100 meters [328 feet] above the hilltops.

I was at our airbase at Nanjing and was ordered to take off to intercept the enemy. I was flying a MiG-17 PF with radar. Senior PLAAF officers were visiting the airfield at the time, and the PLAAF Chief of Staff was in the control tower when I took off. Because the area around Nanjing is where we expected enemy intruders, it was where we regularly did our training. I knew the area well, and seemed the ideal place to shoot down an enemy aircraft.

I took off, turned on the radar, and entered the clouds. The base of the clouds was just 100 meters [328 feet] above the ground. I turned off my navigation lights, and leveled off the aircraft at 600 meters [1,968 feet]. I could see nothing. After a few minutes, the GCI controller ordered me to fly at the height of 450 meters [1,476 feet] and I descended. It was difficult to get into position. I was flying at a speed of 400 kilometers an hour [248 miles per hour]; the intruder's speed was 280 [174 mph].

I followed the P2V along the Yangtze River, to the coastal area in Quanzhou. The clouds were down to an altitude of 75 meters [250 feet]. Soon I was at an altitude of 400 meters [1,312 feet], and the P2V was just 50 meters [164 feet] higher than I was. We stayed in the clouds and I had to depend on my instincts. When I thought I was in a good position, I turned on the aiming antenna. He immediately knew I was there, and dove away.

Did you see the target aircraft at all?

I never saw the enemy aircraft. It was at night and we were always in the clouds. I think I was quite a good pilot in those years, but I could still not bring down a P2V. When I landed, the PLAAF commander-in-chief and the chief of staff were waiting for me. I told them I greatly regretted what I failed to do that night. I had failed my country and our leader. The chief of staff said I had done my best, but I felt I owed a big debt.

How long did you do that kind of night flying?

The mission against the Taiwanese intruders lasted a long time—until we came to a kind of tacit agreement with Taiwan that turned into a truce. The Taiwan government did not send recon airplanes over the mainland, and we did not bomb the islands near Taiwan. I flew these missions from 1961 to 1968. In 1968, I started to fly the MiG-19. The MiG-19 was also used to go after the PV2.

Was the MiG-19 any more successful than the MiG-17?

The MiG-19 was bigger and faster. It was more difficult, and even dangerous to fly at night. China's development of this aircraft had been going on since 1958. In 1959, I led a squadron of MiG-19s over Tiananmen Square on our National Day. It was the tenth anniversary of the founding of the People's Republic, and a great honor for me.

During this period of the night intruders, the PLAAF tried several experiments. One was using the World War II-era Tupolev Tu-2 light bomber as a night fighter.

I have no knowledge of that.

Then there was the Tupolev Tu-4, the Russian copy of the American World War II B-29 bomber that could stay in the air a long time.

We tried to use the TU-4 to pursue and attack the P2V. This project was not successful. The Tu-4 was just too big and too slow, and it was accident-prone. At least one of them flew into the ground.

And then there were the Russian Ilyushin IL-28 jet bombers that were used as “illuminators.” The idea was to use IL-28s to fly in front of the PV2 and drop flares that would light it up so the MiG fighter chasing it could see it.

Yes, that’s what we tried to do, but again it was not very successful. It was not flares the IL-28 would drop, but a searchlight mounted on the IL-28. The IL-28 would try to fly above and ahead of the PV2, and then turn on the searchlight to light up the P2V’s fuselage so the chasing MiG pilot could see it.

In practice, this was very difficult to do. It was all a matter of coordination. There were three people involved: the pilot of the IL-28, the pilot of the MiG interceptor, and GCI controller. The controller and both pilots first had to find the target. Then the IL-28 pilot had to get above and ahead of the target, and light it up as the MiG was trying to get into position to fire. The controller on the ground had to follow the P2V and simultaneously move the IL-28 and the MiG into position on an airplane they couldn’t see. When the IL-28’s searchlight was turned on and illuminated the P2V’s fuselage, the MiG already had to be in position to fire.

What else was tried against the P2Vs?

We wracked our brains to come up with ideas to that would defeat the P2V missions. For example, we tried to set up ambushes in remote areas. We knew that the P2V would always fly at low altitude. Over time, we became very familiar with the kind of routes they needed to fly. We would concentrate our anti-aircraft artillery in the areas we believed they were likely to fly over, and position the guns in such a way that when the P2V entered the area, our artillery could fire at it from different directions.

The P2Vs flew long missions. How was PLAAF coordination handled as the intruder passed from sector to sector?

There were searchlights on the ground as well as radar, but the radars were the most important. They were set up in a chain that allowed us to track the intruders over their entire route.

There were three MiG squadrons that were used against the P2Vs: in Nanjing, Shanghai, and a third in Xuzhou, the northern part of Jiangsu province. Each squadron was responsible for its own sector of the sky. The squadrons were kept on alert, and when a PV2 entered a squadron’s sector, that squadron was ordered into action. Because the P2Vs flew at such a low altitude and could elude the radars, its known movements were coordinated from sector to sector.

How much warning would you get of an incoming P2V mission?

We had intelligence collection that gave us advance warning of an intruder flight. We could intercept signals intelligence that provided indications of an intruder flight, long before that flight took off. From the preparations that we knew were being made on the ground in Taiwan,

we could do some calculations and determine when the aircraft would take off and also get some idea of its planned route.

Where would your radars first pick up an intruder?

We could pick them up only at very short range, about 100 kilometers [62 miles] out at sea. Even with a radar station on top of mountain, we still had difficulty tracking incoming aircraft. The P2Vs stayed down very low as they came in, and were hard to pick up. And with the P2Vs being that low, our radar would pick up strong reflections from the waves. In that clutter the PV2 was difficult to track. There were many difficulties that we had to overcome.

And it was also always difficult for the Taiwanese aircrews. They always risked their lives intruding our airspace. These were very dangerous missions for them, and they became even more dangerous for the Taiwanese as PLAAF units all over the country established their own night flying squadrons. It became routine for PLAAF pilots to fly at night.

In overcoming those difficulties, it would seem that the PLAAF created an effective air defense system.

Over time we established an integrated air defense system. We could track the enemy at low altitude and at high altitude. We incorporated our surface-to-air missiles into our air defense system. Then it became really dangerous for Taiwan intruder aircraft to fly over mainland China. Eventually, it was no longer feasible for the Taiwan Air Force to fly intruder missions into mainland China.

What were lessons of this era? What did Taiwan accomplish through these intruder missions that were designed to drop propaganda and agents, and collect electronic intelligence?

What Taiwan achieved was probably negligible. Their intrusion flights affected relatively small areas of China. In the end, all the propaganda leaflets they dropped gained them nothing. Virtually all the agents they dropped were quickly captured by our local forces. Taiwan had some success in the air over China in the early days, before the PLAAF was established. Once the PLAAF was in existence, Taiwan no longer had any significant success.

Taiwan may have gained intelligence from these reconnaissance efforts, but as time went on, the value of that was probably offset by U.S. concern about the growing strength of the PLAAF and the increased effectiveness of China's air defenses—all of which were fostered by Taiwan's intruder flights.

Earlier on, during the Taiwan Straits crisis in the summer of 1958, there were air battles between Taiwan's F-86s and the People's Liberation Army Air Force MiGs. I read that Taiwanese pilots claimed 30 MiG kills against only two F-86 losses.

That's bull---. I did not participate in those actions, but as far as I know, both sides suffered losses. As I remember it, we usually kept our flights over the mainland, and the Taiwanese pilots kept out over the sea. The two sides tried to stay away from each other, and there really was not much direct combat.

As I recall, we engaged in an air battle with the Taiwanese only once. The result was essentially a draw: We lost two aircraft, and they lost two and a half—the half because one of their aircraft was damaged.

During another crisis in about 1962, a Taiwanese RF-101 Voodoo on a low level photo recon mission was shot down. I heard a story that as the RF-101 disintegrated, its two engines continued to fly off into the night.

I don't know that story, but I remember that we brought down an RF-101 near Guangzhou. It was an air-to-air kill—and it was a miracle that a MiG-17 could bring down an F-101. The F-101 was supersonic; the MiG-17 was subsonic. The aircraft that shot down the Voodoo was actually a Model 56, the Chinese version of the MiG-17.

The MiG-17 that intercepted the F-101 was coming in from the side as the F-101 approached. The MiG pilot aimed well to the front of the F-101 and let the enemy fly into the cannon shells. Later, when we had the MiG-19, shooting down a F-101 would not have been such a big deal. I think we shot down a second F-101, but I don't recall the details.

How close did the Model 56 have to get to the F-101?

The Model 56 had the same armament as the MiG-17, 23 mm cannon. The effective range was within 600 meters [1,968 feet].

There was always a competition between the PLAAF and the Taiwanese air force. But in terms of combat, we engaged less and less as time went on. We did not intrude into Taiwan's airspace, and as our defenses got better, the Taiwanese pilots did not dare intrude into mainland China's airspace.

Later, the Taiwanese even sent in balloons to drop propaganda leaflets, and shooting them down was like shooting sitting ducks. They were as big as a basketball court, and flew at an average altitude of 15,000 meters to 16,000 [49,200 feet to 52,480]. It was not difficult for a MiG-19 to shoot them down with its cannon. Of course, I did not do that myself. It was the other pilots!

Where were you assigned after you completed your MiG-17 missions?

In 1968, I was promoted to be the chief of a MiG-19 division. In 1978, I went on to Shanxi, also as commander of another division. In 1980, I returned to Shanghai, as commander in chief of the 19th Air Command, a position that I held for three years. In 1983, I became deputy commander of Nanjing Air Command for another 10 years, until I retired.

What was your best job?

I always preferred to be a pilot over being a commander on the ground. I regarded myself as a soldier, and always did my job, whatever it was. One thing I am very proud of is that I never damaged an aircraft during my years as a pilot in 2,300 hours of flying. I really loved my career as a pilot.

What do you think of China's new J-20 stealth aircraft?

I was invited to watch the J-20's first flight at Chengdu, and I asked the engineers a few questions. Fighter aircraft seem to have reached their maximum limits. Whether the aircraft is

made in the U.S. or Russia, there is not much difference between the latest aircraft from these countries. Further development is limited by the physical stress a pilot's body can tolerate. The U.S. is leading the way in the use of unmanned aircraft. I think there is a role for unmanned aircraft in China.

Between 1949 and 1964, ten of the aircraft engaged in penetration missions from Taiwan were lost over the Chinese mainland, including three P2Vs, two of them in air-to-air engagements. Taiwan suspended its penetration flights of the mainland in 1964, although flights along China's coast were made through 1966, when this joint program with the U.S. was terminated. The U-2 flights continued.

Taiwan's aircrews displayed much courage in carrying out their low-level penetration missions, but the value of the program is questionable. Of the hundreds of agents and special operations troops that were dropped, apparently none survived; the propaganda drops were largely ignored by mainland residents. Electronic and other technical intelligence collection would have given the U.S. a good picture of the PRC's growing military strength and its rapidly developing nuclear program, although much of the intelligence on the latter would have come from the high-flying U-2s. An unintended consequence of the penetrations was the motivation it gave the PRC leadership to build its air force and to create an effective air defense system.

General Han retired from the PLAAF in 1993, and lives in Shanghai, where he has made a reputation as a calligrapher.