

Claude's aerial marksmanship was no better than it had been before. One of the replacement pilots came to the squadron from a Fifteenth Air Force B-24 Liberator group right there in Italy. This kind of transfer was unheard of, and no one was quite sure how he pulled it off. Of course there weren't many bomber pilots who, after completing a combat tour, requested a fighter assignment instead of going home, either.

"Libby" was only a so-so fighter pilot, which was to be expected considering the different flying characteristics of fighters and bombers. But all of us respected his heart and his experience, and he was to not given the usual new-guy treatment. He must have really wanted to fly the Mustang. Libby's contribution to the cultural life of the squadron was to teach us a B-24 drinking song that became a favorite at the Officers' Club. It was sung to the tune of an old cowboy ballad, Strawberry Roan, and the first verse went:

Oh that B dash Two Four, Oh that four-engined whore, The men who fly in it are certain to lose, at fifty-five inches she won't even cruise, Oh that B dash Two Four.

One evening Libby and I got into a discussion on aerial gunnery, and I was surprised at the simplistic view he had of hitting something in the air. He didn't see anything very complicated about putting the sight piper on what you wanted to hit and then banging away. For one thing, I reminded him, the guns were in the wings 12 to 14 feet apart and about 4 feet below the gunsight. For the guns to hit what the sight was pointing at, it was necessary to angle the guns inward and upward so that the gun-bore lines met the sight line at some prescribed range. The effect of gravity was also a factor, since the projectile dropped about 4 feet from the time it left the gun barrel until it reached the range distance. The point at which the guns and sight converged was called the harmonization point and represented the ideal range at which to fire at a target. Beyond the harmonization point the trajectories began to diverge rapidly and to sink more quickly. Whereas the drop during the first half second was only 4 feet, during the next half second it was 12 feet. Even at ideal ranges, the pattern of shots was enlarged by slight inaccuracies in bore-sighting the guns, vibration of the gun mounts, and so on. Much beyond the harmonization point, trying to hit anything was almost hopeless-though that fact didn't keep a lot of people from trying.

Compounding these mechanical and physical factors were others relating to the skill of the pilot. He had to maneuver his aircraft quickly to bring the sight piper to bear on his aiming point and keep it there. In straight and level flight, this was not difficult. While climbing or diving, however, it was another matter. Except for twin-engine fighters like the P-38, which had counter rotating props, pilots of all single engine fighters had to contend with torque. On American aircraft, engine and propeller rotation caused the aircraft to veer to the left. A slight offset of the vertical fin was built in at the factory. It generated an aerodynamic force to just balance out the torque. However, this zero-yaw condition was only true at one airspeed and power setting. At a high power setting and low airspeed, as during a steep climb, the torque was greater than the correction; the pilot had to apply heavy right rudder to keep the ball in the center. Conversely, in a high-speed dive, the aerodynamic force was greater than the torque; the pilot had to use left rudder to keep the ball centered and the aircraft flying straight without yawing. The rudder-trim wheel on the left side of the cockpit could be moved right or left to increase or decrease

the aerodynamic force. To adjust the trim, the pilot manipulated the cockpit control that moved a small trim tab at the trailing edge of the rudder. The pilot, while looking through the sight, had to feel with the seat of his pants any yaw condition and automatically apply the correct rudder pressure to keep the aircraft flying true. The left hand was continuously on the rudder-trim wheel, feeding in the correct amount of trim to take out the rudder pressure.

Why was yaw important to aerial gunnery? Simply because if the aircraft were allowed to yaw, the line of sight was not pointing in the direction the aircraft was traveling. Any projectile fired while the airplane was yawing would be given a slight shove sideways-just enough to make it miss.

In addition to all this, if the target and the attacker were turning, the attacking aircraft had to be aimed out in front of the target so that the bullets and the target arrived at the same point at the same time. The correct amount of lead, or deflection, depended on the speed and angle-off of the target. Speed and angle-off had to be estimated instantly and converted to lead in terms of radii of the gunsight reticle. An Me-109 traveling at 300 miles per hour would cover over 200 feet while the bullet was in transit. A 90-degree shot at the 109 would require about 4 radii with a 100-mil sight. At 30 degrees angle-off, the correct lead would be half that, or 2 radii.

With few exceptions, all fighter pilots could fly well; only a handful could shoot well. Of these, a smaller number still combined their marksmanship with sharp eyes and aggressiveness. The really successful ones were not necessarily the hot pilots; rather, they were the ones who were always looking for a fight and who confined their shooting to low-deflection angles at very close range.

Libby sat silent for a minute, digesting my pontifications. I waited patiently for his response-a question, argument, rebuttal, something. Then he looked up brightly and said, "Let's have another drink." He would do, I decided. He was a fighter-type already, a true "Thirsty Firster."

The group had begun replacing the old B models with the P-51D and, about the middle of July, I flew the new model on operations for the first time. The D was a considerably improved airplane. It had a bubble canopy instead of the greenhouse-style enclosure, and the bubble allowed a lot better visibility in the air. Instead of the drab brown paint job, the new planes were NMF-natural metal finish. They fairly glowed in the sky. That we didn't need camouflage any longer testified to the way the air war in Europe was going: We were winning big.

Other changes were less visible to the eye but of equal or greater importance to the pilot. The sight had a 100-mil fixed reticle instead of the smaller 70-mil reticle. The new sight made deflection shots and range estimation somewhat easier. More important, the wing had been thickened slightly so that the armament now consisted of six .50 caliber machine guns set upright. Upright guns meant no more jam problem, and, for good measure, the P-51D provided half again as much firepower.

The significance of the increased firepower was driven home to me on July 20, 1944, on my 45th mission. The target was Friedrichshafen, a small town in southern Germany. The original home of the Graf Zeppelin and the Hindenburg, two famous dirigibles of the '30s, the target was on the north shore of Lake Constanz, through the center of which ran the Swiss-German border.