Prologue: “No shots taken”

“Ability is nothing without opportunity.”

— Napoleon Bonaparte

October 7, 1983
20,000 above the South China Sea
45 miles West of Clark AB, Republic of the Philippines

The high-G turn into the sleek fighter at my immediate 9 o’clock for 500 feet pushed my torso back into the ejection seat even further. Sweat from beneath my helmet ran down my face, impeded only by my oxygen mask. The sounds of my hurried breathing and guttural straining against the force of the G’s muffled out any sound of my fighter’s engines at full afterburner. The throttles were “parked” at the forward stop of the throttle quadrant, asking for every ounce of power they could muster. My opponent had mirrored my initial move, our two fighters closing the distance between us in seconds. Each pilot seeks an advantage to press home their attack and defeat the other, now on a collision course, neither one giving any quarter.

As our agile fighters drew nearer, my feet and hands acted instinctively. Gently moving the control stick slightly to the right, I placed the lift vector of my hard-turning jet imperceptibly above the missile rail on the tip of my opponent’s left wing. My mind mentally crunched the closure of our two aircraft and prepared to reverse the hard turn, this time blending in smooth top rudder and full aft right stick. It was something you felt, almost sensed, rather than mechanically applied. We were both committed to an engagement; neither could afford to leave without the risk of being shot. Drawing nearer, I could discern his masked face, his helmet visor in the raised position, eying me precisely as I was him. Each was looking for that elusive eye of the needle advantage.

While still 100 feet from his fighter, I began my lead-turn of him, not wanting to give away any undue advantage in turning room. Quickly reversing directions, I swung my head to the right just as his shiny silver fighter appeared below my canopy rail, a mere two hundred feet away. Having anticipated my move, he'd already begun his pull-up and to his left to counter me. Within seconds, we'd each bled off 150 knots of energy, and the airspeed indicator quickly decreased through 250 knots of indicated airspeed.

Once more, our aircraft crossed paths painfully close, with me maintaining a slightly higher position, both aircraft slowing still further. My body, attuned to the sensation of diminished "G" authority in the control stick, could tell we were nearing 150 knots and about to slow even further. There is no escape from such an engagement, only victory or defeat at the receiving end of the ravaging impact of 20-millimeter (20mm) cannon rounds ripping into your aircraft.

Not about to settle for being "tree'd" above his fighter, I abruptly applied full left rudder and full left and aft stick to roll off inverted and duck under him, quickly changing the dynamic of the fight. If this was where we were to lock horns, I was intent on driving the fight.

My adversary, nestled in the other cockpit, had immediately rolled off, countering my aggressive move. This guy was better than good. He was superb, handling his fighter at these high angles of attack (AOA) and now only 120 knots. I was now locked in a rolling scissors with my opponent. It was a corkscrew sort of maneuver where altitude and airspeed were traded for an opening to press home a gun attack on the other. Our proximity to each other was just too close to employ our heat-seeking missiles.

In short order, we were well into a left descending pirouette, each trying desperately to flush the other out front to bring our guns to bear. The maneuver had us canopy-to-canopy, eying each other from a distance of just a few hundred feet, each looking for his opponent to make a fatal mistake.

A glance at the rapidly retreating altimeter dials told me we were now descending through 15,000 feet, our attitude inconsequential as we continued our spiral down, the calm surface of the flat Pacific Ocean looming beneath us. Such was the three-dimensional joust of air combat, our aircraft, our trusty steeds. Any delay of aircraft control inputs or miscalculation of your opponent

meant inevitable defeat. There was no escape except hoping the other guy made the first mistake, allowing you to slide aft of his wing line and saddle up to employ your cannons at a range too close to miss. This engagement is what I've trained for. This is what I am: a fighter pilot intent on winning.

The pitched fight continued its descent, the altimeter fast approaching 10,000 feet. Still, there was no advantage; no shots were available to tip the battle in either direction, and fuel and altitude were running out. Approaching 10,000 feet, I had enough altitude for one more roll before I'd be forced to transition back to a flat scissors above the "hard deck." I leveled out with mere feet to spare before the no-nonsense limit of 10,000 feet. Like me, my adversary had done the same, wallowing just above the altitude limit at 110 knots off my right wing and desperately trying to gain energy. We were at a stalemate. No shots had been taken.

"Knock it off, knock it off. *BARON Two-One*, knock it off," I radioed my opponent.

"Roger, *BARON Two-Two* copies, knock it off," came his reply.

Within seconds of the call to stop the fight, I rock the wings of my snake-camouflaged F-5E fighter, the signal for my "opponent," Captain Clarke "Frog" Peele, in his nearly identical F-5E, to join up on my right wing. Moments later, with him tucked in alongside me in close formation, I gave him an approving "thumbs up" as I turned our formation east and began our return for a landing at Clark Air Base, Republic of the Philippines.

This had been my last flight before heading back stateside following my nearly two-year assignment as a member of the USAF's 26th Aggressor Squadron at Clark AB. And for this flight, where it was customary to fly a scenario of your choice, I'd asked the squadron commander for only one thing: two jets and the opportunity to fight Frog one last time.

A seasoned fighter pilot with over 2,000 hours as an Aggressor in the F-5E, Peele had taken me under his wing eighteen months earlier and mentored me to be the best fighter pilot I could be in that period. Along the way, he had kicked my ass on any number of occasions during our innumerable one-versus-one (1v1) engagements. During that time, I had made great strides and had, of late, been nearly his equal. Notice I said "nearly." Today, my last flight in the squadron, was my last chance to test myself against arguably one of the best in the USAF. And I had more

than held my own, having pushed Peele to the limit during our exhausting airborne duel. We were homeward bound on my final flight as an Aggressor pilot at Clark AB. It would be the last time I ever flew with "the Frog."

Once on the ground and back in the squadron, a thorough debrief of the mission ensued. As the flight lead, I went through the sortie point by point, from engine start to shut down, focusing most of our time on the engagement itself. Who did what, opportunities missed, lessons learned to take with us in subsequent engagements, and for me, to my next assignment.

I was about to head back to Nellis AFB, the "Home of the Fighter Pilot" in USAF parlance, in a few days. To every USAF fighter pilot for decades, "Nellis" was simply Mecca, where it all happened. Nellis was home to the prestigious USAF Fighter Weapons School (FWS), two Aggressor squadrons similar to the one I was about to leave, the *RED FLAG* combat training group, the Air Force "Thunderbirds," and an entire Wing of operational F-16s. To say the place was a beehive of activity would be a gross understatement, and fighter pilots throughout the USAF would measure their careers by whether they had been part of this place. Need I say, high testosterone levels and equally inflated egos abounded.

I was about to embark on the next leg of my career as a fighter pilot. But it wasn't to any of the previously mentioned units I would be assigned, but to one even more unique. Several weeks before my last flight with Frog, I received orders to report to the 4477th Test and Evaluation Squadron (TES), a squadron whose mission was shrouded in secrecy and which operated aircraft that no one could discuss freely. This was America's top-secret MiG squadron, and the pilots who flew them were all selected from the best fighter jocks the Air Force, Navy & Marine Corps had to offer. I was to be one of them, a "Red Eagle."

So it was in this light that my debrief with Peele continued. With my "turn at the chalkboard" complete and celebratory cold beers already in hand, I deferred the remainder of the debrief to my mentor. A down-home native son of Richmond, Virginia, and proud graduate of the Virginia Military Institute, Frog, known for his "Southern Talk," was brief.

"Z-Man, I don't have much to say. You covered all the points. I flew the best airplane I could today, and I never had the slightest chance of a shot," Peele drawled. "Eighteen months

ago, you came in here as a new puppy Aggressor, and I spanked you in the same setup." He paused to laugh while he recounted our first 1v1 engagement and a couple of the bone-headed moves I'd made. All in vain, he was quick to add with a throaty laugh.

He continued, "I had to work my ass off today to stay with you. No shots taken, Z-Man. It doesn't get any better than that." With that, he reached forward to clink beer bottles with me and, as a toast, offered the following.

"You're ready, Z-Man. You go back to Nellis and show them how it's done. The guys there are damn good, but they've got nothing on you. You can go there with your head high, knowing you belong there. And don't take any shit from anyone there; you can hang with the best. However, remember that you can still improve. There's still more to learn. I'm proud of you, boy. Good on ya!" And with that, it was over. I would soon return to Nellis AFB in a new squadron with new challenges.

This is my story of what it was like to be on the "inside" of a squadron whose collection of Russian-built MiGs was officially denied for years. Stories and myths abounded about who we were, what we did, and what we flew. During the heart of the Reagan years, the program, known simply as *CONSTANT PEG* within the Department of Defense, flourished and grew from a handful of pilots and aircraft into one, eventually totaling 30 pilots and 27 aircraft.

Among those of my former squadron mates, I'm sure my recollections are not unique, just different from the standard tales you might expect to hear when talking with fighter pilots of other squadrons, their planes, and what they did. Our stories were inherently different due to the nature of our mission. What we had in common with our brethren in other U.S. fighter squadrons was a shared passion for living on the edge, being incredibly competitive, and striving to be the best we could be at what we did.

After all, we're Americans! Cut from the same fabric as earlier generations of American fighter pilots who flew Spads and Nieuports, Mustangs and Hellcats, and Sabres and Panthers into harm's way and back. Those who went before us were the stuff of legend, and we intended to carry on that proud tradition in our machines. You could say it was in our blood.

In most cases, we were the typical all-American boys who grew up next door to many, went to academies, colleges, and universities, received our commissions as new Second Lieutenants and Ensigns, went on to pilot training, and a year later found ourselves pinning on our wings at the top of his class and then on our way to an assignment flying our “Phantoms,” “Tomcats” or “Eagles” in our first operational fighter squadrons. From there, we never looked back; we only moved forward, higher and faster, to the challenges and opportunities that came our way.

I realize that some or all of this may sound cocky, arrogant, whatever. Were we good? You bet we were. Just ask us! Tragically, along the way, we lost some squadron mates who were equally talented, deserving, and dedicated to our cause and country as the rest. To them, I dedicate this book. So, kick back with a “cold one” and recount with me a story of fast-living and hard-flying American fighter jocks and our secret MiG fighters—the likes of which our country will never see again.

1. Like Ice Skating

"Most healthy young men or women from sixteen to forty years of age can be taught to fly an ordinary airplane. A great majority of these may become very good pilots for transport- or passenger-carrying machines in times of peace, but the requirements for a military aviator call for more concentrated physical and mental ability in the individual than has ever been necessary in any calling heretofore."

- Brigadier General William "Billy" Mitchell, 'Skyways,' 1930

Have you ever watched, seriously watched, any professional hockey player play the game and bring the puck up-ice? If you have, you'll notice a couple of things. First, the guy has to skate incredibly well to make things happen. While he's skating, of course, he's doing all sorts of other stuff, like handling the puck, sighting the defenders in his path to the goal, the position of his teammates, and finally, the goalie. Not only the position of the goalie in front of the net, but also mentally calculating the exact position around the goalie that he's planning to shoot the puck, which will give him the highest probability of scoring. Okay, now let's go back to the first thing I mentioned. He's doing all this while he's got a pair of blades strapped to his feet, and it happens in seconds in a very dynamic and energy-charged environment.

In describing flying a fighter aircraft to someone who's never been in one, much less in aerial combat, whether actual or simulated, I like to use the following analogy: *physically flying the airplane to a fighter pilot is what skating is to the hockey player*.

The mere act of actually flying in itself isn't that hard. Once you get the plane off the ground and up to altitude, I'm sure you could keep it reasonably straight and level. With some practice obtained from something as simple as the various flight simulator games on your home

computer, you could probably do some basic maneuvers without losing control. Similarly, once you get a Formula 1 racer onto the track, I'm sure most could make it around without hitting the retaining wall. But that's all you'll do. Now, let's take this analogy back to the role of the fighter pilot about to go head-to-head with an equally matched opponent.

Employing a high-performance fighter as a weapon system requires a unique skill set. Remember the hockey player blazing up the ice with the puck on his stick? Do you think he's wondering about what his feet are doing? No way!

Well, imagine yourself in the cockpit of a high-performance fighter in the middle of a gut-wrenching dogfight with another reasonably skilled opponent. First off, you don't have time to think about physically flying the airplane. Either it happens, or you'll quickly find yourself losing out to your opponent. Pressing on in such a fight where you're losing precious airspeed, altitude, and turning room, or all three, to your adversary, you'll soon find yourself fighting for your very life in a contest where only the victor comes home.

From the time you "eyeball" your opponent from whatever distance, you're increasingly in a mode of trying to position yourself, and by extension your aircraft, to a place where you can employ any of the weapons you're carrying to shoot him down in the least amount of time. Allow your opponent to do it first, and you'll quickly be on the receiving end of the devastating effectiveness of a high-explosive missile as it slices through your aircraft or the withering fire from his high-velocity cannon impacting your aircraft and tearing it and your body to pieces.

Let's take this scenario a bit further and use that as a precursor. Let's make it easier for you and say it's only you and your opponent out in the skies today. Lucky you, you don't have to worry about his wingman trying to shoot you down, your wingman accidentally doing the same, or having a mid-air with you as you both vie for position to kill your opponent. So, it's just the two of you. And to make it even easier, we won't even consider the complexity that goes into the same equation if you throw in radar and heat-seeking missiles to employ or defend against. In today's scenario, you and your adversary are armed with just your cannons. So, it's "guns versus guns" in our aerial dogfight scenario. It's just like back in the days of Richthofen and Rickenbacker. Well, sort of.

Back then, they flew at airspeeds generally less than 120 knots, could barely sustain only a couple of Gs, and rarely engaged one another higher than 5,000 feet AGL. In today's air-to-air battles, you're often supersonic; your aircraft and powerful engines can develop and sustain more

Gs than your body can withstand, and you will engage your opponent at altitudes anywhere from mere feet above the ground up to 50,000 feet.

Once you've visually acquired your enemy, the work begins in earnest. In an instant, you're assessing his and your energy states. By that, I mean how much potential energy you each have at this very instant and how that will factor into everything you do from here on out. Your machine subtly whispers to you, the feel of the control stick in your right hand relaying the aerodynamic forces on your flight controls. Eyes sweep the Heads-Up Display (HUD) and instruments, confirming what your hands are sensing. You're verifying your airspeed, altitude, attitude, heading, fuel, and weapons while keeping an eye on your opponent and continuing to determine his intentions as you close the miles between you. All this the mind absorbs in an instant.

To the uninitiated, speed is the first thing that is entirely mind-boggling. In aviation, it's measured in Knots of Indicated Airspeed (KIAS) or simply "knots," not Miles Per Hour (MPH). Most people's day-to-day lives aren't filled with making split-second decisions that their survival depends on. In this environment, it's a constant. For example, if you're both doing 500 KIAS, you're closing at each other at 1,000 knots, eating up each nautical mile between you every 3.6 seconds.

How about a figure you can relate to? At 500 knots, you're doing the equivalent of 575 MPH. The 16-mile separation you had between you and your adversary a minute ago has just evaporated in the time it takes most people to stir the cream and sugar into their morning tea or coffee. There's not much time to get your act together and figure out if you're either going to "bug-out" (leave the fight and separate) and live to fight another day, or stay and fight until someone gets shot down or one or both run out of fuel. There are few options, and, as you can see, everything happens quickly. This is no place for the faint of heart or, in fighter pilot terminology, a "weak dick" (aka, a "Whiskey Delta").

Mind you, now, the pilot in the other cockpit is doing precisely the same as he closes with you. You are assessing and assessing. It's the ultimate chess game, played in three dimensions and often at supersonic speeds. You're both quickly adjusting any or all of the above variables to find that one combination that'll allow you a single ounce of advantage. Once you get it, you press it and make the other guy pay. A single mistake in the air will cost you your life in combat.

Add to this mix the factors of weather, sun position, camouflage of each fighter, and aircraft size, and the problem suddenly becomes incredibly complex. And this is all happening in the first 60 seconds of your fight, and you haven't even merged with your adversary yet.

An additional variable of this aerial chess game that the average reader doesn't often consider is the altitude at which we will engage. In combat, anything is fair; there are no rules, just results. Anywhere between the Earth's surface and 50,000 feet is pretty realistic. If you are screaming along at just a few hundred feet Above Ground Level (AGL), the surrounding landscape is nothing but a blur. At higher altitudes, the mosaic below is not unlike the one you see out of your typical airline window. Of course, like everything in life, there are trade-offs for choosing one or the other. Choosing wrong and giving undue advantage to your opponent again may cost you your life.

At low altitudes, you'll be able to get the maximum performance from your airplane due to the increased air density, enabling your wings and engines to deliver more performance than the human body can withstand in terms of the gravitational forces (Gs) you're likely to pull in a hard turning fight. All this is at the cost of higher fuel consumption, shorter weapons employment ranges, and the ever-present danger of hitting Terra Firma.

Conversely, in the rarefied air at 40,000 feet, your aircraft cannot develop or sustain the optimal performance you previously enjoyed at the lower altitudes, and a turning engagement with another fighter of similar design will quickly be going "downhill" to maintain the aforementioned critical energy state. Once again, lose out on this to your opponent, and you'll pay with your life.

See a common thread? Advantages to either opponent equal survival or at least the likelihood of it. And this isn't to say that seemingly small or large advantages can't quickly be pissed away by a costly error in judgment or something as fundamental as losing sight. As you close with your opponent, you're not thinking about the good 'ole USA, mom, or apple pie. Survival means killing the other guy as quickly as possible because you must assume he's trying to do the same.

In your mind, you have to respect every enemy opponent and his fighter you're about to meet. No assumptions, no quarter given. Doing anything less may unknowingly give away some subtle advantage that could cost you your life. Right now, it means getting him sufficiently in your sights to enable you to employ your 20mm cannon, remembering fully well that if he's

flying anything other than a U.S.-made fighter, he's probably carrying even larger armament: 23mm, 30mm, perhaps even a 37mm. There's no room for error. Any hits that find their mark at this speed will mean almost certain loss of either fighter. A single hit to the cockpit will be fatal.

As you get closer, you must determine if you can see him sufficiently well to try to employ your cannon as you meet. Closing this fast, you'll have to open fire while still two miles apart and try to concentrate your fire into a very narrow window if you have any hope of hitting him. And remember, if he's worth a damn, he'll probably be trying to do the same to you. So not only must you think offensively, but you'll also have to be prepared to evade if you see his "nose on fire" before you open up with your guns as well.

You'll merge with him from 2 miles out in less than 8 seconds. Each precious second, you analyze every conceivable variable of this equation to find the answer. And then, in a flash, he's past you. Today, off your left side, passing so close you couldn't fit another fighter in between you. Giving him any available room to turn is criminal, and you try to steal all the space you can from him at the pass, hopefully getting precious degrees of turn, sometimes measured in single digits, in your favor as you pass. If you've waited until now to start your max-G turn to pursue him, allow me to let you in on something - you're already behind the fight, and if not corrected soon, it will soon mark your end.

The following 10-15 seconds are crucial to winning and your survival. As he blazes past you, those foreign to this environment would find something else missing. Sound! There are no roaring jet engines that would deafen you like at an airshow. There is no sensation of rushing air as you likewise flash past him. The only sounds registering are those of your own making. The sounds of grunting and heavy breathing that fill your ears are you. You're working against the 7-9 G turn to keep the blood in your head from draining to your lower extremities. Failing to do this will rob you of your eyesight ("grey-out") and, eventually, actual consciousness ("black-out").

(*Note: This last phenomenon is commonly known in the fighter world as G-induced Loss Of Consciousness (GLOC).*

This you do instinctively; your abdominal muscles tighten, as if you're ready to absorb a stomach punch from Mohammad Ali, forcefully exerting pressure in your diaphragm while keeping your throat closed, stealing gasps of precious oxygen every couple of seconds to stay conscious. Your neck is twisted like it's never been twisted before, all to keep sight of your

enemy. Your head is back against the ejection seat, and you're fighting to keep it from dropping into your chest. At this moment, the 8G load of your hard turn exerts eight times the force of gravity on your body, and your head is now the equivalent of an 80-pound barbell! The sweat that's been building over the past several minutes beneath your helmet runs down your forehead, through your eyes, and down your face. You're soaked. While you're subconsciously aware of this, you're focused, not caring that you will lose 3 to 5 pounds on this flight despite the frigid cold temps outside your cockpit. All the while, you're one with your machine, going where you command it. No thinking, just doing. You're Wayne Gretzky coming up-ice with the puck - times 10!

Your airplane is bleeding energy fast in the first few seconds of the turning engagement. At altitude, with 7-9 Gs on the airframe and full afterburner, you're bleeding off anywhere from 30 to 50 knots per second, depending on the wing-loading of your aircraft. Your airplane can withstand more than the human body at low altitudes, and you're not losing airspeed as fast. As you keep your eyes on your opponent, you turn your fighter at a rate of 18-22 degrees per second. If your airplane can't sustain this at medium to high altitudes, you will soon be either out of airspeed to fight or descending like a rock, possibly both. But whatever happens to you is also happening to your opponent in the other cockpit. You must both manage a highly fluid, dynamic, and changing aerial duel. As the airspeed bleeds off, so do the G loads, as, without the airspeed, your aircraft can't sustain the Gs and the turn rates generated at a fighter aircraft's optimal "corner velocity."

The pressure you exert on your body from your abdominal "crunches" eases as the Gs subside. You can manage to take mostly full but hurried breaths. If you've greyed out, your eyesight returns, and you can focus on your quarry again. Physically, it's as demanding a workout as you've ever had. And you've just started. This is part of what I did almost daily for over three years as a pilot flying Soviet MiGs as a member of the 4477th Test and Evaluation Squadron (TES).

This story is a window into that world, specifically mine. Becoming a fighter pilot, or more importantly, becoming arguably one of the best, isn't a destination as much as it is a journey. It's a journey that can't be mapped out in advance. It's full of triumphs, disappointments, twists and turns, detours, and obstacles. And if I'm being brutally honest, it isn't something obtained without a good measure of luck and good fortune. It is a matter of good fortune to sometimes be

in the right place at the right time, and fortunate to have lived through countless close calls and emergencies while flying some of the world's highest-performance fighter aircraft.

To be sure, those of us who became fighter pilots had to have some talent; some would even call it natural talent. I've known some who were incredibly gifted. The majority of us, mere mortals, had to work at it.

I mentioned it as a journey, perhaps one without a destination. In my experience, you never quite know when the journey is over. While that may be the case throughout a career, in this instance, I'll explain how I stepped foot in the squadron that once seemed so remote and out of reach that when I arrived, I still could hardly believe I was there.