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PROLOGUE

MOST CHILDREN ARE TOLD fantastic stories, which they gradually come to realize are not true. As I grew up, the fantastic stories I'd heard as a young child turned out to be true. The more I learned, the more fantastic and true the stories seemed.

They were unlike the stories other children heard. They were gruesome, improbable, and sad. I didn't repeat them because I thought no one would believe me. They were the stories of a young man falling out of the sky. Unlike Icarus, who had flown too high, he had not flown high enough. At 27,000 feet, his wing was blown off by a German *Flakbatterie*, which was firing 88-millimeter antiaircraft shells over the rail yards outside of Düsseldorf. And unlike Icarus, he's still alive as I write this.

Federico Gonzalez, my father, was a First Lieutenant near the end of World War II. He was piloting a B-17 for the Eighth Air Force, when that organization had evolved into a marvelous machine for turning young men into old memories. He was on his twenty-fifth and last mission, which he was eager to complete, because he and his buddy, David Swift, were going to sign up to fly P-51 Mustang

fighter planes, the knights of the sky. My father was like that, despite having been shot down before. He'd enlisted in the last cavalry outfit before the war. He rode horses at a gallop while emptying the clip of his .45 Model 1911-A, reloading while turning to come back and hit the targets again. When the war started, the cavalry was mechanized, and he began searching for the next best thing. He discovered airplanes. He went out for fighters, but they needed bomber pilots, and as his commanding officer told me forty-five years later, "Your dad had a flair for flying on instruments."

When his B-17 was hit on January 25, 1945, he was the lead pilot for one of those enormous air raids that the United States was conducting at the time. The Commandant of the 398th Bomb Group, Colonel Frank Hunter, had asked my father's regular copilot to stand down so that he could fly right seat in the lead plane and see the action. The bombers had taken off in great waves of smoke before dawn, formed up, and churned out over the English Channel from Nuthampstead Base.

They'd reached the target area and were on the bomb run when ground fire from the *Flakstation* cut the left wing of my father's B-17 in half just inboard of the number one engine. It was rotten luck. During the bomb run, you couldn't take evasive action or the bombs would go astray. Moreover, his was the first plane in the formation, and the hit was the very first firing. It was a mortal wound to the plane and 90 percent fatal to the crew. The blast was deafening, and my father saw immediately that there was going to be no flying out of this. He turned to his boss beside him and said, "Well, I guess this is it."

Then the plane rolled over, ignoring my father's attempts to right it, and began some sort of inverted flat spin. He couldn't tell precisely what sort, for the world had turned into a nasty soup of unfamiliar colors. He gave the ball-out orders through the intercom to the crew, unsure if the thing was even working or had been shot to pieces by the flak. All the lights, horns, and klaxons were going at once as the plane protested with a great crescendo of

whines, groans, and the howling noise coming through exploded wind screens. My father looked over at Colonel Hunter and realized that he was already dead, hit by flak or some bit of flying metal from the fractured plane.

Upside-down, spinning, he groped for the parachute beneath his seat. They'd started at 27,000 feet and he had no idea how high they were, but knew he had to get out. The flares were supposed to wear their parachutes at all times, but the salty old dogs, as my father was then at age twenty-three, kept them under their seats, because the damned things were so uncomfortable to sit on for ten hours. And anyway, the choices they gave you were, as the flares liked to say, exceedingly but-pookering, inasmuch as a pilot descending beneath a 40-foot canopy made a great target for sharpshooters. Even the farmers came out to try their hand at bagging an American flier. The women and children would be gathering, too, to collect the bounty from a shattered B-17: nylon, wool, plastic, metal of all sorts, and silk from parachutes and from the escape and evasion maps.

He couldn't reach his parachute with the stupid harness on, so he released it. The centrifugal force slammed him into the instrument panel with such force that it nearly knocked him out. It cut off his oxygen supply, which was fed through a thick rubber tube running up his chest to his face mask. Smashed against the instrument panel, losing altitude he knew not how fast, he reached up with a hand that seemed made of lead now and pulled the face mask off to get a breath of air. He saw Hunter flopped over, hanging helplessly in his harness. He took a breath. Damn. Probably still above 20,000 feet, he thought, and passed out from hypoxia.

While he was out, his aircraft broke in two amidships. On the ground, an old woman, Mrs. Peffer, saw something amazing: boys falling out of the sky. Of the ten-man crew, only my father survived, and he was severely injured, as might be anticipated in a five-mile fall.

When he awoke, the motion had stopped. He was crumpled and jammed beneath the instrument panel down by the big naked aluminum rudder pedals. He saw sky outside the shattered canopy, a placental overcast from which he'd been born. A man appeared in the broken window frame, standing on the stub of the right wing. He pointed a pistol at my father's head. He was a local man, a German peasant. The idea of killing an American pilot was not an unpopular one in those parts. My father watched with detached curiosity as the man pulled the trigger.

IN 1958, when I was ten years old, I worked in a medical school laboratory at the Houston Medical Center. My father was a biologist there. I convinced him to take me to work with him so that I could find out what he did, which he didn't seem able to explain. I'd been after him about it since I was very little, and by the time I was five, I had started to think that he might have been in the slow group at scientist school. All the other fathers could explain what they did. When I was eight, he started taking me to the lab with him after school and on weekends and letting me wash glassware and do other menial jobs. But gradually, he gave me more responsibility. I learned to make microscope slides before I learned how to dance.

One of my earliest jobs in the lab was to take the trash to the incinerator. The trash often consisted of cut-up mice and such things as come out of a biological sciences lab. So I'd lug the trash bags down the vast tiled corridor, which was dimly lit from either side by the glass vitrines in which the demonstration specimens floated in their baths of formalin. There was a human head sliced into half-inch thick slabs, neat as you please. There were many fetuses at various stages of development. And there was one lady, headless, armless, her torso cut in half from the top of her sternum to her crotch. She floated in formalin like a nightmare of Botticelli's Venus about to be born on an ocean wave.

I proceeded to the furnace and cranked the steel handle until the heavy rusted door opened to reveal a roaring orange inferno within. I was just about to toss in the trash bags when I saw a human arm sticking up out of the flames. At first I was shocked, then frightened. Then I realized that, of course, that's where Venus' arms must have gone long ago, along with a lot of other spare parts. And I thought: What the heck am I doing here? I couldn't answer the question then, but I can now: I was chasing my father, trying to get some of that righteous stuff he had. What else does a son do but try to learn from his father?

Since he was a scientist, I grew up believing in science. That meant I had, before I even knew it, already embarked on a search for some universal laws—the Rules of Life.

MY INTEREST in survival began early, when I was a child and learned what my father had done in the war. That he had lived while so many others had died seemed to me to have so much meaning. I heard the stories over and over and could never seem to plumb their mystery. His survival made me believe that he had some special, ineffable quality. I felt urgently that I ought to have it, too.

Gradually, I developed the idea that to survive, you must first be annealed in the fires of peril. Even his everyday life seemed a peril. All around him were the dead, yet he lived on, laughing. Eventually, I went looking for my own brand of peril. I deliberately took risks so that I might survive them. We lived on a bayou in southeast Texas, and from about the time I was seven, it was my private wilderness, with alligators and snapping turtles, rattlesnakes and water moccasins, and strange displaced characters. My Irish Catholic German mother had so many babies—who could keep track of them all? I pretty much ran wild.

When I was in the fourth grade, I began writing about the risks I took. By the time I was in my twenties, I was doing it as a jour-

nalist. After thirty years, I realized I'd been writing about survival all along without knowing it. But I'd always come home from a story wondering: *Do I have it now? Am I a survivor? Or is there more?*

I became a pilot. I began writing about big aviation accidents, that boundary between life and death where my father had made his bones.

With my interest in science, then, I thought there must be some research that could help me to understand the mysteries of survival I'd encountered. I found otherwise rational people doing inexplicable things to get themselves killed—against all advice, against all reason. A perfectly sensible man on a snowmobile is warned not to go up a hill because it will probably produce a fatally large avalanche. He goes up anyway and dies. A firefighter and experienced outdoorsman knows he is going in the wrong direction but persists anyway and winds up profoundly lost in the wilderness. A number of scuba divers are found dead with air in their tanks. They pulled the regulators from their mouths and died. If you had magically transported them to the surface a moment before they removed their regulators and asked them about their impulse, they would have told you that it made no sense: The regulator was necessary for their survival. If you were able to ask them afterward, they would tell you that they didn't intend to take it out. They intended to live.

After reading hundreds of accident reports and writing scores of articles, I began to wonder if there wasn't some mysterious force hidden within us that produces such mad behavior. Most people find it hard to believe that reason doesn't control our actions. We believe in free will and rational behavior. The difficulty with those assumptions comes when we see rational people doing irrational things.

Those who survive are just as baffling. I knew, for example, that an experienced hunter might perish while lost in the woods for a single night, whereas a four-year-old might survive. When five

people are set adrift at sea and only two come back, what makes the difference? Who survived Nazi prison camps? Why did Scott's crew perish in Antarctica while, against all odds, Shackleton's crew survived and even thrived in the same circumstances? Why was a seventeen-year-old girl able to walk out of the Peruvian jungle, while the adults who were lost with her sat down and died? It was maddening to find survival so unpredictable, because after all, science seeks predictability. But as I raked the ashes of catastrophe, I began to see the outlines of an explanation.

Most of what I discovered through the years of research and reporting was not new. I acquainted myself with recent research on the way the brain functions, but also with fundamental principles that have been around for centuries—in some cases, thousands of years—as well as with the psychology of risk taking and survival. The principles apply to wilderness survival, but they also apply to any stressful, demanding situation, such as getting through a divorce, losing a job, surviving illness, recovering from an injury, or running a business in a rapidly changing world.

It's easy to imagine that wilderness survival would involve equipment, training, and experience. It turns out that, at the moment of truth, those might be good things to have but they aren't decisive. Those of us who go into the wilderness or seek our thrills in contact with the forces of nature soon learn, in fact, that experience, training, and modern equipment can betray you. The maddening thing for someone with a Western scientific turn of mind is that it's not what's in your pack that separates the quick from the dead. It's not even what's in your mind. Corny as it sounds, it's what's in your heart.

"LOOK OUT,
HERE COMES
RAY CHARLES"

IF YOU COULD see adrenaline, then you'd see a great green greasy river of it oozing off the beach at San Diego tonight. You'd see it flowing one hundred miles out toward the stern of the boat—that's what the pilots call it, a boat, despite the fact that it displaces 95,000 tons of water, has a minimum of six thousand people living on board at all times, and is as long as the Empire State Building is tall.

I'm standing with half a dozen sweaty guys on the ISO platform, which at 8 by 8 feet seems very crowded just now. We're steaming into the prevailing wind at "around 30 knots" (the exact speed being classified), and I'm trying not to be jostled toward the 70-foot gulp down to the water. The steel blade of this boat has ripped up the belly of the sea, and I watch for a moment as its curling intestines glisten with moonlight and roll away behind us.

On my left is Mike Yankovich, the landing signal officer (LSO), in his goggles and cranial, his gaze fixed intently about 15 degrees above the horizon. He's got a heavy-looking telephone handset pressed to his left ear, pickle switch held high in his right hand.

It's called the pickle switch because it looks like a large Bakelite kosher pickle with a silver ring enclosing a black trigger. Yankevitch has his index finger and thumb poised to press the cut light or wave-off light switches in case he needs to tell the pilot to add power or not to land. The men inadvertently judge me toward the edge in their enthusiasm to get a look at the F-18 Hornet that's bearing down on us at 150 miles an hour.

A mile out, it doesn't look like much yet, just a black dart, a darker darkness in a sky full of buzz-bomb stars. I know those monster GE engines are burning kerosene faster than a V-2 rocket, but I can't hear them yet. There's just that silent insect shape, unfolding like an origami airplane, a black bat in the bat black night.

I look at the faces around me. Each man has a lump in his cheek from the Looisje Roll Pops a Marine passed out a few minutes ago. Their white eyes stare intently at the blossoming shape that's chewing up the stars. But they're not staring the way I'm staring. They're different. They're like kids waiting their turn on the roller coaster. And as the plane, 56 feet long, 40 feet wide, heads straight for us, I'm thinking: *He's all going to die.*

The place where that huge machine is dashed to land stretches away only a few feet from us. I can see the shiny white foul line shining against the black nonskid deck ("foul" meaning, you step over it, you die). We are standing beside the arrival end of a very short runway built onto the deck of the boat. It stretches away toward the bow at an angle to the keel. The arresting cables, gray and greasy, slither away toward the starboard side. The theory is that the pilot will come in just right and the hook dangling from his tail will catch one of the four wires, which will stop him.

The rest of the deck is a chaos of action as planes refuel and taxi and launch, the A-6s and F-18s and the sexy old Tomcats (last of the stick-and-rudder airplanes), lumbering like slow beasts to the motions of the yellowshirts and the grapes (purple shirts) in their goggles and cramials, who rotate their gaunter-gloved hands

in cryptic signals as the airplanes taxi and queue up for the cat. In the wild deck lights, with the cacophonous metallic music, it has the air of an atavistic ritual with mighty flaring totems.

If I turn around, I can just see the shooter peering out of his bathyscaph bubble in the deck plates in an eerie sulphur light. There goes another one now—*ka-chunk-whoosh!*—in a sheet storm of metal particles and this amazing hissing scream like someone's tearing a hole in hell. Then two angry afterburner eyes seem to hang motionless in the darkness, as the bat shape shimmies up a pigtail of smoke and is gone.

I hear Yankevitch through the headphones inside my cranial and turn back to the F-18 bearing down on us. He's speaking over the telephone handset.

The pilot's quaking voice responds, "Three-one-four Hornet b-b-ball, three-point-two."

"Roger ball, wind twenty knots axial."

He's at a quarter mile, a child in a glass bubble, alone in the night, with the dying yellow stars of deck lights below, the cold wind whittling curls of cloud off the cheery moon, the whistling thunder at his back, as he hurtles toward the heaving sea, straddling two gigantic flamechowers.

At last we feel the concussion through our feet. The two wires, that great fat cable, is turned into a singing liquid instrument by the shock. Ravi Shankar meets the Terminator. It catches the plane like a fish, playing it our 200 feet. The plane shudders all over, as the pilot (Dei! Kio by name—I had seen it painted on his cockpit rail) hangs in his harness in total G; shock for a moment before he can reach up with a hand that seems to weigh 40 pounds and pull the throttle back to idle. Now the yellowshirts wave him toward the huffer cart where the grapes will refuel him.

So that he can go up and do it again.

DEL RIO'S performance was a perfect act of survival. There he was, safe on the deck of a big boat. He climbed into a machine full of explosive fuel and had himself shot off into the night with a nuclear steam cat. Then, using only his skill and his superior emotional control, he brought himself back by the remarkable performance of catching a wire that he could not see with a hook that he could not see, using cues that made no natural sense, while going 150 miles an hour in the black-ass night.

Most of us will never get into quite the same jam as Del Rio, but every survival situation is the same in its essence, and so there are lessons to be learned tonight. The first lesson is to remain calm, not to panic. Because emotions are called "hot cognitions," this is known as "being cool." "Cool" as a slang expression goes back to the 1800s, but its contemporary sense originated with African American jazz musicians in the 1940s. Jazz was "cool" compared with the hot, emotional bebop it had begun to overshadow. Some researchers suggest that African American jazz musicians refused to let themselves get hot (get angry) in the face of racism. Instead, they remained outwardly calm and channeled emotion into music as a survival strategy in a hostile environment. They turned fear and anger into focus, and "focus" is just a metaphorical way of saying that they were able to concentrate their attention on the matter at hand.

I'd been searching all my life for that state of cool I'd seen my father exhibit, because it had brought him home in one piece. (Well, a lot of pieces, actually, but they'd knitted back together, more or less, by the time I was born.)

Only 10 to 20 percent of people can stay calm and think in the midst of a survival emergency. They are the ones who can perceive their situation clearly; they can plan and take correct action, all of which are key elements of survival. Confronted with a changing environment, they rapidly adapt. Those are the kind of pilots who

are supposed to be flying off the deck of the *Carl Vinson* tonight, (getting back onto the deck is the final exam.

I'D SEEN Del Rio earlier when he came in a bit late for the 1800 briefing in Ready Nine, a steel room where we were all slouched in comfortable maroon Naugahyde chairs, trying to look like we weren't scared out of our wits. Every few minutes the catapult shook the whole boat—*ka-chunk-whoosh!*—as if we were taking Exocet missile fire. Nobody even flinched. Yankovich had just begun the briefing for these, his students, when Del Rio walked in, having obviously gotten up from a nap. The side of his face still bore the imprint of the pillow.

"Hey, got a little rack burn there," Yankovich remarked. "Practicing for the huge run?" They call it the huge run because when you're trying to sleep in those tiny racks and the boat is churning along through the waves and planes are exploding off the deck over your head, it feels like the Winter Olympics meets World War III.

Yankovich, a square-jawed, athletic-looking youth with brown hair, green eyes, and a big grin, knew he could ease Del Rio, because in such a place of hypervigilance as this, where nothing, no matter how subtle, went unnoticed, everyone knew, without even having to stop and consider it, that to be able to drop off to sleep two hours before your first night carrier landing was to display a righteous and masterful state of coolness.

I'd gone to stay on the *Carl Vinson* as part of my lifelong fascination with that boundary region between life and death, that place where, to stay alive, you have to remain calm and alert. The reason it's a boundary region is that not everyone can do it. Some fail. Some die.

Shortly before I arrived, one of the pilots was on final, heading toward the deck. He let his descent rate get away from him and got low and slow, and well . . . some would use the term "panic," but

that doesn't tell us much. There were plenty of sensory signals screaming at him that he'd better get on the power. (His hand was already on the throttle. All he had to do was move it a few inches.) The LSO had hit the pickle switch, activating those glaring red lights that mean *You are not cleared to land!* The hall, an obvious light in a big Fresnel lens, was right in front of him, telling him he was low. And, of course, the LSO was also yelling in his ear. Somehow none of it got through.

The impact with the tail of the boat cut the plane in two, leaving his WSO (the guy in the rear seat) squashed like a bug on a windshield and sending the pilot skittering across the deck in a shower of sparks, still strapped into his Martin-Baker ejection seat. The pilot lived, and although I'm not sure he got to try that trick again, I'm reasonably certain that he got to have lunch with the captain.

But the most mystifying thing was how he could have kept on coming toward the boat in the face of so much information telling him not to. That was the real boundary I was after: What was he thinking? He was smart, well prepared, and highly trained. Something powerful had blocked it all, and something had forced him to reach for the deck despite all the information he had that it was a bad idea. It reminded me of a lot of accidents in the wilderness and in risky outdoor sports (river running, for example), where people ignore the obvious and do the inexplicable. That was the mystery I'd been trying to unravel.

WHAT THE PILOTS on the *Carl Frison* know is this: Shit does just happen sometimes, as the bumper sticker says. There are things you can't control, so you'd better know how you're going to react to them. Yankovich explained it to me: "The launch bar breaks. The shuttle goes superersonic and hits the water brake. The water brake turns instantly to steam from all that energy and explodes. Deck plates come flying up, and you fly right through

the deck plates as you take off. So you eject and land on the deck." That's what's known in fighter pilot parlance as "Not your day." But there are also the things you can control, and you'd better be controlling them all the time.

So this is how Yankovich began the 1800 briefing in Ready Nine on the *Carl Frison* that night: "It *will* scare the living shit out of you. If you taxi to the cat and you don't have a knot in your stomach, there's something wrong. It's like walking into a closet. You're going to go right off into a black hole. You're sitting there sucking oxygen, you'd better have a plan. Because if you don't, you're screwed, and then you're fucked."

We'd all seen the two helicopters orbiting out there (in case someone went into the water) and the big yellow crane to pick up planes that got stuck halfway over the side. And those were for the lucky guys. The first rule is: *Face reality.* Good survivors aren't immune to fear. They know what's happening, and it does "scare the living shit out of" them. It's all a question of what you do next. The briefing was not about imparting technical knowledge. If those guys didn't know that stuff already, they wouldn't be sitting here with their names stenciled on the backs of their chairs (nicknames, actually: Hairball, Eel, Cracker, Sawdawg, Stubby). Part of the briefing was to remind me of stuff they knew already, the way a hymn does in church, but nothing too complex, because in what psychologists would call their "high state of arousal," nothing too complex was going to get through anyway.

No, the briefing was more about how Yankovich said things, and how he said them was with a dark, dark humor. It was a little ritual, in which everyone was reminded how to look death in the face and still come up with a wry smile. In a true survival situation, you are by definition looking death in the face, and if you can't find something droll and even something wondrous and inspiring in it, you are already in a world of hurt.

Al Siebert, a psychologist and author of *The Survivor's Personality*, writes that survivors "laugh at threats . . . playing and laugh-

ing go together. Playing keeps the person in contact with what is happening around [him]." To deal with reality you must first recognize it as such.

In keeping with that view, the pilots on the *Carl Vinson* rarely talked earnestly about the risk this close to flight time. They joked about it instead. Because if you let yourself get too serious, you will get too scared, and once that devil is out of the bottle, you're on a runaway horse. Fear is good. Too much fear is not.

Yankovich continued his briefing: "The steam curtain comes up and you lose the yellowshirt for a minute. You'll be hero quick if you have the fold handle in the wrong position, so check that. Spread 'em, five potatoes, and you're all set. Okay, wipeout, the engines come up, see that they match. The safety guys jump up and make sure the beer cans are down. Tension signal. Hands you off to the shooter, and then: head back and four (s). Grab the towel rack. Touch the ejection seat handle and make sure you're not sitting on it. If you lose an engine on the cat, stroke the blowers, twelve-to-fourteen-not-to-exceed-sixteen. Rad Al: You see you're descending, the wisest man will grab the handle."

What the hell did he just say . . . ?

The first time I heard a briefing like that, I was lost. But that's part of the point: only those who get it get it. A nod is as good as a wink to a blind horse. Just for the record, what Yankovich said was that it would be a very bad idea to try to depart with your wings folded up, as they are for taxiing around on the deck. It takes five seconds for them to lock down into place after you move the handle, so you count off as follows: one-potato, two-potato, three-potato . . . Then, after all the technical bits of the launch process have been checked (the wipeout with the stick to make sure your controls are moving freely, checking to see that the engines are both producing the same amount of power, and so on), you're going to hold onto a metal bar known as the towel rack (because that's what it looks like) to keep yourself from being slammed back by the force of the catapult. And just in case that isn't complicated enough, remember

that one of your engines could quit, in which case you have to put the other engine into afterburner (known as the blower because it blows) to get enough power to keep going up (but don't overspeed it, those engines are expensive). And since nothing ever works out as planned, check the radar altimeter, which will tell you if you're sinking, in which case wisdom would dictate that you depart the aircraft with some haste.

Of course, it would be unthinkable to talk like that because, for one thing, anybody could understand you. For another, it would be terrifying.

And after all that, there is still the little matter of landing the aircraft, because, as my father used to say, takeoff is optional, but landing is mandatory. Yankovich explained the most salient points: "You're at a quarter mile and someone asks you who your mother is: you *don't know*. That's how focused you are. Okay, call the ball. Now it's a knife fight in a phone booth. And remember: full power in the wire. Your IQ rolls back to that of an ape."

It sounds as if he's being a smart-ass (he is), but deep lessons also are there to be teased out like some obscure Talmudic script. Lessons about survival, about what you need to know and what you don't need to know. About the surface of the brain and its deep recesses. About what you know that you don't know you know and about what you don't know that you'd better not think you know.

Call it an ape, call it a horse, as Plato did. Plato understood that emotions could trump reason and that to succeed we have to use the reins of reason on the horse of emotion. That turns out to be remarkably close to what modern research has begun to show us, and it works both ways: The intellect without the emotions is like the jockey without the horse.

My father didn't fly after the war, and he hardly ever talked about it as such, but when he did, I listened. He used to say, "When you walk across the ramp to your airplane, you lose half your IQ." I always wondered what he meant, but instinctively I felt it. When I was a new pilot, I'd get so excited before a flight that I'd get run-

