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ROBIN A. WHITE

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Robin A. White

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FOREWORD

THE PENTAGON ACCIDENTALLY RELEASED A BUDGET document in February 1985 that revealed the existence of an ultrasecret "black" program, code-named Aurora. This \$2.3 billion project was connected with neither the F117A stealth fighter nor the B-2 stealth bomber. When pressed for an explanation, Defense Department officials refused to discuss Project Aurora, citing national security concerns. Nothing more was heard for three years.

Then, in January 1988, The New York Times reported that work had begun on a replacement for the SR-71 reconnaissance aircraft. The Blackbird, designed in the late fifties, relied on its astonishing speed and operating altitude to elude enemy interception. But by the late eighties, its 100,000-foot, Mach 3+ performance was no longer enough to protect it against an array of increasingly capable threats. More important, gathering aerial intelligence was useful only as long as the watched was unaware of the watcher.

A revolution in low observables technology, stealth, had taken place in the eighties. The Blackbird's replacement could be—would have to be—both fast and invisible.

Then, in a surprise announcement, the SR-71 fleet was retired from operational assignment in March 1990. The Mach 5 stealth design intended as its replacement is now thought to be the elusive Aurora.

Some locations and flight procedures in this book have been changed from those found in the real world in the interest of telling a good yarn. It's a work of fiction. Aurora, on the other hand, is real.

More praise for Robin A. White and The Flight from Winter's Shadow

"The flying sequences soar. The action in the skies as a small plane tries to evade a great new weapon [is] both frightening and exhilarating. . . . White is a fine writer, blending his own flying experience with an active imagination. . . . It is his action sequences that will have readers cheering."

Ocala Star-Banner

"Impressive . . . Dramatic cockpit action and excellent high-country hide-and-seek in the Sierra Nevadas . . . White's conclusion will leave readers with a chill."

Publishers Weekly

"Fast and furious . . . Superior."

The Barkham Reviews

This book is dedicated to Lt. Col. Robert Mittelman. His dreams of flight were strong enough to jump a generation.

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ON THE POINT OF THE LANCE

A SOFT CHIME SOUNDED IN HARRY HILL'S HELMET. THE pilot looked up in time to see an orange dot blossom on his head-up display (HUD). It looked like an oddly colored star against the night sky, except that it was growing brighter as he watched. Hill keyed the intercom. "What do you have, Frank?"

"Target on passive," said Franklin Thatcher, Hill's reconnaissance systems officer, or rizzo. Seated behind Hill in a cramped and windowless cubicle, Thatcher nevertheless had a God's-eye view of the world through his sensors and the data beamed down by Lacrosse, a radarimaging satellite high overhead. "On the nose and level. Range eighty."

"Rog," Hill replied. He caressed the pressuresensitive sidestick with his gloved right hand. A second touch leveled the wings once more. *Pure silk*, he thought. This was nothing like horsing the old Blackbird around the sky. He and Thatcher had perhaps a thousand hours in the SR-71. The Sled was pure Lockheed: gorgeous on the outside and a beast in every other way. But this one was even faster and better yet; its computer-driven controls made it a pleasure to fly.

"Range sixty."

Hill had to think far ahead of his aircraft's black nose.

After all, at Mach 5, sixty miles dropped to zero at the rate of one mile every second.

"Going to be close," said Thatcher. "Range twenty."

Hill swung his head and watched as the target streaked by off his wingtip. "Weather balloon." It was, Hill knew, about the only thing that could threaten Norton Aerodyne's experimental jet. No other aircraft flew so high or so fast. The pilots called her Excalibur. To the men on the ground she was Project Aurora, a stealth program so black it made the B-2 people seem chatty. To the rest of the world she simply didn't exist.

"Nothing on it from the bird," said Thatcher as his own passive infrared sensors tracked the balloon. In a matter of seconds, it had disappeared far astern. The radar satellite was supposed to warn them of anything in their path. The exigencies of stealth demanded that Excalibur's own radar remain quiet.

What else is it going to miss? Hill wondered as he took a sip of cool water from the tube in his helmet. Relax. He patted the black glareshield. He knew what he would trust and what he would not. Above all else, Harry Hill trusted this airplane. He believed that if an airplane looked right, it would fly right. And Excalibur looked very right indeed.

She had the purposeful profile of an obsidian arrow-head; one long aerodynamic sculpture from needle nose to her four blast-furnace exhausts. The smooth contours were no accident. They served to "spike" the hypersonic airflow into the gaping inlets of her ramjet engines. But even more vital, her wing/body blending masked her radar signature. While Excalibur was over a hundred feet long and nearly as wide, she had the radar cross section of a medium-sized bird.

"Range to the tank-up is four ninety," said Thatcher. They had a date with a tanker orbiting between Hawaii

and California, and it was not one they could afford to miss. The special-mission KC-135Q tanker carried fifty thousand pounds of cryogenic hydrogen fuel. Excalibur's

lifeblood. She burned it, she used it to mask her thermal presence, and she even manufactured liquid air from it to keep the fires lit twenty-five miles high.

Four powerful engines drove her at her blistering pace. Two General Electric turbines served to bring the stealth jet to the velocity where the supersonic ramjets could begin their magic. And magic it was, for the faster they drove her, the faster she wanted to run. Harry Hill had discovered that just this night, hadn't he?

But Excalibur was also designed to do more than run fast and hide. Two internal bays served to accommodate a wide mix of stores, from reconnaissance gear to air-launched cruise missiles to rotary cannons. Norton Aerodyne knew that in an age of shrinking budgets, a single-mission aircraft was too expensive. They also knew that Excalibur's \$300-million price tag worked out to just under \$400 an ounce. Indeed, there were many at the secret base at Tonopah who feared the symbol on her black tail, a golden upthrust sword, was all too apt.

Hill glanced at the altitude stick that ran up one side of the HUD and checked their heading once again. Any second now... Eastbound, twenty-five miles above the Pacific Ocean, the stars burned down with a hard brilliance more familiar to astronauts than mere pilots of aircraft. He turned down the brightness on the HUD and peered out over the needle nose. A single pure line of indigo flashed across the eastern horizon. Speeded up like a film running wild, the dark blue flared into the brilliant crimson of a high-altitude sunrise.

Thatcher keyed his intercom again. "Tanker is turning inbound on the racetrack, range three forty." The back-seater sounded worried. Pilots always cut things too close. Thatcher knew that without refueling, they would never make it back to dry land, much less accomplish the final mission of today's test run.

"Okay, Frank. Time to throw out the anchor." Hill pulled back the throttles on the two ramjets with his left hand, thumbing the safety covers off the two similar con-

trols that governed the two General Electric turbines. As their speed bled off, the roar of hypersonic air flowing through the ramjet's combustion chamber fell away to a whisper.

It was exactly like stepping on the brakes. Hill was thrown forward against his restraint harness as they slowed and began the long descent to the waiting tanker.

An annunciator flashed on Hill's engine-control CRT screen. Their airspeed fell through critical Mach. It was time to put the ramjets to sleep and wake up the turbines. He pushed the two GEs around a detent into autolight. Far behind, deep within the gaping air inlets, a flushmounted scoop began to rise and bite into the slipstream.

Robbing air from the ramjets to spool up the turbines, the scoops sent a shiver of turbulence through the titanium-alumide airframe. "Duct rumble," said Hill. He knew Thatcher was on edge.

"Spooky."

They were still traveling at better than Mach 1 when they swept over the tanker at an altitude of 46,000 feet. Hill banked up on a wing, secured the ramjets, and pulled enough G to slow them even more. They passed through the Mach with a slight aerodynamic shiver and fell in behind the plodding cow of a tanker. The yellow fuel-caution light came on just as the strobe on the KC-135Q's refueling boom switched on.

The connection was made with a quick, almost sexual shudder. In a moment, liquid hydrogen was coursing through the fat umbilical and into Hill's hungry tanks. In under four minutes, the boom disconnected in a white puff of boiling cryogenic fuel. The tanker pulled up and banked left, catching the first glint of the coming sunrise. Hill dived away to the right. Not a single radio call had occurred during the entire procedure. *Perfect*.

They were fat with fuel once again. Hill advanced the throttles on the two GEs as they dropped lower and lower into the thickening atmosphere. Inside his pressure suit, Hill had no direct awareness of the air beyond the cock-

pit, but it seemed strangely dense and humid all the same. The very top of the sun's disk burst over the far horizon.

"Ready?" he asked Thatcher.

"It's your quarter," Thatcher replied. "Got some low weather out ahead."

"I see it." A dark gray line of cloud shadowed the distant earth ahead. Hill liked it up here, away from those clouds and the ground they hid. But this test flight demanded otherwise.

As they dropped toward the altitudes frequented by commercial jets, Hill looked out through the triangular panes of his windshield, segmenting the sky to either side of the nose in a deliberate search pattern. That radar satellite had missed a balloon once this morning. There was no telling what else it might overlook.

"Keep your eyeballs out, Hill," Thatcher said as though reading his mind. "I got a funny feeling about this run."

Hill twisted his nerves another octave tighter. Enough hours cramped together in high-performance aircraft and Hill took the subliminals as seriously as he took his instrument panel.

Still, he knew why Thatcher was on edge this morning. "Come on, Frank," said Hill as he thumped his glareshield with a gloved hand, "this buggy doesn't care how low we fly."

"I do. And mark: one hundred miles to coast-in," he said as his inertial system flashed. "Feet dry in eight minutes."

"Roger." The California coastline was invisible under the dense clouds of the late-season storm. But beyond them, across the coastal mountains, Hill saw the sudden ramparts of the high Sierra Nevada blocking them like a saw-toothed dam. He checked his altitude. They were already through 18,000 feet. A hint of the low-level turbulence reached up to their altitude, rocking the knifethin wings, making the stability-augmentation system (stab-aug) work hard. What's it like down low in HUM-

MER? he wondered. HUMMER 6 was a low-altituderestricted airspace surrounded on all sides by sheer mountains. It was their destination. A mock-up of a Soviet mobile missile had been erected. All they had to do was find it and destroy it. And survive.

A faint vibration began out in the right wing. The long, black forebody amplified the shudder like a diving board. Hill pulled the two GEs out of afterburner and swept the CRTs for a sign of trouble.

"Everything copacetic?" Thatcher asked.

"Peachy." Hill was used to flying on the very edge of the envelope. At 150,000 feet you had time to react, to fix things, or if nothing worked, to punch out. But Hill would fly the HUMMER test course at fifty feet. Worse, he would be flying it blindfolded.

A stealth aircraft must remain silent to survive. No active terrain-following radar can be used to provide clearance to the hard and unforgiving rocks. The designers back at Norton Aerodyne knew this and so had provided a high-density optical memory of the terrain Excalibur would cover in its low-altitude run. Updating its position on the stored discs by signals from the radarimaging satellite, it could remain utterly silent as it streaked through the mountains. It was, Hill knew, a very nice theory.

Stay loose, he thought. Stay loose and smooth. He pressed the intercom button again. "Come on, Thatch, you know you're goddamned lucky. You could still be riding standby on the Shuttle."

"Remind me after HUMMER." Thatcher's low, gravelly voice was untouched by the up-hollow drawl affected by many of the other pilots in the program. He didn't press the distinction of being the only black man at Tonopah riding experimental jets for a living. A gust sent them up on a wingtip as they dropped lower. Thatcher snugged his shoulder straps tighter. "Over the coast," he said. "We're feet dry."

"You know this deal's a lot sweeter than NASA."

"Keep talking."

A lot better, thought the pilot. He and Thatcher and the seventy other members of the secret flight-evaluations effort lived the jet jock's dream, yet their masters wore the uniform of the Ivy League, not the Air Force. Flying missions from an out-of-the-way corner of the vast Nellis complex in the Nevada outback, Norton Aerodyne's Flight Test Group was created around a nucleus of highly qualified pilots, so-called "sheep-dipped" Air Force, Navy, and Marine Corps men temporarily removed from all military records. Their base at Tonopah, known as the Ranch, had been carved out of an unused Department of Energy nuclear-waste storage cavern.

The underground facility was, in almost every way that mattered, a buried, landlocked aircraft carrier. Only a tiny cluster of metal shacks appeared next to the new 14,000-foot runway, and these were simple window dressing, serving to hide the massive elevator shafts from the curious.

Hill watched the inertial navigation system roll down as they drew nearer to HUMMER at the rate of one nautical mile every six and a quarter seconds.

"Twenty seconds to the turn."

Hill nodded. "Got it." As they dropped lower, nearer to the heavy billows of storm clouds, Hill swept the skies to be sure that no other aircraft had popped up unannounced. They were invisible to air traffic control radars. That was both good and bad. No one would know of the test mission, but neither would ATC avoid sending a 747 in his direction. The high-flying radar satellite, Hill's passive sensors, and his Mark 1 eyeball would have to serve. A faint whine announced the computer's decision to extend Excalibur's low-speed canard wings. The stub controls slipped out from their pockets beneath the cockpit like two switchblades.

Thatcher exhaled and cinched his harness tighter as they dropped through seven thousand feet. "Coming up on the IP in five, four, three, two, one, and mark!"

Hill swung Excalibur onto the new heading. He could hear the backseater's breath beginning to come faster now as they neared the test range. The right wing suddenly lurched, then dropped as a heavy gust struck the airframe.

"Stand by for mode shift." Thatcher watched his distance display plummet. "Stand by. Mode shift in four, three, two, one, and mark! Stepping into attack." The word attack came up on Hill's HUD display as Thatcher selected one of the three master modes from Excalibur's flight computer.

Hill banked farther east. The high Sierra Nevada slid into view directly off the nose. For the first time since departing Tonopah that morning, Hill keyed his transmit button on the ARC-199, a frequency-hopping burst radio that compressed and scrambled data while jumping from one frequency to another. "Searchlight, Searchlight, Shadow Three is IP and in the turn."

"Shadow Three, Searchlight, copy IP and you are cleared in hot," said the clear, flat voice from faraway Tonopah.

Hill laid his hands back on the controls for one last feel, one final check. "Okay, Frank. Flight checks are complete. Perform your final nav systems check."

"Bit checks complete," said Thatcher. "I just hope they knew what they were doing when they put this thing together."

Hill slid the throttle levers forward. The GE turbofans gave a more throaty moan as they spooled up. Hill's nerves, despite his surface calm, were spring tight. On his HUD, a snaking flight path pointed straight at the mountains, necking down to the vanishing point at the target. "Nav data looks good," said Hill. He breathed in one more deep suck of pure oxygen. "Okay, Frank. Let's engage."

"You got it," said Thatcher.

A three-dimensional projection of the rolling ground far below flashed onto Hill's HUD, a blinking command box superimposed in the center. That box was HUM-MER 6 Military Operations Area. Hill toggled the intercom record switch back to life and keyed the stick button. "ITB four four. Run Charlie," he said, his voice low and calm for effect. ITB stood for Integrated Test Block. The Charlie denomination meant that the attack run was the third discrete leg of the morning. "Run checks complete, handoff merge to AUTO at ten twenty Zulu." Then he pressed the transmit button. "Searchlight, Searchlight, Shadow Three has terrain autolock, HUMMER inbound."

"Roger, Three. You are go for Charlie." As the word from Tonopah came through the headset, Hill watched the autothrottles sweep full forward as Excalibur steered itself into a powered dive. Two nearly simultaneous booms echoed forward as the twin GEs stabilized at 104 percent. Ahead, the command box brackets on the HUD framed the entry to HUMMER 6. Hill pulled his own shoulder straps tighter and pressed the intercom button. "All set?" he asked.

"It's your quarter," Thatcher replied.

Hill chuckled. "Hang on," he said as they nosed straight for the Sierra Nevada. "It's time for Mr. Toad's Wild Ride."

The old physicist puffed on his pipe. "Well?" asked Dr. Aaron Templeman. His suit was baggy, his skin pale. But Templeman's eyes were keen and suspicious as a headmaster's as he regarded Arthur Dean Bridger, the current chairman of the Solarium Committee.

Bridger checked his watch. "Be patient, Aaron. They should be just about there," he said. In his rumpled tweed jacket and polished oxfords, Arthur Dean Bridger looked like the chairman of the English department at a second-rank college, and not at all like the head of a nuclear-strike planning committee. Bridger glanced over at Radway, the Norton Aerodyne representative. He

couldn't help thinking salesman even as he smiled. "Well, Matthew. The last knot left to tie. Excited?"

Radway nodded. "Everyone on the team's holding their breath and crossing their fingers and toes."

"I imagine that's true," Bridger agreed. He knew that Norton Aerodyne needed this contract. William Enstrom, Norton's reclusive CEO, had bet the company on it.

"The world is full of risks," said Templeman, "we need to go find new ones?" He exhaled a derisive puff of smoke. At seventy-three, he was the last Manhattan Project survivor on the Committee. He had once been an ardent defender of strategic nuclear weapons. More than that, a creator: he had been responsible for a small part of the original Fat Man design. But now he mistrusted such weapons. And the men who built and sold them.

"Please. Not again, Dr. Templeman," said Bridger. He had unwillingly inherited the old fossil just as other Solarium chairmen had for decades. "This is a necessary project milestone for Aurora. Let's see what develops."

"Why?" asked Templeman. He pointed the worn stem of his pipe at Bridger. "What are the issues in question this morning? What possible gains outweigh the clear risks? Why are we risking anything at all? We identified a need for a reconnaissance platform. Not some sort of bomber. Intelligence is stabilizing. A first-strike weapon is something very different." He relit the pipe with his old Zippo. A cloud of blue smoke rose around him. "Very different indeed."

"Sir," said the man from Norton Aerodyne, "our company has given you Project Aurora, the finest recon bird ever built. But if we can multitask it, why not?"

Bridger nodded. "Besides, nobody on the Committee is speaking in terms of first strike. It's simply a matter of efficient use of dollars."

"Indeed," said Templeman. "I've been here a great deal longer than either of you two gentlemen, and you'd