

CLAYTON C. ANDERSON

THE ORDINARY SPACEMAN

From Boyhood Dreams to Astronaut

Foreword by NEVADA BARR



“Learn about the excitement, the awe, the thrills, the suspense, and the experiences unique to the astronauts in the shuttle program. Clay blends his personal stories with his professional challenges. I am especially impressed with his persistence in applying for the astronaut program: Clay’s experience will be motivation for anyone to never give up!”

—Eileen Collins, retired NASA astronaut and USAF colonel and the first female pilot and commander of a space shuttle

“Clay’s great example shows that a small-town kid can achieve big dreams. I can’t think of anything bigger than being an astronaut. This book leaves nothing out of Clay’s journey to becoming one of the lucky and blessed few who get to experience God’s handiwork from the darkness of space. It’s funny, entertaining, and well worth the read.”

—Dan Whitney (Larry the Cable Guy), stand-up comedian and actor

“This is *The Right Stuff* for a new generation. Clayton Anderson is an astronaut for the rest of us; a regular guy from a small Midwestern town who set the bar high for himself and never lost sight of a lofty goal—even when most of us would have given up. As it turns out, it is not so much about having ‘the right stuff’ as it is about never doubting yourself and never settling for less.”

—Miles O’Brien, award-winning science journalist for PBS, the National Science Foundation, and CNN

“Clay has truly had an exciting life full of adventure and challenges. He tackles each moment in life with ambition and optimism. His life stories can inspire each of us to reach further, dig deeper, and fly higher. From his days growing up in Nebraska and his family life to his time on the International Space Station, Clay proves that life is what you make of it.”

—Curt Tomasevicz, Olympic gold medalist and fellow Nebraskan

The Ordinary Spaceman

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From Boyhood Dreams to Astronaut

Clayton C. Anderson

Foreword by Nevada Barr

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The publisher does not have any control over and does not assume any responsibility for author or third-party websites or their content.

To Dex, a true and honest leader of men and women, whose time both on and off this Earth was far too short.

To all my crewmates:

C.J., Bru, Swany, Pat, Danny, and J.R. of STS-117

Fyodor, Oleg, and Suni of Expedition 15

Scott, Scorch, Rick, Davyd, T.C., Babs, and B. Alvin of STS-118

Yuri, Peggy, and Sheikh of Expedition 16

Pambo, Zambo, Flambo, Longbow, Robo, Rocky, and Bo-ichi of STS-120

Dex, Mash, Rick, Dottie (Cheese!), Naoko, and Stephanie of STS-131

You have shared your lives on terra firma and in outer space with me, and I am forever grateful to you for allowing me that wonderful opportunity.

To my Group 17 “Penguin” classmates of 1998: while I may not have flown with all of you, I was always honored to be one of you.

For my mother and father and my brother and sister, who taught me that giving up is never an option . . .

. . . and for my wife, son, and daughter, who taught me why.

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by Nevada Barr

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Foreword

Nevada Barr

I have known Clay Anderson for many years. We met at a National Education Association conference shortly after his daughter was born. He sang at my wedding and called me from outer space so I could yell “Love you!” into the black reaches of the universe. Since meeting Clay, I have met several presidents and first ladies and a handful of celebrities, but he remains the only astronaut I know. They are rare, these individuals who orbit around our world, and Clay is everything one could want in a hero: tall, well built, well married, honest, forthright, and, ironically for an astronaut, down-to-earth.

In reading Clay’s *The Ordinary Spaceman* you get no sense of separation between the reader and the event; it is as if your best friend is taking you with him under the sea, to Russia, freezing and floating and trying to find a way to eat and pee without gravity. The trip is personal and fun. Reading this book is the next best thing to becoming an astronaut yourself. Maybe the best thing, since you can share all the wild adventures Clay had without ever having to spend hours curled up like a fetus getting fitted for a space suit or slogging through a Russian winter to prove you have the Right Stuff.

Prepare to launch.

Acknowledgments

Literally thousands of individuals, and surely an equal number of organizations, have been responsible, in part, for the stories contained in this book. From the time I entered elementary school until I hung up my astronaut boots, I have felt the impact of caring people doing their damndest to help me succeed. While it is imprudent for me to attempt to thank each one individually, there are some who do deserve a special shout-out of thanks.

First and foremost are my wife and family. Susan, Cole, and Sutton, you bring me great joy, and I thank you for accompanying me on this glorious journey. I love you with all my heart and soul.

Notable is my longtime friend and referee colleague John Milstead. A steadfast supplier of daily morale-boosting emails while I lived in space, John provided guidance in the development of the book's introduction. I thank him for his help, his wit, and his friendship.

While I served as an Aquarius aquanaut, the National Oceanic and Atmospheric Administration, the University of North Carolina Wilmington, and the Key Largo Office of the National Undersea Research Center stood out. Owners and operators of the habitat, with their high level of training competency, professionalism, and adherence to safety at all costs, gave us the confidence we needed to succeed. Thanks to Kea, Birnsey, Coop, Otter, Jim, Dominique, Dr. Jay, Dr. Steve, Kim, Billy, Kendall, Otto, Smitty, Roger, Byron, Hal, and Thor. You were my “watchdogs” and my friends.

Pilots Andy Roberts and Ray “Governor” Heineman, flying under the radar (but at very high speed), were willing to assist my waning memory on the technical aspects of the T-38. I thank you for your efforts, which will (I hope) keep others with flying expertise from pointing out any errors I made.

A hearty *cnacebo* (thank you) is provided for Dr. Anthony Vanchu. One of a cadre of outstanding Russian language instructors assigned to me during my astronaut career, Dr. Vanchu graciously reviewed the manuscript to ensure that I had minimal *ошибки* (mistakes). I am grateful for his multilingual expertise.

To all the spacefarers of our world—those who came before me and those still to come—I offer my thanks for dedicating your lives to the premise that we are explorers and that what we do is important to the future of our world.

Significantly, I extend the greatest of thank-yous to my dear friend and writing coach, author, actor, and artist Nevada Barr. The patience and confidence you showed in this neophyte author allowed me to grow as a writer and more effectively share my once-in-a-lifetime experience. Without your help, this book would be just a collection of random stories, made up of painfully long sentences and laced with multiple adjectives.

Finally, I would be remiss if I did not say thank you to NASA, her centers, and her

employees. Twice you took a chance on this small-town boy from Nebraska. Thank you for hiring me in 1981 and for choosing me to represent the United States of America as an astronaut. I am forever grateful for your trust and confidence and hope that you consider it a risk that paid off.

Introduction

Many incredible books have been written about the wonders of space, by and about astronauts more famous than I: fantastic rocket journeys through a paper-thin atmosphere, initiated on virgin, unproven towers of explosive fuel, and resulting in stunning views of our beautifully fragile and breathtaking home planet, Earth. Those literary gems each told their stories using thousands of NASA photographs; they spoke of individual death-defying forays into the vacuum of space on the end of a single frail steel-cable tether. They related life stories and battles against the temptation to always want more.

I want this book to be free of the mundane and politically correct. I want to convey to readers what life was truly like on this incredible journey, from the beginning, when I applied to become an astronaut, to my selection and training, and finally, to my assignment to and execution of a mission. I want you to know the highs and lows that occurred along the way as I lived my dream performing the ultimate “work abroad.”

My father used to relate a classic joke about me to anyone who would listen. He would smile at them and say, “I told my son, don’t just take up space in school.” Well, Dad, I did take up space in school, and I have chosen to write this book for a very simple reason: to share the tremendous experience of becoming an astronaut. I want as many people as humanly possible to know the wonder and glory of that place we call outer space . . . and I want them to know it on my terms.

There are a lot of things I approach with reverence. I’m reverent about my relationship with God. I’m reverent about my love for my family and my responsibilities and obligations to each of them. I’m reverent about being the best man I can possibly be: the best husband, the best father, the best brother, the best friend, the best astronaut. I can’t begin to explain the reverence I felt while encapsulated in a space suit with just a few layers of fabric and Kevlar between me and the great vacuum of space, standing on the end of the fifty-eight-foot Canadian-built robotic arm of the International Space Station, or while looking at the Earth and the heavens. But I approach other things from an altogether different direction. I once heard of an overly pompous gentleman who was admonished that he had broken the “Third Rule.” When he asked what the Third Rule was, he received the reply, “You’ve taken yourself too seriously.” He then asked what the other rules were. “There are no other rules,” was the answer.

I have done some pretty serious things, and I have taken them very seriously. I’ve respected my parents and family, my teachers, my education, my religion, my friends, my job, my coworkers, and myself. But I have never broken the Third Rule. I’m pretty irreverent about Clay.

I am forever grateful to the wonderful folks at the University of Nebraska Press for agreeing to publish this book. While Rob T., Courtney, Ann, Martyn, Emily, Rob B.,

Rosemary, Erica, Thomas, Tish, and Lona performed flawlessly as my closeout crew—getting ready for this analogous launch of a “bound paper rocket”—the full list of mission objectives would not have been accomplished without the dedication and yeoman efforts of the entire press staff.

Some spectacularly wonderful things have happened to me during my short time here on Earth, but I’ve always considered myself to be just a small-town boy from Nebraska—nothing special, just an ordinary American. I’m even a bit embarrassed to think that you might find me interesting enough to have picked up this book. But since you have, I’ll try to tell you about some of the truly extraordinary things that have happened in my life, and I’ll try to keep it interesting . . . and irreverent. Live long and prosper!

First Flight

Life is filled with firsts: first word, first step, first date, first kiss, first tax audit . . . well, you get the picture. The life of a brand-new astronaut is filled with firsts as well. From the day you report to the Johnson Space Center (JSC) in Houston and journey up the six flights of stairs in Building 4 South to the hallowed halls of the Astronaut Corps, you are destined for experiences that, while fully expected, are certainly not inconsequential: your first staff meeting, first trip to the men's restroom, first run-in with a veteran astronaut who thinks you might be taking over his next spacewalk. All are a part of the rite of passage so crucial to becoming an accepted member of perhaps the most elite group of men and women on (and off) the planet.

Perhaps *the* most significant of these firsts should also be defined as a perk . . . a perk that occurs at over 850 miles an hour! The day was November 4, 1998, only two short months after I had reported for duty as an astronaut candidate (ASCAN) at JSC. The weather was bright and sunny with the temperature in the low eighties: a beautiful fall day in southeast Texas, the time of year Texans long for and then lament when it passes quickly and the first of December arrives.

I had arrived at Ellington Field plenty early, with a healthy amount of nervous anxiety. A former air force base in southeast Houston, Ellington Field has been repurposed as the home to NASA's fleet of T-38 training jets. I was anticipating an experience that would stick in my memory forever. I tentatively climbed the narrow internal stairwell on the southeast side of Hangar 276 while casting longing, worshipful glances at the beautifully sleek white-and-blue jet aircraft on the floor below. Within this massive building all the jets rested quietly and majestically, each an individual piece of a well-designed jigsaw puzzle nested together so the entire fleet could avoid exposure to the brutal windstorms, rain, hail, and searing heat of south Texas. Feeling every bit the rookie in this unfamiliar place, I carefully opened the blue door to the "ready room"—the sacred area where pilots and astronauts execute their individual flight preparations. Inside, I quickly made my way toward the far hallway, silently hoping that I wouldn't be stopped and questioned.

My presence was announced with each creaking step, as the floor of the World War II-era hangar squealed in distress under the pressure of my highly polished black leather military boots. I searched for the office adorned with the right nameplate. A third of the way down the hall I found myself at the door of Col. Andy Roberts (U.S. Air Force, Reserve), whose title was astronaut instructor pilot (IP). I was here for a baptism of sorts, to fly for the first time in one of NASA's T-38s. (The T-38s—"T" for "trainer"—are a fleet of twin-engine jets maintained by NASA specifically for astronauts to fly.)

Wearing my new royal blue astronaut flight suit, complete with a nametag declaring that Clayton C. Anderson, JSC, had made it this far, I stood as tall as I could while I waited patiently for Andy's acknowledgment that it was okay to enter the room.

Beckoned with a warm smile and a welcoming wave, I entered, then paused for a moment to survey the lair of the former U.S. Air Force fighter pilot.

Andy's workspace was shared with three other IPS and adorned with the unceremonious trappings one might expect at a U.S. government facility. The drab gray government-issue office furniture and cubicles were arranged as if to barricade themselves from the outside world and anyone or anything that might ruin their day. Bookshelves and file cabinets were set up the way kids might build forts in their grandma's front room. As my eyes scanned this cacophony of paper and personal mementos, gathered through years of career service and family milestones, I noticed that my treasured rookie flight suit—so crisp, blue, and stiff—now felt like a rough piece of cardboard freshly removed from a three-pack of new t-shirts. Nerves and anxiety alerted every pore, causing me to break into a nice preflight sweat, as I realized how well worn my veteran-fighter-pilot-turned-instructor's garb was compared to mine.

His flight suit, once the same brilliant hue and crispness of the one I so proudly wore, had the look of a comfortable denim shirt, soft to the touch and conforming to each contour in the wearer's upper torso. The one-time bright royal blue had become a faded blue pastel, reminding me a bit of a favorite old bathrobe. Yet his appearance was one of total confidence. On each of his sleeves, near his biceps, were the classic military-type patches—a U.S. flag on the left and the circular flight instructor patch of the NASA Aircraft Operations Directorate on the right. Even these patches had faded, beaten down by hours upon hours of the relentless sun shining through the clear glass cockpit of the T-38, testifying to flight hours so numerous that they require a computer to track. Each thread had been hammered by ultraviolet radiation, every flight pushing the fabric further toward the yellow end of the spectrum.

My flight instructor's suit was repeatedly an inanimate passenger in a jet as it ascends through the atmosphere to pierce cottonlike clouds the way a needle drives through a piece of fabric. Yet for all the abuse that suit got, its ultimate reward was to be touched by beams of high-energy radiation emanating at the speed of light from our very own star, poised majestically ninety-three million miles away at the center of our solar system.

I looked at Andy's nametag framing his name and rank. Though tarnished from wear, the time-honored air force silver border still shone proudly as the emblem of the service for which he risked his life. Oh sure, he could have gotten a new flight suit—all it took was a short walk across the hangar floor and up another flight of stairs to reach the equipment shop. He could have been wearing one just as stiff and uncomfortable as mine. But as I would quickly come to learn, he wore his "gently used" flight suit with as much honor as any of the others who have so proudly served; he wore it to commemorate how he had bravely challenged the skies for his country and had come out a winner every single time.

Andy was on the phone finishing a call with his wife. I was not eavesdropping, but just before he hung up I heard him say something like, "Honey, I've got to go. I've got one of the new ASCANS here for his 'Zoom and Boom' ride." I was already nervous enough, and hearing those words certainly got my attention. I feared that I would quickly be coming to grips with the real meaning of the phrase "baptism under fire."

I knew Andy from one of our previous T-38 training lectures when he had described

to our class the nuances of the T-38's hydraulic system. We reintroduced ourselves, and after five minutes of chatting about life in general, he stopped the small talk. His tone of voice changed to that of an air force pilot, and he started to pepper me with technical details relating to our upcoming "sortie." This training flight would take place in the area designated as w-147C (or *whiskey one-four-seven charlie*). w-147C, a practice area covering the northern Gulf of Mexico, was artistically depicted on our flight control avionics screen as a huge triangle of bright green. Our preflight briefing covered each and every detail, from the tail number of our jet to the high-threat areas we would encounter along the way (birds near the runway, small planes in the area of Ellington Field), as well as the visual signals we would use to communicate with each other in the event of an emergency and possible ejection from the aircraft. When we came to the subject of communication and the situation known as "nordo" (no radio), Andy calmly asked, "Do you think you can operate the radio system, Clay?"

"Yes, sir, I believe I can," was my confident reply. Every ASCAN new to flying receives classroom ground school training in all aspects of the T-38 and its systems, including communication and the radios. With that, Andy handed me a small sheet of paper complete with the list of frequencies we would need for our one-hour-and-fifteen-minute flight—a flight that would fully (and finally) expose me to the high-speed world of jet aircraft.

After a quick bathroom break we reconnoitered in the parachute room, where more than one hundred green military parachutes hung from symmetrical racks of simple wooden poles, having been prepared meticulously by the aircrew equipment staff. There they waited for the next astronaut or pilot to slide into one, cinch the straps tightly, and silently pray that it wouldn't be needed that day. Andy and I each chose a parachute matching our size (extra large for me), threw it over our right shoulder, grabbed our helmet bags from our designated cubbies, and headed to the flight line.

As we strode to the jet, I held myself tall and proud. Inside, my nerves tingled with anticipation. After quickly stuffing foam earplugs into my ears, I solemnly followed Andy around the aircraft, watching with rapt attention as he performed and narrated a detailed preflight check of the jet and her high-tech appendages.

As our "bird" was in the expected pristine condition, I climbed the blue ladder that hung from the sill of the rear cockpit and settled into the back seat of this vintage two-seater. As I wasn't accustomed to the process of sitting down and strapping in, a longtime member of the flight line crew helped me jostle into all of my flight gear: gloves, helmet, pub bag (as in "publications"—maps and charts), then verified that I had gotten the myriad of connections, buckles, and straps in the proper configuration for a safe trip. With a pat on my shoulder and a smile that more closely resembled a smirk, he looked me straight in the eye and bid me a safe flight. I got the distinct impression that he was well aware of my rookie status.

Moving with what I thought was the speed of a tortoise wallowing in molasses, I checked my rear cockpit gauges, dials, and displays to make sure they resembled the configuration I had been taught to expect for takeoff. Strapped tightly into my seat, with my helmet's chin strap locked in place, I cast my eyes to the lower center of the cockpit, just slightly above the control stick, to double-check the radio management system display. Comparing the five LED segments to those on the handwritten card that was clipped to my kneeboard, I relaxed just a bit, confident that I had entered the

correct numbers into the various frequency slots.

Andy's voice was cool and calm: "Ready to start on the right." He pushed the corresponding start button located in his front cockpit. Then, watching to see that the RPM gauge reached the required level of 12 to 14 percent, he called out, "Start the clock," verbally acknowledging that the ignition circuit would be armed for only thirty seconds. As he began to gently ease the right engine throttle forward, the quiet inside the cockpit was instantly filled with the powerful roar of a jet turbine. With the engine spinning at more than 2,000 RPMs and drinking fuel by the second, the variable-area nozzle was now spitting out the hot pungent exhaust of Jet A fuel. A massive thirty-six hundred pounds of thrust are produced at sea level by this General Electric-built, eight-stage turbo jet engine. Andy repeated the process for the left engine. My earplugs were already paying huge dividends as the thunder of the two axial-flow engines hummed in near-simultaneous rhythm.

With an easygoing style born of years of military jet experience, Andy contacted the control tower for clearance: "Ellington Tower, this is NASA niner-one-seven, I-F-R to *whiskey* one-four-seven *charlie*, clearance on request."

After a wait of ten to fifteen seconds, the tower operator at Ellington keyed his microphone and sent his voice crackling across the airwaves: "NASA niner-one-seven, cleared to *whiskey* one-four-seven *charlie*, radar vectors, then via EFD radial two-zero-six at fifty. Call ready for taxi."

Not really understanding all of what the tower operator had just said, I was frantically trying to manipulate my ballpoint pen. My ability to legibly "copy clearance" in this foreign language was severely compromised by the Nomex flight gloves covering my shaking hands. Plus, I had to capture this critical information on a sheet of paper strapped to a kneeboard wrapped tightly around my right thigh. Frustrated and overwhelmed, I gave up. My pilot provided me with a second chance by calmly repeating the clearance exactly as it was dictated by the tower: "Ellington Tower, NASA niner-one-seven, cleared to *whiskey* one-four-seven *charlie* via radar vectors to EFD radial two-zero-six at fifty. We are ready for taxi and we have 'echo.'"

"NASA niner-one-seven, Ellington Tower. Taxi to runway one-seven right, via *hotel*," said the faceless voice in the tower.

In the front cockpit, Andy simultaneously pushed the engine throttles slowly forward with his gloved left hand. The jet patiently roared to life, inching forward from its parking spot on the tarmac, as we initiated the long trip from the T-38 hangar on the field's south end, down the intersecting taxiway "*hotel*," to runway one-seven right at the north end of Ellington Field almost eleven thousand feet away.

The taxi to runway one-seven right, at the far end of the vast expanse of concrete, takes slightly longer than to the neighboring strips. This was a good thing for me. It gave me ample time to do the necessary pretakeoff checks and to get one last briefing on what I was to watch for as we barreled down the runway.

Even early in November the Texas winds come predominantly from the south. Using runway one-seven right—taking off into the wind—gives a nice added lift for the T-38's short stubby wings. Another call to the tower from Andy, letting them know we were ready for takeoff, resulted in a standard call-back phrase from our Ellington Field air traffic controller (ATC): "NASA niner-one-seven, turn left heading zero-niner-zero [090], maintain two thousand [feet altitude], cleared for takeoff, runway one-