

How I got to NASA

Charles F. Bolden, Jr. tells the story of
going from middle school science class
to piloting the Space Shuttle

As told by General Bolden to Christopher M.
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Charles Bolden, ready for the launch of the Space Shuttle mission that would carry the Hubble Space Telescope into orbit around the Earth.

Introduction

Maj. Gen. Charles Frank Bolden, Jr., (USMC-Ret.) was born August 19, 1946, in Columbia, South Carolina. He graduated from C. A. Johnson High School in 1964 and received an appointment to the U.S. Naval Academy. He earned a Bachelor of Science degree in electrical science in 1968 and was commissioned as a second lieutenant in the Marine Corps. After completing flight training in 1970, he became a Naval Aviator. Bolden flew more than 100 combat missions in North and South Vietnam, Laos, and Cambodia between 1972 and 1973.

Bolden earned a Master of Science degree in systems management from the University of Southern California in 1977. In 1978, he was assigned to the Naval Test Pilot School at Patuxent River, Md., and completed his training in 1979. He tested a variety of ground attack aircraft until his selection as an astronaut candidate in 1980.

After his final shuttle flight in 1994, Bolden left NASA and returned to active duty with Marine Corps operating

forces as the Deputy Commandant of Midshipmen at the U.S. Naval Academy. He was promoted to his final rank of major general in July 1998 and named Deputy Commander of U.S. forces in Japan. He retired from the Marine Corps in 2003. He was inducted into the U.S. Astronaut Hall of Fame in May 2006.

General Bolden was nominated by President Barack Obama and confirmed by the U.S. Senate as the 12th Administrator of NASA. He began his duties as head of the agency on July 17, 2009 and served throughout the Obama presidency, to January 19, 2017.



The launch of Space Shuttle *Discovery* on April 24, 1990, carrying the Hubble Space Telescope (the shuttle *Columbia* sits in the foreground, awaiting a future mission) and *Discovery* returning to Earth. Charles Bolden piloted *Discovery* on this mission.

I'm not a technical guy. I always have to remind people, or tell people who don't understand, that I'm neither a scientist nor an engineer. But science was my favorite subject in school from elementary school all the way through college. And I went to an engineering institution—the Naval Academy. Even if you are studying history or English, you get a good dose of engineering while you are there.

My wife Jackie and I grew up in Columbia, South Carolina. I'm one of two boys. She's one of three girls. Both of our parents were teachers, were educators. Her mom and dad eventually became elementary school principals. My mom became an elementary school librarian. My mom and dad graduated from Johnson C. Smith University in Charlotte, North Carolina, and returned home to Columbia to teach.

My mother, Ethel M. Bolden, eventually opened the first library for Black students, at Waverly Ele-

mentary School, in Columbia. She was the first librarian at my junior high school, which was W. A. Perry Junior High. Then when the schools integrated in the 1970s, she was selected to be the first Black librarian to go to a formerly all-White high school. She went to Dreher High School and became the librarian and stayed there until she retired.

My father's passion was football, but he came out of Johnson C. Smith with a teaching certificate. He began to teach immediately, but then was drafted into the Army. He left for the Army in 1941 and came back in 1945 at the end of the War. He went back into the classroom. He initially taught at Carver School, which is where I went to elementary school.

There was one Black high school in Columbia at the time, which was Booker T. Washington. Then they decided to build a second Black school and that became C. A. Johnson High School. My dad moved over

from Carver to become a history and civics teacher there, and also the athletic coach for almost every sport at that time. He coached basketball, football, baseball and track, until they started growing and bringing in other coaches. He stayed with basketball and football for a long time, but then eventually became the head football coach. He moved from C. A. Johnson High to his alma mater, Booker T. Washington. After integration he was sent over to Keenan High School, which was a formerly all-White school, to become the Athletic Director.

That's my background. My parents both not only encouraged but demanded that my brother (who is four years younger) and I study diligently. We did not have to be "A" students, but we had to study. So that is what we did when we came in from school—we went right to studying.

I was very fortunate. In seventh grade I had a teacher by the name of Mr. J. P. Neal. He got me involved in science fairs in seventh grade, and I never looked back. After that I never missed a science fair. I just fell in love with science.

I had a math teacher by the name of Mr. Jeffcote. Back then teachers frequently went to summer institutes or summer training sessions, and he had been all the way out in South Dakota to a summer enrichment program for teachers where he learned something that, back in that time, was called “new math”. Today I think we call it “set theory”. He came back and offered the opportunity for any of us in the class who were interested in learning “new math” to stay after school a little while. I was one who did. We learned set theory and everything else.

There is a science fair project I remember more than anything. Back then, probably the most popular

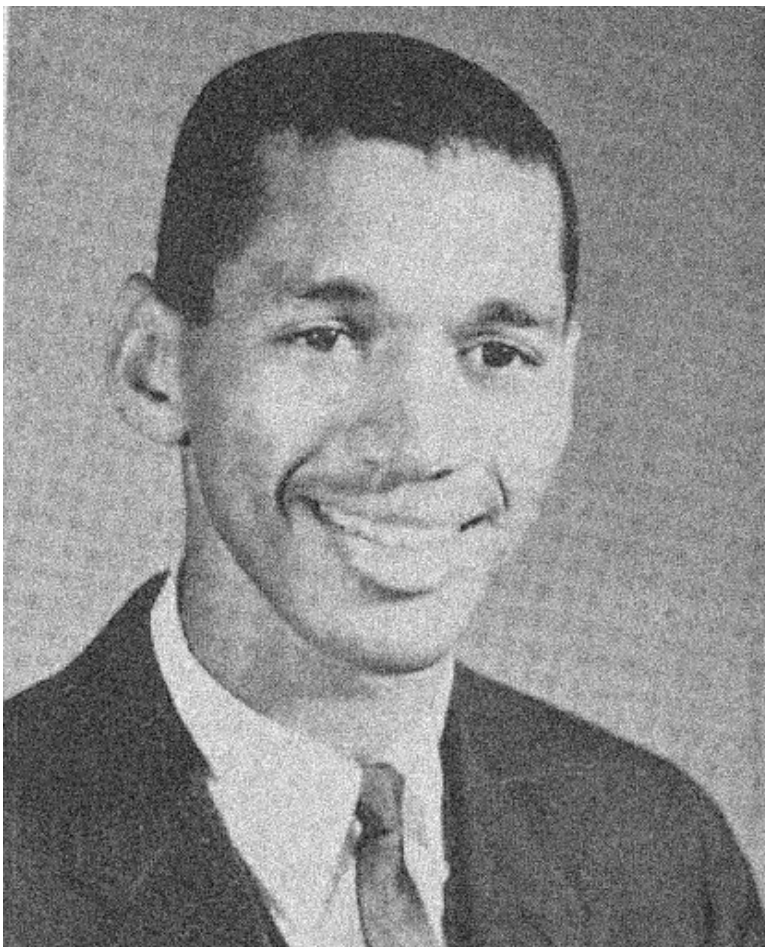
science fair project was a volcano, just as it was when Jackie and I had kids and they went to school. But because I was at the beginning of my interest in electrical engineering or electronics, my junior high school science fair project in eighth grade was using a photocell to activate different systems around the house. I used a photocell to ring a doorbell and do other kinds of things.

At the same time that I was doing that in junior high, I had a friend who was a high schooler who was also interested in science. He was year ahead of me, a young man by the name of Thad Bell, who eventually became a doctor. But Thad did a science fair project for a couple of years that dealt with the effects of ultraviolet light on bacteria. He let me help him. We actually went out to Ft. Jackson to the army hospital there (Ft. Jackson was the army's large basic training center near Columbia). They would give him supplies.

They would give him petri dishes. They helped us to find an ultraviolet light—it looked like a fluorescent light tube. We built a little chamber to put the samples in, and then we used various timed exposures of ultraviolet light to see what effect they would have on the bacteria we were growing in the petri dish.

I went on to high school. At a Black high school, we were only offered math up through trigonometry. I was able to take geometry and trigonometry. There was no calculus or pre-calculus offered. They had basic biology, chemistry, and physics. That was my preparation to go to the Naval Academy, where first semester I took chemistry and calculus! Second semester, physics and calculus! I was totally unprepared! But I was a pretty good studier, so I managed to do pretty well.

When it came to science laboratories, we didn't have anything at all like they had in the White high



Charles Bolden in high school.

schools. We probably had much better teachers, but little equipment. So in the chemistry lab, an exotic piece of equipment would be a Bunsen burner. No hoods, no chambers for working with toxic or poten-

tially toxic materials, no gloved boxes. We didn't even know that stuff existed. Everything was on tables that were like counters like in a kitchen. The room had several counters and that's where the attachments were for gas for the Bunsen burners and there was water that you could use. Most of the work in the chemistry lab was done on those counters. We did physics experiments, but we had no physics laboratory. Everything was either on a table top or on a desk top.



St. Luke's Episcopal Church in Columbia, South Carolina.

I was very active in my church, St. Luke's, in Columbia, but my church was not involved with my interest in science when I was young. When I was growing up, all the way through high school there was a strict adherence to separation of church and state. You never talked about the church in school, other than in history classes, where we studied the history of the Catholic Church, and the history of the Reformation, but that was it. In church, science just never came up as a topic.

I grew up as a Presbyterian until I was twelve. My mom was a cradle-born Episcopalian. After she lost her mother at the age of eight and became an orphan, she actually rode the missionary circuit with her aunt and uncle, travelling through all the little towns of South Carolina. My dad was a Presbyterian.

Johnson C. Smith University at the time, like most historically Black colleges and universities, was

a church school. Smith was a Presbyterian college. Benedict College, where my mother-in-law and father-in-law went, was a Baptist college. Across the street from it in Columbia was Allen University, an AME [African Methodist Episcopal] school.

The colleges and universities were generally run by a church, so chapel was important. My wife went to Spellman. Spellman had chapel every day. I went to the Naval Academy and we had mandatory chapel back then for the midshipmen. Faith was always part of your routine. Then there were different organizations—I became an acolyte, I sang in the chapel choir, and did a number of things around the chapel during the week. Those were some of my extra-curricular activities.

I decided at the age of twelve that I wanted to go to the Episcopal church [St. Luke's], because they had sports and stuff. The Presbyterian church where we

were going really had nothing for kids, for the youth. I was looking for some outside-of-church activities. The Episcopal church had a young priest, Fr. O'Neil, who had a football team and a basketball team and a baseball team and all kinds of stuff. So I wanted to go to the Episcopal church. My mom and dad said that was fine, but I was going to go to church. They said that if I was thinking about leaving their church to go somewhere else so I wouldn't have to go to church on Sunday, "that won't work. We don't care where you go, but you are going to go every Sunday."

I am still Episcopalian. And my wife, who grew up Baptist, is an Episcopalian. She converted when I was a second lieutenant, going through the basic school in Quantico, Virginia.



The thing that first directed me toward the military was a program on television called “Men of Annapolis” that mesmerized me when I was twelve years old. I was in seventh grade. Back in those days, there were a lot of military towns on TV. The military was very highly respected. As I said, Ft. Jackson was right on the outskirts of Columbia. Shaw Air Force base was forty miles down the road. It took us a couple of hours to go to Charleston, South Carolina, which had major Naval facilities. I grew up in the South, and back in those days the segregated South was very pro-military.

But when I saw this TV program at the age of twelve it wasn't anything about the military aspects that intrigued me, but how all the beautiful women came there on the weekend to date the midshipmen and find a prospective husband. And I loved the uniforms and the beauty of The Yard, as we call the Na-

val Academy. And I just decided I wanted to go there. My mom and dad encouraged me. I don't think they had any idea, nor did I, to be honest, that I would later decide that I wanted to be a Marine. I think if they had known that, they probably would have said, "no way!"

When I got to high school, I knew how you get to the Naval Academy—you had to get a congressional appointment, or a Vice President appointment. The Vice President of the United States has that power when it comes to going to service academies. Everybody else can only appoint from their congressional district or their state, but the Vice President can appoint anybody who is an American citizen.

I knew that, and the vice president at the time was Lyndon Johnson. So I wrote to Lyndon Johnson from my ninth grade on, saying I really want to go to the Naval Academy. My South Carolina congressional delegation, with Strom Thurman being the senior

senator, made it very clear that there was no way they were going to appoint a Black to the Naval Academy, or to any Academy. So I said, “okay, I got it” and I was counting on Lyndon Johnson.

Then my senior year in high school, November 22nd, we were on our way to Charleston, South Carolina to play for the state championship and we got word that President Kennedy had been assassinated. And so my world came to a crushing end, almost, because I knew that the Vice President was going to become President and he was not going to be able to help me.

My mom knew that, and she said, “Are you going to give up?” I said, “What do you mean? I don’t know what to do.” She said, “Figure it out.” So I dragged out a typewriter and I typed out a letter to the President of the United States and I said, “this is me again, same guy from three years ago, and I really want to go to the Naval Academy.” I never heard from President

Johnson, but a couple of weeks later a navy recruiter showed up at my front door. He asked for me, and said, “I understand you want to go to the Naval Academy.”

So I applied to three places for college. I applied to Yale, the University of Pennsylvania, and the Naval Academy. Yale and Pennsylvania were both “Ivies”, and you heard a lot about “Ivy League schools”. My mother had a cousin who was a dentist who lived in Philadelphia, so when we went to visit him, I always had an opportunity to walk by and walk through the campus at U Penn, and it just looked like a really nice place. Yale I didn’t know anything about other than the fact that it was an Ivy League school. I never visited the campus, never saw the campus. But I decided I would apply. A big thing was that both of them had Naval ROTC units. I knew that even if I did not get into the Naval Academy that I probably would want to

go into the Navy for at least five years. So in addition to applying to Yale and U Penn, I applied for a Naval ROTC scholarship, and I got that. I could have gone to any of my three choices. But I was fortunate enough to get an appointment to the Naval Academy (after first being told “no” by members of the South Carolina delegation), and that was my choice out of the three.



The dome of the Chapel at the U.S. Naval Academy.

When I went to the Naval Academy from C. A. Johnson, there were only two things that I knew—only two “facts” at that time in my life. One was that I was going to go to the Naval Academy but I was not going to fly airplanes, because that was inherently dangerous. I used to tell people that my mother did not raise a fool, so I was not going to fly airplanes. The other thing was that I knew I was not going to go into the Marine Corps. I knew that for certain because I had watched Marines come up to Columbia from Paris Island, making the hour and a half drive, after graduating from recruit training, and just wreck Drew park.

All the service men, the Navy guys, the sailors, came up from Charleston, because Drew Park was the big Black park in the state of South Carolina. Columbia was right in the middle of the state. We had an Olympic-sized pool and everything. People were

drawn to Drew Park, named for Dr. Charles Drew, the father of the blood bank. I was an avid swimmer, so I was in the park, in the swimming pool, all the time. But just all hell broke loose all the time when the different services came up to the park for the weekend, and it seemed like the Marines were always the ones making trouble. So I knew I was not going to go into the Marine Corps.

Those were the only two things I knew for certain. I did not know what I was going to do if I got into the Naval Academy, but I knew those two things: not going to fly airplanes when I came out, and not going to go into the Marine Corps.

I was going to be an engineer until I ran up against a course called “Electromagnetic Waves Theory II” my junior year at the Naval Academy. I had struggled through “Electromagnetic Waves Theory I” with a “C”. But I just couldn’t hack it going through

“Electromagnetic Waves Theory II” the second semester, and I got an “F”. And that caused me to have to go before the academic board.

I’m not very proud of that, but I went before the academic board. It’s chaired by the superintendent of the Naval Academy. The superintendent at the time asked me a couple of questions. One was, *why in the world was I taking that course?* I told him, well, because it was required for my major in electrical engineering. So he accepted that. They dismissed me for their deliberations and then brought me back in. They said that since I had such a stellar academic record prior to flunking this course, they were going to give me an opportunity to re-take it, and expunge the “F” from my record.

There was only one professor who taught the course at that time—Professor Smith*. He and I had never got along, and I figured I could take the course

* Not the Professor’s real name.

for who knows how long and I would never pass it. That's exactly what I told the academic board. I told them, "I don't want to waste my time, because I don't think I'll ever pass this course with Professor Smith as the professor. So I'll take my 'F' and move on." And I did. And I ended up with a minor in electrical science.

I still felt I would go back some time later and get an engineering degree and become an engineer. But things happened that I did not count on. Things worked well for me, and I never went back to get an engineering degree.

When I graduated from the Naval Academy in 1968 and decided I was going into the Marine Corps, I took an aviation option just to be safe—don't ask me why. I did not make up my mind to go into the Marine Corps until my senior year, but I think the die had been cast my freshman year. That's because of my first Company Officer, the commissioned officer who

was responsible for the 150 or so midshipmen in my company (and there were thirty-six companies in the brigade of 4000 midshipmen).

He was an awesome human being, a guy by the name of Major John Riley Love. He was a young Marine Corps infantry officer who had been back from Vietnam for about two years. He was in his final year at the Naval Academy as a Company Officer. He was unbelievably tough but eminently fair.

He so reminded me of my Dad. My father was like that. My father was tough and demanding, but he was always fair.

Major Love reminded me a lot of my dad, so three years after my freshman year in the Naval Academy, when it was time to graduate, I looked back on him. Vietnam was raging, the Tet Offensive had just occurred, and there was every reason *not* to go into the Marine Corps. But I looked around and said, “I can do



Destroyer *USS Carpenter (DD-825)* leaving Pearl Harbor in December 1965. Lewis H. Thames served on the *Carpenter* before reporting to the U.S. Naval Academy for a tour of duty as a Company Officer.

anything I want to do. I am so well-trained. I can go to the submarines.” But I had not seen a single Company Officer at the Naval Academy who was nuclear-power guy, a nuclear submariner especially, who impressed like Major Love did. He stood out.

I had one Company Officer in my last two years by the name of Lt. Lew Thames who was a destroyer man—he was a ship driver. Lt. Thames was a really good human being, and a great role model. So I thought I wanted to be a destroyer man.

So I knew I wasn't going to nuclear power. I knew I wasn't going to fly airplanes. I was pretty certain I wasn't going into the Marine Corps. But as it drew closer and closer to time for me to select my service, I said "I want to be like Major Love".

So I broke the news to my family. My dad cried like a baby. I was engaged to my wife. She cried. My mother cried. My whole family said, "You can't do that. You just can't do that." But I stuck to my guns, and when it was service selection time in January, I went down to the Marine Corps desk and put my name on the dotted line.

And for some reason I took an aviation option. It didn't commit me to aviation. But it meant that if my grades continued to be as good as they were at the Naval Academy, and if I did well in the basic school (which is the six month course of study at Quantico, Virginia where every Marine officer learns how to be a rifle platoon commander and how to lead Marines) then I would get to pick aviation if that is what I wanted to do.



Two A-6 Intruders over Vietnam in 1968. Charles Bolden flew an Intruder in the Vietnam War.

I went to the basic school after graduation from the Naval Academy, fully intending that I would give away my aviation option. We went through the first five months. Then it came time for our final exercise, which was a three-day war. We went out in the boonies and fought a mock war for three days. It was so cold I thought I was going to die. The ground was covered with snow and ice. I didn't sleep for three days. I thought if I put my head down I'd die of hypothermia.

I had gone into the three-day war telling my Company Officer that I wanted to give away my aviation option, because I was going to be a "grunt". He had said, "Are you sure?" He was an infantry officer himself, a guy from Alabama who used to chew tobacco all the time. He had a big coffee can in the bottom drawer of his desk, and he would pull that open and spit his chaw into the can, and you could hear it

hit the bottom of the can. So when I told him I was going to give up my aviation option, he pulled his drawer open, and spit in it, and he said, “Bolden, that’s the dumbest thing I ever heard!” He said, “I’m an infantry officer, and you don’t want to do that. You got classmates who would give their eye teeth to go to flight school. And you want to give that up?” And I said, “Yes sir. I want to be a grunt.” So he said, “OK, I’ll do it, if that’s what you want to do.” So I went off to the three-day war.

And when we got back I went sheepishly back into his office and said, “Major McElroy, I changed my mind.” He smiled and said, “I’m really glad to hear that. I now have faith that you do have some sense.” I took my aviation option and my wife and I headed off to Pensacola, Florida for flight school. And the first time I got in a Navy airplane, it was unbelievable. I fell in love with it. And I never looked back.

That's how I got into aviation. I had followed the space program. While I was in flight school we rushed back from a weekend in New Orleans just to go sit in front of a black-and-white TV in the officer's quarters, my wife and me, with some of my classmates to watch Neil Armstrong and Buzz Aldrin land on the moon. That was incredible to me, but I never told myself, "I want to do that." It was not incredible enough to make me think I wanted to do that.

I just went through the rest of my time in flight school and ended up selecting the A-6 Intruder as my fleet airplane. I thought its mission was incredible. It was a two-place airplane with a bombardier-navigator and a pilot. We did all ground attack. It was not a fighter at all. You had no self-defense mechanism for air-to-air threats. I flew my year in Vietnam and Cambodia and Laos in the A-6.

I had been applying to test pilot school because one of my flight instructors, Major Pete Field, was a Marine Corps test pilot, and every time we flew together he talked about it. He talked about the experience and how challenging it was, how demanding it was—“It’s not a scarf hanging out of the doggone cockpit. It’s really tough, it’s very demanding and it’s very precise.” For me that was exactly what I wanted to do. I really loved anything that was hard. He talked about test pilot school and I started applying immediately after I got my wings.

I must have applied, geez, probably six or seven times. They had two classes a year, so I applied for about three years to go to test pilot school, and got rejected every time.

Finally I put my application in one last time. I said “OK, I’m going to try this, and if I don’t get in, then God’s telling me that that’s not in my future.”

The good thing that happened was that the Navy was just beginning to look at a particular type of technology and they were going to use the A-6 Intruder as the test bed for it. They were looking for A-6 pilots. And they wanted to have a Marine in the program. I was one of the few Marine Corps A-6 pilots applying for the program, so I got accepted to test pilot school.

I said I was never going to fly because it was too dangerous, but I ended up applying to be a test pilot! At every stage of my life there was somebody who came into my life and was a phenomenal role model. In seventh grade it was my science teacher and my math teacher, my dad, my mom. When I got to the Naval Academy it was Major Love. When I got to flight school the person who impressed me the most and influenced me the most was that Marine Corps major by the name of Pete Field. He had come to the



Charles Bolden visiting a recruiting station in 1982.

training command from Patuxent River, Maryland where he had been a fighter test pilot. He had gotten word that he was going to go back to “Pax” River to head the test program for the F-18 Hornet which was in development at the time. That was what made me decide that I wanted to be a test pilot.

When I was accepted to test pilot school, I had been back from Vietnam for a while. I had been stationed at El Toro Marine Corps Air Station in California and had been a recruiter for the Marine Corps in Los Angeles. I got orders for test pilot school and we shipped all the way from Los Angeles across country to Patuxent River, Maryland. This was the spring of 1978, and NASA was announcing the selection of 35 new astronaut candidates, their first group of Space Shuttle astronauts. This was ground-shaking because it was the first time that there were going to be astronauts who were women, and people of color. Everybody was blown away by that.



Ronald McNair, Guion Bluford and Fred Gregory.

I knew NASA was taking applications, but that was not something I wanted to do at the time. And then three of the people selected were Black. One was Dr. Ron McNair, a physicist from MIT and Hughes Corporation where he was doing laser research; another was Fred Gregory, an air force pilot and test pilot who had flown helicopters until he transitioned to F-4s in Vietnam; and then there was Guy Bluford, an air force fighter pilot but not a test pilot. NASA selected Ron and Guy to be mission specialist astronauts, and selected Fred to be a pilot astronaut.

I did not know any of them, but while I was at Pax River, we had a test pilot school reunion every year where people flew in from all over the place and had a raucous weekend, and at one of these reunions, four of the guys out of that brand new class of astronaut candidates flew back from Houston to Pax River



NASA T-38s.

in four NASA T-38s, the sleek white supersonic airplanes. They were the stars of the show. They were not the first astronauts to graduate from Pax River, but they were the first in the group of Space Shuttle astronauts.

Each of them brought somebody in their back seats, who were not pilots. I saw this Black guy get

out of the back seat of one of them, and I ran over. It turned out to be Dr. Ron McNair.

I did not know a lot about Ron, but I knew he had grown up in South Carolina, same as I had, in the segregated South, about 42 miles from me in a place called Lake City. His mom had been a teacher like my parents. He had always wanted to be an astronaut, so he went to North Carolina A&T and majored in physics and then was talked into applying for and accepting a candidacy for a doctorate at MIT. He went there and earned his Ph.D. in laser physics. We would lose him on *Challenger*.*

Ron and I talked the whole weekend. When I took him back out to the flight line to get in his sleek T-38 to go back to Houston, he said, “Hey, are you going to apply for the space program?” I said, “Not on your life!” He kind of looked at me real strange and he said, “Why not?” I said, “Ron, they’d never pick me.”

*The Space Shuttle *Challenger* was destroyed by a rocket malfunction during launch in 1986.

And I was serious. He said, “You know, that is the dumbest thing I ever heard! How do you know if you don’t ask?”

And that embarrassed me more than anything else, because my mom and dad had raised my brother and me to believe that anything we wanted to do, if we were willing to work really hard and study, we could do it. They always said, “Be risk-takers. Don’t ever let anybody tell you what you cannot do.” That was in the segregated South. I had forgotten that. And Ron embarrassed me.

As soon as I got him safely in his airplane and saw him lift off heading back to Houston, I went home and I told my wife,

Jackie, I know this is crazy idea, but I’m going to put my application in for the space program. I don’t stand a snowball’s chance in hell of being selected, but if I don’t apply, I don’t know how

I'll look at myself years down the road, to say "I didn't even try". I don't want to do that. I'd rather put my application in and be turned down. Then I can live happy. We can go off and do the rest of our lives.

I ended up getting selected to come down to Houston and interview in one of their ten groups or so, and to spend a week down there. It was mostly physical, medical and psychological exams and stuff, but it was also an opportunity to be around the astronaut office and do things with them. I played a softball game with the astronaut softball team. I just had a good time.

I came back and I remember telling Jackie, "You would love it down there. That was absolutely incredible. But I don't stand a snowball's chance in hell of being selected." Because everybody there had academic degrees up and down their arm. Even many of

the pilots had advanced degrees and stuff. I had a master's degree from the University of Southern California that I had gotten while I was recruiting out there, but that was in something called "systems management". It wasn't an engineering degree like everybody else. So I figured my chances of getting selected were like zero.

Several months later I got a phone call. I think I interviewed in February, and I got the call the week of my wife's birthday, at the end of May. I was on my way out to fly a test flight and somebody yelled across the radio and said, "Hey, you got a phone call from Houston!"

I thought about just saying, "OK, tell them I'll call back," because my assumption was that it was a phone call to say, "OK, you did well, but we didn't pick you." But something said to me, "No, take the

phone call.” So I walked back over and took the phone call.

It was Mr. George Abbey, who was director of flight crew operations. He was the guy that ran, owned, all the astronauts and airplanes and everything. He said, “Hey, this is George.” And then I did think, “Oh geez.”

We had been told when we left that, “If you get selected, George will call you. Nobody else—just George calls all the people selected. He also calls some that aren’t selected. But if you get a call from George there’s a good chance you’ve been selected.”

So when he said, “This is George Abbey,” I went, “Oh!” He said, “Hey, do you still want to be an astronaut?” And I said, “Yes, sir.” He said, “Well you’ve been selected in the second group of Space Shuttle astronauts.” I immediately said, “How soon do I have to be there? Do I need to be there next week?” He said,

“No, just calm down, we have to call other people and notify them. We’ll be in touch and tell you when to come.”

And the funny thing was, I was on my way out to the flight line to fly what was called an “accelerated service test” in an A-7, a single-engine airplane. My job was to go out and fly around out over the Chesapeake Bay and the Atlantic for about an hour, jamming the throttle back and forth to see if I could get the engine to quit. Hopefully not, because if it quit, and I couldn’t get it to restart, I would have to jump out of the airplane. I would have to eject. So I was out doing this, and I thought to myself, “This is stupid. I have just been told that I have been selected to be an astronaut, and I’m out here trying to get this doggone airplane engine to quit so I can jump out of an airplane! This doesn’t make any sense.” But I did it. I finished. I went back in and landed, and immediately

went home. And, because they had told me I could tell my wife, but not anybody else, we kind of celebrated in private.



Charles Bolden in a NASA T-38.

The next month we drove from Patuxent River, Maryland down to Houston, and I started my training in the astronaut office. When we moved to Houston, there was an Episcopal Church that was right in our neighborhood, St. Thomas the Apostle, and that's where Jackie and I went with our kids. Our daughter was a pre-K student, and our son was in grade school. We became members of the congregation at St. Thomas, and became very active in the church, with the senior high youth, and teaching Sunday School. The governing body in the Episcopal Church is called the vestry, and we both served off and on as members and leaders of the vestry. We became involved in Black ministry in the Diocese of Texas. The church was always a pretty important part of our lives. A number of former astronauts had been members of St. Thomas. Buzz Aldrin had actually taken a consecrated wafer and a little vial of wine to the

moon with him, so that he could celebrate communion on the moon.

The first time I got into space, there is one word that describes it. That word is “awesome”. It is an old word, but I have not been able to find another one that adequately describes it.

I was incredibly well prepared for my first flight, technically. I was totally unprepared emotionally for what I experienced.

We had been through four countdowns and cancellations before we finally launched on our fifth attempt. We were scheduled to launch in late 1985, but we launched on the 12th of January in 1986. When you lift off from the Kennedy Space Center you’ve been lying in the vehicle for about two hours or so, on your back, just waiting for the ground control to finish all the checks and everything. And you can hear everything going on.

The first time we went out we got down to 14 seconds and the clock stopped. We knew something wasn't right. That time it turned out that they thought that there was a problem with one of the solid rocket boosters, big rockets on the side of the shuttle. So we "scrubbed" the launch. They rolled the vehicle back to the Vehicle Assembly Building. That sent us home for Christmas.

We trained more. We came back on the 3rd of January to get ready to fly. We went out and the clock went down to 14 seconds and stopped again. This time it was a problem with one of the main engines.

We went out the third time and the clock stopped at 31 seconds. That turned out to be fortuitous because with the previous cancellation there was a problem with getting liquid oxygen into the vehicle from the



The crew and the launch of STS-61-C in 1986, Charles Bolden's first space mission.

storage facility at the Kennedy Space Center, and when they defueled the vehicle they broke something that lodged itself in a valve that that was supposed to close before you launch. If we had launched that day we would not have made it to space because we would have drained a lot of the liquid oxygen out and we would not have had enough propellant to go.

So God watches over babies and fools. I've always believed that!

The fourth time we went out everything was perfect, except the weather. We lay there for a couple of hours listening to the lightning and thunder and everything around the pad. We had asked the night before, "Why are we going out? The weatherman says we are not going to be able to launch tomorrow. So why don't we just give people a day off?" They said, "No, we've got to try", and we said, "Okay, we'll do that." So we went out and suited up and got in the vehicle and lay

there until finally we started talking about all this lightning we were hearing and the folk in Houston said, “Okay, let’s get them out”, so we came out.

We went back out the next day for launch attempt number five, and we were so certain we were not going to launch that several of my crew members had unstrapped, which is a no-no. They have these different “holds” in the countdown so that the ground can make sure everything’s okay. We came out of the final hold at T-minus 9 minutes. They said, “Okay, we’re getting ready to come out of the hold” and we went, “Oh geez”—so we had people scrambling to get strapped back in and everything. The countdown went without a hitch and we launched. That was the beginning of a journey that I shall never forget.

You’re laying there on your back and all of a sudden you can hear the three main engines, and you can feel them. The vehicle just kind of shakes and it

literally leans, because it's attached by the two solid rocket boosters to the launch pad. There are eight bolts that hold you and the engines are off center so they push the vehicle until the bolts just can't go anymore and it snaps back. We call that the Twang. The Twang takes about seven seconds.

So the main engines ignite seven seconds before liftoff. We did the Twang, the vehicle came back straight up, and then here goes this big explosion as the two solid rocket boosters ignited. The vehicle just roared, and you're vibrating, and you had no idea—our simulators are really good but we don't have a way to simulate that violent eruption of power. And unlike the Apollo vehicles, where it took forever to get off, Shuttle just leapt off the pad. You do a roll to make sure that the vehicle can control itself. We call to the ground that we're in the roll program. They

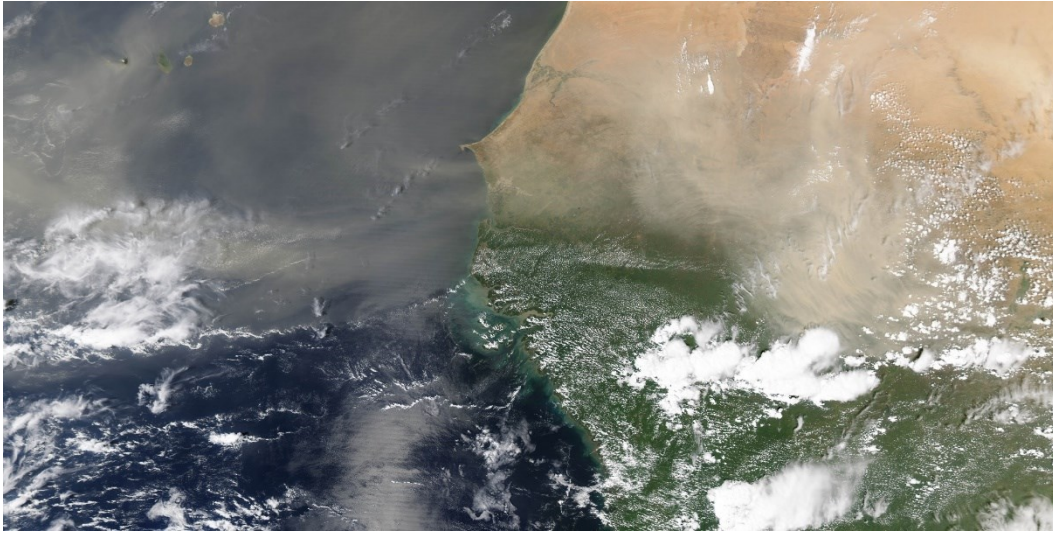
want to hear that call and that makes them comfortable that things are working right.

The solid rocket boosters separated after about two minutes. It got really smooth. It went from shaking and vibrating to feeling like you are in the most comfortable limousine you've ever been in, on the smoothest highway you've ever been on. I mean it's just a wonderful, comfortable ride. The engines burn for about eight and a half minutes and that accelerates you to 17,500 miles per hour. In the last forty-five seconds or so the vehicle has lost most of its weight. The fuel has burned off, the two solid rocket boosters that were about two million pounds of weight have separated, and you've got this million and a half pounds of thrust pushing a 200,000 pound vehicle into space. We throttle the engines back as far as we safely can so that the crew only feels about three times the force of gravity on your chest. It feels like you have a

couple of gorillas sitting on your chest. But you just kind of grunt it out for the last 45 seconds or so. And then the main engines cut off and you're essentially in space.

You've still got to do another burn that puts you in a circular orbit from this giant egg-shaped orbit. But about 15 minutes into the flight I was able to raise my seat up and I looked out the front window and I could tell that we were going over the British Isles and I saw what I thought was this island.

And then I said, "no, it can't be an island". It was the continent of Africa. I'm a very emotional person. I cry at the drop of a hat. So I'm sort of an unusual Marine! But my dad taught me to cry. He was my high school football coach and he hated to lose and whenever we lost a football game he said, "Okay, cry and get it over with."



Western Africa, seen from space.

So I realized it was the continent of Africa. Being a person of African descent, I had studied African geography for the year before my flight because I wanted to be able to look and see some of the West African countries from where my ancestors may have come. I looked out the window. I have no idea why a person who's 39 years old and has seen a lot of stuff—why I expected that I was going to look down here and see lines on the continent of Africa that were going to de-

fine the countries, but I really did. And when I looked out the window the beauty and the magnificence of the planet was just breathtaking. There were no lines or anything. I literally cried. But immediately I said, you know, all this stuff I've been taught all my life about differences in people and about differences in countries, we created that—between one ear and the other ear—and I realized that, no, that's not the way God intended it to be. *This* is the way that God created this planet.

I spent fourteen years in NASA as an astronaut. After my fourth Space Shuttle mission, in April 1994, and after my daughter graduated from high school in June 1994, I was offered an opportunity to go back to the Naval Academy as the Deputy Commandant of Midshipmen. I would go on to be promoted to Brigadier General in the Marines and serve in Tokyo, and in Kuwait. I would command the third Marine Aircraft

Wing before retiring from the Marine Corps and working in the private sector a few years. And then I got a call from the Office of Presidential Personnel in the Obama administration, asking me if I'd come back and do a couple of interviews.

I ended up being selected as the NASA Administrator, the head of NASA. I did not know President Obama, had not been involved in the campaign, didn't like politics or any of that stuff. But he decided he was going to nominate me. And so I came back and spent both terms of the Obama administration as the NASA Administrator.

So that's how I got to NASA. It's a long story, but that's how it happened.

Sources

This book consists of the words of General Charles F. Bolden, Jr. from two interviews that he gave in connection with the celebration of the 30th birthday of the Vatican Observatory's "Vatican Advanced Technology Telescope" (or "VATT") in September of 2023. The first interview, in which General Bolden was asked to tell his story with "an eighth-grader in mind", was with Christopher M. Graney, Adjunct Scholar with the Vatican Observatory and Press Officer of the Vatican Observatory Foundation, prior to the VATT celebration. The second interview was with Br. Guy Consolmagno, S.J., Director of the Vatican Observatory and President of the Vatican Observatory Foundation, at the celebration itself.

Of course, interviews are filled with pauses, interjections, backtracks (such as, "oh, wait, I forgot to mention...") and diversions from the main story. Graney has edited Bolden's words in order to (1) eliminate those (2) take out words that were direct responses to interviewer questions (such as, "I'm glad you asked that") and (3) blend together the contents of two different interviews (Bolden's discussion

of going into space is from the Consolmagno interview, the rest is from the Graney interview).

Images are from Wikimedia Commons, NASA, and Google Street View. The Introduction is condensed from NASA's "Charles F. Bolden, Jr." web page:

www.nasa.gov/people/charles-f-bolden-jr/.

