

**JOHNSON SPACE CENTER ORAL HISTORY PROJECT  
EDITED ORAL HISTORY TRANSCRIPT**

JON A. MCBRIDE  
INTERVIEWED BY JENNIFER ROSS-NAZZAL  
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ROSS-NAZZAL: Today is April 17, 2012. This interview with Jon McBride is being conducted for the JSC Oral History Project at the Kennedy Space Center Visitor Complex. The interviewer is Jennifer Ross-Nazzal, assisted by Sandra Johnson.

Thank you again for making time for us, especially at this late moment.

MCBRIDE: My pleasure.

ROSS-NAZZAL: Tell us about your interest in the space program as a child.

MCBRIDE: I guess, my first, really, recollection is probably 1957 and the launch of Sputnik [Russian satellite] and followed on with Explorer [1, U.S. satellite] and the selection of our astronauts and our Russian cosmonaut friends. I guess I was 13 or 14 when Sputnik was launched, so I was captivated, like most Americans, particularly the young kids.

It got my attention, to the point that my friends and I would design our rockets in our mechanical drawing classes and bring those drawings home to my laboratory that my mother let me build in the basement. We would fabricate them out of copper tubing and build the solid fuel to go in them and a launch pad out in my backyard. I had plenty of room, a couple acres there in West Virginia. Homer [H.] Hickam, if you know Homer, grew up in the next county from me in

West Virginia. So we were doing the same thing at the same time, as a lot of youngsters were back in those days, building rockets and firing them.

I couldn't get enough model airplanes to build, so I was enthralled by aviation and astronautics as it developed as a young kid. As soon as I could, out of West Virginia University [Morgantown], I was off to the Navy. The whole time I was in the Navy, which was 13 years, I read all I could. I knew all I could about Alan [B.] Shepard and John [W.] Young and Jim [James A.] Lovell, Charlie [Charles M.] Duke, Bob [Robert L.] Crippen, all those guys that came from the U.S. Navy who were fighter pilots or jet pilots. What did they do during their career in the Navy that allowed them to subsequently go down to NASA and fly on Mercury, Gemini, and Apollo? I did the same thing. I flew as many airplanes as I could. I got as many carrier landings as I could.

I worked very hard to establish myself as a good Navy pilot and realized after my second sea tour that I had to go to test pilot school, because all those guys had done that. So I applied for and was accepted into test pilot school. As I mentioned earlier, they always send one to Air Force test pilot school. I got assigned to do that, which was, in my estimation, one of the better years of my whole career. As a Navy guy I got to go to Edwards [Air Force Base, California] and spend a year with the Air Force and fly all the Air Force airplanes and go through Air Force test pilot school, which gave me an opportunity to fly 20 or 30 different airplanes that I never would have gotten to fly, and then go back to the Navy and test missiles and weapon systems and airplanes for a couple years.

I got chosen out of the test squadron out of [Naval Air Station] Point Mugu, California, to go down to Houston [Texas] to be in the first class of Space Shuttle astronauts, which were 35 of us. We were named the TFNG, the 35 New Guys, 15 pilots and 20 mission specialists, so I was

really honored to be in the first class that came aboard specifically to train for and fly Space Shuttles.

ROSS-NAZZAL: When did you find out that they were selecting Shuttle astronauts?

MCBRIDE: They put out a notice like they do currently to all the services and the newspapers and the TV stations that they were soliciting for astronaut applications. I think I got it through my squadron. There was a message that came from the U.S. Bureau of Personnel, I guess, to all the Navy squadrons that NASA's looking for applicants for the Space Shuttle Program, pilots and mission specialists. So I, along with several thousand other people, filled out the voluminous application. I think it took longer to fill out the application than it did to go through the process. It was about 60 or 80 pages, if I remember. I think that solicitation went out in early 1977, and you had to have your application in by March or something like that, and then they started the interview process.

I went down in August of '77 for my weeklong interview. I've heard numbers upwards of nearly 100,000 of just kind of everybody putting their name in the hat, to where they looked at 9,000 seriously, or something like that, and then out of the 9,000 picked 200 finalists, and then invited 10 or 15 a week for however many weeks it took to get 200 people to Houston for a week. Then they went through those 200 pretty seriously for about 6 months. I don't know exactly the numbers.

In January of '78, they called the 35 people on the same day and said, "We've picked you." I'll never forget the phone call I got from George [W.S.] Abbey. I was testing airplanes and weapon systems out at Point Mugu, California, the Naval Air Station. Six o'clock in the

morning exactly, which would have been eight o'clock in Houston, I heard the phone ringing. I said, "Oh, my gosh, what's going on? What's happened at the hangar? We must have a fire or an airplane in trouble or something." I was barely awake when I picked up the phone, "Good morning."

This other person on the other end said, "Morning, Jon. This is George Abbey down at the Johnson Space Center. How's the weather out there in California?"

"Who's this again?"

"George Abbey down at the—."

"Oh, George, golly. I'm just barely waking up out here. It's really nice to hear from you."

He said, "Well, I hope it's a pretty good day out there, because I'd like to invite you to come down to Houston to fly Space Shuttles in our new group of astronauts."

It finally hit me. Wow! I was awake now. I felt like I levitated about three feet off the bed as I was still there. "Yes, sir. Yes, sir, I sure would. I'd love to do that." So that was my first phone call, the phone call you get to notify you.

"Well, don't say anything," I think he said, "for the next three or four hours, until we can make sure we've notified everybody. Don't say a word to anybody."

One of the troubles there was that my best friend the whole time running through the Navy and I had applied at the same time. We promised each other that if we got the call, I'd call him or he'd call me. I waited an hour or two hours. I didn't hear anything from him, waited maybe three or four hours like George had told me, and finally I had to call him and say, "Hey, I got a call this morning. Have you heard anything?"

He said, “Yes, I got one just a few moments ago that I’m not going to be going down there.”

Kind of had a big rise and then a big fall because, really, the fact that he didn’t get to go with me after we’d run together for 13 years in the Navy, but he ended up being a commander of the Blue Angels.

ROSS-NAZZAL: Not bad.

MCBRIDE: He got his reward too.

So I think that was January 8<sup>th</sup> or something like that, [1978]. I don’t remember the exact [date], but it was January, and we were told to plan on reporting to Houston in June. So all 35 of us came down a couple months later for the initial briefings and the photography and meeting each other. Then we went back to our respective places of appointment and got ready to come to Houston in June.

ROSS-NAZZAL: Tell us about February and coming—well, I guess it was the end of January/early February—and meeting the press for the first time. You had women in your class and minorities.

MCBRIDE: First six women, first African Americans, and also Ellison [S.] Onizuka, the first Japanese-[American]. The first West Virginian, I was really proud of that. I love to use the word honored and blessed. I mean, how much better does it get than to be in the first class of Space Shuttle astronauts and getting to come down to Houston? You take a look at those 35

people there. No matter how you judge or look or rate or evaluate, to be in that class of 35 was really something, to make it through that 9,000 people to get into 35 was an honor for all of us. I think we all agreed to that.

We left that first meeting; I think we all knew each other. A couple guys I'd gone to Houston with for my week, there may have been—I don't remember exactly who. I knew just about all the pilots that were in the final 200, because we were test pilots. We'd all worked together. We'd either gone to school before, during, or after each other, in some order, and we knew each other from test pilot reunions and stuff like that. So all the finalists I knew, pretty much of the 15 pilots in my class I had met or known probably half of them at least for several years before that.

ROSS-NAZZAL: Some were from your test pilot class. Is that what you told us?

MCBRIDE: Yes. Steve [Steven R.] Nagle, Loren [J.] Shriver, and I were from the same test pilot class. Guy [S.] Gardener was in the same class, but he got chosen two years later. We thought he was going to be with us. He was the number-one guy in our class. If anybody got chosen, we had thought it would be Guy. He did get picked up two years later.

One of the mission specialists, Dale [A.] Gardener, in my class, came from the same squadron I did in California. He was working for me. You could tell that he was going places in the Navy. If he hadn't gotten to NASA, he probably would have been an admiral. He was one of those guys that—well, he was, I don't know how many, three, four, or five years younger than I was. He got chosen as a mission specialist, but you could tell Dale Gardener was going places. Fortunately, he got to join NASA with me in the same class.

It was a very exciting moment, and we all couldn't wait to get to Houston in June and start our astronaut candidate training. They didn't know what to call us, so they called us astronaut candidates, to make sure that we could get through, I guess, the basic training before they would dub us astronauts. After a year, 18 months or something, we changed categories from astronaut candidates to astronauts ready for assignment to a flight. I remember how great that was finally to get the "candidate" thing off of your business card and "astronaut." Still you weren't really an astronaut till you flew. There was certainly a differentiation between flown and not-flown guys and gals. You really didn't feel like you were on the next step until you got to get in the Shuttle and go fly yourself, which is understandable.

ROSS-NAZZAL: Tell us about the training that you participated in once you came onboard, before you officially graduated and became considered an astronaut.

MCBRIDE: Well, we were the first ones, so obviously we were the pioneers, we got the arrows in the chests, and we learned all the things the hard way. One of the things we learned, you mentioned the press and the news, none of us had ever been exposed too much to that before, so we learned the hard way. I think it was after our year or so of training that we convinced NASA down there that one of the first things you need to in the next class is to give them some media training, give them a week or two of how you respond and how you relate to the media: TV, radio, newspapers, because it was one of the things we had to learn the hard way. So they do that now, and they did that on the subsequent classes. That's the first thing that you got to do, was do your media training so that you were ready for the fire.

When you look at our class of 35 people, the 15 pilots you could almost stamp them out of a mold. They were test pilots. They had flown many thousands of hours. There was a little difference in the types of airplanes we had flown and the combat experience, but most of us had that. Mission specialists were all over the spectrum. They were from military and civilian life. I think more civilians than military. Sally [K. Ride] was an astrophysicist. Kathy [Kathryn D. Sullivan] was an oceanographer. [M.] Rhea [Seddon] and Anna [L. Fisher] were medical doctors. Just look at it, obviously very talented in their individual fields. All of us pilots, we were all essentially test pilots, but we had varying backgrounds.

You put us all together, and I think it was a good thing that for a year we all sat in the same classroom. I learned about meteorology and oceanography and volcanology and planetary physics, all of the things that some of my people knew very well that I hadn't had a lot of exposure, and vice versa. The mission specialists who were physicists and astronomers and things got to learn how to fly. I spent a lot of time with Sally in my backseat. After a couple of years, Sally Ride could fly an airplane just about as good as anybody else. She was just a natural. I remember letting her fly some instrument approaches with the hood over in the backseat after a couple of years, and she was amazing. I like to take a little credit for getting Sally up to the rate where I would call her a darn good pilot.

It was a year and a half of pretty intensive training in the classroom, mixed with the pilots learning how to fly the airplanes. Of course, the mission specialists, who had never flown, we had to get them indoctrinated into flying and flight. I think after a year and a half, the 35 people went to the next level. You were almost a homogenous group of people with flying skills and scientific skills and oceanographic skills and medical [training]. We spent three or four weeks with medical doctors learning anatomy and physiology and those types of things. So I think it

was like at least going back to college for another master's degree in astronautics, how to be an astronaut. You should get another degree for it because it was a pretty extensive, intensive year and a half.

Afterwards, you're then ready for assignment to a flight. That doesn't always happen right away. I think it took probably two years before I got assigned to the first flight. The first big job out of basic training was to be the lead chase pilot for the first mission, set up a flight chase crew. We called ourselves a chase crew: four pilots, four airplanes. It was probably one of my better assignments of my whole life. A couple of years we trained on how to rendezvous and join with the Shuttle as it came out of orbit the first time and fly down and make the landing, which was the world's most complicated rendezvous and fly. If I miss John [Young] and Bob [Crippen] coming out of orbit by more than three or four seconds, I'm either five seconds ahead of them, which means I can't get there; if I'm five seconds later, then I'll never catch them. So it was like you've got about three seconds to get in the right place at the right time at 40,000 feet over Edwards.

We practiced. We had to practice the rendezvous down here for the return to launch site. If they'd had to come back and make a landing here, we were in the right spot to join and fly down with them here and White Sands [Northrup Strip, New Mexico]. We had to know all those three primary landing sites. I knew the topography of those three sites just like my backyard. We practiced a thousand times, three hundred times each place.

I guess the culmination of our training was we had an SR-71 that flew the Space Shuttle final profile. He got to the exact point at the exact same speed as the Shuttle would be, and then we would join him. You can't stay with him very long. It was more of a timing thing to get to the right place, because he can't slow down and decelerate like the Space Shuttle, but we could

get to the same place at the same airspeed at the same time. So when we did that successfully several times, okay, we can get the Shuttle now, and we did.

It was high overhead, 40,000 feet, when John and Bob came out of orbit and made that first landing at Edwards, and we were joined up with them about 30,000 feet or so. We were there primarily—they called us safety chase, but I think the best thing that came out of the whole rendezvous and fly-down was that we got some good photography. Our primary job was to scan the Shuttle as it came out of orbit, because we'd never done it before, and if there's hydraulic leaks or missing parts of their control system, we could tell them. I don't know how much good it would have done, what they would have done, but, fortunately, there was no problem.

The other reason I was there is because when we came out of orbit, having never flown a Shuttle for reentry, we didn't know if their airspeed and altimeter and all the instrumentation inside the Shuttle would be factual. So the first time I got aboard, one of my first calls was how high I was, how fast I was in my highly calibrated T-38. Their airspeed and their altitude was perfect.

ROSS-NAZZAL: Who were the other pilots? You mentioned there were four of you.

MCBRIDE: Well, first of all, the primary chase group was myself, and "Pinky" [George D.] Nelson was in my backseat, a classmate. He was doing all the photography. He took those famous shots of the Shuttle touchdown at Edwards. He was the guy that took that picture just as it touched down on the ground, Pinky did.

In the other airplane was the staff pilot at Ellington [Field, Houston, Texas]. His name was Dick [Richard E.] Gray. He came from the same squadron in California with Dale Gardener

and I. He wanted to be an astronaut, but he didn't quite make the cut. So he said, "Well, I'll go down to Ellington and fly as a staff pilot and I'll keep applying." He did it two or three times. Finally, he never made it, and he went to work for NASA as a staff pilot out at Dryden [Flight Research Center, Edwards, California] for several years. Unfortunately, we lost him in a spin accident out there.

In my backseat was Pinky. We had the still photography. Dick Gray was flying on my wing with a TV cameraman. Pete [Clarence P.] Stanley, who was a staff TV guy in the studio there in Houston, was in his backseat. Pinky was taking the still photographs of my rendezvous, and Pete and Dick Gray were in the other airplane taking TV photography that you saw from the air as we made that approach.

[Interruption]

ROSS-NAZZAL: You were telling us about some of the people who were in the planes. You mentioned Dick Gray and the TV cameraman.

MCBRIDE: Stanley in his backseat. In the standby, we had a backup crew. If I went down during launch or recovery, then "Hoot" [Robert L. Gibson] would have been the guy that joined on. His wingman was Dave [David M.] Walker. That's wrong. Dave Walker would have been my guy, and he had the still photographer in his backseat. I think it was Anna Fisher. Then the other airplane was a professional photographer, once again a NASA-JSC TV guy from Houston. His name was [Bobby V.] Gray.

Usually when we went somewhere to practice, all four airplanes would go and all four crews would go. During the year before the flight of STS-1, we probably spent 150 days on the road practicing those procedures at 3 different places, talking to the controllers about the procedures we were going to use, and coming up with call signs and timing. Everybody knew the timing had to be within five seconds or we weren't going to effect the rendezvous.

We got to know very intimately all the people at Vandenberg [Air Force Base, California], which controlled us out there for the Shuttle approach and landing at Edwards. We got to know the people at White Sands, New Mexico, very closely from Holloman Air Force Base [New Mexico], who would have controlled us if we'd have landed at White Sands. We got to know all the folks here at Kennedy [Space Center, KSC, Florida] and the Patrick Air Force Base [Florida], who would have controlled us had we had to rendezvous with them for the return to launch site, which was a whole different rendezvous. They were all different mixes and matches, so it took a lot of practice to make sure that we could get these airplanes within a five-second window on the Shuttle as it came back through 40,000 feet.

ROSS-NAZZAL: Kathy Sullivan told me that your class sort of joked with you about the Chase Air Force.

MCBRIDE: Oh, yes.

ROSS-NAZZAL: Is that what they referred to you guys as?

MCBRIDE: We had our own patches. I had one here somewhere. We had our own patch we put on our flight suits. They called us the Chase Air Force or the Chase something or other. Kathy got to fly with us a little bit, I think.

ROSS-NAZZAL: Did she?

MCBRIDE: Sometimes our backseaters couldn't make it, so we'd fill it in with some of my classmates to give them experience of what it looked like to fly that rendezvous and what it would look like coming out of space.

Kathy and I flew a lot together. Kathy and Sally and I flew a lot together during our training for the STS-41G flight. I don't know how many hours, but I know Sally and I flew long enough to where I really felt like she could probably fly that T-38 herself.

ROSS-NAZZAL: Were you still flying chase flights for the rest of the orbital test flights?

MCBRIDE: No, I just did it the first flight. After the first flight, I got assigned to the Shuttle Avionics Integration Laboratory, SAIL we called it, for a couple of years. You know about SAIL probably, where all the components are set up in the same area in the same lineup and everything. We were flying, and I flew a lot of the ascents and entries out of the cockpit there at the Shuttle lab. Then I was assigned to be a CapCom on flights 5, 6, and 7, capsule communicator, and then I got assigned to my mission in August of '83, the same week that [Hurricane] Alicia came through the Houston area and just about decimated things there.

ROSS-NAZZAL: Tell us about hearing about that assignment. How did you find out?

MCBRIDE: George, once again, called me. He said, "Jon, you got a little time this afternoon to come over?"

I said, "Sure. What time?" I walked over.

He said, "Going to give you a flight."

"All right!" Can't be a better day than that. Obviously, the next question was, "Who am I flying with?"

He said, "Oh, I thought you'd ask that. You're going to fly with Crip, and you're going to fly with Sally. You're going to fly with Kathy and David [C.] Leestma."

"Wow! That's just a great group of people," five of us originally. So I couldn't have been any happier. I think Crip was the first one he told, then I was the second, and then he told the mission specialists. I believe that was the order. I think everybody was happy with it.

So we charged off and started training a week or two later for our mission. Since Crip was already involved in the [STS]-41C, he couldn't train with us, I was like the commander and the pilot for about almost a year of the training process. We'd see him occasionally, but until that flight landed, which was spring or early summer, we didn't see a whole lot of Crip. So lots of time in the simulator, I'd be flying Crip's left seat and then working my seat, and then David Leestma would sit in one. The four of us, Sally, Kathy, David, and I, split the piloting duties while Crip was training to fly for the earlier flight. We got Crip onboard, I guess it was two or three months before launch where he settled in the commander's suit. That was easy for him, because he'd just done it, and it was really good for me because I got to spend half of the time in his seat and half the time in my seat, so I was learning the whole system.

He came onboard the summer of '84, and we trained together pretty rigorously for three or four months. We're one of the few flights that had a launch date established. I think they changed it a month ahead of time by a week or so, but once it was finally established about a month out, we came down after our TCDT [Terminal Countdown Demonstration Test]. We did that and then nothing changed. We came down the day we were scheduled to arrive here before launch. We launched exactly on time, no delays. We spent our exact amount of time in space and came back and landed at the exact right time. So there's one of the few flights that ever did that.

A couple days before landing Hurricane Josephine was steaming around the Atlantic and heading right toward Kennedy. Yay! [Applauds] We'll either get to stay up here for an extra two or three days, probably, which will be nice. We had some things we could have done. I guess the day before they had to make the decision, the hurricane turned a hard right and went back out in the ocean, so we had to come back and land on time. But we took off and landed exactly on time.

I guess the thing I forgot to mention is three or four months before launch, we all got a call, "We're going to add two more crewmembers to your flight."

"Who are they?"

"Well, we're going to fly the first Canadian, Marc Garneau. We're going to fly the first Australian, Paul [D.] Scully-Power, who's an oceanographer for the Navy here. You'll be the first crew of seven."

"Well, we'll make that work." I don't know whether I've got a patch here or not. You're probably familiar with the [STS]-41G patch. These have flown. We've still got some that we flew. I got to design this, by the way.

ROSS-NAZZAL: Oh, you did? Would you talk about that?

MCBRIDE: Yes, sure. When we designed the patch, there were only five of us, so we had the five names on the patch, and then we printed several thousand of these things when they said they were going to add the other two guys so we had to go back and sew the bottom two names on. This is the first patch that ever had one of these little chevrons on the bottom; added Marc Garneau and Paul Scully-Power.

I originally designed the patch in this fashion because we were going to fly *Columbia* on the seventeenth flight, so I put Columba and the Pleiades. It added up to 17 because of *Columbia*. After we designed the patch, of course, I put boy-girl, boy-girl. I don't know whether you saw the Greek symbology there. Each one of the names has a male-female sign. Of course, I wanted all the red, white, and blue. We're the first patch that did not have a Space Shuttle on it as part of it. Everything before us had a Space Shuttle somewhere there. I replaced it with the astronauts' symbol, the gold pin we get to wear on our lapel when we finish our first flight. We were optimistic.

After I'd done this whole patch in that design you see there, then NASA said, "You're going to be moved now to the 14 mission and we're going to put you on *Challenger*." Oh, man. Didn't change anything but go back and put 14 stars up here. That's the only thing we changed, went from 17 to 14. We finally were launched as the 13<sup>th</sup> flight.

ROSS-NAZZAL: Didn't go back and change anything?

MCBRIDE: I was covered. I didn't realize the 13 stripes on the flag were there, so that's the symbology. Of course, the smoke and fire of the launch of the Shuttle being replaced by the insignia. I get a lot of questions, "Well, you got Garneau with the male symbol, and you got this Scully guy with this thing right here. What's that mean?" Of course, it was a hyphenated name, and we get a lot of kidding. "You've got boy-girl, boy-girl and then what is this? What's that mean?"

I think that's about it. It was a labor of love. That's one of the first jobs Crip gave me when we assembled as a crew. He said, "I want you to go design the patch."

"Be happy to."

ROSS-NAZZAL: Did you get input from the rest of your crewmates?

MCBRIDE: Oh, yes, everybody. There's a fellow by the name of Pat [Patrick Rawlings]. He's an artist there in Houston. This is the first patch he did. He ended up doing 10 or 20 for other follow-on crews, but this is the first one that he did. He worked for one of the contractors there in Houston, if I could think of it. I took my ideas to him. I've still got some of the original drawings someplace, where he came back and said, "How about this?"

I said, "Well, I want to get the symbology in there right." We did three or four iterations to get to the original thing you saw there. Of course, I wouldn't ever do it without Sally and Kathy and David and Crip taking a look at it. Finally, after three or four months, we got this design, which stuck with us 'til, like I say, three or four months before when they added these two guys and changed the numbering.

ROSS-NAZZAL: Tell us about some of the other training you did. You talked about training in the simulators, but, of course, as a pilot you would train in the Shuttle trainer aircraft and fly on T-38s. Talk about that.

MCBRIDE: Oh, that was a fun part. Obviously, as a pilot, you've got to maintain your flying skills, and I got to fly, of course, the T-38 a lot and the Shuttle training airplane and the heavy airplane, the KC-135. So those are the three primary airplanes that I flew. I enjoyed flying the mission specialists and teaching them. I was a flight instructor in one of my previous lives, so teaching was always one of my favorite things to do. To see someone who'd never even been in—well, they'd flown commercial, obviously, but they'd never been in a high-performance jet, a fighter or a military jet, to put them in the backseat the first time and see the sparkle in their eyes and watch them progress to where Sally got, like I say, I never was asked, but I probably would have let her fly the airplane, taken off, and land it by herself. She could do that kind of stuff.

So the flying was enjoyable. Flew a lot of our flights from Houston out to El Paso [Texas]. Most of our Shuttle training airplane work was done out at White Sands, north of El Paso. So we'd fly back and forth a lot out there to fly the Shuttle training airplane. The closer you get to flight, other than when I was lead chase pilot, I amassed a lot of flight hours during that year or two, probably as much as I ever got in the Navy. I think that's why they were jealous of us, because we got unlimited use of the airplanes, got to fly whenever we needed to.

When you get assigned to a crew, it's the same way. If you need to go fly somewhere, you had primary choice of airplane. You were number-one priority. So it really is special to be

a prime crew ready to go fly. You get T-38s and you're getting probably a couple, three Shuttle training airplane flights a week, so the flying is good.

A lot of the times I would fly Sally or Kathy out to Boulder, Colorado. Our satellite was being built there by Ball Brothers, and we'd go out and spend time in the facility watching them put this thing together, because if we ever had to work on it in space, it would help them know how it went together to help them maybe take it apart if they had to or do repair work to it to know where all the stuff was. So we spent a lot of time in Boulder, Sally and Kathy and I. Sally was our primary RMS [Remote Manipulator System] operator, so she launched that satellite, lifted it out of the payload bay and launched it.

Marc Garneau from Canada was big into solar physics, so he did a lot of experimentation on our flight, studying our sun with photography and other sources. Kathy, obviously, and Paul Scully-Power are oceanographers so we learned a lot about the oceans and ocean currents and things called spiral eddies that people didn't really know even existed until we studied them from space. You could see these cyclonic effects in big areas over the oceans and the sea. You couldn't see them from the sea and you couldn't see them from Earth, but you could certainly see them from space.

One of my favorite pictures, I think Paul or Kathy took, was of a two-day wake of a ship going through the Mediterranean, and they last for a long time. In the middle of two or three places in this wake, you'd see where it was displaced four or five miles by the current. There's a spiraling eddy right in the middle of the Mediterranean Sea. There's a big one right around the Bahamas and Bermuda and led people to believe maybe this is why over the centuries we've been losing ships around Bermuda and the Bermuda Triangle. Nobody knew why. [Maybe] because there's a big cyclonic current around there that shifts and changes and moves. Maybe

that's what's driving people into islands for the last two hundred years, and they didn't know why.

Flying is, obviously, my passion. I loved it. I'm real happy I got to do all I got to do.

ROSS-NAZZAL: You also were the IVA [Intervehicular Activities] crewperson.

MCBRIDE: Right.

ROSS-NAZZAL: So did you train a lot out at the WETF [Weightless Environment Training Facility]?

MCBRIDE: David Leestma and Kathy did our spacewalk. Kathy's the first American woman to do that, and, obviously, I was overjoyed to help her get into her suit and train to help her get in her suit and monitor their progress and bring them back in and unsuit them. We probably, I'm guessing, spent 50 or a 100 hours in the diving tank in Houston in preparation for that EVA [Extravehicular Activity]. They'd get into their pressure suits. I'd help them get into them beside the pool, just like I was going to do it in the orbiter. Then we'd lower them into the water, and I'd get my scuba gear, normally, and go down and watch everything they were doing so that when I'm watching them from the cockpit in space I'd have a real good knowledge of what they're doing out there.

The EVA went perfectly. As a matter of fact, I think they did a couple things. The primary purpose for the EVA was to do an orbital refueling, where they transferred hydrazine from one tank to another to prove that we could do that for satellites in the future. But as

ancillary things, we had trouble with our Shuttle imaging radar closing and locking, and they did a procedure to make that better. Our C-band antenna that sent all the data back to Earth was not functioning properly, so while they were out there, they kind of locked it into permanent position so they did a couple things that they had not practiced for. Our EVA people are so proficient, they get so much good training that you can almost—I wouldn't say on the fly, but you can almost extemporaneously say we need to do something to this or that, and they're good enough to do it. We did a couple of those things that weren't planned.

ROSS-NAZZAL: While you were training and even during flight, you had someone who was sort of shadowing you. You had Henry [S.F.] Cooper, who was working on his book about training of a Shuttle crew [*Before Lift-Off: The Making of a Space Shuttle Crew*]. What did you think of that, being a rookie on a flight?

MCBRIDE: Oh, you know, I'm the kind of guy that I was real pleased that Henry was there. Well, here's one of his books. I've been meaning to send them to him, get him to sign them. *Before Liftoff*, have you read it or seen it?

ROSS-NAZZAL: Yes. I have. It's a very interesting book.

MCBRIDE: Yes. I took it differently, I think. I think Sally and Kathy even maybe didn't really think that was the right thing to do. It didn't bother me, because I thought it was a great thing to have somebody watch what we were doing and document it so that everybody could have it, not

just ourselves. The whole world, if they want to read what it's like to train a Space Shuttle crew, here it is, goods and bads.

I enjoyed Henry. He's a good writer, got a lot of good heritage. He's James Fenimore Cooper's grandson. So I enjoyed that. It didn't seem like it got in my way. I'm glad he did it.

ROSS-NAZZAL: Take us back to your recollections of launch day and getting ready and going out to the pad and that whole event.

MCBRIDE: Well, back up a month where we come down for the count dry tests, and we came down and that went just flawlessly. We knew, though, that most of dry tests do go pretty well. It's when you get to the final launch that that's where you usually get delayed and scrubbed and all those things.

So when we came down for the final launch, you did feel differently. I had a feeling, for some reason, that we were going to do it on time, because we had a very smooth dry countdown. The weather was good, the ship was in good shape, and the way all of our briefings for the day or two a week before we were here were all good. I just had this funny feeling that we're going to go.

We got on the van that morning. I don't think I slept much the night before. I tried to tell myself that it shouldn't bother me, I should get a good night's sleep, but you obviously know tomorrow morning's going to be something different than the rest of my life, and it's going to affect the rest of my life. I don't know that I slept an hour, because this is it, man. Finally, all these years, 20 or so years I've been wanting to do this, since the late '50s, more than 20 years, I guess, so tomorrow's going to be a special day in my life, because I'm going to leave this Earth

with six wonderful people. We're going to go fly into space and fly around it for several days, study and explore and experiment, and then we're going to come back here and land.

So you go out to the pad that morning with this feeling, been training for it for a couple of years, I've been anticipating it for 10 or 20 years. This is it. You feel like this is really a special time in my life, and it really is. I savored every moment from walking out of the O&C [Operations and Checkout] Building, getting on the van, and trip out to the launch pad. I can almost see and feel everything that happened in those 30 minutes before we got there.

And strapping in, I can see the faces in the white room. Bob and I got in first, and then Kathy and Sally got in. Sally and David Leestma rode with us up, and Sally and Kathy rode with us coming down. I think that's the way we had it set up. I remember all of us strapping in, the countdown going perfectly, and we got down to five minutes, and I started my APUs [Auxiliary Power Units]. Once you do that, I think we've only stopped once or twice. So when you get inside of five minutes, you really feel, okay, this is it.

When that liftoff came, first of all, you're so concerned about doing your job, I couldn't forget that's my number-one job is to do what I did in all the simulators, and that's to make sure everything's working here. If something happens we do our best to combat it. So we lifted off, started accelerating, and it was just—wow. Simulators are good, but this is just something else, and you get up to 3Gs [gravity] and then it's a whole different place in your life. Not that I hadn't had 3Gs before; I'd had never had them through my chest for three minutes.

People say, "Did anything happen that you weren't expecting?"

I can say, "Yes, one thing." That solid rocket booster [SRB] separation, when you get standby for SRB sep, and five, four [demonstrates], we had all that in the simulator, but I didn't realize, nobody told me, that when you get this pyrotechnic explosion the film covers the wind

screen and it goes dark in the cockpit for 5 or 10 seconds. So when this thing went [demonstrates] and it got dark, I'm going, "Oh, my god." I look over at Bob Crippen, and he's going [demonstrates], because he knew. It happened to him. He was waiting for it, to look at me to see the expression. I kind of looked over and said, "Bob, what the hell happened here?"

He goes, "Happens all the time."

"Thanks a lot." So after about five seconds, the wind screen clears and [it's] blue sky. I think my heart went from about 60 to 70 real quick.

But after that, it was just a smooth [ride]. We lost one RCS [Reaction Control System] jet on the way up, which was no problem. Only one light came on instead of about 30, like they did on the simulator, so that was the first time in all the simulator rides and everything. There were visuals out my side window, but I was so busy with all this failures and emergencies and such, I never had a chance to look.

After three or four minutes of nothing, just nice steady [demonstrates] after solid rocket booster sep, we're flying up the East Coast. We're on a high inclination up toward the Arctic Circle. I had the guts to kind of just peek out the left window. Wow, there goes South Carolina, North Carolina, Virginia, da, da, da. This is going to be something. Then the engine shut down, you go through your post-orbit insertion procedures, and 45 minutes later, my job as pilot is to power down everything upfront and move to the aft and set up everything, hit the button, open the payload bay doors.

I hadn't really seen Earth yet. Forty-five minutes later I knew this was going to be something. In Houston when I did this task, I unstrapped, got out and walked around, hit the button, set them up. The guys that flew before me, said, "If you do it just right, when you take your seatbelt loose, don't walk." Obviously, you're in zero gravity. "If you kind of push like

this,” they told me, “you’ll kind of float up over your chair and you’ll do a kind of semi-somersault, and you’ll end up in the perfect position.” You don’t have to walk, obviously.

I almost started to get up and walk, and, no, I’m going to try this. I took my seatbelt loose, and you could feel kind of floating up out of the chair. I pushed like they told me to, and I started rotating over the chair. I ended up back there where I needed to be. Gee. Set up all the computers, hit the magic button, and as the payload bay doors started to crack open, I’m looking at Australia. As it got wider and wider, I could see all the way from the west coast to east coast of Australia. I kept thinking, “This is it.” I think I got tears in my eyes; this big swelling in your chest where you think, “My god, I’ve been wanting this for 20 years, and now I get to see it.” And the first thing I get to see is Australia, and I’ve got one of them here with me. So I think, “Paul, come up here and look and this.” Just one of those memorable things.

You mentioned sleeping. I didn’t sleep much the night before, and I don’t think I slept much the first or second night in space, because once you stop working, you’re still flying around the Earth and you’ve got 45 minutes of daylight. We cover our windows with shades, of course, so you don’t see out, but I found it very difficult to sleep. I’d float up and peel back the corner and look out. I think it was the first night. I just couldn’t resist it. I don’t know whether other people were sleeping or not, but I floated up. I like to sleep on the middeck. I think Bob and Sally and Kathy probably liked to sleep topside. I think Bob liked to fold back his commander’s chair and put his seatbelt on loose and just kind of hover over the seat.

I like to sleep in the airlock. I tried to sleep in a sleeping bag the first night, and I didn’t like it at all. I think I tied it to the ceiling in the middeck with my head down. I woke up in the middle of the night and all the locker writing was upside down and backwards, and I thought, wow. So every other night after that I slept in the airlock, tucked in between the two pressure

suits because it was cooler and quieter. I really liked it in there. You could look left and right and see heads that were like this [demonstrates].

That first night of not being able to sleep, the adrenalin is still pumping, I floated up to the flight deck and peeled back the edge of a blind, and, my god, we're right over the middle of China. I could look all the way over and see Tibet and up into Mongolia and look over here and see the east coast of China, down the Korean peninsula, pretty much the whole country of China I'm looking at like this. Wow! Seven people up here in space at this particular point in time, and I'm the only one awake that I know of because everybody else looks like they're sleeping. There's about two billion people in this picture I'm looking at, but I'm the only one here that has the opportunity to look at them. I remember that feeling of, wow, is this something or what? So that takeoff instant and that particular moment of viewing Earth—we didn't normally see China because we were sleeping the whole time that we were flying over China, but it was an awesome feeling.

ROSS-NAZZAL: You also had the President call, I believe, on your flight.

MCBRIDE: Yes.

ROSS-NAZZAL: Would you tell us about that?

MCBRIDE: People say, "Well, what's the funniest part?" That probably was the funniest part of the whole flight. We were on with Ronald Reagan, and he's on a train traveling through Kansas or Illinois somewhere campaigning for the presidency in '84 and dialed us up. We go through

some cursory hellos and how you doings and couple of questions and taking questions from around the world, one from Paris and then one from Canada, maybe, one from Australia, and I think the final one was from Singapore. You could hear a NASA operator dialing up there, [demonstrates] and the phone's ringing. After about three rings—have you heard this story?

ROSS-NAZZAL: No, I haven't.

MCBRIDE: After about three rings, the thing says, "Please hang up and try again. You've dialed the wrong number." This was going all around the world, and it's on this NASA live TV broadcast. "You've dialed the wrong number. Please hang up and try again." We all were just dying laughing when that thing happened. I think the President was listening to all this stuff too. To be able to talk to the President from space was a real pleasure and honor. He was one of my favorites. I liked him a lot.

In my career, I've gotten to meet just about every President. I met John [F.] Kennedy, obviously before I got to NASA, in 1960 when I was a senior in high school. He came through West Virginia campaigning for the presidency. He came to West Virginia because he was a Catholic and people were saying around this country of ours, "John Kennedy can't be President because he's a Catholic." Well, West Virginia's got about three percent [of the population that is] Catholic, and he came down there and overwhelmingly won our May primary in '60, and that kind of catapulted him into the presidency, because people said, "Well, maybe this is not a big issue."

A year later, in May of '61, he'd been elected, inaugurated, and was seated, and it's when he made that famous "We're going to go to the Moon" thing. Once again, that just added more

fuel to my fire. I met this guy last year. Now he's challenging us to go to the Moon. Boy, that would be something. That really got me more engaged in college and more reason to go off to the Navy as soon as I could and keep dreaming, reaching for the stars. I'm a lucky guy, I guess.

I loved it. I was in India last week. I probably spoke to ten thousand kids in eight days. They're bright. They're wonderful people. Young kid right at the end of my 20 or 30 minutes said, "Mr. McBride, you sure are a lucky man."

"You know, you're right. I'm lucky, I'm blessed, I'm all these other things," I said. "That makes me think of growing up in West Virginia when I played football there in my little high school. There was a thing over our tunnel that we ran out onto the football field that said, 'Luck is what happens when preparation meets opportunity.'" I don't know if you've ever heard that or not. It stuck in my mind. Every time I ran out on the field, I had to read that thing. So all of my life I kept thinking luck is what happens when preparation meets opportunity. I think that probably was one of the reasons that I started thinking about space in junior high or high school, and when I got into college I was thinking about space. When I got in the Navy, I was preparing. For 15 or 20 years, I prepared so when that opportunity came along in 1977, I was there in my mind and all the things I had done. I prepared myself for this opportunity that came, and when they came together, I got lucky.

I tried to tell all the kids, "You can get lucky too." One of the things I like to challenge them with is we think the first man or woman that walks on Mars could be right here in this class of yours, because he or she's probably 8 to 18 years old today. We don't know exactly what to the point, but you could be the first man or woman on Mars. What do you need to do? You need to start preparing today, not wait until you get a week before NASA is looking for astronauts. Start thinking about it today. Get your college degrees and get your experience as an astronomer

or a doctor or a pilot, and you, too, may get lucky one of these days. You can see a little sparkle in their eyes. That makes you happy.

One of the happiest things of my whole career, I've got a little file at home, where I [keep] letters. I got one last year from a kid that said, "I tracked you down. I found your address. I wanted to send you a note and thank you because you came to my grade school in West Virginia when I was in the eighth grade. This would have been back in the late '80s. You told me and my class that if I were to stay in school and study hard and go to college that I could pretty much do anything I wanted to do. I was ready to drop out of school in the eighth grade, but I didn't. I took your advice, I started doing my homework, and I came to school. I was excited about doing my math. Just want to tell you I just got my doctorate degree from Johns Hopkins [University, Baltimore, Maryland], and I'm working at the Goddard Space [Flight] Center [Greenbelt, Maryland]."

ROSS-NAZZAL: Oh, how cool.

MCBRIDE: That's really [demonstrates]. I've gotten four or five of those, but, you know, there's probably more that I've touched some way or another, but those are really special things and that makes it all worthwhile.

ROSS-NAZZAL: What was it like being a pilot and helping to land the Space Shuttle as you were coming back?

MCBRIDE: It's easy. I'm not trying to diminish the entry and the landing, but if you can fly airplanes on and off of aircraft carriers and do all the things that we do and you follow the procedures, flying the Space Shuttle is pretty easy after a few thousand hours of practice in it and simulators and the Shuttle training airplanes. Golly, it was nice to be back on Earth and have a perfect landing and rollout on time and everybody's happy. We did all of our mission objectives. But flying the Space Shuttle is probably one of the easier airplanes I've ever flown, performs well.

The biggest difference between flying a Shuttle and flying other airplanes obviously is that our control stick only moves about an inch and a half. So I'm flying this big lumbering 200,000-pound DC-9-size airplane just thinking left or thinking right. If you feel your hand moving a whole lot, then you're probably over-controlling. One of the things you learn is just be as smooth as you possibly can. That's the reason, I guess, the Shuttle has lasted and did so well is because we really baby them. We take care of them. We fly a nice soft, gentle entry profile and try to be as soft as you can for the touchdowns. You know you've made a good landing when the guys downstairs say, "Are we here yet? Are we landed? Are we on the ground?"

ROSS-NAZZAL: That must have been a very good landing.

MCBRIDE: Yes. most of them are. I think Eileen [M.] Collins maybe made one of the best ones. It was just about as perfect as you could get.

ROSS-NAZZAL: Tell us about the media interest in this flight. Sally had just flown and she had been assigned to this flight, and then Kathy, of course, was going to fly. Tell us about that.

MCBRIDE: Having the two women on our flight—they suffered more. Obviously everybody wanted to talk to Sally and Kathy, which meant that the rest of us guys could just do our business and concentrate on what we were going to do and try to help them out as much as we can. Nobody wanted to talk to us too much because we had the first flight with two women. Kathy was going to do the first spacewalk, and that's fine. None of us had any problem with that. I just felt sometimes that they were being overly taxed and stressed. Toward the end, I think, we tried to maybe get in between a little bit to soften it. I was with Kathy and Sally a couple times where I almost felt like I had to get in between them and the hundreds of people [that] just wanted to get in there and grab a piece of them.

It did take the focus off of a lot of things we were doing, the fact that we did have the first two women, and the fact that we had a Canadian, really. There was a lot of Canadian people that came down and followed Marc around through the training and the launch and landing and subsequent [trips]. I had a couple real nice trips after the landing in Canada and Australia to travel with them during the post flight.

ROSS-NAZZAL: Would you tell us about those trips?

MCBRIDE: Obviously, when you're the first Canadian—I'm the first West Virginian, so I know what it feels like to go back to West Virginia where all the school kids studied me in West Virginia history. See my sign up there? They just named the NASA Lab up there after me. The JSTAR, Jon McBride Software Testing and Research Lab. So I know what it's like on a two-million-person level being in West Virginia. But when you go to Canada, every Canadian knows

who Marc Garneau is. You go to Australia; they knew who Paul Scully-Power and Andy [Andrew S.W.] Thomas are, because they're there two Australians.

It was really an honor for me, as I've told people for a long time, if I had gone into that office with George that day and George had said, "Who would you like to fly with?" and I had an option of picking people, I don't think I could have done any better than what I got. To fly with Sally and Kathy and David—David Leestma was in the same squadron.

He came a couple years after us, so we had three of us out of that little squadron out at Point Mugu that ended up being in the astronaut program. His nickname was "Wiz," the Wizard. So that tells you something about him. He's one of the most intelligent guys I've ever met. He mixes his intelligence with his practicality and his exuberance and his ability to get things done. To work with David and Kathy and Sally and Crip, I mean, how much more can you ask for than that? I couldn't have handpicked a [better] bunch of people to go fly with. I feel like the guy down here watching all the superstars do their stuff.

And then get to go fly with the first Canadian and the first Australian, in my mind 41G was probably one of the most historical flights that ever flew, when you take a look at the composition of the crew and the firsts: the first flight with two women, first woman EVA, American anyway. She was going to be the first woman if we'd launched on time, and Svetlana Svetskaya beat her by about a month. Having the first American woman, first Canadian, first Australian, first flight with two foreign nationals, first flight where two Space Shuttle crewmembers had flown together before flew again together, Sally and Crip, just all kinds of stuff. First West Virginian, that's one of the most important things.

ROSS-NAZZAL: Tell us about your reception in your home state.

MCBRIDE: As soon as I could get back there after landing, Governor [John D.] Rockefeller, at the time was our senator, invited me up for Jon McBride Day, November 1<sup>st</sup>. We landed on the 13<sup>th</sup>, I think, of October. I couldn't get there any earlier than November 1<sup>st</sup>, but they had Jon McBride Day, and the governor and I toured around making whistle-stops. Great day in my life. I've always been a proud mountaineer and just made it that much better. I kind of know everybody; it's a small state, so, and being the only astronaut I feel like they love me as much as I love them. I really enjoy going back two or three times every year and visiting. It was obviously a warm welcome and a sincere welcome. It crossed all political barriers and all other kinds of barriers, that we kind of felt like a state unified when I was there for that week or so, and every mountaineer was proud of me and I was proud to be a mountaineer. I still am.

I don't know how many schools we have in the state of West Virginia, but I'll guarantee you I've been to more than 50 percent of them. That was one of my goals, was to touch as many people as I could there in my home state because they certainly touched me. I think growing up in that little state was a—I can't explain it to you. It's a very special place.

My grandfather was a Methodist minister who was highly revered around the whole state and around the country. He traveled with Billy Graham for some trips, one of the role models in my life. My grandfather I just mentioned bought a mountain in West Virginia with about 50 acres of property, all the way from the bottom to the top overlooking Charleston, West Virginia. My grandmother and grandfather built the house at the bottom. Then my mom, when she got married, built the next one. Then her brother, when he got married, built the next one. Now I've got nephews living on the top. I grew up kind of halfway up the mountain.

I had three sisters and an older brother, and then 12 years later I was born and my baby sister. So my mom and dad had kids in the house for like, my mom said, 42 years of her life. One of the worst days of my life was when one of my older sisters got married and moved off the hill. She moved three miles across the river. How could you leave us up here on this hill and go that far away? Because everybody in my whole life lived right there.

I walked across the top of the mountain, down the other side, to go to school. My whole existence was right there, and it was very nurturing, the closeness of the family and then extended to the community; the schools made sure we got a good education.

That's an interesting story. This little school I walked over the hill to only had two rooms in it. It had the first and second grade in one room, and the third and fourth across in the other room. I was pretty sharp. My mom taught me how to read and write when I was four or five, six years [old]. So when I got to the first grade, obviously I could do it all, and since they had the first and second grade in the same room, I'd do the first-grade work, and while she was putting up the second-grade work, I did all of that too. So after my first year, they said, "No sense putting you back into second grade. We'll just move you across the hall and put you in the third grade." I guess the good news is I got out of high school when I was barely sixteen, and the bad news is I got out of high school when I was barely sixteen.

I was a good athlete, but my first year up at West Virginia I kind of blossomed. I grew about six or eight inches in the first one or two years in college and gained about 30, 40 pounds. I went from little Jon to big Jon. I probably would have been a good athlete in college, but I just never caught up with everybody. But how can you go back and say it wasn't a good thing, because I got to do some great things in my life, so everything happens for a reason, I guess. If I had done all those things, I might not have gotten to do what I did. I can't complain about it.

You know, I was the youngest kid in my high school class, so all the girls in my class were, “He’s too young for us.” I had to date all the girls in the junior class. That’s things people think about when you’re in high school, but looking back on it, it was a good thing, and everything worked out well.

I do attribute a lot of my success, if you want to call it that, to my upbringing, to my family, my community, my high school. Everybody that came to work at my high school, the teachers and the principal, the band director, the coaches, came there for life. They weren’t moving around. They wanted to come to work at Woodrow Wilson High School [Beckley, West Virginia]. Most of them graduated from there, and when they got out of college, they wanted to go back there. My principal was there for 40 years. My football coach was there for 40 years. Everybody was there from the time they got out of college until they retired. My high school coach is in the High School Hall of Fame. Beckley, West Virginia, was called the City of Champions. There was a period there where we won four state championships in a row in football and basketball. Now there’s one reason why, because everybody there was Flying Eagles. To be a Flying Eagle was a special thing. It was just a wonderful growing-up period for me and something that I’m very proud of.

ROSS-NAZZAL: That’s explains why education is so important to you now.

MCBRIDE: Oh, boy. I remember every homeroom teacher I had from the seventh, eighth, ninth, tenth, eleventh, twelfth, just about every teacher I had, and you could sense that they were genuinely interested in every student in their class. They wanted you to do as much as you possibly could, and if you didn’t want to do things, they still encouraged you to press on and do

something better. Very few people didn't go all the way through high school there. A lot of West Virginia, half the people if they graduated from high school was a good thing.

My class had—I got to fly in space. I had an Academy Award-winning actor in my class. I had one of the first liver transplant specialists who did Mickey Mantle and all those guys' liver transplants, lives in Dallas [Texas]. I mean, we just had a class of people. Three hundred people graduated, and I think 30 are doctors and there's several law [graduates]. And half the people went to college. Not only all of us graduated, but most went on to college and did things. So it was that little nurturing right there in that little city in West Virginia that really—and it still does to this day—produce some pretty good people.

ROSS-NAZZAL: And you're following on that path today here at KSC.

MCBRIDE: Yes, you bet. Last year—see this right here? Two years ago, we had our first lunar mining competition here at Kennedy Space Center, and last year I went to a meeting and they said, "Well, we're planning for a second lunar mining competition here at Kennedy," and they said, "We can only have 70 teams."

I said, "Well, is West Virginia in this competition?"

They said, "Not yet."

"How many entries do you have?"

"We have got 69. We've got room for one more."

"Hold it."

I called the dean up there. He's a very good friend of mine. I said, "Gene, you've got to get a team together up there and come down here and compete in this lunar robotics. We're a

mining state. We're in mining. Why aren't we down here proving to the world that we can mine?"

He said, "Well, we didn't know anything about it."

I said, "Well, you know about it now. You got till like this afternoon or tomorrow morning to get an entry in to the NASA people down here and get in this competition."

He said, "Call me back later this evening or in the morning." He called me and said, "Okay, we've got it." I flew up there the next week or two and talked to these kids, and they came down here and took second place out of 70 colleges from around the world with their little mining machine that they built. The teams that were there last year had obviously been working on it for two years. They had three months to do this, to design and build that machine and take second place, so I was real proud of that.

ROSS-NAZZAL: Why don't you tell us about getting selected for that second flight, which you were supposed to fly, which you didn't end up [flying].

MCBRIDE: After I finished the first one, I went out to Ellington, and I was Deputy of Aircraft Operations with Joe [Joseph S.] Algranti, who was the Director out there. Great folks. I went out there. We'd had astronauts there all the time, but when I got out there I didn't know how long I was going to be there. I said, "Let's do something different, you know, Joe?" I said, "Let's make some kind of a mark out here."

So I brought out a—oh, what would you call them? Somebody from Johnson who was involved in facilities. We didn't have a facilities representative out at Ellington. All we had, somebody would come out and give us inspections. "I'd like for you to send me a guy out here,

and let's start doing something. Let's start improving things out here, because it's been stale here now for 30 years. Haven't done anything out here at Ellington. NASA JSC's kind of looking good. Let's make Ellington shine a little bit."

So we brought a facilities specialist out there. He stayed with me for six or eight months. We started getting funding from mainside. We painted the hangars. We fixed up the floors. We put up the NASA stuff. It didn't have a NASA logo or anything on the hangar there, which we got now. It was never there before. We built a cafeteria for our employees, which wasn't out there before.

I really felt good after my six or eight months out there, that we really got some good things which are still in existence there today. Everybody was happier. When I came to work out there, it was really kind of depressing that these guys who were servicing my airplanes, getting me ready to go fly, were just walking around. "Let's make this better." So we started doing little things like that. I really felt after six or eight months that I made a difference out there, and it really gave me some great satisfaction.

I was to the point where I was really getting ensconced and entrenched, and George called me and said, "Come on down. I need to talk to you."

"Oh, god, what have I done now?"

He said, "I'd like to make you a commander of the [STS]-61E," which was going to launch in about—it was about a year, because I was at Ellington for almost a year, I think.

I said, "Well, that's great, George. What's it going to do?"

He said, "It's going to launch a thing called ASTRO [observatory]."

I said, "Well, that's great. Who is going to be on my team?"

He said, “Well, I’m looking at Dick [Richard N.] Richards. I’m looking at Dave Leestma again.” I think I had Bob [Robert A.R.] Parker and Jeff [Jeffrey A.] Hoffman and two others, Sam [Samuel T.] Durrance and Ron [Ronald A.] Parise.

I said, “I don’t know Sam or Ron. Where are they?”

He said, “They’re professionals. Actually, there’s going to be three of them, Jon, and we’ll train all three of them, and you’ll get to take two up.”

“We’re going to do what now?”

He said, “Well, you’re going to take an astronaut that’s going to focus on studying the universe.”

I said, “That’s good, because I studied the Earth on the first one. Now I get to look the other way. That’s great. Thank you, George.”

I left Ellington and came back to mainside, and we started training for 61E, which was going to be launched in March of ’86. We started training together in the spring, I guess, of ’85, with launching about a year later. Loved my crew. I gave Sam and Ron their first rides in T-38s, and, of course, Dave Leestma and I had flown together before, so I kind of made him my MS [mission specialist]-1 to fly behind me and do all the cockpit stuff up and back. It was just a good group of people. We were really prepared to go fly. Good group, gelled well together, worked well together, liked each other, no problems whatsoever.

The morning of the 28<sup>th</sup> of January [1986], we were in the simulator training. Our lead trainer said, “Why don’t you guys take a break.” We started at eight. We’d been there a couple of hours. He said, “Why don’t you take a break and come on out to the control room here and let’s watch the launch, and then you can go back and start retraining, because once we get these guys in the air, you’re going to be prime crew, and that means it will be a little bit different

then.” Everybody wants to be prime crew because you get your parking spot out front, and when I call Ellington, I get my airplanes parked out front.

So we were as excited as hell about that, and we left the simulator and went into the control room. We were watching the countdown, and one of the things I noticed even when I got there at eight o’clock, I scanned the closed circuit TVs and I see these icicles hanging off of *Challenger*. Same ship I’d flown. Are they going to launch that thing this morning with ice hanging off of it? I guess they are, because they’re continuing the countdown. Being an engineer and a civil engineering background, all these kinds of things, I kept thinking, you know, gosh, I guess it’ll fall off or something. Stop worrying about it.

Well, anyway, we got to the countdown, this thing lifts off, as you well know, and flies for a minute and 11 seconds. We’re all seven of us standing there watching it, and all of a sudden [demonstrates]. You could feel everybody’s heart just kind of go [demonstrates], hit the concrete. Well, you knew. [Cries] It’s hard.

ROSS-NAZZAL: That’s okay. We can take a break for a few minutes if you’d like. I’m sure it was really hard having your classmates on that flight.

MCBRIDE: Four of them. I’d just seen Dick [Francis R. Scobee] and Mike [Michael J. Smith] a couple days earlier. Their last Shuttle training flight, I was flying out to El Paso to fly mine, and they were getting in airplanes to come back the last time I saw them. Ellison was my best friend. We’d gone to test pilot school together. He was the class ahead of me, but we were close buddies for years. Judy [Judith A. Resnik] and I shared an office. Dick Scobee and I shared an office for a couple of years, just like your family.

ROSS-NAZZAL: What did you do after the cabin had broken apart? Did you go back to the office?

MCBRIDE: We knew. Nobody could say a word. We knew what had happened. We just kind of drifted back to our office, skipped the rest of the training. I think we just sat around for three or four hours, and finally I got everybody in a room. I said, "You know, we may learn tomorrow that they know exactly what happened today. None of us know now what it is, and I might get a call from George or another administrator or someone saying, 'We know exactly what happened, and we're going to launch you guys on time. You got any problem with that?'"

I said, "If I get this call, I don't know, we don't know what's going to happen. If it happens, what's the consensus here? Do we go do it, or do we not go do it? What do you think, guys?"

There were six guys looking at me, and five guys go yes. One guy said, "Can I make one phone call?"

ROSS-NAZZAL: Had to talk to his wife?

MCBRIDE: We don't know. Obviously he came back in a couple of minutes and said, "Let's go. If we get that call, let's go do it." So we were ready.

Obviously we learned, it wasn't for a day or two, that we didn't know that day what the problem was, but I think we learned the next day and the following days that this was going to be much longer than we thought, that we weren't going to fly on time.

ROSS-NAZZAL: Did you spend much time with the Onizuka family?

MCBRIDE: Oh, yes, and all the families. Ron [Ronald E.] McNair was like my second Sally Ride. I taught him how to fly. If I wasn't flying with Sally, I was flying with Ron. He was getting pretty good too. Of course, Ellison and I flew lots of cross-countries together back to Edwards and to see all of our buddies back there. Judy and I flew a lot together. I gave Mike Smith his first ride in a T-38 when he got down there. I gave him his five or so hours of instructor time before he got to fly the airplane by himself. As a matter of fact, I picked him up in [Naval Air Station] Oceana [Virginia] where he was serving as a pilot, flew him down to Houston the first time in a T-38. So it was like family members. It was weeks before we could even—you can't rationalize it. You can't justify it. You can't do anything but try to learn as much as you can and move on. That's what we did.

We didn't know whether we were going to fly next or not. We sure would like to, but nobody knew for, I guess, probably a year or even more than a year until George announced that Rick [Frederick H. Hauck] and [Richard O.] Covey and Pinky and [David C. Hilmers], and Mike [John M.] Lounge were on that recovery flight.

That whole year after the tragedy, we were looking for things to do. One of the things I volunteered to do or was assigned to do was to rewrite the whole flight data file that we carried, because since I'd flown there's a lot of extraneous stuff that we carried, pounds and pounds of manuals and procedures that nobody in the whole program had ever used. I spent about a year with a couple people going through every manual page by page and either getting rid of the

whole manual or reducing it in size and tailoring it to our experiences that we'd had. So we reduced the flight data file down to about half of what it used to be.

About a year after the accident, I got a call from Rick Hauck in my class. He said, "Dr. [James C.] Fletcher would like to have an astronaut come up here and be the Director of Congressional Relations, because we're having a hell of a time. There are people up here after this accident [who] are thinking about just shutting down NASA. I told him of all the folks in our class, you were probably the political guy because you, number one, come from West Virginia, and [Robert C.] Byrd and Rockefeller are two of the most powerful guys up here, and you know them, right?"

I said, "Sure, I know them. They're good friends of mine."

"Well, I told him that you might be a good [choice]. Would you like to come up and talk to him?"

I said, "Sure, I'd be happy to." I had no idea. I got in a T-38 the next morning and flew up to Washington and met Rick and one or two of the Assistant Administrators, and I guess Fletcher wanted them to talk to me before he even [did]. "You do the first cut and if he passes your wicket, then bring him in to see me." I hadn't met Dr. Fletcher. Maybe he'd visited us at Kennedy or Johnson.

I guess what they heard they liked, so they called Dr. Fletcher right away and said, "Why don't you talk to him. I think he might be the guy."

Dr. Fletcher and I spent an hour or two together at lunch, and after lunch he said, "I'd like for you to come up here and be my Administrator for Congressional Relations."

“I came up here just with the idea of learning about this thing now. I’d like to do it, sir, but don’t you think we ought to maybe call George Abbey or somebody at the Johnson Space Center?”

He said, “Ah, yes, probably.” So he picks up the phone and calls George and said, “George, I got Jon McBride up here with me, and we’d like for him to be the Congressional Director.”

What does George say? I guess he says, “Well, okay.” I did not go up there with the intention of getting this job, and I didn’t even tell George I was going, because it was a cross-country flight to get some time and meet Rick. But it all happened just [demonstrates]. Reagan was pushing Fletcher to get an astronaut on up there because they were having trouble. I think it was on a Thursday or Friday, and I said, “Well, when would you and the President like for me to be here?”

He said, “We’d like for you to be here Monday because some of the hearings are starting, and we want to get you into it.” So I had the whole weekend to get ready and move up, fly up to Washington. I think I stayed in a hotel for the first week or two while I was looking for a place to stay, which I ended up getting a place about three blocks away where I could walk back and forth to work for almost three years up there.

ROSS-NAZZAL: So you worked closely with the two senators from West Virginia. Were you working with other congressional offices?

MCBRIDE: All of them and John [H.] Glenn. I gave John his first tour of the Space Shuttle. During my three budget cycles up there. By the time I’d been there for a year or so, I knew all

the senators. I'd say at least half of them knew who I was and 20 of them I was on a first-name basis with, and half of the House probably knew who I was. I was on a first-name basis with a hundred or more of them, particularly the ones on our committees.

It was a trying time. When I got there, we were like .7 of 1 percent of the budget. It had gone from 3 or 4 back in the Apollo days and slowly declined to .7 after the *Challenger* tragedy. We managed in a couple years to get it turned and climbing again, back to 1.1 when I left, so I felt like I had a little bit to do with that.

If you're going to do that job right, it's a 16-hour-a-day job, because you've got to go to the breakfast meetings and speak to the senators and the congressmen who get up early and go to their meetings, and then you've got to go to the cocktail hours in the evening because that's where most of them go. So to do it right, you've got to be there about 16 hours a day. I had a driver that could take me all these places.

It was a trying time for all of my family, because I was promised when I took the job that I could maintain my currency in T-38s and I could get simulators so that I could jump right back in and fly again. It kind of worked for the first few months, but it turned out that I was lucky if I got home Friday night, and then I was lucky if I could stay till Monday morning in Houston. I don't know how many millions of miles I got in the two or three years I was up there, flying back and forth. Sometimes there were so many things going on that I just couldn't come home that weekend. So for the last year or so, I didn't get to fly T-38s, I didn't get to do simulators.

I got a call, I guess after a couple years up there, "We'd like for you to come back and fly as commander of ASTRO, like you were going to do earlier."

I said, "Okay."

Two or three months after that, rumors floating around the halls up there that ASTRO was not going to fly, it was such low priority that, “Yes, you can go down there if you want to, but it’s not going to go anywhere. You could sit there for a year or two, train, and then what happened before.”

My wife and I had bought a home in West Virginia in the beautiful Greenbrier Valley, and I was commuting. It finally got so taxing that I couldn’t go back and forth to Houston, well, we’ll just buy us a place in West Virginia. At least I can drive there and back in three hours. That’s how we got to see each other. I was getting to the point where I got to see her once maybe every two, three weeks, the family.

This would have been in the spring of ’89. I’d been driving back and forth from Washington to West Virginia every weekend, and something hit me one morning when I woke up down there. I looked out the back window and there were deer running back and the pheasants and the squirrels and the rabbits and seeing the Greenbrier River and the snowcapped peaks, and get thinking, you know, I got two choices. I can hang it up now and come back here to West Virginia and get involved to whatever extent I want to get involved, or I can go down to Houston and take a chance of training for two more years and never going anywhere.

I was driving back to Washington one Monday morning about five o’clock in the morning, I said, “I think it’s time.” It was a tough decision. I called Don [Donald R.] Puddy, said, “Don, I’m going to resign. I’m not going to come back to Houston and train to fly this flight.”

He said, “Why?”

I said, “Well, I just feel like I’ve just got to do something different.” I didn’t tell him that I heard rumors that it might not even fly. It was a tough decision. I commiserated, my wife and

I, everybody I knew, commiserated for a couple, three days over, “Is this really what you want to do?” It was tough making that call. I might be the only person in history, I don’t know, who was assigned to a mission that pulled out of it. I think the next week or two they named Vance [D.] Brand to replace me.

Looking back on it, I still don’t know that I would have changed anything, because I got back to West Virginia, and a lot of my friends back there helped me establish a venture capital company, which we could focus on bringing industry and jobs to West Virginia, which I did for 10 years, and really feel like I made an impact there. We created a lot of business opportunities for people.

As it turns out, if I’d have gone to Houston, ASTRO flew, Vance Brand flew. I don’t know. It’s second-guessing. I’m sure sorry I didn’t get to fly as a commander once or twice aboard the Space Shuttle, but the things I got to do were just as remarkable in many ways.

ROSS-NAZZAL: What do you think was your biggest accomplishment while working as an astronaut or Congressional Relations?

MCBRIDE: I think I had more impact in Washington than I did in Houston, because it was a very trying time in the history of NASA, and the fact that we were able to stop this decline and get it reversed and get the budgetary process at least in a positive climb. It got up to a little bit. Now it’s back down to .7.

In my mind, I call it a systemic meltdown over the last 20 years from where it was to where we are today, and NASA being the good folks that they are and the fighters and the hard workers, have taken kind of a little sliver of reduction every year for 20 years. Now you find

yourself where we are today where people around this country think that we can do anything that we want to do, which we can't. We're kind of limited in what we can do, and we find ourselves now without the opportunity to fly people into space from Kennedy, first time since the lull between Apollo and Shuttle.

You can't blame [George W.] Bush or [Barrack] Obama. You can't blame the Senate or the House or the Democrats or the Republicans. It's been a systemic thing for 20 years. When I was working Congress, there were maybe two people who said, "I don't want space. I don't have anything to do with space." Everybody else up there were space proponents. They were in favor, but when it got down to the final budget crunch time in the fall, that's when the hammer fell. Where are [we] going? NASA was lumped in with the Housing and Urban [Development], all the entitlement programs, and when you're going to have to cut a subcommittee, the only place you could cut it was NASA. So they're the only ones that got chopped every year.

Then finally we got the budget up to where it was respectable, and we had hoped it would continue to climb to where we could do all the things that made this nation a preeminent leader in science and technology and all the good things we've done over the years.

Being in that first class, I'm old enough to remember the '60s and Kennedy. Those of us who lived through the '60s remember it as a very turbulent time in this country. There were racial strife and assassinations and college riots and this unpopular war in Vietnam. But the one silver thread or one lining that kept us all together as Americans was Kennedy's proclamation in 1961 that we're going to land a man on the Moon by the end of this decade. I think if we hadn't had that—every American, black or white, Democrats, Republicans, north, south, were focused on this brilliant idea of Kennedy's. He did make the statement, he did challenge us, and, by golly, every American, it seemed like, was proud to have had, if not a direct part in this, an

emotional part in Neil [A.] Armstrong and Buzz [Aldrin] being the first two guys to land on the Moon before the end of the decade. We were all waiting for this.

Everybody watched the Mercury and the Gemini and the Apollo launches from school, from home, got up in the middle of the night. Everybody was interested in that goal, and I think that's one of the reasons we made it as a nation through the turbulent '60s and came out the other end. You could see everything blossom in the '70s and '80s. We were leading this world in education, we were leading in production and manufacturing, and trade balance was positive. We were exporting a lot more stuff than we were bringing in. We were soaring. Everybody in this world wanted to come to America and be an American.

I don't sense that right now. It's not because Americans don't like the space program and don't appreciate it. They think it's an entitlement. They think that we're going to still have a space program, but we're down to the point now budgetary-wise where we can't do all the things we [want to]. There's so many—you know this as well as I do—there's so many things that are immeasurable that are associated with space and space exploration, the inspiration it gave me and the people that I've talked about, and the people maybe I inspired to stay in school. There's an esoteric value to what we do that you can't measure. Inspiring young people to study and do well and stay in school and be scientists and help keep American preeminent, how do you put a price tag on the national pride that we all had for 20 or 30 years of doing what we were doing?

It really came home when I was over in Russia. Alexei Leonov is a very dear friend of mine. He and I were co-presidents of our Association of Space Explorers, all these posters [gestures]. We have a meeting every year in a different country. Alexei and I, I think, were in the Kremlin down in the basement, a place where I never thought I'd be in my life, being a Navy fighter pilot. How am I down here with this general in the bowels of the Kremlin? And we're

toasting each other with a shot of vodka. He looked me straight in the eye and said, “Jon, you Americans so stupid.”

“What do you mean, Alexei?”

“Why? Why you retire Space Shuttle? Why you stop doing, you know?” What he was trying to say is, “We handed you the key 50 years ago, and you’re giving it up. Why are you doing that?”

“I don’t know, Alexei. I can’t answer that question. I wish I could.”

ROSS-NAZZAL: Did you play a role when you were in D.C. in helping to secure funding for OV-105 *Endeavour*?

MCBRIDE: Yes. My only role was to make sure everybody knew about it and make sure that the funding was there.

One of the things I’m proudest of is myself, Alexei, and a few other guys were instrumental back in the middle ‘80s of bringing us closer together as astronauts and cosmonauts. We had our first meeting in France in 1985 where NASA and the Russians, all the space agencies weren’t too keen on astronauts and cosmonauts getting together to talk without government representation.

I didn’t get to go to the first two or three because I was still active with NASA, but in ’89, I think, Dr. Fletcher said, “Maybe we ought to go,” so I went. I went to my first Congress in ’89 in India, the first part of ’89 for the Aeronautical Astronomical Society, and I got to meet all these guys from other countries. I’d maybe met a couple of cosmonauts before in my life, but in 1989 I got to meet them all. Our Congress was that year.

I really embraced the idea of let's do this peacefully and cooperative. Let's work together instead of all of us off doing different things. Particularly when Alexei and I were co-presidents, we really promoted the fact that we should start trying to fly together and do things together. It started happening in 1991.

I like to take a little credit for that piece of harmony we've found. Obviously it's not all good. There's complications that come from trying to work with many different nations in the exploration of space, but I think overall it's been good for the Earth. I tell people I wished that the peace and cooperation we found up there could be beamed back to Earth, because this is where all the problems are right now here on the surface. We've got pretty much harmony up there right now.

ROSS-NAZZAL: Is there anything else that you would like to talk about today? I think we've sort of hit the high points. I probably could ask more questions but don't want to eat up your day.

MCBRIDE: I just would close by saying how much I was honored to have gotten to go to Johnson Space Center to start with in 1978 and spend about 11 years with some of the greatest people in the world and made the greatest impression on my life, opened up my whole life to do some things that I never had imagined as a kid. I wanted to do them. I've dreamt of them. I saw other people doing it. The fact that I got to go do it myself has just been a pleasure and an honor and a blessing. I love that word. It's that I got to do that.

What would you do if you go back and change it? Nothing, probably. If I had the power, obviously I would reverse the tragedies we had and erase those from our sheet and press onward, but we don't do that. I guess the best thing we could do is just to learn from our mistakes, and

that's kind of what NASA's all about, learning from what we did before and let's try not to make that same mistake again. I'll guarantee if I had my buddies from *Challenger* [STS-51L] here and my friends from *Columbia* [STS-107] here in the room with me, and there's 15 of us looking at you, and either of you asked if we'd go do it again, you'd have 15 hands in the air, because that's how strongly I think. I know them well enough to know we all feel that we need to continue this thing, not for us, but for the kids that we talk to and all of us talk to and provide them the opportunity and the inspiration to go and do what we got to do. We need to continue that.

That's the thing you can't measure is what it does for these young kids to think about the possibility of them flying in space. So I love to tell them, "You could be the first one to walk on Mars. You're the perfect age. So go for it. The only person that's going to stop you is yourself. It's not your mom or your dad or the guy sitting next to you in your class or your best friend. It's yourself. So if you'll set the goal today, yes, you might not be the first man to walk on Mars or go back to the Moon, but you might be the guy that designs the spacecraft that does it, or you might be the third guy to go to Mars or something. At least try to do something. Don't just waste your life wallowing around doing nothing. Have some kind of a goal for 5 or 10 years from now." So that's my driving force right now. I enjoy it.

ROSS-NAZZAL: Well, good luck with it. It looks like you've got a good program here.

MCBRIDE: Yes. I've got 32 astronauts coming this year.

ROSS-NAZZAL: Wonderful.

MCBRIDE: I've got Marcos [C.] Pontes coming from Brazil. We had Jean-Luc Chretien a couple visits, and I'm trying to get to Rakesh Sharma, our first Indian cosmonaut. He speaks perfect English. I talked to him last. We've got a lot of Indian visitors who come to the Space Center, so if we promoted him some, I think it would be real interesting.

ROSS-NAZZAL: That's great.

MCBRIDE: Trying to get Julie Payette to come down from Canada. I don't know whether you know it or not, but about 40 percent of the people that come to this Visitors Complex are from other nations, a huge majority. So the more international flavor we can get, the better off we'll be.

[End of interview]