

NASA JOHNSON SPACE CENTER ORAL HISTORY PROJECT

ORAL HISTORY TRANSCRIPT

ROBERT L. GIBSON
INTERVIEWED BY JENNIFER ROSS-NAZZAL
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ROSS-NAZZAL: Today is January 22nd, 2016. This interview with Hoot Gibson is being conducted for the JSC Oral History Project in Houston, Texas. The interviewer is Jennifer Ross-Nazzal. You were telling me about Steve [Steven R.] Nagel.

GIBSON: Yes, I was going to talk about Steve Nagel. He and I were just dear dear friends. We were the two youngest pilots—used to be young—out of our astronaut class. He was three days older than me. I was the youngest pilot selected in 1978, and he was the second youngest. Like you mentioned, he's just such a nice guy. In fact when he left the Astronaut Corps and he was working for Safety, he was allowed to ride in the T-38s if somebody was going somewhere. I made sure he'd come with me when I went out to California to Ames [Research Center, Moffett Field] to fly the VMS [Vertical Motion] Simulator out there. I always grabbed Steve and said, "Hey, come on, why don't you come out to Ames with me?" We would do that.

About the last six [months] of his life, I saw him every single month because he was coming to Nashville for treatment. Actually the only reason I found out about it was he called me and he said, "Hoot, I need a favor." I said, "Anything." He said, "I need to have somebody drop me off and pick me up for having this surgical procedure done. They won't let me have it done unless I have somebody with me." He was living up in Columbia, Missouri. That's how I found out that he was going to be coming to Centennial Medical Center [Nashville, Tennessee] a couple times a month actually.

When I found out about that I said, “Oh my gosh. Steve, you got to come stay with us.” He had already booked a hotel the first night, so he stayed in a hotel the first night. Then I said, “Okay, check out of that place, and you’re going to come stay with us.” It was just wonderful. Things were going really well with his treatment for a long long time, maybe four, five months. He had said what they told him was this is going to be effective for a while, then it’s going to stop being effective, and then you’re going to have to look for something else. Of course something else didn’t materialize after that.

As a result, he was coming to Murfreesboro and staying with us and then he’d drive into Centennial Medical Center. One time he brought Linda and Lauren, his daughter, down there. They all stayed with us. He and I would go fly radio-controlled models, and we were just having more fun together. It was as sad as it could be, but I was so privileged that I got to spend all that time with him in about his final six months. That was just wonderful.

ROSS-NAZZAL: That’s a nice memory, nice way to remember him.

GIBSON: Yes, he and I had always been just really good friends. We flew chase on STS-1 together. He had been chase six or something like that. He was one of our guys. Just really enjoyed his company the whole 18 years we were here and then his company when he’d come stay with us. So [STS]-41B you wanted.

ROSS-NAZZAL: I had a couple questions before then. Of course Rhea [Seddon] has published her book. But I want to get your perspective on things. You guys had a press release announcing that Rhea was pregnant, and it was just one line: Astronauts Hoot Gibson and Rhea

Seddon are expecting a baby later on in the summer. I actually spoke with the public affairs official who wrote the press release, and he couldn't remember too much about it. But I was curious. Was that an idea that you guys came up with because you were anticipating there was going to be so much media interest in that change?

GIBSON: The answer is I don't know. What happened was that when she got pregnant we kept it secret for quite a while, because she didn't want to get grounded. Probably not a good attitude, coming out of a doctor and a woman, to be riding in an ejection seat-equipped airplane like a T-38. But she didn't want to get grounded when she first got pregnant. She was hiding it. She hid it until she got puffy enough to where she was having trouble hiding it, and then she said, "Okay, we're going to have to come clean."

I remember she and I went to talk to Chris [Christopher C.] Kraft, who then was the Center Director. We had requested an audience with him and the two of us went in there and sat down at his table. I think what he said was, "Okay, I'm figuring you're either here to tell me the two of you are getting divorced or that you're going to have a baby." We said, "Fortunately we're here to tell you that yes, we're having a baby."

I don't remember how the press release came about. Maybe Dr. Kraft tipped off PAO [Public Affairs Office] or somebody, unless Rhea has some other recollection of it. I'm not even sure I remember. Wait a minute. Now that I think about it, there was something in *People* magazine in that little section that they had called Milestones, I think. It just said, "Expecting, Dr. Rhea Seddon." I do remember seeing that in *People* magazine. I don't know if she has a copy of that or not, or if I have a copy of it. That's about all I remember about that.

ROSS-NAZZAL: Do you remember talking with John [W.] Young or George [W.S.] Abbey about that?

GIBSON: We must have, but I don't remember it now. It was really memorable talking to Dr. Kraft. I don't know whether we would have told John first and then told Dr. Kraft. The right way chain of command-wise would be to have gone to John Young first and then George Abbey and then Dr. Kraft. I don't remember if that's what we did. If we didn't, we should have.

ROSS-NAZZAL: Did you tell the whole Astronaut Office at the Monday morning meeting?

GIBSON: Yes. She wanted me to announce it. We went to the Monday morning meeting when we were going to reveal it, and when John Young was asking, "Any comments from the floor?" or something like that, I raised my hand and I stood up. The way I announced it was I said, "I'm here to announce that our total number of astronauts has increased to 80 and a half because Rhea is pregnant," was how we announced it to everybody. There was a big round of applause. That was the clever way that I told everybody. It was at one of our Monday morning meetings.

ROSS-NAZZAL: Were you surprised by the media interest that Rhea received? You didn't seem to get much but she received quite a bit.

GIBSON: Yes, she was the first American mom astronaut. I guess Shannon [W.] Lucid had kids, so she was already a mom before she became an astronaut. Then Rhea was the first American woman astronaut to become pregnant. Yes, that wouldn't surprise me at all. I don't remember

that much about it. But just because she is who she is, yes, I'm not surprised that it generated a bunch of interest.

ROSS-NAZZAL: Was there any challenge that you saw from your perspective of her being pregnant and being an astronaut? You mentioned she couldn't fly anymore. But are there other things?

GIBSON: As soon as they found out they grounded her and said, "Okay, no more T-38 flying." Then what that forced us to do, us NASA, us the Astronaut Corps, was to institute a policy. Rhea remembers it differently, I think, than I do. I thought what our policy was, they could continue to fly in their first trimester. I'm pretty sure the last time Rhea and I argued—or discussed it, it wasn't an argument, I just threw that in there—the last time that I remember us talking about it, she said, "No, it was the first two trimesters." I'd be a little surprised if it was really two trimesters, because you're getting a pretty big baby at that point in the second trimester.

What happens if you have to eject? Is that going to kill the baby? Certainly you're not going to do any testing on something like that. I should think conservatism would have ruled and that you'd say, "In the first trimester a baby is going to be this big, and we think it can remain implanted and not have a problem with it." But they came up with a policy on flying.

I'll take just a second to talk a funny story. I was flying. This was for Rhea's last flight, and I was the Chief Astronaut then, but I was flying a T-38 out to Edwards Air Force Base [California] because that's where they were going to land. In my backset I had Dr. Denise [L.] Baisden, who was pregnant, flight of three. I don't remember who the other guys were, but all of

us were supporting the landing. We took off from Houston and flew to Albuquerque to refuel. Then taking off out of Albuquerque we were climbing to let's just say 20,000 feet. My airplane started shaking, started vibrating. I couldn't see anything on the instruments.

Denise said on the intercom, "Hoot, what's that vibration?" I said, "I don't know what it is." Then within about 30 seconds the vibration suddenly stopped and a whole bunch of my warning lights came on. It had sheared the gearbox on the right engine? One of the engines. It sheared the gearbox, which takes away your generator for that side, your hydraulic pump for that side. You've lost one of your flight control hydraulic systems.

Of course I declared an emergency. I turned around. I told the other guys, "You guys go ahead and press on." Declared an emergency. As we're pointing back towards Albuquerque I thought you know what, I better talk to Denise about this. I said, "Denise, I'm not wanting to upset you or scare you, but if something happens to our other engine," because I had to shut that one down, you can't run it without the oil pump, so I had to shut down one engine, so now we're just on one engine, "if something happens to our hydraulic pump or to our one remaining engine we will have to eject. It would happen fast if that happens. Now that's not going to happen. But if it were to happen, you have to punch yourself out. I can't punch you out."

She knew that because she had trained. I said, "I'm going to start saying eject eject eject eject eject. After I get through about six or eight of them, I'm going to go. You would have to punch yourself out."

I can't tell you how nervous I was. Normally I wouldn't be nervous, but I've got this little pregnant doctor in the backseat. Everything was fine. We landed on the runway, had to roll out and stop on the runway because I couldn't taxi without one of those hydraulics to hold the gear down. Everything went fine. I got to meet that baby at the time of the last Space

Shuttle launch, and he's now 16 years old or something like that. Denise had told him that story. I got to meet him when Rhea and I and the family were down there for the last launch, 16 years old now. Cute little story.

ROSS-NAZZAL: Time flies.

GIBSON: So then I diverted us already from where we were supposed to go.

ROSS-NAZZAL: No, no, any time you want to tell anecdotes I think that's great, but it's a good segue into what I wanted to ask you about. You were then working as the Deputy Division Chief out of Ellington [Field, Houston, Texas]. You got that assignment at that point around that time.

GIBSON: When I was assigned to [STS]-41B?

ROSS-NAZZAL: I think it was a little bit before then. I was trying to look through the paperwork that we had but unfortunately I couldn't find it. I understand that's a pretty prime job in the corps, to work out of Ellington, especially for you, being a pilot.

GIBSON: No, it wasn't held to be such back then.

ROSS-NAZZAL: It wasn't?

GIBSON: No, it wasn't. Let me tell you some of the philosophy of it. The title was Deputy Chief of AOD (Aircraft Operations Directorate). The Chief, Joe [Joseph S.] Algranti, was extremely talented and extremely sharp, so wise and knowledgeable in how to maintain a fleet of aircraft and do everything safely, but he could be tough on his people.

The reason George put an astronaut out there as the Deputy Chief is because an astronaut was immune to him. He couldn't kill him. Joe Algranti couldn't kill an astronaut who was his deputy but he would be able to kill any average pilot who was his deputy. It was always an astronaut, to be somewhat immune to Joe Algranti. Also, Joe really liked to fly, and he flew a lot. He flew the KC-135. So he'd be gone on trips and he'd be out and away, and for continuity you had to have somebody there.

You were out there five, seven days a week. You weren't visible back in the Astronaut Corps. You weren't being a CapCom [Capsule Communicator]. You weren't standing up in the Monday morning meetings and briefing people on, "Here's the latest thing we found in abort testing." You were invisible.

I remember I had talked to one of the more senior astronauts and I asked him. Ironically, it was Vance [D.] Brand. I said, "Doesn't it have some bearing on you getting assigned to a mission to be visible and to be a CapCom and to be where John can see you and where George [can see you]?" The thing I didn't know was that George felt that this was really important. It wasn't one of the desired assignments. But there's a lot to be said for taking an assignment that was considered undesirable and doing it to the best of your ability. I'm pretty sure that's one of the big reasons why I got one of the early flights. There were some real difficulties out there. Frequently what I had to be was a referee.

ROSS-NAZZAL: Can you give a couple of examples?

GIBSON: Oh golly, yes. I won't name any names. One example was that the Chief of Maintenance was looking at the boarding ladders for the T-38s, and he noticed that some of them were missing some of the antiskid. He was talking to some of his maintenance guys and he was saying, "Hey, look, we got to do something about this. We're going to need to put in place a program where we're going to replace the antiskid on a bunch."

The head of QA [Quality Assurance] out there overheard him and he said, "Oh yes, we got to get in on this too." Didn't say anything to the Chief of Maintenance. He told his QA guys to go out there and to red-tag every single boarding ladder that had some missing antiskid on it. These guys are both branch chiefs. Next thing I know I've got the Chief of Maintenance in there almost yelling, banging on the table, saying, "You need to do something about QA because they come in and here's what happened," and explained the whole thing to me. So I wind up being the referee and going to QA and saying, "Hey, come on. You've red-tagged virtually every single ladder out there. We've got to back off of some of those, because we need to be using them to man up airplanes. So how about backing off the ones that aren't quite as bad?" It was that way all the time.

The Chief of Maintenance had a running battle with engineering. They both hated each other. The engineers hated the Chief of Maintenance. The Chief of Maintenance hated the engineers. I was constantly refereeing battles between those guys.

Then there was an employee that George had got stuck with out of some kind of a trade deal that he wanted to get rid of. This guy could, I think, sense that they wanted to get rid of him. He was really uncooperative with everything. They finally did manage to get rid of him. It

was just a constant battle and a constant annoyance. You were on the other side of the tracks from JSC. They had a chili team at one point out there from AOD and I don't remember what they called themselves, but they had this T-shirt made up. Here they were at AOD, then you had the railroad tracks, and then you had JSC shining in the background compared to AOD out there on the other side of the tracks.

That was how they felt themselves to be. It was really a fascinating place to get to work, because I learned a whole lot about maintenance and about quality assurance and about the rigor that we have to put into those airplanes. Joe Algranti, to his credit, he was absolutely rabid over astronaut airplanes, because we had airplanes that astronauts were going to be flying. Of course those were the T-38s. There had to be two levels of quality assurance. We had a NASA QA guy, quality assurance. The contractor had a quality control guy, a QC guy. Any of the airplanes that the astronauts were going to be in had to be signed off by two quality guys.

I just learned so very much from working out there and from getting to see how Joe Algranti worked and how he operated. Most of the time he was just wonderful. He was just such a great leader. Every once in a while he could be so hard-edged and so accusatory with his people. I was out there another time. One of the QA guys came to me because in a Monday morning meeting Joe had been harsh on him, and I had to pat him on the back and tell him, "There, there," and try to calm him down. I was out there to be a peacemaker.

It was fascinating, and I learned a whole heck of a lot out of it. As I say, it wasn't a plum assignment like being a CapCom where you were visible and everybody saw you, and that was a real rapid way into a flight, being a CapCom. But I wound up being the fourth pilot to fly out of our 15, so taking a less than desirable assignment and doing a good job with it is always a good thing to do.

ROSS-NAZZAL: I've heard that from a lot of people at JSC. You must all share that knowledge. Did you get a chance to fly other planes since you were out there? Like the SCA [Shuttle Carrier Aircraft] or some of the other planes?

GIBSON: Not the SCA. Joe Algranti was putting me in the pilot-in-command seat on the STAs [Shuttle Training Aircraft]. What I would do is I'd go out and fly, for example, with Charlie [Charles F.] Hayes. He would be in the right seat, and that's where the pilot-in-command sits. He'd be in the right seat, and we'd go out there. I don't even remember if that was the way we did it. It might be that they put me in the right seat for takeoff, and I'd take it off and fly the airplane around for a while and then come back in and shoot touch-and-gos in it. So he was actually letting me operate the [Gulfstream] G-II. That's right. I got to add that to my list. I forgot about listing that one.

He was letting me fly that. Then George Abbey got wind of it and George I think told him, "Stop doing that." The words were, "I don't want to make an STA IP [Instructor Pilot] out of him, I want to get him in the Shuttle. Don't have him flying the STA anymore". I guess really whoever's going to fly that airplane—because the pilot in the other seat can't do anything about it. The only controls are on the right side in the STA. All of those guys had been through thorough rigorous training, exams, and I had not. I just hopped in the seat and flew it. Really safetywise we shouldn't have been doing that. I did get to fly that, and I got to fly test ops when we'd have a T-38 come out of maintenance. The astronauts didn't get to do that. We did not let them fly test ops, but I got to fly test ops.

Oh yes, I got to be part of a flameout program. We were having trouble with our engines way back then, and Joe Algranti, once again, here's the kind of leadership. The Chief of Maintenance said, "Well, I don't think there's anything we can do about this. These engines are getting old. The tolerances, maybe they just won't survive up at high altitude." The Air Force had just said, "Okay, you can't go above whatever altitude, 37,000 feet." Joe said, "No. The way we fly these things, we are doing a lot of cross-country [travel]. There's a lot of times you need to go to 45,000 feet to get over thunderstorms, and we have to be able to operate these airplanes up at altitude, so we are going to do a program to take [on] these problem engines." A problem engine was an engine that had a flameout up at altitude for no apparent reason. He had designated a number of these engines. "We're going to go fix those things."

So I got to fly some of the test flights on that. Actually I got to fly the very first one with one of those problem engines, and we went up to 45,000 feet. I had Frank [J.] Marlow in the backseat. I was in the front seat. We were up at 45,000 feet, and we had to be able to pull the engine all the way to idle and then bring it back up to 100% rpm [rates per minute] and then light the afterburner at 45,000 feet. The Air Force had given up on that years ago. They had said, "You can't take it above some altitude, 37,000 feet, something like that. No operations above that." We couldn't live with that.

I remember on this problem engine, sure enough it flamed out. We got one engine out. There was a problem in the electrical system. The generator on the good engine didn't pick up the power on the other side, so the indication in the backseat to Frank was that the remaining engine was way overtemped. I could just barely hear him. He said, "It's overtemping, it's overtemping. Shut it down, shut it down." So I shut down the other engine. So now we got no engines.

We are totally flamed out. No big deal, we glided back down, got into the airstart envelope. We're up over 40,000 feet. You can't relight till you get down to 26,000. So we're a glider for quite a while here. Anyway, we got back down and got both engines restarted. Naturally we terminated the rest of the test op [operation] and came back and landed. I got to fly a number of other engine checkout flights, and by golly, Joe had figured out—first thing we're going to change is something called the T2 sensor because that caused problems in the past. The next thing is going to be the T5 sensor. If that doesn't work we're going to rebuild the fuel control. If that doesn't work then we're going to tear the engine down to zero and rebuild the whole compressor. By golly, he eliminated all of those problem engines. We fixed every one of them. The Air Force had given up on it. We did not, and Joe's persistence got us through it to where we had a bunch of good engines that weren't flaming out anymore.

One thing that really lit him off was we had had two astronauts in formation coming back from El Paso [Forward Operating Location and T-38 Depot], and they both had dual flameouts. All four engines flamed out on these two airplanes at night, I think, in the weather. They both got restarted okay. I think that was the straw that Joe Algranti said, "Okay, we are not going to live with this anymore. We are going to fix these things." There was some reluctance on the part of the Chief of Maintenance, who saw it as a waste of time. He was wrong about that. We fixed every one of those things.

ROSS-NAZZAL: How many T-38s did you guys have at that point? Do you recall?

GIBSON: We had about 30, somewhere around there, 31, 32, 30, something like that. I think they're down to 20 now. They didn't need quite as many of them.

ROSS-NAZZAL: There's not as many people in the Office anymore.

GIBSON: That's true. When I was Chief Astronaut I remember my number was 113. There were 113 astronauts then.

ROSS-NAZZAL: Did you get your choice of flying time at least, being out there at Ellington?

GIBSON: Not really, because everything went by a priority system. You had priority one through eight. Eight was everything else. Pri one was the next crew. Pri two was mission support for the next mission, so the chase pilots if there were chase pilots. I guess all the guys working down at the Cape [Canaveral, Florida] on the vehicle processing would be priority two. When I was a chase plane pilot, we were priority two. Everything in support of the next mission would be pri two.

If I just wanted to do a cross-country I was in the same boat. Although I bet they took care of me a little bit, because I was the Deputy Chief out there. They probably had a tendency to try to slip you an airplane when they could.

ROSS-NAZZAL: I'm curious if you were at this meeting or not. Were you in attendance when George Abbey announced he was going to be flying STS-7, 8, and 9? If so, what do you remember about that?

GIBSON: Oh golly, yes. I remember that vividly. We knew that it was coming because it was about time for those crews to be named. Yes, I remember George started off. I remember what he said. He said, "Well, we hoped when we first picked you guys that by three years into it," or however it was he said it, "we'd be about ready to start assigning some of you guys to the first missions." I had predicted Rick [Frederick H.] Hauck.

ROSS-NAZZAL: You did?

GIBSON: I had predicted. I said, "Rick Hauck is going to be the PLT [Pilot] on the very first flight. He's going to be the first one out of our class to fly."

ROSS-NAZZAL: Why'd you think that? I'm just curious.

GIBSON: He's just that sharp. He's just that sharp and that good. Oh, and he had been in a very visible job as well, a very challenging job. He'd been in a very visible position as well. I had predicted that one. George then went into the rest of it. He announced here's who the 7 crew is going to be, here's who the 8 crew is going to be, and here's the 9 crew. I remember that vividly. You felt so jealous. You felt sad that you weren't on there. But then when I looked at everybody that got assigned I said, "Well, okay. There's not anybody there that I should have been assigned in place of," to myself.

I remember when the meeting ended and everybody stood up, the first person I bumped into was Brewster [H.] Shaw. I held my hand out and shook his hand and said, "Way to go, Brewster." Then that night there was a celebration. The celebration was at a bar that used to be

over there in one of the high-rises called the Atrium. A whole bunch of us showed up there to celebrate.

There was a funny story. Of course George Abbey was there, and the crews were all there. They were buying beer, the guys who had been assigned. Steve [Steven A.] Hawley and I had always been friends from way way back, and we were talking. I said, "Hey, Stevie, let's go talk to George." He said, "Okay."

So he and I walked over to George. Poor Stevie had no idea what I was about to do. We walked over to George and we said, "Hey, George." "Hi, boys." Something like "Oh, this is a big day for us." I said, "Well, George, Stevie and I wanted you to know that you really screwed up today." He said, "Oh? How's that?" Stevie about that time is wishing he was anywhere else. I said, "Well, you didn't assign us."

You've got to have a little bit of a sense of humor about the whole thing. Yes, all of us that didn't get assigned were disappointed. I remember the next day Rhea and I bumped into somebody in the corps and said, "Hey, we didn't see you last night at the celebration." He said, "I didn't feel much like celebrating." Well, that's not a good attitude. I think yes, sure, we were disappointed, you're always disappointed when you didn't get picked, but doggone it, let's go celebrate on behalf of those that did.

I'll never forget saying, "George, Stevie and I wanted to tell you you really screwed up today."

ROSS-NAZZAL: What was Steve's reaction? Did he just move into the background?

GIBSON: I think he gulped his beer or something when I said that. He went, “Lup.” When was that? Actually that’s about the time I got assigned to go out to Ellington. Because I had been working in SAIL [Shuttle Avionics Integration Laboratory] and I [when] went out to AOD it would have been in ’82.

So we would have been assigning those crews. Sally [K. Ride] flew in June of ’83, so we would have been assigning them June of ’82. I had been working in SAIL up to that point. George smiled real big when I told him, “Hey, you screwed up, you didn’t assign me and Stevie.” He smiled really big, and we chatted a little bit. He said, “Hey, why don’t you come and see me tomorrow?” So I remember I thought, “Oh, okay, great. He’s going to give me STS-10.” No. I got over to his office and he told me he wanted me to go out to Ellington and be the Deputy Chief. That happened all right there at the same time.

ROSS-NAZZAL: It’s interesting because I always thought that that was just a primo position. Plus, being a pilot, I just presumed that it would be a great thing for you.

GIBSON: Actually it was looked at quite the opposite. People didn’t really want to go out there. Now the other thing that George said—these are his words, I’m not the one saying it, it’s a little bit self-serving because I was Navy—he said, “I have got to have a Navy officer out there as the Deputy. The Air Force guys don’t actually have the right kind of background and training from the way the Air Force runs things operationally and maintenancewise.” He said, “It’s got to be a Navy or Marine Corps guy out there.” That was the way George looked at it. So if you look back at it, Bob [Robert F.] Overmyer had been there. Dave [David M.] Walker had been there. Then Mike [Michael J.] Smith had been out there. I replaced Mike Smith in fact. Dick [Richard

N.] Richards. It was always—I think maybe Bob [Robert D.] Cabana might have been out there for a tour as well.

ROSS-NAZZAL: Bob Cabana was out there, yes.

GIBSON: So it was always Navy or Marine that George was going to send out there.

ROSS-NAZZAL: What did Mike Smith tell you before you went out there? Did he give you a heads up about the job?

GIBSON: Oh golly, yes. We had quite a big turnover. He was just such a dear friend as well. I think last time we might have—no, I don't think we did talk about it. I had known him since 1976. He was one of my instructors at test pilot school. He didn't apply for the '78 selection because I'm sure he would have booted me out of that class. They would have picked him instead of me. He did apply for the '80 class and that's what put him in with the '80 group. That's what put him on *Challenger* [STS-51L]. If he had applied in '78, who knows?

I had known him since test pilot school in '76. He was just a water walker. He was just a wonderful guy, nice human being, excellent pilot, excellent aircrew. Really good at handling political things and just really a great guy. He did a lot of training. We'll talk about [STS]-61C I know. Prior to 61C George assigned him to take [US Congressman] Bill Nelson under his wing and coach him and help him and train him to help Bill Nelson adapt to being a Space Shuttle crew member. Bill Nelson got to know Mike Smith quite well in addition.

Mike spent quite a bit of time showing me all the stuff he had organized. Whoever was Chief before him wasn't quite as organized as Mike Smith was. Mike had really organized Joe Algranti's filing system and had really been a real attribute out there at AOD. I remember one of the secretaries after I'd been there for a little while. It was a positive comment about Mike. It's going to be a little self-serving because it was a positive comment about me as well, but she said, "Oh, we've been so lucky lately with you guys coming out here to be the Deputy Chief. It's just been a really big help for us." Mike Smith started that. Whoever was ahead of him wasn't quite as good to work with and maybe stirred things up a little bit out there. Starting with Mike Smith, they had a real string of people that they really enjoyed.

ROSS-NAZZAL: Let's talk about 41B and learning that you had an actual mission. You were going to be fourth in line, like you said.

GIBSON: There's a funny story there too. That was when I got told. I don't remember if I was over there anyway. This was while I was out at AOD. Either that or George said, "Hey, why don't you come over and talk to me?" It was one of the farthest things away from my mind, because I didn't even realize it was time to be assigning another crew. We had assigned 7, 8, and 9. Then at some point after that we assigned 10, which was a DoD [Department of Defense] mission. TK [Thomas K.] Mattingly with Loren [J.] Shriver as pilot, Ellison [S.] Onizuka, I think.

ROSS-NAZZAL: Yes, I think Ellison flew with Loren.

GIBSON: Was it Jim [James F.] Buchli? Shouldn't have been Jim Buchli. STS-10 got assigned. I showed up over at George's and came in and sat down at his little conference table. It was George, and Vance Brand was sitting in there. Didn't even occur to me. Nothing even occurred to me at all.

George said, "Well, okay." I think at that point I'd been out at AOD for a year and a half. George said, "Okay, you've been out at AOD for a year and a half now. Have you given any thought to what you might like to do next?" I said, "Oh gee, well, no, sir. No, I hadn't really thought about it. I think everybody would like to be a CapCom, because that's just really a neat job and really a good job. So I'd like to be a CapCom."

Then he said, "Well, have you got any interest in any of the upcoming missions?" Can you imagine what I said next?

ROSS-NAZZAL: What'd you say?

GIBSON: "Huh?"

ROSS-NAZZAL: I thought you were going to say, "No."

GIBSON: I mumbled something like, "Well, yes." He said, "Okay, well, if you're not against it, if you're not averse to it, we're thinking that maybe you might like to go with Mr. Brand here on STS-11."

At that point I'm just speechless. I'm going, "Huh, huh." He said, "Okay. Well, the press release probably isn't going to go out until tomorrow. So keep this to yourself. Don't go

call a press conference and announce it. The press release is probably going to go out tomorrow.” Jennifer, I don’t remember if he told me who the rest of the crew members were at that time or not. Probably my brain was a blur from there on anyway. I remember walking out of there. At that point Mike Smith was the Bubba up there, George’s horse holder up there, and he walked up to me in the hallway. He said, “Is it a mission?” I said, “Yes, it is.” He said, “Wow, congratulations!” Another one of those little moments that somebody you think so highly of was happy for you.

Then I remember the very next day I had a PR [Public Relations event] in Camarillo, California. I was speaking to 3M. It hadn’t been released yet, so I was out there. I think right before I was due to go up on stage and talk I got a phone call from Sylvia [A.] Salinas, if I remember right. “Okay, the press release is going out, so you can tell everybody.” So I got to tell them at this [event]. That was my first public announcement of it. “I just found out yesterday I’m going to be flying STS-11,” which of course got changed into 41B. That’s the way I found out about it.

ROSS-NAZZAL: Of course you went and told Rhea, I presume.

GIBSON: Of course. Yes, I don’t remember if I asked George or if he just said, “Yes, of course you can tell Rhea.” I probably called Mom and Dad that night. I suspect I called Mom and Dad that night to tell them.

ROSS-NAZZAL: Because why not? That’s not a public announcement.

GIBSON: Oh yes, but would have told them, “Hey, don’t blab it.”

ROSS-NAZZAL: Don’t go telling the *LA Times*.

GIBSON: Yes.

ROSS-NAZZAL: If you would talk about that crew and the crew relationship, that was a diverse crew. Had you worked with any of those folks before?

GIBSON: No. I had not worked—except when Vance Brand was commanding STS-5, of course we did the SAIL testing for his software load. One of the things that we would always do as the SAIL guys—at that point I was the lead astronaut over there at SAIL—we would have a briefing for the crew, but that was about the extent of having worked with Vance. We got together and we gave him a brief on his software load for STS-5 and how all the testing had gone and what sorts of things we had been through and that everything was fine.

The other guys, no, I had not worked with them. Vance was the only one of us who had flown. He got four rookies to go with him. He got Bob [Robert L.] Stewart, Ron [Ronald E.] McNair, and Bruce McCandless. Of course for us, the ’78 guys, it had been five and a half years. For Bruce, it had been 16 years. It had been 16 years since he came in to when he finally got to fly. Those of us that were getting to go for a ride that early, five and a half years after we came in the door, shoot, we were the lucky ones.

They were an interesting crew. Ron McNair had worked the robot arm, the RMS (Remote Manipulator System), so naturally he got assigned to RMS. I got assigned to be his

backup, so he and I trained together a whole lot, both here in Houston at the SMS and over in Building 9 with the simulator that's over there for the RMS. He and I flew up to Canada, Toronto, in the wintertime. Talk about dumb—in a T-38. We flew to Scott Air Force Base [Illinois] and went through customs there and then into Canada. It was freezing up there. I don't remember what month it was we went. It must have been December, but oh golly, was it cold up there. Ron and I spent a whole lot of time together. We got to be really good friends.

Vance was really good about getting us all together. So he threw a party for all of us over at his house. Then picking up the lead from him, I invited everybody to Rhea's and my house for a dinner party. We got to be really good buddies. In fact we did a 25-year reunion out in Colorado. Vance, and let's see. Vance and Bruce both live out there. We went to Vail, got to go skiing for our 25-year reunion. Ron McNair's widow Cheryl came out for it as well. We wound up being a very close crew.

Bruce was set in his ways, so he could be a little difficult sometimes. I shouldn't say difficult. With Bruce there was one way to do it and that was the right way. Very good, very devoted, very hardworking, very studious.

Bob Stewart had done a whole lot of work on Orbiter reentry and landing as part of the lab out there in California. Last time we couldn't agree if it was FCL [Flight Control Laboratory or FSL [Flight Systems Laboratory], FSL or FCL, but it was one of those two. Bob had worked out there quite a bit refining the flight control gains and had flown a whole bunch of simulations. Of course Bob was the very first Army officer ever to go to space.

Of course this was Vance's third flight, so he had flown of course Apollo-Soyuz [Test Project] and then STS-5 and now STS-11 that was supposed to be the eleventh flight. We wound

up being the tenth flight because STS-10 got delayed. I don't know. Was it ever unclassified about why they got delayed? I'm not even sure.

ROSS-NAZZAL: I'm not sure. Every time I talk to somebody who has a DoD mission they tell me they can't tell me much at all.

GIBSON: I'm going to take a chance that it was unclassified. There was a problem on STS—which one took up the first TDRS [Tracking and Data Relay Satellite]?

ROSS-NAZZAL: I think it was [STS]-6.

GIBSON: Six, okay. There was a problem with the IUS [Inertial Upper Stage]. That's what delayed STS-10 because they were using the IUS. They wound up slipping, so 41B, STS-11 wound up being the tenth launch. That's why we slipped into the tenth place.

Now I'll probably go to jail because that was probably still secret. No, actually I don't think it is. I don't think it is, because in the case of [STS]-27, for example, I am allowed to say that we went to 57 degrees. We carried a major new DoD intelligence satellite, deployed it with the robot arm.

ROSS-NAZZAL: You didn't test duct tape as Rhea says in her book? I think that's what she said. You went to space to test duct tape.

GIBSON: To test duct tape. Yes, because the only photos that we could really show are us in the cabin, and there's a photo of me sitting in the commander's seat. Behind my seat stuck to the wall is a whole roll of duct tape. So frequently I would show that slide when I was talking and say, "Well, I really can't tell you anything about the mission except that we were there to test duct tape."

ROSS-NAZZAL: I thought that was amusing.

GIBSON: Yes, 41B, well, I was disappointed. Vance felt that I was going to be overloaded, and I wasn't. I was never overloaded. I had worked in SAIL, so I had a whole lot of experience flying missions. I had had another project that George had assigned me to called display verification. I was one of the few guys out of the '78 class getting simulator time because Steve Nagel and myself and a gal from MOD [Mission Operations Directorate], George assigned us a task of going through and checking all the displays and make sure they're working the way they're supposed to in the SMS [Shuttle Mission Simulator]. So we were getting sim time. We'd get a four-hour block of simulator time. We didn't just go in there and say, "Okay, hey, let's do an ascent; okay, hey, let's do an entry." We built a test plan, and we had all the things we were going to test. I'll bet we put in probably three hours' for every hour of sim time that we got. If we had a four-hour block of simulator time we would have worked on this plan for several days, putting together what we were going to do.

As a result, we got to fly ascents and RTLs [Return to Launch Sites] and reentries and orbit and check everything out. We found a bunch of problems on the displays. We found something. I don't even remember what it was, Jennifer. But there was an item entry on a

keyboard. Pretty sure it was on SPEC 50. If you entered this item it shut down the Orbiter's engines. It shut down the engines. We found that in the simulator. That would have killed the crew.

We found a bunch of things that weren't working right, some of the software for the flight control positions, the elevon positions, was backwards. So they weren't indicating correctly.

ROSS-NAZZAL: I have to ask. Was this before STS-1?

GIBSON: This is before STS-1.

ROSS-NAZZAL: Double-checking.

GIBSON: Yes, this is before. Yes, really.

ROSS-NAZZAL: We've been flying five flights. "Hey, by the way."

GIBSON: A lot of it was we'd spend hours in there and not come up with anything. But then other things that we did find, all it took was there was a plus sign that was flipped or should have been a minus sign. We enabled them to fix a bunch of the software.

I really was not overloaded. I had had a bunch of sim time already, but Vance was worried about me because I was doing RMS. This was my first flight. I was PLT, so I'm second in command. If something happens to him I'm going to be the commander. He didn't let me do

rendezvous training. Rendezvous is so cool. I really was disappointed when he told me I didn't get to do rendezvous training. He and Bruce got to be the ones who trained on how to do the rendezvous.

Because we were going to do the first test of the rendezvous software, we called it the lead balloon. We had a 200-pound balloon that was an inflatable two-meter balloon, Mylar-covered, so it would be reflective for the radar. In order for it to have some mass—it had to have some mass because there's just enough atmosphere even at 160 miles that something real lightweight would get deorbited, so it had 200 pounds of lead in it; it was a lead balloon. It really was a lead balloon.

We were going to deploy this thing, separate away from it, and then fly a rendezvous on it and actually come up close and rendezvous with it. It didn't work out, because instead of inflating, it exploded. There was that funny story. It deployed, and it was supposed to inflate two minutes after we launched it. We're sitting there watching it and watching it and watching it, and it didn't inflate. We're calling the ground and saying, "No, it hasn't inflated yet." Then it exploded.

Bob Stewart keyed the mike and he said, "Houston, it just blew up." Half of Mission Control stood up and cheered and the other half went, "Oh no, it blew up!" The two of them looked at each other, and they said, "Well, why are you cheering?" "Well, why are you unhappy? It just blew up. We better ask him what he means." Because we didn't have live TV on it, they called up and said, "When you said it just blew up, what did you mean by that?" He said, "It just exploded." They said, "Oh."

ROSS-NAZZAL: That would be a great picture to get.

GIBSON: The wording is important. It just blew up. That can mean two different things.

ROSS-NAZZAL: Exactly.

GIBSON: Which it did. I did not get to train on rendezvous. I was disappointed with that. I didn't get to do that until STS-27. Oh, now I have to shoot you.

ROSS-NAZZAL: With a roll of duct tape, right? That's what you were rendezvousing with?

GIBSON: [STS]-41B was just a really fascinating mission to be training on because it was set to possibly be the first Cape Canaveral landing, which in fact we were, because 7 was going to try to go there, 8 was not. I guess the only one that really missed out was STS-7. [Robert L.] Crippen and Rick Hauck and Sally, that crew, they were possibly going to go back to the Cape. I guess the weather just didn't work out, so they couldn't go there.

STS-8 was planned to be the first night landing, so they weren't going to go to the Cape. STS-9, I don't even remember if that was a possibility for them. They were the first Spacelab, John Young and Brewster Shaw. I don't remember now whether they were possibly going to go there. I guess it was apparent that there was a chance we were going to be the first Florida landing.

We were going to be the first test of the MMU [Manned Maneuvering Unit]. That was a really nice reward for Bruce McCandless who had worked on EVA [Extravehicular Activity] and

worked with the MMU and all the development and all the training and the engineering for years and years and years. It's one of those just rewards that he got to be the first one to fly the MMU. He and Bob Stewart, of course, trained extensively on that to get to do that.

ROSS-NAZZAL: I wanted to ask you about training for this mission, because of course you train a lot more on the ground than you do spending time in space. I was wondering if there are any humorous anecdotes or anything you remember about say contingency EVA training.

GIBSON: Not that really comes to mind too much about anything funny. Ron and I both trained very extensively to put Bob or Bruce on the foot platform. We did the first test of that as well to where you put this foot platform on the end of the RMS and then an astronaut could slip their boots into it and then we could maneuver him all around the different places in the cargo bay.

We also had a satellite, the Shuttle Pallet Satellite (SPAS). It was in the cargo bay. One of the things we were going to do was grapple it with the arm, take it out of the cargo bay, and hold it up on top of the arm and rotate it at one degree per second. Bruce and/or Bob were going to practice flying up and attaching to it with the TPAD, (Trunnion Pin Alignment Device), that they were going to use on STS-13 [STS-41C] to go fix the Solar Max satellite.

We spent a lot of time training over in Building 9 with actually lifting out a big cardboard SPAS and doing all that. Let me think. I don't think we had anything funny. Vance wanted to be IVA [Intravehicular Activity] on that one, so he's the one that went to all the training with Bob and Bruce when they were doing their EVA training. He's the one that helped them into their suits and out of their suits, because he particularly wanted to do that.

He had had the experience on STS-5 of one of the crew members who got so very ill that they couldn't do anything. So Vance realized, you know what, everything that we do has got to have a backup for it; there's got to be two people assigned to every single thing that we do. Shoot, that was a great idea. I utilized that every time I was mission commander as well. We're going to have a prime and a backup for everything. I guess the one crew member on STS-5 was so disabled he couldn't do anything. It was a big hiccup to that mission because there were some things that he was the one that knew how to do them and nobody else did. We all trained very extensively. There were always two people for every single system or every single evolution that we were doing.

ROSS-NAZZAL: I understand you did most of the photography for the mission. Did you do a lot of training on the ground before you went up there?

GIBSON: Oh golly, yes. That's one of those areas that everybody loved to train on, photography. I had been a photography nut virtually all my life. I remember when I got in the Navy a bunch of my buddies when I was going through pilot training—you wanted to have a camera so you could take pictures along the way. Most of them went out and bought some little cheapie camera, not me. I went out and bought a pretty fancy camera. When I went to Japan the first time, which was on my first cruise, holy smokes, I'm right here where Nikon cameras are built. I bought myself one of the really fancy nice Nikon cameras.

I had been an enthusiast of photography for most of my life. Then we get to NASA and you get to train even more on it. The reason that I got to shoot that famous picture of Bruce McCandless up in orbit, and I always got to laugh when I tell this story when I'm speaking, the

reason that I was there parked by the window with camera in hand, was that on the spacewalk as the pilot, the copilot, I was the only person on the crew that had absolutely nothing to do. Vance was fretting about our free-flying astronauts. Ron McNair was operating the TV cameras to keep them in sight and keep a laser tracker pointed at them. I'm sitting there with nothing to do.

So I had the camera in hand and I will just never forget looking through the viewfinder when Bruce got just barely outside the bay. The reason he's at an angle something like 28 degrees or 32 degrees to the horizon is because we were at an angle of 28, 32 degrees to the horizon. It was to give us the best Ku-band communication coverage to the ground. I think it was so they could have live television. Ron McNair's job was to keep them right in the center of the TV picture so that that could be going to the ground.

Then we also had a laser range finder, and we were keeping an eye on them. They were to go out to 300 feet and stop there and then come back. I'm sitting there with just nothing to do. I'm the only one left inside because there were five of us and we got two guys outside. But I looked through that viewfinder the very first time and I didn't even take a picture. I put it down and I said, "Oh my gosh, I can't believe what an image this is."

I got real serious about taking photos. This was with a Hasselblad camera. The Hasselblad is manual everything. The focus is manual, the f-stop, and the shutter speed are all manual. For every photo that I shot, I probably did three light meter readings, and I probably checked the focus four times before I actually squeezed the trigger and shot a picture. The one thing that they had taught us in photography training was we humans don't like to see the horizon tilted. If I had just looked square out the window and taken a picture of Bruce, it would have looked like this [demonstrates], and the horizon would have been at a screwy angle in the photo.

One of the things that I did that I have to admit was really the ideal technique was I'm looking out the window at him. I tilted the camera to put the horizon level in the pictures, because we were at an angle to the horizon. Every once in a while Ron McNair would pick up a camera and shoot a couple photos. He wasn't tilting the camera. So that's how I could tell which pictures I shot and which ones Ron shot.

ROSS-NAZZAL: I was curious about that, yes.

GIBSON: Ron shot the ones where you see the horizon on an angle. They made interesting pictures as well, but I didn't shoot any that way. Every photo that I shot I tilted the camera to put the horizon level in the picture.

ROSS-NAZZAL: Was that something that you had—not the horizon—but had you prepared before the flight in your head—these are the kind of shots that I want to make sure that we get to capture the history of this mission?

GIBSON: We knew the MMU flight was going to be interesting, but I don't think I had really appreciated how spectacular that was going to look and how fascinating it was going to be. I remember as I was doing this I said to myself, "Wow, if I don't mess these pictures up, I'm going to get the cover of *Aviation Week*." I actually got three covers of *Aviation Week*.

ROSS-NAZZAL: What were the other two?

GIBSON: One was that pretty famous picture of Bruce. The thing to realize about that picture was, Jennifer, there wasn't just one of them. I must have shot 20 pictures of him as he was separating away. There was a whole sequence. Our old motto was hey, film is cheap, so shoot up a whole roll. Hasselblad, it was real quick to change magazines. We kept spares right there. It was just a whole bunch of photos, one right after the other.

Then what Bruce did was once he got far enough away he aligned himself with the horizon. Then he was straight up and down. So when he was way out there he was straight up and down. As he got back in and got close, he aligned himself with the Orbiter once again, as he came back into the cargo bay. So we've got a whole slug of shots.

When Bruce did the translation, the lighting was just perfect. He was just being totally lit up. When Bob did it, it wasn't quite as perfect. We got some good pictures of Bob as well, but the ones that really stood out were the ones of Bruce. When it was Bob's turn he didn't have the same Sun angle that we had for Bruce. That's how all that got done.

The other pictures that I referred to, there was a photo I shot of Bruce on the end of the RMS looking at us, and he was out there in the cargo bay. That was an artistic photo as well, I have to admit, because I'm looking out the aft window. The RMS was pointing such that Bruce would have been facedown towards the cargo bay of the Orbiter. At one point Vance said, "Hey, Bruce, look here at the camera." Bruce bent at his waist and so made a bend and was looking at us. What I did was I shifted the camera so that he wasn't right in the center of the picture. I put him on the edge and the Orbiter's rudder on the other edge of the picture. That made a really cool photo. That photo got used in an ad for Hasselblad cameras. I think maybe that one was on the cover of *Aviation Week*. Then the other one was the picture of Bruce way out there at 300 feet. I think those were the three that made it onto *Aviation Week* on the cover.

ROSS-NAZZAL: This just occurred to me because I remember this being an issue a few years ago. It's not necessarily to do with the flight. There was an artist, Dido, who had used I think that image of him way out there. Were you involved at all in that hubbub?

GIBSON: Oh golly, yes. No, not involved at all, but I read about it. Apparently Bruce was suing her. I saw that CD in a store, and I bought a copy of it. It wouldn't have occurred to me to say, "Hey, you're using this without my permission." I think it was a little silly to sue her for it, just my opinion. He was suing her because she was using his likeness. You can't even tell it's Bruce. He had his gold visor down the whole time. Bob kept his up so you could see his face in the photos, but Bruce had his gold visor down. It was a picture of a spacesuit is what it was. Even though I'm the one that took that photo—because the horizon was level, so I know I took the photo, more power to her. I think it's great.

ROSS-NAZZAL: I thought it was interesting. I always just assumed those images were part of the public domain.

GIBSON: They are in the public domain. That's the other thing. You don't need permission to use them. But I suppose—well, lawyers will do anything. If you tell them, "I want to sue this nice gal," they'll do it.

ROSS-NAZZAL: What we'll do at the end when we get your final copy, we'll put on the Web, we'll put those photos, and we'll differentiate. We'll show a picture of Ron's and show a picture of yours. I think that would be a good idea. I think it would be interesting.

GIBSON: I've seen some of Ron's pictures in other magazines where they're talking about photography. The description on this one says, "The horizon being at an angle makes for a really interesting photograph." I'm thinking, "This is totally opposite of what we got trained." But it did. I think it made an interesting picture as well.

ROSS-NAZZAL: That's fascinating. I had heard that he had shot that photo, but then I had read in other sources that you shot the photo. So it reminded me of the Apollo 8 earthrise image. I thought well, who really shot that photo, you know how everyone takes credit for it. That's great, so we can differentiate.

GIBSON: Yes, we can, because the camera that I was using had the 80-millimeter lens and the one Ron used had the 250. The ones Ron shot were at a farther distance away, but then the telephoto brings it up closer. The big way was that every single one that I shot I made the horizon level, so that's how I could tell.

ROSS-NAZZAL: I always like to ask people, especially their first mission, to walk us through your memories of that day: getting up at crew quarters, getting ready, the breakfast, all the way through launch and getting up into space that first time. What are your recollections of it?

GIBSON: We launched right on time.

ROSS-NAZZAL: Very unusual.

GIBSON: We were projected to launch on February 3rd. Maybe January 31st, early in the training. But for the longest time it was to be February 3rd. We headed down to Cape Canaveral and gee, we had it made, because we had three pilots. At the time our military pilot mission specialists could still fly the T-38s. Later on that got to be no, they can't. We had Vance, myself, and Bruce, so we could fit our whole crew into three T-38s. We had all our own pilots, we didn't have to round up an extra pilot, which frequently crews had to do that. It was no problem because everybody was happy to go along on the trip down to the Cape.

We were aiming at February 3rd, and of course that worked out. Rhea had a big party, I guess threw a big party down at the Cape. You always did that because otherwise you don't get to see your launch guests. Rhea and the kids would be on the LCC [Launch Control Center] roof and all your launch guests would be at I guess the Banana River site was what it was. They'd all be there.

Oh golly, everybody showed up for it. I had a whole gang. All of my brothers and sisters were there for it. That was just so great because we counted down and lifted off right on time at 7:00 a.m. on February 3rd. The schedule was such that we didn't have to be in bed when night viewing happened, so Vance said we would go to the night viewing. That just creates pandemonium, because all your launch guests are out there for the night viewing, but they've got to stay 15 feet away from you.

I remember my daughter Julie, I guess, was eight years old then. Oh, she was crying because she didn't get to come hold Daddy. Of course that was always challenging to be there at night viewing or at arrival at the Cape. The kids could see you, but they couldn't come near you. That was always tough on them. So we went to night viewing, and it was pandemonium. The

NASA security guys were just having a fit because people were pushing the edge on how close they could come to you. I'm not sure that was a good idea to show up at night viewing. Each person would have 50 guests, and they all wanted to get to say hi and take pictures of you.

That was fun. I got to see some people I had not seen in years. Then of course next morning bright and early we would have been up at I guess, yes, about two o'clock in the morning, because we get started about five hours before your liftoff time. Then got out there on the launch pad. That's the first time that you ever saw a living breathing Orbiter, because it had been fueled. You had the liquid hydrogen and liquid oxygen in the tank. The thing was hissing and clanking. It sounds like it's breathing and it's alive, just really fascinating to see. I'm sure you hear that all the time. It's just really fascinating to see it on launch morning, because every time you've seen it prior to that it wasn't alive. Electrically it was powered up, but it wasn't hissing and breathing and clanking and creaking. It was really fascinating to see.

We climbed in, and the countdown progressed on down. We didn't have any anomalies and whoosh, off we went. I remember training in the simulator. We'd lift off and we'd get through engine cutoff. Right immediately after that we would do a maneuver to the OMS-2, OMS being Orbital Maneuvering System, to the OMS-2 burn attitude. As we'd come into that attitude, the west coast of Africa would just be coming into view on the visual in the simulator. You'd look at it and you'd say, "Okay, there goes the west coast of Africa."

I remember on the actual flight we went into that maneuver, we pitched down, and here comes the west coast of Africa. I went, "Vance, look at that." I grabbed his right shoulder and I said, "Look at that, there's the west coast of Africa." He probably looked at me like, "You haven't seen that before?" Actually I had not, but I'd seen it in the simulator all those times.

When you launch, the pilots are pretty preoccupied because you could have all kinds of malfunctions. You could have things going wrong. During launch you've got to fix things fast. You've got to be really quick about it. For example a navigation error, if you have a problem with your inertial measuring units to where you've got a navigation error going, you've got to either fix it or engage the backup computer within 10 seconds. An error under that kind of acceleration is going to propagate so big, the vehicle is going to go out of control. They would do that to us in the simulator. They'd give us [malfunctions], and you've got to iron it out. So you're really spring-loaded, you're on the edge of your seat all the way to orbit.

Then all of a sudden the engines shut down. I remember I got this great big giant smile on my face. I said to myself, "Wow, what a ride. I want to go back and do that again." We had just arrived. I said, "Let's turn around and go back and do that again. That was fun."

You're ready technically for all the things you're going to see. You've trained on them; you've practiced them all so much in the simulator. You're not prepared emotionally for the excitement that you're going to see. That was even true on subsequent missions. It was so exciting that you found yourself getting excited all over again just as much as you did the first time.

ROSS-NAZZAL: Like that E ticket I think Sally talked about.

GIBSON: Oh golly, yes. That was before direct insertion. We got to cutoff, and we're going to have to do an OMS-1 burn. The OMS-1 burn was usually, oh shucks, within two minutes. I want to say it was within two minutes of when you got to MECO, which you've heard many

times of course is Main Engine Cutoff. If I remember right, apogee was only going to be in another two minutes, and you had to get that burn off or you're going to go back down.

That was something that we had to do. Right after cutoff we separated from the tank. We load up the OMS-1 burn, and we did our OMS-1 burn, and that all went fine. That put us up to 160 nautical miles for apogee at that point. Then we're going to have to do another burn at 45 minutes after launch when we reach apogee to bring up perigee and put us in a 160-by-160 orbit. All that stuff just went perfectly. I don't remember us having any anomalies whatsoever throughout the launch and throughout the orbit insertion phase of the flight at all.

The boys opened the doors. Bruce and Ron, maybe Bob and Ron were the ones to open the payload bay doors. Got those open. Everything just went fine. Then we launched WESTAR-VI that afternoon. I'm trying to remember that one. Bob Stewart and Ron McNair switched places for the two satellites. One of them was the prime operator sitting in the commander's seat going through the sequence of item entries that we had to do. I was always in the right seat for those watching attitude. I don't remember everything else that I was supposed to watch but verify that we're in the right attitude for deploy and counting down to deploy. Everything looked just perfectly fine, and we launched WESTAR-VI on the first day, later in the day.

I remember one of the things that really wasn't good that first day was lunch. That was back in the days where NASA had put together a standard meal package for every mission. The first day lunch, what was on the standard menu was ham slices. If you're even thinking about getting sick, which we found out over the years got to be a big problem, but if you're even thinking about getting sick and you open up that package of ham, and all that juice that was around it, and it was a chunk of ham, and we ate it, I ate it. I was one of the lucky 60% that do

not get sick, so I didn't get sick. Boy, I tell you, if you were even thinking about it, lunch on the first day was not what you wanted to have if you had any thoughts at all about getting sick.

The deploy, everything went fine. The PKM [Perigee Kick Motor] burn—back in those days what we did is we maneuvered to point the belly of the Orbiter at the burn to protect the windows because even though it was far enough away from us, the rocket plume apparently would send some particles towards you. So we weren't watching it, we were just pointing in this other direction. Then it was later on in the day that Mission Control called us and said, "Hey. When you guys launched the satellite did WESTAR look like it was okay to you guys?" We said, "Yes." They said, "Was it spinning nice and steady the way it should be?" We said, "Yes." They said something like "You didn't see any pieces coming off of it, did you?" I think either Vance or maybe it was me that keyed the mike and said, "Does this mean you can't find it?"

They said, "Yes, we don't know where it is. We can't find it. It's not where it's supposed to be." They searched and they searched and they searched, and they finally found it in the wrong orbit. It was down in a 400-mile-high orbit when it should have been in a 22,000-mile-high orbit. It was just a little bit off.

They figured out that something had to have happened to the motor. We held off. We were going to deploy the PALAPA-B2 I think it was the second day. We held off, and they said, "Okay." They either told us at the end of the first day or early on the second day, "Hey, we're not going to do PALAPA deploy today. So just find some stuff to do up there."

We made videos. Ron had brought along his saxophone, he had a tenor sax, a small saxophone, so he played that. We videotaped him and videotaped the Earth going by and put together this videotape of him playing music and watching the Earth go by. I guess we filmed

Bob Stewart on the treadmill. Just making the time go by that day. Find something to do to fill up the whole day, so we did that.

Then I don't remember which day, maybe it was day three. They finally looked it over, and they came to the conclusion that WESTAR VI had been a random failure, so we're going to go ahead and launch PALAPA. Only this time they said we're going to point the RMS camera at the PKM burn, so they gave us a bunch of angles to put the RMS at so that we could point it pretty much right where the burn was going to be and watch the burn. From that point on they did that every time they did a deploy. They would point the RMS and watch the burn on the RMS camera.

We saw it light, we saw it stabilize, and then we saw this big plume, and nothing. So it had a random failure too. In subsequent digging into it, I guess they went back and asked the contractor, "Well, what did you guys change?" What they figured out was that the motor had blown the nozzle out. It had severed the nozzle and when you do that you choke the flow, and so that was the end, no more thrust.

So both satellites of ours wound up in 400-mile-high orbits. I remember after we landed and came back to Houston there was a cartoon in the *Houston Chronicle* that showed two men walking down the street. Just above their heads there's a satellite going by. They were saying, "Well, it's a complete success. It just wasn't quite as high as we wanted it to be." They were making fun of us. Both satellites wound up stranded in a useless orbit, and I guess it was later on in '84 Rick Hauck on [STS-51A] went up there and they retrieved those two satellites. Brought them back to Earth, they refurbished them, and they eventually made it to orbit on expendable rockets. So they eventually got there but took a while.

ROSS-NAZZAL: What was the crew morale like given the fact that these two didn't deploy successfully?

GIBSON: We were pretty disappointed. We were quite disappointed. We had not done the lead balloon yet. That followed after the satellites. We deployed our lead balloon, and it exploded. So we didn't get to do the rendezvous testing because Mission Control was nervous about the 200 pounds of lead. Since the balloon had exploded, where's all that lead? Is it with the shreds of the balloon or is it on its own? So they had us just do a separation burn away from it, and we never did anything with the rendezvous test. We had messed up both of our satellites, we had exploded our lead balloon, nothing is going well on this. The toilet hadn't failed yet. That happened I think the next day. One of the guys went to use the potty and flipped the switch on and it tripped the circuit breaker.

We don't just reset circuit breakers because you don't want to reset a circuit breaker and have it cause a fire in the wiring. So since I was one of the ones that trained in in-flight maintenance I got to be the one to fix it, which I did. I fixed it. It had jammed. I had to remove power from it, open it up, and reach in there and unjam it, because it had the slinger in there. Those were the days when we still had the slinger. The slinger had become jammed. I unjammed it, so I fixed it. It just seems like everything was going wrong. We were snakebit. Then we came to the EVAs, and from there on we positively sailed, with one more hiccup that happened, but the first tests of the MMU were so spectacular. Of course that's probably the one big thing that that flight is going to be remembered for was the MMU, the Manned Maneuvering Unit, and the world's first untethered spacewalks. That part of it just soared.

Bruce was first. While he was doing that Bob was doing some things. We had some experiments that he was working in the cargo bay. Then, of course, it got to be his turn to go and Bob got to go as well. We did all that, I want to say that was flight day five by the time all that came to pass. That just went spectacularly.

Then we had another EVA day. We had another hiccup. This was going to be my turn to really operate the RMS because Vance wound up dividing it pretty much evenly between Ron and me. So this was going to be my turn, and I was going to be the one who was going to get to bring the arm over, grab ahold of the SPAS satellite, lift it out of the cargo bay, spin it around, and then put it back in when we were done with it.

The RMS failed on my way to the grapple position. It turned out that the wrist pitch was frozen. That was one of the joints in the RMS. They called it the Canada arm. We called it the robot arm. It really was an arm. It had a shoulder joint, it had an elbow joint, it had a wrist joint. The pitch joint on the wrist had frozen for some reason. It didn't work. We troubleshot it and troubleshot it. I had maneuvered it over and got it into position, but as I'm bringing it over there, it's just not behaving the way I'm expecting. I'm sitting there saying to myself, "I have got to be the crummiest arm operator there's ever been, because I'm having to tweak it all over the place to get it to where it's supposed to be." I hadn't had that trouble in Building 9 or in the simulator. I'm going, "What is the matter with me?"

I got it there and then we looked at the message on the computer and it's telling us WPA, Wrist Pitch Amplifier. We troubleshot it. We put it out, turned it off, turned it back on, did everything we could think of to try to get it working again, and Mission Control finally said, "Okay, it's broken. Cradle it and shut it off." That was the end of it. So I didn't get to have my big moment of glory working the RMS and doing all that fun stuff. I was a bit disappointed, but

in conjunction with that we had another spacewalk. Bruce and Bob both went outside and did a second spacewalk, and everything they did on that one just worked perfectly.

They tested out the TPAD, the Trunnion Pin Attachment Device, did a bunch of practice dockings with flying the MMU and doing the dockings to prepare the way for Pinky [George D.] Nelson to do that on STS-13. So really everything went fine. There were some glitches. Then it came down to day eight, the final day of the mission, and we got to make the first landing at Cape Canaveral.

That went well. My funny story about that was the two pilots on the Shuttle as you know are called the commander and the pilot. I tell this story all the time. I said, "I'm sure the reason they don't call the pilot the copilot is that we astronauts are such prima donnas nobody's willing to be called copilot. So it's the commander and the pilot." It just confuses everybody because the commander is really the pilot, the pilot is really the copilot.

Vance Brand, the commander, made the first landing at Cape Canaveral, and I was the pilot. So later in that day somebody was saying to me, "Hoot, you were the pilot this morning for that landing, right?" I said, "Yes." They said, "God, that was a beautiful landing you made." I said, "Thank you." It was beautiful. It was beautiful.

ROSS-NAZZAL: Did you get to fly the stick at all? Did he let you have a little time?

GIBSON: No, that was at the time period where we were not letting the pilot get any time on the stick at all, which I think was always a big mistake. The very first time I got ahold of the stick was 61C, when I had to make the landing at night. That's the first time I'd ever had my hand on the control stick to fly the Orbiter in atmospheric flight. I had had some stuff up in orbit where I

operated the stick if I remember right, so I had done some of that. The first time I got my hands on the stick I had to make the landing. I don't think that's a good way to train. I think it's just a big confidence builder to let your copilot get his or her hand on the stick and just feel it out, even for just 20 seconds I think makes all the difference in the world. But we were going through a phase where no, we're not going to do that.

For STS-27 and 47 I was able to let my pilots fly the thing for a bit and get the feel of it, because they're both going to be commanders at some point and this is going to be a good thing to do. For 41B and 61C we were in the mode of no, you don't get to do that. That's the way that went. Vance just did a beautiful job landing it. We almost got fogged out of it. When you looked at the pictures of us landing, there was all kinds of fog coming off our wingtips. There was all kinds of mist down in the swamps all around the landing site. We just about fogged over, but we lucked out.

We did have a close call during reentry that none of us knew about until after the mission. One of the things that we had attempted to do during the mission was to do a simultaneous wastewater and supply water dump. I don't know why the Shuttle Program had decided that would be important for us to do. As it turned out, doing them both at the same time—the dump nozzles are in very close proximity to each other, and obviously the heater or heaters weren't enough to handle that. Unbeknownst to us, we had formed an ice ball on the left side of the Orbiter. I suppose it just didn't occur to anybody on the ground that we had an ice ball out there. It didn't occur to us, although maybe this happened after we had broken the RMS so we couldn't have looked at it anyway.

We knew that we couldn't dump water. So the way that we got rid of supply water was we ran the flash evaporator. We were running the flash evaporator up on orbit so that we

wouldn't overflow our supply water tanks, but we had built ourselves a nice chunk of ice on the left side of the Orbiter.

During reentry that's going to melt off of there, and it left the left side of the Orbiter and came back and hit our left OMS pod and just about broke its way into it. I don't know what would have happened to us, but you look at the video of us coming in to land from the chase plane, and you can see this big black mark on the left OMS pod. It nearly broke the surface and ruptured into the OMS pod. Then we would have got the heat of reentry in there at all those fuel tanks that are in there.

It could have been the end. We didn't realize it. Mission Control didn't realize it. Nobody realized it. Then of course later on on [STS]-41D, they built themselves an ice ball on the left side but they used the arm to go over there and knock it off and push it off of there. So we had a little bit of a close call during reentry that none of us realized, and nobody appreciated it until afterwards, and we got to look at it and see where we had almost broken through the left OMS pod.

ROSS-NAZZAL: Yikes! I wanted to ask you a couple of other things about the mission, especially because we're not going to be able to talk with Ron McNair. I understand that he brought some levity to the flight, besides the saxophone, because he dressed up like Cecil B. McNair when he was doing his video.

GIBSON: Yes, he was the lead on the Cinema 360 camera. We had a camera that never really quite caught on because the IMAX camera just overshadowed it. Cinema 360 was a camera that gave you a big fish-eye view, and you needed to project it onto a planetarium. It shot some

pretty spectacular stuff. But as I say, it just never caught on. Jackson, Mississippi, is where the Cinema 360 Company was. After the mission we actually went back there. There were a whole lot of sequences we shot. The one I remember real vividly was Bruce in the MMU took off from near the back of the cargo bay and flew across the middle of the scene and then out the scene I think to the right side of the picture. That made a really spectacular image.

We also had some really dramatic images crossing the Skeleton Coast of Africa. In fact that might have been the same view with Bruce flying across the Skeleton Coast, Namibia, in the background on that picture. So Ron was the lead guy on that. I'm trying to think if he had a backup. He must have had a backup because Vance had—maybe it was Bruce because I don't think it was me. So he was the lead guy on that. He had a little beret and sunglasses so that he could be Cecil B. McNair. When we went to Jackson after the mission they all gave us a director's chair with the Cinema 360 patch. Then we all had a title. I still have that chair. It's a folding chair, cloth seat and cloth back and wood frame. It folds up. It's a director's chair. Yes, Ron had his Cecil B. Oh, and he had a clapboard too. We got pictures, movies of him with his little clapboard too as well. Yes, there was a little bit of levity associated with it too.

ROSS-NAZZAL: Did he have a good sense of humor?

GIBSON: Oh, excellent. Yes, you wanted to be real nice to him because he was a black belt in karate as well. He could kill you with his bare hands. You always wanted to be very nice to him, which was easy, he was very nice as well.

ROSS-NAZZAL: Nowadays I'm thinking how the crews on orbit for ISS—they can do Skype, they can e-mail with people, stay in touch with family. How'd you stay in touch with Rhea and Paul and Julie? Did you have a chance when you were on orbit?

GIBSON: We didn't. No, we didn't. On 41B, Jennifer, my recollection is there was no contact at all. At some point down the line we had the laptops on board, and we could send a message down to the ground and we could get messages back. I remember on Rhea's flights Trudy Davis was our coordinator for that stuff, and she'd get ahold of us and say, "Hey, do you have something you'd like to send up to Rhea? Do you or the kids have something you'd like to?" So you'd write up something. Then she'd get it input. It would all go up in a packet, and same deal, we could send a packet of messages down as well.

On 41B we didn't have that in place. It might have been that they could put one or two things on the teleprinter like, "We watched the launch, and you look great." Maybe something would come up on the teleprinter. Later on we did have that thing where you could get on the laptop and type up a message to your family and they could send stuff back up to you.

ROSS-NAZZAL: That's interesting.

GIBSON: Yes. As you know I'm sure, that's one of the things that they found on these long duration flights that boy, people need to be able to be in contact with their families.

ROSS-NAZZAL: What are your memories of getting to Florida and seeing Rhea and Julie? From the book I understand Paul was at home in Houston when you landed.

GIBSON: When we landed, yes. I really impressed my crew because we landed and got out. We walked around the Orbiter a little bit. It's funny to watch our crew movie of us coming out, and watch us staggering around. I will just never forget a couple things. When it was time for me to get out of my seat—and that doesn't happen right away. You land. We roll to a stop, we got to safe all the computers, we got to safe all the rocket thrusters. We've got to take the computers and put them into the ground mode. So it's about 45 minutes to an hour after landing before we can get out. So you've had that much time to readapt to gravity again, only you've just been weightless for eight days. This is your first time coming back to gravity.

I remember when it was time to get out of my seat I went to get my left foot up and I couldn't move my left foot, it was stuck on something. My boot was caught on something. I'm going, "Why can't I raise my boot?" I get to looking at it, and I look down there and I go, "Wait a minute. There's nothing holding my boot." So I grabbed my knee with my hands and I lifted it up, and it came up. I said, "Oh my gosh, that's how heavy my leg is?" You forget how heavy you are in gravity.

Then I watch myself and the rest of the guys walking right after we came down the steps and start walking around. We are wobbling all over the place. When I did stand up inside the Orbiter, I don't remember why, but I leaned my head to the side and I fell over. I caught myself, and I got back straight up again. I said, "Whoa, what's with that? Well, let's try it the other way." So I leaned to the left, and I fell over to the left. I had to focus on keeping my head perfectly straight up and down for several hours after we got back on the ground.

Ron McNair had a similar issue, only his was fore and aft. If he leaned his head forward he fell over forward. Mine was left and right to the sides. Readapting to gravity that first time was really harsh.

One of the things that I had [to do], every single time when I came back, was after I had been on the ground for—it was later on in the day. So let's say I'd been back in gravity for 8 or 12 hours, I would get shin splints so bad, I had to lie down for a while. I had to get off my feet and just lie down. It really is an adaptation. Everything else about it on the subsequent missions was a whole lot easier, but the shin splints were with me every single time.

When we got back to the crew quarters, of course that's where your family was waiting for you. Julie as I mentioned was eight years old then. She came running up to me and jumped up into my arms, and I caught her. I remember Bob Stewart said, "I was so impressed you didn't just fall down." I remember it was a challenge, but she was so excited to see me. She just jumped up into my arms. I was so excited to see her as well.

Of course that was back before we had the no-rinse body wash and the no-rinse shampoo. So you hadn't had a shower for eight days. You hadn't washed your hair for eight days. So your hair was a total greaseball. You hated your hair. I did run on the treadmill several times during that mission, so after that you would go take a sponge bath, but we really didn't have any kind of acceptable soap that you could use. You'd take a drink container and put a bunch of hot water in it and then you'd squeeze that onto a washcloth and you could wash yourself off, but no soap.

Later on we had that no-rinse body shampoo and the no-rinse hair shampoo that were two separate things. That was a whole lot better, but you just couldn't wait to get into a shower. You were just so looking forward to a cheeseburger and a shower.

ROSS-NAZZAL: Hopefully you got those soon after you got to crew quarters.

GIBSON: Oh yes. Immediately what they wanted to do was they wanted to get your blood pressure and your heart rate and take a blood sample and all these other horrible animal torture directed against humans that they would do to you. They'd finally say, "Okay, great, now you can go get a shower and change clothes." That just felt so good.

Although I think they would tell us, "Don't close your eyes in the shower because you might fall down. There's a good chance you're going to fall down." I think I did close—either that or I put my hand on the wall when I was washing my hair and rinsing it. Yes, there was a real adaptation back to gravity.

Oh, and then this was spectacular, because we were the first landing at Cape Canaveral they had a huge reception. Golly, where was it? There was a stage and there were 500 chairs and 500 people out there for it. I remember being so thrilled because Mom and Dad were there for that. My dad, as we talked about last time, was my flight instructor, and he taught me how to fly. In our little speech, each of us got to get up there on the microphone and say a few words. I got to say, "And I am so thrilled that Mom and Dad are here today and my brother Jon and my daughter Julie. You guys all stand up." Julie, after the fact, said, "I was so embarrassed." That scene of us walking up onto the stage is in the IMAX movie *The Dream Is Alive*.

The Dream Is Alive starts off with our landing on 41B. Walter Cronkite is the narrator. It starts off, and you see the alligators swimming, and then you hear the sonic boom, and then Walter Cronkite says, "A Space Shuttle is coming back to land." That whole IMAX sequence is our landing.

You hear my voice calling off, “A hundred feet, 50 feet, 70 feet,” to Vance. Then all of us walking up on the stage. I can pick my mom and dad out in the audience because I know where to look for them. My dad had on a gray and white striped sweater so I can pick them out in the audience on that scene. I always get a thrill out of watching that. There was a big reception, and I got to introduce Mom and Dad to the whole audience and make them stand up. That was a thrill.

ROSS-NAZZAL: It’s nice they get that recognition.

GIBSON: Yes.

ROSS-NAZZAL: I had one other question but it’s just a little bit after noon. I don’t know if you have lunch plans with anybody. So I don’t want to hold you.

GIBSON: Didn’t really.

ROSS-NAZZAL: Okay, I wasn’t sure, I always hate to keep people here and somebody says, “Oh, I really needed to go about a half an hour ago.”

GIBSON: Oh no, heavens, no. No, in fact we can keep going if you want to keep going.

ROSS-NAZZAL: We can keep going for a little bit. Wanted to ask you about any interesting PRs. You mentioned going to Jackson, Mississippi. Any other place? Hometowns, things like that?

GIBSON: Oh golly. There was a really fascinating PR—I don't know if Rhea talked about it—that happened before the mission. Oh, Vance Brand was so mad at me. This was early in our training cycle. We were launching in February. I think we probably got assigned maybe the end of February of '83, and we were tracking down to February of '84. Rhea had a PR that she was doing in Australia. That was going to be in April of '83. She was over there. Now we've started training on 41B.

Rhea got a call I think maybe before she went over there. It was the White House. Did she tell you about this at all?

ROSS-NAZZAL: I think I remember seeing it in her blog, of all places.

GIBSON: Oh, okay. She got a phone call from the White House. They said, "Hey. You're going to be over in Australia during the Battle of the Coral Sea week. We need somebody to represent President [Ronald] Reagan at that. Would you be willing to stay an extra week over there and represent the President?" She said, "Yes, sure, if my husband can come along too." They said, "Yes, sure, what does he do?" She told them, "Well, he's a naval officer and he's an astronaut training for his first [mission]." They went right through the ceiling, because the Battle of the Coral Sea celebration happens every year and the Battle of the Coral Sea was a huge victory for—well, it was almost a standoff between us and the Japanese. The Battle of the Coral Sea is what kept Australia from being invaded by the Japanese in World War II. They have never gotten over it, and they have never forgotten us for it. It was a huge naval battle.

When they heard that I was a naval officer they said, “Okay, well, then he’s going to represent President Reagan.” Next thing I know the Deputy Center Director at JSC, [Clifford E. Charlesworth] calls me and tells me that I’ve got to go to Australia because the White House says. Vance had a fit. The Deputy Center Director called me, and I got to be the one to tell Vance. He felt like I was overworked and overloaded on my training, which I really wasn’t, but here all of a sudden I was going to have to be gone for 10 days. He had a fit.

I called the Deputy Center Director back, and I said, “I can’t go. Vance can’t let me go.” He said, “I’m going to cut my wrists,” is what he said. We chatted on the phone a little bit and he said, “Hoot, you have to go. We don’t have a choice in this anymore. You have to go.”

So I flew over to Australia, and I joined Rhea. The whole thing was a funny thing. I go over there, and I’m going to diddy bop in here. “Okay, I’m here to represent President Reagan.” I land in Sydney, and I hop off the airplane. I’m hungry, so I head into the little restaurant. I’m sitting in there having breakfast, and there’s all these guys in suits that are scurrying by the restaurant going this way and then going that way and then going that way. They’re running all over the place. I’m thinking, “What is the matter with these guys?” Then they finally come into the restaurant. They look at me, and they go, “Are you Commander Gibson?” I said, “Yes.” They said, “Oh good. We get to keep our jobs now.” They were supposed to meet up with me in the Sydney airport. They were supposed to meet up with me and hand me some documents and some paperwork and tell me welcome to Australia. They were from the American embassy. They’re supposed to find me. I’m going to fly to Brisbane to meet up with Rhea and just spend a couple days with her. Then we’re coming back to Sydney, and that’s where we start representing the President.

That was the start of it. Got to go spend a couple days up in Brisbane, and then flew back down. When we got back down to Sydney, you would think we were royalty, because we showed up and we're met by my escort from the prime minister's office, who was with me every bit of the way from there on. We get there and they say, "Okay, where's your baggage claim tickets." We said, "Oh, well, we've got them. We can go." They said, "No, you don't pick up your own luggage." We hand them our baggage claim tickets. They picked up our luggage. They got it all loaded into the white limousine.

We walk out to the white limousine and Rhea and I climb into the backseat and our driver was Rex. My escort from the prime minister was Peter. We hop into this limousine, and the driver Rex walks up to the front and he unfurls an American flag; the Seal of the President of the United States is the other flag that he unfurls. We go driving through there to go to whatever hotel it was we were staying at. Everywhere I was the President of the United States, because I was representing him.

Rhea left after a couple days. I still had about another five days or so of being there. They had me lay a wreath on the tomb of the Unknown Soldier on Remembrance Day over there at the Cenotaph in Sydney. Prior to that they had me inspect the troops. They had me inspect the troop. Who were the troops? It was the admiral of the Navy, it was the general of the Air Force. They're all standing at attention calling me sir as I'm this poor measly commander in the Navy. They're all calling me sir—the General of the Army. It was the Joint Chiefs of the Australian military. I inspected them, and then I laid the wreath on the tomb of the Unknown Soldier.

The Coral Sea Ball in Sydney—of course we're sitting at the head table. The head table was in this little room, and they're going to introduce all the people that are at the head table.

I'm going to speak, but it's a dinner. There's probably 1,000 people in there. They're introducing everybody one by one, and the room is getting more and more empty. Finally just Rhea and I are left and then they introduced Rhea. She goes in to sit at the table. Then they announce, "And representing the President of the United States is this bozo, Commander Robert Gibson." I start diddy bopping in there to head for the head table, and they start playing "Hail to the Chief." I'm going, "Oh no." As I'm walking in, I walk by Admiral [Sylvester R.] Foley, four-star admiral, who is the Commander in Chief of the Pacific Fleet. He's standing at attention as I walk in.

I am saying to myself, "What am I doing here?" That whole thing was just a real experience. Oh golly, what a PR that was.

ROSS-NAZZAL: Yes, wow. That's got to stick out in your memory as probably one of your most memorable.

GIBSON: Oh golly, yes. One of those things where I'm saying, "Oh shoot, I don't belong here. I am just a measly commander. What am I doing here?" They took it very seriously, extremely.

ROSS-NAZZAL: What a great trip and good excuse to visit Australia.

GIBSON: Oh, it sure was. Yes, it sure was. Of course then I got back and Vance got over it. He didn't hold it against me. He actually became convinced that I had done my darnedest to try to get out of it, so all's well.

ROSS-NAZZAL: Probably your hometown PR paled in comparison to that.

GIBSON: Yes, that's true. After the mission there were some hometown things. My folks were living in Lakewood, California, when I went into the Navy. Went back to Lakewood, and of course they had a big thing there, the mayor and the city council. That was a lot of fun.

ROSS-NAZZAL: I imagine.

GIBSON: Yes.

ROSS-NAZZAL: Would you like to stop and have some lunch? Or do you want to keep going for a little bit? What's your preference?

GIBSON: Do you need to go break for lunch right now? We could go till maybe 12:30.

ROSS-NAZZAL: That's fine.

GIBSON: Then break. Because we're going to go what, 2:00 to 4:00 again?

ROSS-NAZZAL: Two to 4:00, yes. I'm hoping they turn up the heat. I don't know. Are you cold?

GIBSON: It's a little bit cool, yes.

ROSS-NAZZAL: It's a little nippy in here. I'm hoping I can adjust the heat.

GIBSON: You know what we had when I worked in SAIL? Oh, let's see. What was his name? The astronauts, we had a couple desks in one of the offices with Dave. One of the guys that worked in SAIL. You couldn't adjust your thermostats.

ROSS-NAZZAL: No?

GIBSON: No, you couldn't adjust them, you couldn't change them. He invented something that we called the Dave whatever his last name was, the Dave something or other thermostat fooler. It was basically a washcloth that you dipped in water. You'd wrap it around the thermostat, and the evaporation would cause the temperature to be a little bit lower at that thermostat where the thermostat was sensing it, so it would turn up the heat in the rest of the room.

ROSS-NAZZAL: Oh, that's a good idea.

GIBSON: So you could have a Hoot Gibson thermostat fooler.

ROSS-NAZZAL: I like that. Because in some offices they do that, they actually lock the thermostat, so you don't adjust them. This one I think, Rebecca's, you can adjust. I know in my office I've adjusted it. We're not technically supposed to. Sometimes it gets a little chilly.

GIBSON: The ones over in SAIL, they weren't adjustable; you couldn't change them. We had the Dave thermostat fooler.

ROSS-NAZZAL: Around here they keep the air conditioner, I don't know, 65 at all times of the year.

GIBSON: Well, it gets hot here in the summer.

ROSS-NAZZAL: It does in the summer, but in the winter I don't know why we need to run an air conditioner.

GIBSON: Yes, let's be warmer in the winter.

ROSS-NAZZAL: Absolutely. I wanted to ask you—I had asked Rhea when we sat down for some interviews. I asked her about her spouse duties, because of course as a spouse to an astronaut you had responsibilities like the parties and things of that nature.

GIBSON: Oh golly, yes.

ROSS-NAZZAL: So one of the things that I wanted to ask about though was you had a toddler at home. You had a very busy hectic job. You were out at AOD, and Rhea was preparing for her first flight. How did you manage all of that with a toddler in tow and two very active careers?

GIBSON: It was always a challenge until 1989 when we got Joann [Powell]. Rhea, I'm sure, must have mentioned Joann. Joann was with us for 25 years. Prior to that time what we had was—let's see. By the time Rhea was in training for her flight, which was '85, she would have started training in '84 for that or maybe late '83 even. We had Paul in preschool so really what we had to do was get him there in the morning and then pick him up in the afternoon.

We would have a crisis every so often where I had to be out of town, and she had to be out of town. Generally the way we worked getting Paul there was I would take him in the morning, and she would pick him up in the afternoon. That was our standard routine for doing it.

When we both had to be out of town at the same time it was always a crisis, because now we had to figure out what are we going to do with him overnight. Fortunately, several of the secretaries that were single would come stay with him overnight for us. It was generally no more than just one night that we'd overlap and we were both going to be out of town that night.

It was always a struggle. It was always a crisis because frequently these trips would pop up with three days' advance notice. What are we going to do? We got to figure it out. We made it work, because it was one of those cases where okay, I'm not going to say to her, "You need to quit your career and be a stay-home mom." Certainly she would never say to me, "Well, you need to quit the career and be a stay-home dad." We had to work it out. It was always a crisis until Dann was born, which was 1989. Prior to that we had even had a couple of babysitters that came I guess before Paul got big enough to where he could go to daycare. We had a couple of babysitters. One was Shirley and the other one was Martha that when Paul was real little they'd show up at 7:45 in the morning and stay with him all day and then Rhea would show up back home at 4:30 or 5:00. So we had a couple of babysitters that would show up and sit Monday through Friday.

Then for a while there when Rhea—oh, that’s right. We had Claire Dehaye come from France to be an au pair while Rhea was training. She came to us, I think, when Rhea got within about three or four months of launch. She came and lived with us, so she was full-time care for Paul. We took her down to the Cape with us. She got to come down and watch the launch of [STS]-51D, which was in April. Then Claire was with us another couple of months till July, because she wanted to go back home to France to be there for Bastille Day, July 14th. So she was with us like from January of ’85 through about June or July.

Once we got Joann, she was our prayers answered from heaven. Joann lived with us for—golly, 25 years. It was a win-win on both of our parts. She was a relatively young widow and her kids were grown, and she needed to work for a couple more years in order to achieve Social Security eligibility. She was from Meridian, Texas, up near Waco. She still owns property up there. I think one of her kids lives there now on the property in Meridian.

Her best friend and her sister were both in Houston, so she wanted to come down to Houston and look for a job. The way we found her was that a gal that came in and cleaned our house one day a week, Joyce [Westfall], said, “My best friend wants to come down here and work.” That’s how we met Joann.

Rhea did all the work for that. She did all the withholding. We paid her taxes and did it all above board. Everything was totally up-and-up. In the course of it Joann had enough work years that she was able to start Social Security when that came about. She was just a lifesaver for us, because prior to her it was always a crisis when we were both going to be out of town. Golly, it was cute, because she had never been anywhere but Texas, Oklahoma, and Louisiana. Joann had never been anywhere but those three places. She came to us in ’89, so the next launch for us was Rhea’s second launch in ’91. We took Joann to Florida for the launch, so she got to

see the Atlantic Ocean for the first time, go to Florida. Then after the launch we went back to Houston. Then we deployed out to California for the landing, because it was a planned landing at Edwards. So I took her to the Pacific Ocean as well, so we really broadened her horizons in the course of her saving the day for us with all the kids.

ROSS-NAZZAL: That's great. She became a world-class traveler.

GIBSON: She did. Then subsequent to that, golly, her oldest son wound up living and working in Paris, so in later years she flew to Paris. Then I think years later he moved to Mexico City and she flew down to Mexico City. So she really became a world traveler.

ROSS-NAZZAL: That's neat. That's wonderful that that happened. I was always just curious how it worked before.

GIBSON: Oh golly, yes.

ROSS-NAZZAL: I understand the challenges much more now myself.

GIBSON: Yes, they were some big challenges, but several of the secretaries in the Office were willing to come over to our house and spend the night with Paul and watch him and get him. At that point I guess he was big enough they could get him to school in the morning. Or maybe they would just be there until Shirley or Martha showed up when we had them working for us. But yes, it was a challenge.

ROSS-NAZZAL: You can't leave a three-year-old alone.

GIBSON: No.

ROSS-NAZZAL: I wanted to ask about planning of the party. You had mentioned that Rhea had had that party for your first flight. What'd you do for her flight?

GIBSON: Same thing. We had the prelaunch parties. Rhea did all the work to put those together too.

ROSS-NAZZAL: Oh, she did.

GIBSON: Yes, because I pretended ignorance. I said, "Well, how do I do it? What do I do?" She said, "Oh, you boys are so stupid," so she did it all. I was the one to attend the party and meet all of her launch guests of course, most of whom I didn't know. I think some of them were mutual friends of course. John [W.] Kiker, who was the one who came up with the idea of the Boeing 747 [the Shuttle Carrier Aircraft, SCA], I think he came to all of my launches, and I want to say probably was at all of hers as well. He just got to be such a dear friend of the family.

Of course there were always people at the prelaunch reception that I didn't know. Of course I'd meet them in '85 and then a bunch of them would be the same ones that'd be there in '91 and I'd have to meet them all over again, because I didn't remember who they were, and then

in '93. But yes, you'd have the prelaunch reception, and then there was always a postflight party that we would throw for all the astronauts when we get back here to Houston.

Those used to be difficult, until Villa Capri opened, Frankie and Giuseppe [the owners]. Then it got to be real easy. All you had to do was pick up the phone and call, or go by and see Frankie or Giuseppe and say, "Hey, want to have a postflight party." They'd say, "What date you want to have it? What do you want to have?" Then we just had to write a check. It became real easy after that.

ROSS-NAZZAL: That's nice. Now I'm hungry for Frenchies. Yes, that sounds good. Some nice hot pasta. What about quarantine? How did that work? You talked about of course your kids and the challenge of that whole night viewing when they were there. What about Rhea going into quarantine? That must have been a challenge too because Paul was still young at that point.

GIBSON: Yes, let's see. That was April of '85. I think her first launch they launched right on time. They went into quarantine seven days prior to launch. We always played that real straight. You didn't want to take a chance on doing something dumb. Once she went into quarantine she didn't get to be near the kids. Of course your spouse could come see you in quarantine. Once we went down to the Cape, let's see, how did that work? For Rhea's first launch Claire, the French girl, came down to the Cape with us. So when I had to leave to go out to the beach house to meet with her for barbecue and then go have dinner with her at the crew quarters I could leave Paul with Claire, so he was being taken care of.

Then let me think. Then forever after that we had Joann with us. So when we'd go down to the Cape, Joann came with us every time. She'd come down to the Cape for launch and be

there for landing as well. Now on Rhea's flights, two of her three, her second flight and her third flight both landed out at Edwards, [they were] preplanned to land there. I guess Joann would fly out there on the airlines with the kids. Then I'd fly out in a T-38 was how we generally did that. That was how we got around and how we got them where they were supposed to be.

Now for my first flight, Paul was there for the launch, but then Rhea—how'd this work? Rhea and the kids, I don't remember if they stayed down there. Paul was not there for the landing. Paul was back here in Houston. I think one of the secretaries was watching him back here in Houston. For the landing Rhea would fly down there the day before the landing, and then she'd ride back on the NASA planes with me. But again after that we had Joann with us.

ROSS-NAZZAL: Made your life much much easier.

GIBSON: Oh golly, yes. Made it so much simpler.

ROSS-NAZZAL: What are your memories of that first liftoff? What do you remember feeling? Obviously she must have been nervous the first time you went into space. What do you remember about that first time for her?

GIBSON: I was really surprised by liftoff, because even though I knew that you lift off at almost three Gs—from the moment we light the Solid Rocket Boosters you're at 2.8 Gs, something like that. I knew that from all the documentation, and I knew that. In the simulator what you saw was, if you were looking out the left side, you'd see the launch tower go by, and then you'd go into the roll maneuver and all of that business. I thought okay, here's what's going to happen.

We're going to light the three Shuttle Main Engines. That's 1.5 million pounds of thrust. That's going to be really loud. But boy, that's nothing compared to when we light the Solid Rocket Boosters, because that's another 6 million. Boy, then the noise is really going to get big. Then we're going to watch the launch tower go by, and we're going to be on our way.

No, that's not what happens. What happens is okay, we light the three Main Engines. Those things are so noisy, you can't hear yourself think. The vehicle is vibrating and shaking from the thrust of all of those. Your noise sensor is totally maxed out. So when the Booster rockets light, you don't hear an increase in noise, because it's already as noisy as it can possibly be. What you do notice is you are slapped back in your seat, and that launch tower is gone. It feels like a catapult shot off the front of an aircraft carrier. That was a big surprise, because it just really presses you back in your seat and in no time at all you're past the launch tower. That was a bit of a surprise. The fact that you don't discern an increase in volume when they light the 6 million pounds of thrust, it's as noisy as it can possibly be.

Then the other thing that's really apparent is, as you're lifting off, you can feel the vibration and you can tell that what you're feeling is you're feeling the shock waves of the engines hitting the ground and reflecting back and just bathing the whole entire vehicle in vibration. You can just feel that, and it really shakes the thing and really vibrates it.

Then about 7,000 feet you're going fast enough that now you're outrunning those shock waves, the shock waves from the engines that go down, hit the ground, and bounce off, and come back up. Only now you're far enough away from them and you're going fast enough they can't catch you, so there's a big decrease in the vibration level that you get from those shock waves reflecting off the ground and coming back.

It's a bumpy ride during first stage. Everyone had briefed that. All the preceding crews have told you that it's bumpy and the vibration of the Solid Rocket Boosters, you really feel all of that. Sure enough, it's that way all the way to Solid Rocket Booster separation. Once you separate the boosters virtually I'd say 95% of the vibration is gone. Everybody describes second stage when you're just on the three Main Engines as being electric drive, it's just as smooth as—well, it isn't totally just as smooth as silk, because you're still in atmosphere at Solid Rocket Motor separation. You're 30 miles up, so you're still within the Earth's air. There's still shock waves, and there's still some buffeting, shaking from that. Once you get through about five and a half or six minutes, now you're above virtually all of the atmosphere. Now it is nice and smooth; now it is a very smooth ride from there on. It does just feel like it's electric drive.

Except that now you're being pressed back in the seat again because right when you separate the booster rockets you're only at one G of acceleration. It isn't until you've burned down a whole bunch more of your fuel that you get up to two Gs and then finally you get up to three Gs of acceleration I want to say at about seven and a half minutes, seven minutes, seven and a half minutes, something like that. Then your final one minute of boost of launch is at three Gs. Three Gs really presses you back in your seat. It compresses your chest to where it's a little bit of an effort to inhale, because you have to expand your chest to inhale.

The Gs are compressing your chest, but that only lasts for about the final 60 seconds of boost. It's an exciting ride. It does smooth out once you get above most of the air, virtually all of the air. But even at MECO (Main Engine Cutoff), you're only about 62 nautical miles up. We define the top of the atmosphere 65.832 nautical miles, so theoretically you're still in the upper fringes of the atmosphere at cutoff. But you're very rapidly leaving all the Earth's air behind you.

Right when the engines cut off you go from being pressed back into your seat to weightlessness. All of a sudden all the cables in the cabin are floating. All your checklists that are on tethers are floating. If there was any dirt that they missed cleaning, you've got dirt floating in midair with you.

On my second launch we found a razor blade floating in midair, a whole bunch of metal shavings. *Columbia* had been down for rework and refurb for two years. Is that right? Two years? Yes, for two years. So anything that was on the floor somewhere finds its way up to be floating in the cabin with you. The transition to weightlessness is just instantaneous.

ROSS-NAZZAL: What a sight. It must feel just surreal at that point I would think.

GIBSON: Oh golly, yes. Then on that first one I said, "Wow, that was fun, I want to go back and do that again."

ROSS-NAZZAL: I wanted to ask you about 61C, which was your first command. How did you find out about that assignment from Mr. Abbey?

GIBSON: Let me think. I'm trying to remember exactly how that happened. Another funny story involving George Abbey of course—after I got back from 41B and everything settled down a little bit, the same old deal. George said, "Whyn't you come over and talk to me?" So I went over to talk to him, and I just knew he was going to assign me to be a mission commander. I got over there, and I said, "Well, George, here I am." He says, "Okay. Well, I'm sure you're looking out for what you're going to do next." I went, "Yes, I sure am." He said, "I'd like you

to go back out to AOD again.” I said, “Yes—what?” It was, I just know he’s going to assign me to command a mission and he said, “I need you to go back out to AOD again.”

I guess that must have been good that they wanted me back. I got to go do a second tour out at AOD, which I don’t think anybody else had ever done before. After 41B I went back out there. Then it was some point after that. I honestly don’t even remember exactly how I found out that I was assigned to—initially it wasn’t even 61C.

ROSS-NAZZAL: That’s right, yes.

GIBSON: It was like [STS]-51I initially. Then for a while there I was [STS]-51L, which of course was *Challenger*, my crew and I were 51L. So for a while we had trained on TDRS and IUS. Then we finally wound up with 61C.

I don’t even remember. It must have been one of those deals where George called up and said, “Hey, why don’t you come over here and talk to me?” I showed up over there and Pinky and Stevie were there and Charlie [Charles F.] Bolden and Franklin [R. Chang-Diaz]. I’m imagining that, but chances are that’s what happened.

We were all there, and he said, “Well, congratulations, you guys are going to do 61C.” So I was one of the lucky ones where I got to go fly one time in the right seat and then got to be a commander on my second mission. We were the youngest Shuttle crew ever. None of us, even by the time we flew, Jennifer, were 40 yet. Everybody on the crew was 30 something until we picked up Bill Nelson. Then when we flew, Bill was 40 and a half or 41 or something like that, so he was the only one that was not still in his thirties.

We were the youngest crew ever. Just the [most] harmonious crew you've ever seen in your whole life. Three of us had flown before and only Charlie Bolden and Franklin Chang-Diaz were the ones who had not flown yet. They were both out of the '80 class. Stevie and Pinky and I had all flown a mission previously. We were the old guys. This was in the wake of Steve Hawley's first mission, 41D, where they had the pad abort. They lit their engines and then shut them down. That just rippled through all the rest of the 1984 crews and the 1985 assignments. We were originally going to launch the end of 1985, when we wound up finally settling on 61C. Originally that flight was going to have two satellites and then they yanked off one of the satellites and so we only wound up with the Satcom Ku-band satellite, the first Ku-band satellite ever.

We picked up Bob [Robert J.] Cenker as a payload specialist because he was from RCA [Radio Corporation of America], which is who built the Satcom satellite. This was in the days when NASA was offering, "If you'll fly your satellite on the Shuttle, we'll let you send a payload specialist along." I remember originally before we became 61C we were going to fly an SBS satellite, a Small Business Systems satellite. I was talking to the CEO of the company and I said, "Okay, so I understand you're going to be able to send a payload specialist with us. Have you decided who your payload specialist will be?" He said, "Yes, I've got the guy all figured out. There's just one technicality. He doesn't work for me, but I'm going to hire him so that he will be working for us and then he'll be our payload specialist." This was how out of control that whole payload specialist program was. Here's a company that can send a payload specialist along. He's going to go out and hire somebody that doesn't even work for him to be their PS. We got Bob Cenker.

It was a real revelation when we got called over to Building 1. I think the whole crew got called over there. For whatever reason, the way I remember it, Carolyn [L.] Huntoon had a hand in this as well. This must have been a meeting with George Abbey and Carolyn Huntoon over in Building 1. George and/or Carolyn announced to us, "You guys are going to get Congressman Nelson on your crew." Bill when he got offered the ride said, "Okay, I really need to fly before the end of 1985." This was probably September of '85 when he announced that. I suspect part of it was crew training, that he just wasn't going to have time to get any meaningful training done and be able to go. Then the other part of it was that they said, "Well, we figure you guys are the only ones that wouldn't kill him. Not everybody would take to having the congressman on board, so because you are a bunch of nice guys, you are going to get the congressman." It was one of those deals.

I will never forget after, I think, maybe the very next day we're in our crew office, and by now we had been training for probably four, five months, six months. I don't remember exactly what. We'd been training for a while together. Secretary buzzes my phone, and she says, "Congressman Nelson is on the line for you." I will just never forget. I pick up the phone and I'm, "Yes, sir, Mr. Congressman." He's, "Yes, sir, Mr. Commander." We are yes sir-ing each other and yes sir-ing each other and Mr. Congressman and Mr. Commander. Finally after several minutes of the discussion he is the one who broke the ice and said, "I'm just wondering. Is it appropriate for me to call you Hoot?" I said, "Oh yes, sir, absolutely." He said, "And you must call me Bill." I have always had a difficult time calling him Bill. If we're just us somewhere, occasionally I will call him Bill. Usually now it's Mr. Senator of course, but I've always had a difficult time just referring to him as Bill, although that's what he wanted. He wanted us to just call him Bill.

He really wanted to be part of that crew. He wanted to be one of the boys so bad, and he was. He was. Now I will have to admit that there was initially some resentment, especially on the parts of the mission specialists. You've probably talked to Mike [Richard M.] Mullane, and he probably wouldn't be shy about admitting that the mission specialists hated the payload specialists, because they saw them—and in a way they were—taking a seat that our mission specialists could have had or should have had or however you want to word it.

There was some resentment towards the payload specialists back in those days. Now I have to say that in the light of history and the way everything went after that, Bill has been such an outspoken proponent for NASA and has done so many wonderful things for us, such as helping get Charlie Bolden in there as Administrator.

He's a dear, dear friend. He has been a dear, dear friend. We have had—let's see, how many reunions now, we had a 25-year reunion in 2011. Then we had another reunion after that. In March of this year we are all going to Costa Rica because we were going to have a postflight PR in Costa Rica because Franklin Chang-Diaz was the first Costa Rican to go to space. We actually talked to the president of Costa Rica from space, one of our press conferences was with the president of Costa Rica. We're going to be going there the first week in March, because *Challenger* very much got in the way of postflight for us. We never did do any of the normal postflight things from 61C.

We have been dear friends. We've had at least three reunions now, and we're going to have another one in March. We all dearly love each other. This has been by far the closest crew that I've ever been with, trained with, and kept up with over all these years.

Three of us were all in the astronaut rock band. Steve Hawley, Pinky, and myself were all members of the band. Pinky and I were two of the original four that got started with it and

then after about six months we decided we wanted a keyboard player and so we brought Stevie in. We have three-fifths of the original Max-Q band represented on that crew.

We would go for crew runs together. You'd be working away at your desk, and one of the guys—we weren't all in one office because there were five of us NASA types and then the two payload specialists. One of the boys would stick his head in the door and say, "Hey, it's noontime; you want to go run?" You'd drop what you were doing, and we'd all go run. I remember the five of us went running one time. The weather was okay when we went out, but we would go run the loop, and it was a four-mile loop, we got caught in the most horrendous thunderstorm you've ever seen. We're running down the back road along what's now Saturn, I guess, where the road cuts through there, and who drives by us in this pouring rain, lighting hitting around us, the five of us running in a thunderstorm, but Carolyn Huntoon?

I believe she went right back to her office, picked up her phone, dialed George Abbey, and said, "Haven't your boys got enough sense in their brains to stay out of thunderstorms?" This is a whole Shuttle crew out there running in a thunderstorm just asking for lightning.

Then when we got Bill on board, Bill wanted to go run with us every time we were going to go do a crew run. He'd be right there with us. He really turned into a big fan of NASA, a big fan of space, a big fan of his crew. We were really a really close crew.

George had given me directions. He said, "You get him here every week. He's got to be here Monday through Friday, and you see to it." Of course George wouldn't tell him that, George's style was tell you to tell the congressman. "You drop everything you're doing and you're going to be here Monday through [Friday]." That didn't make any sense. What I told Bill, I said, "Bill, whenever you're scheduled, you need to be here." He still had duties in Congress to be attending to, so it worked just fine. When we scheduled him for stuff he was

here, and when we didn't have him scheduled for things he was back in DC doing his congressman work.

Then we're going to go to space. I don't remember any big issues or any trauma going through training. Franklin Chang-Diaz was just really thrilled to be part of all that. Any time Charlie Bolden and I would go fly the STA, for example on the weekends—we only flew on the weekends out at Edwards because we wanted no other traffic. Franklin would want to go along with us.

Charlie would have one airplane, I'd have another airplane. Franklin would hop either in my backseat or in Charlie's backseat, and we'd fly out to Edwards and it was really too long of a duty day to go out there and come back the same day if I remember right. We'd fly out there, probably stayed in the visiting VOQ [Visiting Officer's Quarters] there at Edwards, and then fly back.

Let's see. There was one funny story one time. Charlie and myself, two separate airplanes, and Franklin is with us. We're flying back from Edwards. El Paso was always where you'd land for fuel, because you couldn't make it all the way. So we landed in El Paso. We checked the weather, and Houston is socked in. It's just zero-zero. The weather is just socked in, so we're going to park the airplanes for the night and spend the night in El Paso. Of course there's a Marriott right there, government rate. So we're going to stay the night there in El Paso.

I walked over to the phone, and I called Rhea to tell her I wasn't coming home that night. Charlie walked over to the phone, and he called Jackie and told her. Franklin walked over to the phone, he came back, and he's got this big smile on his face. We said, "What's the deal, Franklin?" He said, "Peggy said for me not to let you and Charlie be a bad influence on me."

Franklin just really loved to go flying, he really loved getting to be an astronaut, and he would go on to fly seven times altogether. He's one of two astronauts that have gone to space seven times. What a great guy, what a wonderful crew member and friend, Franklin is.

We go into quarantine. We went into quarantine aiming to launch on December 18th, 1985. We were going to be in space and we were going to land on Christmas Eve. We were going to be landing on December 24th. Pretty sure I've got that right. We went and made up a video. We went into the mockup in Building 9. The seven of us and another astronaut dressed up in a Santa Claus suit made it look like we were weightless. We had a couple of presents that actually were hanging by black threads. We had one on a black thread that ran on a loop so I could take it from here, and I could move it over here and let go of it and it would float over there and you couldn't see the black thread in the video. It was perfect.

We'd be spinning them, and they'd be spinning in midair. That astronaut was Sonny [Manley L.] Carter. He was our Santa Claus. So there were eight of us in the picture. We took that to space with us because we were going to land on Christmas Eve, so we were going to call and say, "Hey, we have a special visitor up here that dropped by to bring us some presents." We actually wound up using it when we did go to space, because we went to all that work to make up that video, so we still had it.

Nobody on the ground even realized that there were eight people in the video. Nobody put two and two together. They said, "Who was in the Santa Claus suit? Which one of you guys was in it?" We said, "Did you guys count noses in that picture? There were eight people in that video." Nobody even noticed it.

We were going to launch on the 18th and then the paperwork associated with closing out *Columbia* was so great that they couldn't complete it by the 18th. So we actually would have

gone into quarantine on I guess the 11th, and then headed down to the Cape. We didn't even attempt the 18th. They slid us one day into the 19th, and then I guess that's what was putting us into landing on—oh, that might have been Christmas Day then that we were going to land.

We climbed in and oh, it was cold that morning. This would have been the coldest launch ever because it was 41 degrees. When the families went up on the roof Rhea said they were freezing out there, it was so cold. We might have been the *Challenger* accident if we had launched that day. We counted down, and I happened to be looking right at the countdown clock as we got down to 14 seconds to go. I saw the clock reset to 20 minutes. I said, "Oh, you guys, we just scrubbed." We had a malfunction in a thing they called an IEA, an integrated electronics assembly, in one of the booster rockets, I don't remember which one. We couldn't launch with a malfunction in this electronic box, so we scrubbed.

We scrubbed December 19th. This was going to take a while to fix, so they said, "Everybody go home." All my launch guests and everybody else left. We all went back to Houston. That was the 19th. I think we flew back the same day or the next day, something like that.

Then we went back into quarantine again New Year's Eve. So we spent New Year's Eve in quarantine. We were going to launch. We had an early launch. We were launching at 7:00 a.m. The whole time we were in quarantine we were getting up—I think the first night we got up at 4:00 a.m. and then the next night we got up at 3:00 a.m., the next night we got up at 2:00 a.m., working our schedule to where we're getting up at 1:00 a.m., because as I remember it that's how early we were going to have to get up for the launch for 61C.

We'd get up, we'd put on our gym clothes and go running at 3:00 in the morning or 2:00 in the morning. It was cold. This is January now. Pinky, being from Minnesota or Washington

State, someplace cold, he'd run in a T-shirt and shorts. The rest of us were bundled up in sweatshirts and socks on our hands. We went back into quarantine and we headed back down to the Cape again.

We're going to launch on January 6th. January 6th we got down as close as 31 seconds, but we had a number of things that were messed up with the countdown, and in the course of the countdown—this was one of the things that after the *Challenger* accident we got to focusing on. We were running people so hard, we were so caught up in the schedule and the schedule pressure, that we were running people into the ground.

When it was time for something called drainback on the launch pad, while we're in the countdown they're constantly replenishing the liquid oxygen and the liquid hydrogen in the fuel tank because it boils off. It flashes into a gas and the pressure goes up and the gas relieves. They're constantly refilling the liquid oxygen and the liquid hydrogen.

In the final couple minutes before launch what they're going to do is they're going to close the fill and drain valves on the Orbiter. That shuts us off from the launch pad supply of hydrogen and oxygen. Then they're going to do something called drainback. When they do drainback, they close our valves so that they're not open anymore, and they drain back the residual hydrogen and oxygen that's in the pipes leading up to the Orbiter, because they want to get that out of there so it doesn't catch fire when we light the engines.

In the case of *Columbia* for that launch attempt, the oxygen fill and drain valve had not closed. It had been commanded to close but it didn't close, it stayed open. They're running drainback and they're running drainback and they're running drainback. They're dragging oxygen out of our oxygen tank. They're taking oxygen out of our oxygen tank.

We hear the Launch Control guys down on the ground saying, “We’re getting nitrogen bubbles on the 98% sensor in the oxygen. Oh, now we’ve got oxygen bubbles in the 96% sensor.” What they’re seeing is those sensors are going dry because they’re draining the oxygen out of the tank. The Launch Control Center guys are saying, “Well, we’re seeing nitrogen bubbles,” because they use nitrogen or helium, one of those two, to pressurize the tank. We had already started pressurizing the tank. They’re assuming that we’re just getting bubbles on those sensors. Well, no. The sensors are going dry.

Then as we’re counting down farther, when we do go to pressurize the tank, the oxygen tank took twice as long to pressurize as it should have. They make the call on the thing. They’re saying, “Hey, the oxygen tank is not at flight pressure yet. OTC [Orbiter Test Conductor], we might—oh, wait, it’s there. We’re okay, it’s there now.” Took twice as long to pressurize. The reason—there’s so much empty volume in there that they had to pump that much more nitrogen into it to get it to reach flight pressure. A couple symptoms that nobody put two and two together on. Then the next thing that happened was the Main Engines undertemped. In other words they’re monitoring the temperature, and what they’re doing is they’re flowing oxygen through the main engine bells and through the whole system down there to prechill the Main Engines before we light them off.

Normally the oxygen that they’re drawing that from is from down at the bottom of that tank, and that feedline comes down the outside of the External Tank, so it’s a little warmer than the inside of the tank. We’ve already drained that whole feedline, and now we’re pulling that super cold oxygen out of the tank, and that’s what they’re chilling the engine with. It’s much colder than any oxygen they’ve ever chilled the engines with before. So the engines all undertemp.

The SSME [Space Shuttle Main Engine] guy down at the Cape says, “Okay, the engines are too cold, but we’re just going to mask that parameter, and we can continue.” At this point the Director of Engineering down at Cape Canaveral at the Kennedy Space Center [Florida], Horace [L.] Lamberth, steps up and says, “Okay, everybody, this countdown has been a disaster. I don’t know what’s wrong. But something’s wrong. Engineering is no go for launch.” They said, “Okay, we’ll count down to 31 seconds and then we’ll turn around.” That was the next hold point, because we were inside of five minutes at that time. So we did, we ran the countdown down to 31 seconds.

ROSS-NAZZAL: Did you guys know all this stuff was going on in the cabin?

GIBSON: We didn’t have any idea what all this meant. Now we knew that we’re hearing a bunch of stuff. What is going on here? They’ve got nitrogen bubbles in the O2 tank? I’ve never heard of that before. The tank took twice as long to pressurize. The engines are undertemping. We’d never heard anything like that before. We could see how long it took the tank to pressurize. None of that other stuff shows up on board. We don’t have any of those sensors displayed to us. It’s all stuff that they can see down in the Launch Control Center.

Then we start turning around. Come to find out later there was another thing that happened. One of the temperature sensors in the oxygen feedline went missing. It just went dead, and nobody knew why. It just went missing. Those things operate in such a hostile environment that I guess they fail every so often, so nobody thought much about it.

Then we cycled back to like 50 minutes before launch to realign our inertial platforms, because this is going to take a while now. We cycled back to 50 minutes and then we finally

started resuming the countdown again. We start counting down. Now sometime in there they figured out what happened with the oxygen, and they went, “Oh, holy smokes.” The valve got commanded closed but it didn’t show that it was closed. The operator missed the fact that it didn’t show that it was closed, and we continued on. Probably tired and fatigue is what’s doing that stuff.

We’re counting down again, and we get down to 20 minutes. If I remember right, we started counting down inside of 20 minutes, and we’re progressing on down. Unbeknownst to everybody what had happened was when we scrubbed the first time, the ARIA [Advanced Range Instrumentation] Aircraft that was airborne in the Indian Ocean, to act as a relay for the satellite burn for the Satcom satellite, they heard scrub. So the ARIA turned around and went back to Diego Garcia, which is where they had come from. As we’re counting down the second time on January 6th, RCA and the Satcom Corporation find out that the ARIA has gone home. They went, “We’re no go for launch without that ARIA. We got to be able to monitor the PKM burn, the Perigee Kick Motor burn, and so we’re no go.”

We scrubbed twice in one day. I don’t think anybody’s ever scrubbed two countdowns in one day. We scrubbed January 6th. We came back January 7th to try again, the very next day obviously. We sat in there for the whole entire launch window, and we never had our one TAL [Transatlantic Abort Landing] site—we only had one TAL site at the time. The computer could only handle one TAL site. Its weather was down. So we scrubbed January 7th. Subsequently we figured out that you know what, we really ought to have the capability to pick another TAL site if the one we plan on going to isn’t any good. They did modify the software to where you could do that, but we had to scrub on the 7th.

Somewhere in there, I don't remember if it was after that scrub or after the next scrub, there's another scrub coming, but George Abbey got the STA to grab Charlie and Stevie and me and fly us back to Houston to get in the simulator again, because now it's getting to be a while since we had flown an ascent and a reentry. We flew all the way back to Houston in the STA. We just got to ride in the STA, so that was nice. Hit the simulator for four hours, back in the STA and right back the same day, so that we can attempt to launch. It was probably after January 7th because we didn't try again till the 10th.

January 10th the weather the night before was looking really crummy. We went to bed saying, "Ah, well, we're not going anywhere tomorrow." One o'clock in the morning, the VITT [Vehicle Integration Test Team] guys knock on our doors, wake us up, and say, "Okay. They tanked. You guys are going to be manning up again." We called it boying up. We're going to go boy up.

It's pouring rain, just pouring rain. They take us out to the Orbiter. If I remember right, we just got soaking wet running from the crew van into the elevator there at the launch pad. But any time they tank, if they make the call, "Okay, we're going to go ahead and tank," that's a silver bullet. We're going to put the crew in and give it a try once they've made the decision.

We climbed in and I'll never forget when I climbed into the commander's seat on *Columbia*, I climb in there and I'm looking up at the window. It's raining so hard, and the tiles stick up about two inches around the window, so they form a dam. I've got a pool of water in my windshield. I was so tempted to call in the first com [communication] check where you go, "OTC, CDR [commander], how do you read?" I was so tempted to key the mike and say, "OTC, this is the Submarine *Columbia*, how do you read?" Then I said, "No, that wouldn't be professional. I'm not going to do that," so I didn't do it. I should have done it.

We sat in there and listened to the lightning hitting nearby for virtually not quite our whole launch window. We probably had a four-hour launch window. If I remember right we had burned up two hours of it and then they finally realized you know what, we're not going anywhere today, let's give those poor guys a break, so they scrubbed.

Now we have scrubbed four times, four different strap-ins. We've actually scrubbed five times because we scrubbed two countdowns on the 6th of January. I don't think anybody has ever tied our record in terms of scrubs. Then there's to be one more try, and that was January 12th. That day I felt optimistic. The weather was beautiful. The TAL sites were all beautiful. Everything looked great. We went out there, we climbed in, we counted down, we lit the engines, and we lifted off, after climbing in five times.

On the loop you can hear the countdown, because whoever's calling it, I don't remember who's calling it, "Five, four, three, two, one, Solid Rocket Booster ignition and liftoff." We could hear all the cheering coming across the loop it was being broadcast to. Everybody was cheering; they were so glad to get us out of their hair. Immediately we started having problems, just immediately clearing the tower. We cleared the tower. We go into the roll. I made the call, "Houston, *Columbia* is in the roll." "Roger, roll, *Columbia*."

Right after that we start getting SM [Systems Management] alerts. Our first SM alert, which we were kind of expecting, was for one of the essential buses [that] had a sensor that was erratic or was wrong, so we get that SM alert for that. Then we got a caution for helium usage. I think it was on the center engine. What it looks like to the computer and what it looks like to us is a leak. Each engine of the three Main Engines on the Shuttle has its own helium supply bottle. (I don't know if it's bottles plural or a single bottle.) Each engine only has one source that it can draw from for helium. We've got to have helium on those engines because the helium is a

pressure barrier in the turbopumps between the hydrogen and the oxygen. You got to keep them separated, or you've got a bomb. So you've got to have helium. If the helium gets down to a certain pressure, it's going to shut that engine down. The computer is going to shut the engine down.

There's a procedure. We have two legs on the feed for the helium and two regulators. They're supposed to be running 750 psi [pounds per square inch]. It gives us what's called dP/dt , change in pressure with time. It's out the roof, so it's looking like a horrendous helium leak.

That's over on Charlie's side. On Charlie's first launch and his first mission to space, he's got to contend with this problem that could cost us an engine, and if it costs us an engine, then we're probably going to abort. Charlie is so good that he was just right on top of it. He's right on the checklist procedure. You shut off one of the legs to see if that's where the leak is. Then if that doesn't stop the pressure loss you make sure you turn that leg back on and then you shut the other leg off.

We're fighting with this thing on our way to orbit, and we messed with that thing virtually the whole entire way to orbit. Every time I'd call the ground I'd say, "Okay." Trying to remember who our CapCom was now. I don't remember who it was, but I'd call and I'd say, "Okay, Houston, Charlie now has got the B leg closed and the A leg open." "Roger." Then later on we're doing something else that the procedure says to do and I called and said, "Here's where we are now." "Roger."

In the debrief after the mission our lead flight director, Gary [E.] Coen, shook his head, and he said, "I wish we had been more help to you guys during launch, but you guys were on top

of it and you guys were doing everything right. I just wish we had been more of a help to you.” Right after SRB separation we got a jet fail on one of the thrusters.

ROSS-NAZZAL: It’s like you were in a sim.

GIBSON: It’s like being in a sim, right, exactly. My first launch nothing, we didn’t have anything, not even an SM alert, not anything. We had a jet message. It seems like virtually all the way to orbit we’re fighting with this thing.

One of the things I didn’t like is when we were on a single regulator, the pressure in that helium line is supposed to be 750 psi. When it only had one line feeding it, it was being pulled down to 650. Again, if it gets low enough, and I don’t even know what the number is, but if it gets low enough it shuts that engine down.

We’re watching this thing, and then about three-quarters of the way through the ascent I’m watching that dP/dt and it’s showing -50 where the normal is like -10, something like that. It’s showing -50. I happen to be looking right at it and I saw it go +50. I said, “Plus 50? Wait a minute. That’s not a leak. That’s a noisy sensor. Charlie, turn both of them back on,” because I didn’t like the 650. I said, “That’s not a leak. That’s an erratic sensor that we’re looking at. It’s not leaking helium, turn both of them on, Charlie.”

So he opened both legs, called Mission Control, and said, “Hey, we just saw the dP/dt go positive on that center engine. We don’t have a leak, we’ve got a noisy pressure sensor on the tank.” They said, “Roger.”

I was lucky because we had such a sharp crew. Pinky Nelson, Steve Hawley, Charlie Bolden, Franklin Chang-Diaz. Those guys were so on top of everything that we couldn’t do

anything wrong. From there we made it to MECO, and everything from there was just fine. But you talk about a handful. My first time as commander, Charlie's first mission and all, and all the way to orbit we were messing with something. We were fighting with a thruster failure, essential bus message, and then this dp/dt thing. The launch was very exciting.

Then from there there wasn't much that was really substantive about any of the malfunctions or any of the anomalies. We really didn't have too much go wrong. We launched the Satcom satellite on the first day and that went fine. Then we had a Materials Science Laboratory on board that was doing metal and materials processing. The feedback from that thing was just all messed up. We'd turn something on and the reply it would give us was just incomprehensible. You couldn't determine what it was trying to tell you. It was working but it was just giving us all kinds of squirrely indications. Somewhere in there Fred [Frederick D.] Gregory was the CapCom. He called us and said, "*Columbia*, Houston, we have some news for you." We said, "Go ahead, Fred." He said, "Okay, don't shoot the messenger, but you guys are being shortened by a day." We were supposed to be a five-day mission. They said, "So that we can get on with the turnaround for the next launch, we're going to shorten you guys by a day." That was a little bit of a disappointment. Now instead of a five-day flight we're only going to be a four-day flight.

What was the other story I was going to tell? Oh. Seems like I'd say at least 50% of the nights that I've spent in space, when everybody is asleep, something will go wrong in the middle of the night. The alarm will go off, the master alarm will go off. I would always sleep in my seat, so I'd be in the commander's seat. That doesn't sound very comfortable, but I'm really not sitting down in the seat, I'm floating above the seat. I'd crawl into my little sleeping bag, just pull the cotton sleeping bag out of that whole big sleep restraint thing, and put the lap belt

loosely around me to keep me from floating away, and I would just sleep right there. If an alarm goes off, all I have to do is turn on one of the CRTs, the cathode-ray tubes, and it'll tell me what the problem is. Frequently I could just fix it myself and not have to wake everybody up.

One of the nights, like our third night up there, master alarm goes off, not just an SM alert, but a master alarm goes off. I pull up the screen, and it says cabin leak. That'll get your attention real quickly. We start chasing the emergency procedure. If I remember right, Pinky called up from down on the middeck and said, "Hoot, I found it. Somebody left the WCS turned on." The waste control system, the potty, somebody left it turned on.

It has a small overboard vent while it's operating, a small overboard leak. When you turn it on and leave it on, eventually it pulls the cabin pressure down a little bit. In our case we had a sticky regulator. More funny stuff, we had a sticky regulator. When it finally unstuck and started to flow to build the cabin pressure back up, the computer thought oh my gosh, where's this tremendous flow coming from? We've got a leak. It interprets it as a cabin leak. We chased that and shut off the potty and then everything was fine. Guess what happened. The very next night, same thing.

ROSS-NAZZAL: It happened again? Oh no.

GIBSON: Same thing. Same exact thing. The alarm goes off at 2:00 in the morning, and I pull up the screen. It says cabin leak. I said, "Pinky." He said, "I've got it." He turned it off. One of our payload specialists had forgotten to turn it off. That was our funny story about malfunctions on orbit.

Oh, no, wait. The real funny story though. I actually have a photo of this, I got to get you a photo. I'll get a copy of the photo to you.

ROSS-NAZZAL: Absolutely. We'll attach it to the transcript.

GIBSON: One of the things that we were doing out in the cargo bay, we had two ultraviolet telescopes, and it was an experiment called UVX, Ultraviolet Experiment is what it stood for. What it would involve was Charlie Bolden and I maneuvering the Orbiter to point it at something. One of our targets was the Andromeda Galaxy and another target was Sirius, the Dog Star. We had different things that we were going to be looking at in the ultraviolet spectrum on these ultraviolet telescopes.

We had two astronomers on the crew. Steve Hawley and Pinky Nelson are both astronomers. They're standing right behind us one day as Charlie and I are starting a maneuver to point the telescopes. Since I knew they were right there, I'm looking at the checklist. I said, "Oh, Charlie, guess what we're going to look at now." He said, "What?" I said, "A dark region of high galactic latitude." Charlie goes, "Oh wow, man!" Steve Hawley behind us goes, "Okay, okay, this is the last time we're going to try and teach a bunch of dumb pilots anything about science." They took a big piece of teleprinter paper. They made up a sign, and they stuck it on the two pilot seats. It said Intellectual Dead Zone. I have a photograph of that sign that I'll have to get to you. That was one of our funny things that happened while we were up on orbit.

I mentioned we were going to come back at the end of four days. On day four we go through all the procedures to get ready to deorbit. It's about five hours of work to get everything going because we have to align the platforms. We cold-soak the Orbiter by pointing the tail at

the Sun. All of the changing the configuration of the computers, bringing up all of them and changing into the reentry software, and counting down towards the deorbit burn.

Then you get to basically five minutes to the burn and Mission Control gives you the final go-no-go. We had bad weather at the Cape so we got a no go for the burn. “You are delayed 24 hours. Go to deorbit prep backout and start through those procedures.” We went through the deorbit prep backout and reconfigured back to orbit, opened the doors back up again, get everything reconfigured to stay on orbit. Then at the end of it, we got all done, we still had a couple hours left in the day. So I thought, “Well, we don’t want to just waste the rest of the day, why don’t we do something.” I called Mission Control and I said, “Hey. What do you want us to do the rest of the day? We don’t go into presleep for another three hours. You got stuff that we can work on?”

They said, “Yes, give us a second here.” So they came back. They said, “Okay, let’s go do another run of this, another run of that. Then let’s do CHAMP again.” CHAMP was a low light level camera, and it stood for Comet Halley Active Monitor Program. Halley’s Comet was there. We pronounced it Hawley’s Comet because of Steve Hawley. I guess they pronounce it Halley’s Comet. It was there, although I couldn’t see it. I don’t think we ever did pick out the comet, but it was in one of its visits. This is January of ’86. The first time we went to use CHAMP we pulled it out of the storage locker and the image intensifier had been turned on when it was stowed, so it was dead. The battery was totally dead. Guess what. No replacement batteries. There was nothing that we could do to fix that thing.

What really annoyed Stevie and Pinky—because it was astronomy, so it was their bailiwick—what really annoyed them was Mission Control said, “Okay. We think it’s probably not working but we want you to go through all the motions and go ahead and shoot pictures with

it anyway.” They had to do it even though they knew it was producing nothing. Producing absolutely nothing, but they had to go all through it.

When they came back to us, Mission Control said, “Okay. We want to do another run of this and another run of this and another run of something and CHAMP.” Charlie keyed the mike, and he started to say, “Okay, we copy.” From downstairs on the middeck as Charlie has got the mike keyed Pinky and Stevie when they had heard CHAMP, they spouted a line from I guess it was Monty Python and the *Life of Brian*. They both simultaneously from downstairs called out, “Aw, piss off.” Charlie started laughing so hard he couldn’t finish his statement.

We went through that and did that for the rest of the day and then we got up the next morning all bright-eyed and ready to do reentry again. We knew that on your second waveoff day you gave one attempt to Cape Canaveral, which is where we were trying to land, and if that didn’t work then you just went one more orbit and landed at Edwards. We count down to the deorbit burn, and we’re no go for the burn into the Cape. We’re going to make one more orbit and go into Edwards. About 15 minutes into that Fred Gregory comes up, and you could tell by his voice that he’s disgusted. He said, “Guys, you are no go for Edwards. You are 24-hour waveoff.” Never been done before. We’d never waved anybody off a second day.

What had happened was if we landed at Edwards that day we didn’t have a convoy to meet us, so we weren’t going to get cooling hooked up, and as a result, in the turnaround down at [Edwards], we were going to have to power everything down to where the Orbiter was totally dead when we landed at Edwards to keep from overtemping. The turnaround to bring it back up from all that was going to be an extra five days or something like that. So they convinced mission management to say, “Hey, wave us off one more day. We’ll send all of our people out

there to Edwards to be on hand so we have a full convoy, and we can save that five days of turnaround.” So they bought it and so we waved off again.

We’re becoming as difficult to get back to Earth as we were to get launched. After we got back I saw this poster that they had made up, and it was a wanted poster. It said wanted, it had all seven of our photos on it, it said, “If found, return to Earth.” I don’t think I have a copy of that. I’m mad I don’t have a copy of it, but it was the cutest little poster.

Oh. The night before, Charlie Bolden and I sang a song down to Mission Control. I actually have it on my iPad. I’ll have to play it for you.

ROSS-NAZZAL: Oh, absolutely, yes.

GIBSON: Charlie and I sang a song, because again this was unprecedented to wave off twice, and I can tell you basically the words to it. It was to the tune of who knows “Where or When.” It was, “It seems that we have talked like this before. The deorbit PAD that we copied then, but we can’t remember where or when. The clothes we’re wearing are the clothes we’ve worn. The food that we’re eating is getting hard to find since we can’t remember where or when. Some things that happened for the first time seem to be happening again. And so it seems we will deorbit burn, return to Earth, and land somewhere, but who knows where or when?” was the song.

Mission Control just applauded like you wouldn’t believe. You’ll hear it on the clip that I’ve got. The next morning we get up, going to try Cape Canaveral again. We get waved off. Fred Gregory says, “Okay, the weather is no good there again for the third day in a row.” Fred says, “You are no go for the burn to Kennedy. You’re one-orbit waveoff. Land at Edwards.”

Somewhere in that one more orbit around the Earth I keyed the mike and I said, “Fred, if you wave us off again you’re going to get another song.” He said, “I will see you in Houston today.”

We get around one more orbit. What this has done, Jennifer, is this has put us into a night landing. We were supposed to land right at sunrise at Cape Canaveral, so about 7:00 a.m. in the morning obviously. Any other landing was going to be a night landing. I could see this coming, and the weather at Kennedy is always questionable and iffy. Charlie and I had done most of our STA training at night, because if you can land it at night you can certainly land it in the daytime. This puts us into a night landing at Edwards Air Force Base, about two hours before sunrise. We get the go for the burn. We do the burn. Then Fred says goodbye to us for a while because we’re going to enter blackout of course. We do, we enter blackout.

In the course of the reentry we have a problem. The problem is the APU #1, our auxiliary power unit, which is what gives us our hydraulics to operate the flight controls. What was the initial symptom that we saw? The initial symptom that we saw I think was that our water level—it has a water cooling system to cool the APU. Our quantity is dropping rather precipitously. It looks like it’s a water leak.

We’re in blackout. So there’s a procedure for that, and it has us turn it. I don’t remember exactly what it is now. Once again this is over on Charlie’s side. In his first reentry where normally you’re just monitoring and watching, Charlie is working another procedure where he’s got to try the B controller for a while and then go back to the A controller if that didn’t help it. We’re working all this stuff on the way down.

Then finally we put all the symptoms together and I think I notice that APU 1 was like 100 degrees cooler than the other two APUs. I said, “You know what, it must be that it’s pumping water too fast and it’s overcooling APU #1. That’s why we got this high usage rate.

So Charlie, just shut it off. Shut off the water boiler or the water anyway.” So he just closed off the water. Then we finally start to come out of blackout at about Mach 14 if I remember right is where we’d start to come out of blackout.

Then we get contact back with Mission Control again. Then I rattle off to them, “Okay, hey, guys, here’s what we’ve been looking at. Looks to us like water spray boiler—yes, that’s what it’s called, water spray boiler. Water spray boiler #1 is overcooling APU #1 giving us a high usage rate on that. So right now Charlie has got it turned off. We’ve got both the A and the B controller turned off, and we’re letting it warm back up a little bit.” They say, “Okay, we’ll look at it.” They didn’t come back and say the normal, which is roger. They didn’t say it that time. They came back and they said, “Okay, *Columbia*, Houston, we concur. Overusage. We like your configuration. Stay there.”

We had that. If we ran out of water and it started to overtemp and we had to shut down APU 1, then we wouldn’t have had a normal landing gear deploy. It would have been a pyrotechnic deploy, and it would have cut all the uplocks. Had explosive cord in there to sever all the uplocks if we had lost APU 1, but we didn’t lose it.

Later on Mission Control came back to us and they said, “Okay, hey, *Columbia*, for Charlie, we want you to bring up water spray boiler Bravo for APU #1.” So they had us turn it back on probably once we were close enough to landing that they could see we weren’t going to use up our water. Then I’m trying to remember. Probably what they had us do was right after we got wheel stop go ahead and shut down APU 1 right away.

We came back down the rest of the way, and we had a relatively short overhead approach. It was basically a 180-degree turn because we’re coming from the Pacific right across the top of LA [Los Angeles]. My mother was at home in Westminster, California, which is part

of the LA area. My dad had been ill, so they weren't coming to the landing. She said she heard us go by about two hours before sunrise. She heard the sonic boom over LA. I remember looking out the window and saying to the boys, "Oh wow, you guys, we're right over LA at Mach 3." I said, "We're going to rattle their windows."

Came around and landed on which runway? Not lake bed. Runway 22, the hard surface runway, because at night we don't put it on the lake bed because it stirs up all the dust and that blocks the xenon lights. Night landings always have to be on a hard surface runway.

Landed. That was only the second night landing. STS-8 had been a planned night landing out at Edwards, and we had not had another night landing since then. My first landing, the first time I got my hand on the control stick to feel it out in atmospheric flight, wound up being an unplanned night landing. It went fine, because as I say, Charlie and I had trained for it, so we were certainly ready for it.

After the mission Dan [Daniel C.] Brandenstein, who at that time wasn't the Chief Astronaut yet, but he was the STA pilot out at Edwards to meet us and to fly the approaches. He was the head man out there. So when they met us in the crew van after we climbed out of the Orbiter and climbed into the crew van he had a whole case of California oranges sitting in there to rib Congressman Nelson with. It had a big sign on it that said, "Congressman Nelson, welcome to the state of California. Enjoy a delicious California orange." Bill was actually not very amused by it. He said, "No, thank you, I'll wait for a Florida orange." Bill was not totally amused with Dan Brandenstein's little prank that [he] pulled.

From there we went. They had the whole clinic facility up, so we got to get all the blood drawn and all the evil things that they do to us all the time just as if we had landed in Florida. It took a while to get through all the tests that we do. Then they had us do a very brief press

conference if you will, the seven of us up there with a microphone and all the employees at Dryden [Flight Research Center] out there for us to chat with them.

Then they put us on the STA that was out there, flew us back to Houston. In the meantime I remember Steve Hawley had called his dad to tell him, "We're back on Earth." His dad said, "Well, this just proves to me now that you guys are really operational and that the Space Shuttle is just like an airline." Steve said, "Why do you say that?" He said, "Because you're in California and all your luggage is in Florida." We flew back to Ellington and landed. Of course none of the family was out in Edwards, they were all down at the Cape. In the meantime they had all flown back to Houston, so they were there to meet us when we arrived.

I'm standing there shaking hands and hugging people and somebody says, "Hoot, look up." I looked up, and here comes a formation of nine airplanes. It's my buddies from out at Pearland Regional Airport, which used to be Clover Field, and they have put together a nine-airplane formation. It's three biplanes. It's two Pitts Specials and a Great Lakes in the first vic of three, followed by three more airplanes, a VariEze, a Formula One racer, and my Formula One racer on the other wing. One of the guys out there that knew how to start my airplane was flying my airplane in the second group of three. Then the third group of three was a Bellanca Decathlon, another biplane, and a Hughes 500 helicopter. All of those were friends of mine from out at the airport. They had put together this nine-airplane flyby to welcome me back to Ellington Air Field. I've got pictures of me looking up at them with a great big thumbs-up, although they couldn't see me, but nine airplanes. The leader of that was one of the payload guys who I knew from the airport, from NASA, worked in Mission Control as a payload engineer, I think is what he was. He had one of the biplanes that he flew out of Clover Field. He had put that whole thing together. He had coordinated it with the control tower there at Ellington

and arranged all the guys that were going to fly. A nine-airplane formation to welcome me back to Houston after 61C.

From there you get at least a day and a half off or two days off, and we launched into debriefing. Debriefing usually takes two full weeks, maybe not every day for two full weeks, but at least a week and a half. That landing was January 18th, and so we're in the midst of debriefing on January 28th. I don't remember exactly what the debriefing was, but we haven't even accomplished at that point probably half of what you normally do in a debrief.

I think we're in the big conference room in what became Building 4 South, which at the time was just Building 4. Somebody stuck their head in the door and they said, "Hey, guys, *Challenger* is getting ready to launch. They're inside of five minutes. You want to take a break and watch the launch? Then we'll come back and continue with the debriefing."

We said, "Yes, let's do that." We went into one of the smaller conference rooms where we had all the com loops plugged in and a television. That's where I was watching *Challenger* go down. What a bleak dreary day. You look at where we had been, where we were. I was on top of the world. I had just commanded my first Space Shuttle mission. I guess I would have been the third or fourth pilot out of our class. Rick Hauck had commanded a mission. I guess Dan Brandenstein had, Brewster Shaw, and then me, so I was the fourth one out of our class of 15 to fly as a mission commander.

I guess by then all of our '78 class had flown, because they put some of our pilots in as mission specialist-2 just to get everybody flown. Everybody had flown, but there were only four of us that had flown as commander when *Challenger* went down. I was on top of the world, and we, NASA, were on top of the world, because '85 had been our biggest year. We had just received our fourth Space Shuttle; *Atlantis* had just come online and had flown its first two

missions I guess. I think Brewster flew it on 61B. It had flown on 51J, a DoD mission with Bo [Karol J.] Bobko. We had our fourth Orbiter. We were going to fly seems like eight missions in 1986. We were on our way to having a really big year. We were really sailing. We were just on top of the world.

We went from that position to being absolutely in the deepest darkest black hole you could ever imagine, just in the space of 63 seconds. I don't remember where Rhea was. She was at a meeting off site somewhere I think, and when it happened she just turned around and came back. I think I may have been looking out the window and saw her coming across the parking lot or something. Went out and met her outside the building, and it was just a meltdown, just a huge meltdown.

Then the next day I got a phone call from PJ [Paul J.] Weitz, who was the Deputy Chief [of the Astronaut Office], and he said, "Okay, Hoot, you're going to be going to the Cape to take part in the investigation down there." He said, "I don't know what you're going to be doing, but pack your bags and be prepared to stay a while down there."

Steve Hawley and I hopped in a T-38 the next day. If I remember right it was two days after the accident. We flew down to Kennedy and landed there and went and reported to George. He was Deputy for Shuttle Processing down there. We were going to be taking part in the investigation at the Cape of the vehicle processing, so all of the OMIs, all the Orbiter Maintenance Instructions. Every little nut and bolt that got put together has a maintenance instruction that says here's how we build this thing and here's how we put it together, here's what the tolerances are. By the way, what did it read when you put it together?

We went through just mountains of paperwork. That went on for two and a half months. I went down there. Although generally we would come home for the weekends, we'd fly down

there. It was usually always Steve and I would hop in a T-38 either Sunday night and fly down there or Monday morning and fly down there, spend the whole week working on the different areas that we got assigned to.

There were a number of us down there. Stevie was down there. Rick Hauck was down there for a little while, not for very long. Woody [Sherwood C.] Spring was down there for a while. I got assigned to the Solid Rocket Boosters and the External Tank. What we were doing specifically was we were in support of the Rogers Commission. The real investigators, the real people that were in charge of investigating and coming up with the cause and the recommendations was the Rogers Commission. Sally Ride was put on that.

We were doing all the grunt work to put together the stuff to tell them what to say. We went through every single piece of paper that went into the processing and the build and the construction of the booster rockets, in my case, the booster rockets and the External Tank, and went through it, because there was an important question to be answered. It took us four days after the accident before we figured out what had happened. It wasn't until we had retrieved all the films from the northern theodolite watching the launch. From that vantage point we could see the burnthrough on the right-hand booster rocket. We could see the flame start coming out of the aft joint of the right-hand booster rocket. Prior to that, all the TV views and all the cameras were looking from the south, and they weren't seeing the right-hand booster rocket. The Orbiter and the tank was blocking what was going on over there.

All the footage that they played right after the accident, you saw this flash of fire, and then the whole thing broke up, but you couldn't tell where it was from. From the northern theodolite we could see the flame when it first started poking out of that right-hand booster rocket. Then it got bigger and bigger and bigger and what it did was it either melted a hole in the

tank or it destroyed the aft attach struts that held the right booster to the tank. That allowed the right-hand booster to break away and rotate into the tank and rupture the tank. That's what actually broke the whole thing up.

It wasn't until three or four days after the accident that we first found that film footage, and were able to tell, "Okay, we can see now that we had a problem in the right-hand booster rocket."

The question that we had to answer was did that happen because we didn't put it together correctly or did that happen because of a design flaw. Of course the answer turned out to be that we did assemble it exactly the way it was supposed to be assembled. It was all done correctly. It was an engineering design flaw that doomed the *Challenger*. That took about two and a half months to get through all that paperwork and all the stuff that we had to review and come to grips with. It's just mountains of paper just for the booster rockets and the tank. At the same time there were teams that were looking at the Orbiter, the Main Engines, everything on the vehicle. The way we had put it together and processed it down at the Cape, and did we do it all right, did we do it perfectly. The answer came out yes, we did. We had done it perfectly.

That lasted until the middle of April. I was down there all of February and all of March if I'm remembering it right. I hope I'm not exaggerating it. By mid-April we had completed our work. We had fed all of our results to the Rogers Commission. They were able to proceed with all the other things they looked at and do the final report.

At that point, because I had learned so much about booster rockets, I was assigned at that point to be the lead astronaut to work with the booster redesign guys out of Huntsville [Alabama, Marshall Space Flight Center]. I wasn't done traveling. Instead of going to the Cape every week, now it was down to Huntsville just about every week, and meetings with those guys.

Got to know all the guys that were big at Huntsville in the engineering and in the design. Allan [J.] McDonald, who got to be real well known. Allan and I got to be good friends through the course of all that. I spent about the next year being the representative along with an assistant, Mark [N.] Brown, another astronaut and I oversaw on behalf of the Astronaut Corps the rebuilding and the recertifying. I went out to Utah for one or two motor firings.

I wasn't designing the booster rockets. I wasn't designing what they were doing. What I was doing was giving them our input to say we like this and we don't like this.

ROSS-NAZZAL: Can you give some examples of what you weighed in on?

GIBSON: Yes, there were two concepts that were being kicked around to fix the joint in the booster rocket. Of course that was where the problem was. It was the aft joint of the right-hand booster rocket that had failed. The way the joints were done, the booster rockets were built out of four separate segments. Each one of those segments weighed 300,000 pounds. They were cast and put together out in Utah. They were the biggest and the heaviest thing that you could put on a railcar. Your four segments would go from Utah to the Cape on four separate railcars. That'd be one booster rocket, each of those segments being 300,000 pounds.

Then at the Cape they'd be put together in what was called a field joint. The field joint was because it was made in the field. The O-ring seals, we had two O-rings in each of those joints. What we found was that when we ignite the booster rockets they would go to full pressure in three-tenths of a second. Full pressure was basically 1,000 pounds per square inch, so they would expand.

Because of the joint being more metal, there was a change in shape right at the joints. It was causing the O-rings to open up a gap where you had the joint. What had to happen was the O-rings had to be able to expand to fill the gap. In the cold temperatures that existed the day we launched *Challenger*, the O-rings, which were made out of Viton, a type of rubber, were so cold and brittle that they couldn't expand. They couldn't fill the gap, so hot gases were able to blow by the O-rings.

We had to fix that. We had to do something about it. One of the concepts that the engineers had come up with, and they said, "This will work, honest, this will work," was to have no insulation in the joints. You'd say, "Well, wait a minute. If you don't insulate the joint how are you going to keep that hot gas out of there?" They said, "If we've got a good pressure seal the static pressure of the air expanding will form a pressure over there next to the joint." What'd they call it? The open seal concept. You were just going to have a standing batch of pressure that was going to keep the really hot temperatures, which were 6,000 degrees when those engines were burning—the Solid Rocket Motors are 6,000 degrees—it was going to keep that 6,000 degrees away by a static column of pressure. But it was going to be an open joint.

I remember we were progressing down the road of a sealed joint which was not exactly what we had before, but what we could have. We could build a sealed joint. The engineers were coming up with a whole lot of what-ifs and a whole lot of this sealed joint, getting the geometry just perfectly and getting a good tight seal on it is going to be really difficult to do. We might be better off with just an open joint.

They were progressing down that way. I just kept getting more and more nervous about the open joint. I remember I made a speech one day in one of our big meetings. I said, "Guys, I'm not the design engineer, and I'm not here to design this and how to tell you guys. But I am

here to tell you what our philosophy and our attitude is going to be. I've talked to a number of the astronauts, and I know that when you climb in the Orbiter you're sitting on a bomb. If we go with an open joint we are really going to feel like we're sitting on a bomb. I don't think we're going to feel good about the open joint."

That was the end of the open joint. We went to the sealed joint. They—I didn't do this—they did a brilliant job when they reengineered the booster rockets. They put in a fail-safe feature that actually saved us later on. It was a thing called a pressure-actuating flap. It was basically a slot in the insulation that would let pressure get into it. Using pressure, it would force the two sections of the insulation against each other in case you had lost your glue joint. For the new design we would glue those segments together, glue the insulation together forming a seal. We had a launch in mid 1996 to late 1996 where the glue didn't hold. We had soot in all the joints, but the pressure-actuating flap had kept the two sections sealed off from the hot gas being able to get through there and saved the day for us.

The reason that the glue failed was because EPA [Environmental Protection Agency] had come in and said, "We don't like the stuff you're using for cleaner on the rubber surfaces before you bond them together." It was trichlorofluoroethane. They said, "The snail darters don't like that. The spotted owls don't like it." EPA had told us, "You got to stop using that."

We stopped using it, and we went to another cleaner. That didn't work. The first launch we tried with this new process we just about killed seven astronauts, but we were protecting the snail darters and the spotted owls and the baby seals, I guess. I don't know if we went back to trichlorofluoroethane or just came up with a cleaner that actually did work that the EPA wasn't unhappy with. Because of the brilliant work that Huntsville and Thiokol did in redesigning those booster rockets they were virtually trouble free the whole rest of the Program throughout the last

launch of the Shuttle, other than this one time where we had made a change and the change nearly bit us.

It was pretty fascinating to get to work with all of those guys and learn even more about the way the nozzles are put together and machined and the way the design was put together. When we came back in after the *Challenger* accident to fix the booster rockets, we didn't just fix the field joints. There had been some areas that we weren't real thrilled with: nozzle erosion. The nozzles were a carbon fiber process. We had some areas on those where we didn't like the amount of erosion we were getting during launch. Of course you only use those nozzles once. We weren't real happy with some of the characteristics we were seeing. We weren't real happy with the nozzle-to-case joint in the booster rocket. We reengineered all of that stuff in the course of the redesign effort and really built virtually a bulletproof Solid Rocket Booster out of it.

They did a whole bunch of really good work. The joke I like to tell is that since I worked on the redesign all that time, the Chief Astronaut, who by then was Dan Brandenstein, said, "Okay, you really think those booster rockets are ready to fly, you go fly them." So I got to command the second launch when we started up again. That didn't really happen, but it makes a good story. I tell that story when I'm giving a talk.

It is true I got to command the second launch when we started up again, and that was STS-27. I almost got to fly back-to-back missions. I flew the twenty-fourth launch. *Challenger* was the twenty-fifth. Rick Hauck commanded the twenty-sixth and then I commanded the twenty-seventh. The real story was that STS-27—and I'm getting a little bit out of 61C here, but STS-27 was a top secret Department of Defense mission managed by the Air Force. The program office was Air Force, General [Nathan J.] Lindsay was in charge of it. The Air Force insisted on an experienced commander, someone who had already flown once as mission

commander. There were only seven of us left after everybody left. There were quite a few astronauts that left after *Challenger*.

Out of those seven, everybody else had something they were already assigned to or already busy with. I guess Crippen had decided to go into management at that point. The mission that became STS-27 actually had been the mission Crip was going to do, which was going to be the first launch out of Vandenberg [Air Force Base, California]. After what we saw happen to steel booster rockets, it was decided that steel booster rockets bit us really bad, we're going to go to a plastic booster rocket now to launch out of Vandenberg. Everybody said, "That doesn't sound like a very good idea, so let's don't even do that at all."

That's what did in launching out of Vandenberg, the fact that you had to have the carbon filament-wound booster rockets to launch out of there. They were even more flexible than the steel booster rockets were. Everybody said, "We can't trust those things at all." We never did launch out of Vandenberg.

Out of the seven experienced commanders who had already flown that were still at NASA, I was the only one that wasn't tied to something that kept me away from doing it. That was one of George Abbey's last actions as head of Flight Crew Operations, to assign the crew of STS-27. I was always a favorite of George's, one of his favorites. He had a bunch of favorites that he liked.

George picked me to do STS-27. It wasn't really because you think they're good enough you go fly them, because any of the guys would have loved to have gone and flown right away. I wound up flying my third mission before most of the guys in my class had flown their second one. In fact in Mullane's book he talks about how George told me. We were having a beer in a bar one night and George told me, "Okay, you're going to command STS-27." I said, "George,

it isn't my turn." He said, "Turns don't have anything to do with it." I was protesting a little bit. I didn't flat refuse to do it, but I was protesting a little bit because I was going on my third one before most of my buddies and fellow pilots had flown their second one, which isn't completely fair.

ROSS-NAZZAL: As they say, life isn't fair.

GIBSON: That's true.

ROSS-NAZZAL: That's what you want your kids to learn at least. I did want to go back and ask you some stuff about 61C if you don't mind just because we've talked with quite a few members of the crew, talked with Pinky and Charlie. We haven't talked with Franklin. We haven't talked with Bill. I guess we haven't talked to as many people as I thought, but they shared some details with us that I thought you might want to touch on as well, one of which has to do with your commanding style. I always like to ask commanders about this.

GIBSON: Yes. What did they say about it? Something like well, this bozo never should have been a commander in the first place?

ROSS-NAZZAL: No, all good things. Charlie said that he learned from you, "We don't ever wing anything. There's always got to be a procedure for something. If there isn't a procedure we're going to ask them to write a procedure." He also mentioned Hoot's laws. but he didn't really explain what those are. So I wondered if you could talk about those.

GIBSON: Oh, is that right? Oh, Hoot's law is really very simple. Here's what it says. It says, "Okay, right now things may be bad, but you can sure make it worse. There are lots of ways that you can make it worse, but one of the easiest traps to fall into is rushing."

It sounds strange to say, "Okay, here you are during reentry, you're going Mach 20 and something goes wrong and you're going to fix it. Okay, don't hurry, don't rush, take your time. Take your time and do it right."

One of the things that we implemented—and I keep getting credit for it. I think it came from Steve Hawley. I think Steve Hawley was the one that said, "Hooter, here's what we got to do. Any time you're doing any procedure." I endorsed it. I think I wound up getting the credit for it. One of the things was you never did any procedure on there unless you had the checklist open. There was one exception. There was one thing that was so basic, and that was loading the downlink memory into the Pulse Code Modulation [Master] Unit, the PCMMU. It had different formats that it would report which would include different things.

The ground every so often would tell us, "Hey, we want you to load format 14 into the PCM." We were allowed to do that. That was the only thing you were allowed to do without a checklist right in front of you. Everything else, no matter how well you knew it, you had to have the checklist in front of you.

The other thing you had to do is you had to ask if there was anybody else available to watch you do it. Two sets of eyes on it. Where I really came up with that was that I killed the whole crew in the simulator one day. We were doing launches, and this was 61C. By now I've worked in the SAIL, I've got a mission behind me, I am really experienced, I'm really good, I can really do this stuff.

We launch. We get to Solid Rocket Booster separation and there's a problem. We get a sep inhibit, separation inhibit. The boosters don't separate. Not a real big deal, because there's a backup timer that after 12 seconds is going to go "Okay, I'm tired of waiting. Get out of here, and it's going to separate them anyway." But they weigh 80,000 pounds each. For that 12 seconds you're lugging 160,000 pounds of dead weight. I want to get rid of those things. So quick as a flash I reach over and I grab the manual switch, flip it into manual, and hit the push button, only I had grabbed the wrong one. I had grabbed the switch for the tank. So I've just commanded a fast sep off the fuel tank. The computer is going to go, "Okay, if that's what you want, that's what you get." It shuts down your engines, and it gives you a fast separation off the tank and the booster rockets. You're going in the ocean, and you're not going to survive it. I killed my whole crew.

Why had that happened? Because I rushed it. I was in such a big hurry. I just reached over and I grabbed the wrong switch, flipped it, and hit the button. Nobody had a chance to stop me because I was so quick. That's where I said, "Don't rush."

From that moment on, from that tremendous screwup on, I had a rule that anything that was irreversible—and it didn't have to just be irreversible in the long term, even in the short term, that I was going to put my hand on the switch and say, "I'm going to throw this switch," somebody on the crew up there in the cockpit had to say, "I see it, and I agree." Then I would flip that switch.

In the simulator when we'd have a computer failure I'd reach up and put my hand on GPC [General Purpose Computer] #4 and say, "Okay, I'm going to halt this one, #4." Somebody else had to look at my hand and say, "I agree." Then I would halt that computer. What that led us into was on 61C we set ourselves the goal of doing the entire mission and never missing a

single switch. The way we were going to do that was we were going to have two sets of eyes on everything. We were going to have the procedure in front of us with two sets of eyes on it if we could.

The only time you could do one by yourself was if you said, “Hey, is there anybody that can watch me do blah blah blah?” and everybody was busy and somebody would say, “No, this time just do it yourself.” We went a six-day mission, and we missed one switch, which is pretty darn good, when you look at how many thousands of switches you’re going to throw on a mission.

I got credit for Hoot’s law. I did basically write Hoot’s law, which is like I did the time I rushed. Things may be bad but you can always make it worse. Somebody told me that if you Google that it comes up, Gibson’s law or Hoot’s law.

ROSS-NAZZAL: I’ll have to check that.

GIBSON: I don’t know that that’s a fact, but somebody told me you could find it. In fact I was in a deposition one time, and I had a lawyer ask me, “What’s Gibson’s law?” I said, “How’d you know about that?”

ROSS-NAZZAL: You talked about how special and unique this crew was. What do you think contributed to that sense of family or camaraderie? Was it the people? Was it something that you did or something else?

GIBSON: No, shoot, I can't take credit for those guys. They were such a nice bunch of people. That's number one. I remember when I joined the Astronaut Corps I got to looking at the 35 of us. I said, "These guys and gals are from all different walks of life, all different degrees, Air Force, Navy, Marines, Army, civilians, medical doctors, PhDs. What do we have in common?" It took probably six months to a year for me to figure out what they all had in common. That was every single one of them you would say he's a nice guy or she's a nice gal, easy to work with. That was pretty much 98% true for everybody that was selected.

The selection boards always had a philosophy of every once in a while we're going to mess up, and we're going to fail to pick somebody that we really should have picked, but we really don't want to pick somebody that we should not have picked. They had a very conservative viewpoint. It worked very well.

I think that what happened with 61C, I number one wanted to make sure that I kept everybody as happy as they could possibly be. My leadership style is not to be barking out orders and telling people what to do. My leadership style is going to be, "Hey, guys, here's what we need to do, so let's go do that." Don't oversupervise. Nobody likes you looking over their shoulder nitpicking every little thing they do and ready to jump on them if they don't do it right.

They're big guys, they're smart people, and they can do it themselves. Don't oversupervise them. Certainly don't be giving orders. You don't have to pound your chest and say, "I'm the commander; I'm the boss." Everybody knows who the commander is. You don't have to try to emphasize it. That was always my leadership style.

I think it held me in good ground when I got to be Chief Astronaut as well because I approached it the same way when I was Chief Astronaut except to say—we'll probably talk about that some more in subsequent ones too. When I got picked to be Chief Astronaut there

were two emotions. One of them was a real thrill, because, “Oh my gosh, I’m going to be the boss, I’m number one astronaut, holy smokes. The second thought that followed about a quarter of a second after that first thought was holy smokes, I don’t know if I am smart enough to do that. I don’t know that I’m smart enough to be the leader of this group of people, the astronauts. I don’t know all the answers.” Almost immediately I said, “You know what, since I don’t know all the answers, I got to get them to give me all the answers.” Any time something would come up I would say, “What do you recommend we do?” People love that. People love it when you ask them their opinion. What’s your opinion on this? Everybody loves that. What they don’t love is for you to just start spouting and pontificating and saying here’s this and here’s that. What they really like is when you say to them, “What do you recommend that we do?”

That was always my style, partly because I don’t have all the answers. I don’t think anybody does, except for maybe Steve Hawley. He probably does. He is so darn smart. He is one of the smartest guys I’ve ever known. He had that rare gift as a flight engineer that he could look at—like during launch, here we are, we’re in the simulator, we got malfunctions and we got things wrong. It worked this way in flight too. He’d be looking. What’s Charlie doing? What’s Hoot doing? He’s noticing something that we haven’t noticed yet. He had that rare gift where he wouldn’t just blurt it out. He’d look at what we were doing. If what he was seeing was more important than what we were doing then he’d interrupt us. If not, he’d wait till we finished what we were doing, and he’d say, “Hooter, when you get a chance I got something for you.” He was uncanny. He was just amazing. If I looked good it was probably because Steve Hawley made me look good.

ROSS-NAZZAL: Pinky Nelson had told me that it was good to have Steve Hawley on the flight and you on the flight, I don't know, sense of humor or levity or what it was. How did you keep the crew morale with all of those challenges? Especially just getting off the Earth.

GIBSON: There were some ups and downs. By the fourth time we climbed into the Orbiter, it was getting depressing to climb in. Especially January 10th, when it was pouring rain so hard, and we knew we weren't going anywhere. Or it would be a 1-out-of-100 chance that we were going to go anywhere that day. It was actually depressing to be climbing in again, figuring that this is going to be another scrub. Yes, there were some ups and downs. We had so much humor on the crew and so much fun being together that it just made it all okay. It just wasn't a problem.

Yes, you'd climb out of the Orbiter. You'd be depressed. "Okay, once again we didn't go." You're on your way to Disney World [Orlando, Florida]. People would ask me, "When you're sitting there on the launch pad are you scared? Are you nervous about something?" I say, "Yes, I am nervous that something's going to go wrong, and we're not going to get to launch today." Because again, you're on your way to Disney World. You don't want to wait another day. You want to go now. You want to go today.

Therefore all those delays, you'd be up here somewhere, and you'd climb out, and you'd be down. What they would do is they would always get us together with the spouses after we climbed out, and we'd go to the beach house and at least get to be there with everybody for an hour or so. That just helped brighten you back up again. Then, "Okay, let's go. We're still going to space." By golly, we did. We did finally get to go to space.

You look at all those personalities—Charlie Bolden. I look at myself all the time and say, "Hoot, why can't you be more like Charlie?" Then Stevie and Pinky. How could you not

love those guys? Franklin Chang-Diaz, just super super nice people. That's been one of the things that showed us through. Then all of us lived through a difficult time after *Challenger*. I'm sure that's what has bonded us all so thoroughly over the years, all those things, all of the above.

ROSS-NAZZAL: Rhea pointed this out, and then one of the secretaries, I can't remember who it was that I spoke with. She talked about how you guys were the Delta boys. She'd go out to quarantine, and you guys were watching *Animal House*. Can you talk about that nickname and what you thought of it?

GIBSON: Yes. Steve Hawley was the one that always had all these videos. He had *Animal House*. I had never seen *Animal House* until we started going down to the Cape. It was *Animal House*, it was the *Life of Brian*, and it was *The Holy Grail*, those two Monty Python [movies]. Stevie had just all kinds of other episodes, the dead parrot sketch and the cheese shop and all these other things. He's just a really funny guy, really clever, really funny, witty, quick.

I remember one time we were all having a Friday evening party in a bar. It was actually I want to say the Ships Wheel that doesn't exist anymore or some bar that was in Seabrook [Texas] There were a whole bunch of NASA folks there, and we were forming a group of chairs around a table or two. One of the AOD pilots, Dick [Richard A.] Ladely, was out there and he had a chair, and he's trying to move this chair and find a spot. He said, "Shoot, where's the biggest empty space?" Stevie says, "Between Hoot's ears." He was that quick and clever and funny. It was a laugh a minute all the time with those guys.

ROSS-NAZZAL: Just a funny term for astronauts, [the Delta boys]. Astronauts have that reputation for being type A personalities, very serious flight jocks, but this is a little different.

GIBSON: Type A certainly, yes. Most all the astronauts that I've known were type As except for Rhea. I don't think she's a type A, but most all of them were type As. "It's time to do this now, and we got to do this now. We got to get this done. We don't want to dillydally." That's a good thing when you're flying jet fighters and flying Space Shuttles that are burning 3,000 pounds of fuel a second.

We sure had a lot of humor and sure had a lot of fun in the course of doing it. One of the lectures that I would always give when I had a new crew, our first meeting, we'd sit down around a table, and I'd say a couple things. I'd say, "Guys, one of the things about this is if we aren't having fun, we're doing something wrong. This is going to be really challenging and really intense, but if it isn't fun, we're doing it all wrong." That was one of the things. What was the other thing? I'll think of it I'm sure.

ROSS-NAZZAL: Pinky Nelson also told me you had, I guess it was a ghostwriter. Someone called the Holy Ghost that was Bill Nelson's ghostwriter. Do you remember this person? He said you guys called him the Holy Ghost. He would be around. He didn't give much detail. I'm curious about that.

GIBSON: Oh, I never heard the expression Holy Ghost. When we were in quarantine Bill was visited at the crew quarters and came to lunch with us one time by either a preacher who he was fond of or his minister or somebody like that. Guy named Jamie Buckingham, I think was his

name. That might be who Pinky was alluding to. I didn't hear this discussion going on but apparently Bill and this very religious person were talking about the fact that up on orbit Bill was going to be looking for angels. I'm not making this up. The boys told me, Pinky and Stevie told me, that they heard him talking to this Jamie person that up in space—because that must be where heaven is, I guess—that Bill was going to be looking for angels.

I don't remember if it was Stevie or me or Pinky or somebody that said, "Oh. If we had known about that what we could have done was we could have powered on the thruster controller and fired just one quick reverse pulse on the forward thrusters and make this big bang. We'd say, 'Oh, Bill, don't look, we just hit one. There's feathers everywhere. It's horrible, it's horrible, don't look.'" I think you're getting the picture that we were always having fun and always doing something, possibly even playing tricks on each other.

In the simulator I mentioned that I was going to require that if I put my hands on one of the computer switches somebody had to look at it and see that I had the right one. I would occasionally put my finger on the wrong one. I'd say, "Okay, I'm going to halt #2." I'd put my hand on #3 and Steve would go, "No." Then one time in the simulator he said, "You do that just to torment me." It was important for them to know that I really did want them to verify. I didn't want them to just say, "Oh yes, okay, I agree." I really wanted them to make sure I had my hand on the right one because I didn't want to mess it up again.

ROSS-NAZZAL: Yes, that would be a bad day. I think Charlie Bolden described this mission as the end of year clearance flight. Pinky said he thought it was a trivial mission. I was curious what your thoughts were.

GIBSON: It did wind up that way. Yes, I had heard either Charlie or one of the guys say, yes, this was the end of the year clearance flight. We were supposed to have two satellites. There was a problem with one of them either with the booster or with the satellite itself, so the company had elected to pull it off the mission. Here we are, we're left with just one satellite, with the Materials Science Laboratory. We had a whole lot of experiments to do, but we didn't really have enough to fill up a whole mission.

There has been suggested that the reason we didn't get canceled outright was because we had Congressman Nelson on board. It may be. I think I've heard Pinky use that expression, the end of year clearance flight. Whatever cats and dogs we had left over we scraped onto *Columbia* and went and flew it. I wouldn't be surprised if it weren't [for] the fact that we had Bill Nelson on board—that kept us from getting just outright canceled and move those different parts onto other missions. Probably in that regard we were lucky. I'll bet NASA would have been really hesitant to cancel the flight that had the congressman on it. There may be some real validity to that.

ROSS-NAZZAL: As we were talking I thought of one additional thing. I remember a few years ago I had sent you a drawing that someone had made of a dragon and a patch. I wondered if you would put that on the recording.

GIBSON: It was, and I did that drawing.

ROSS-NAZZAL: I'll see if I can track that down again. I remember seeing it.

GIBSON: You probably still have a copy of that, don't you?

ROSS-NAZZAL: It's in the archive. I just need to remember where it is.

GIBSON: Oh, is it? Okay, because I've scanned it into my computer. I had forgotten all about it, Jennifer, to tell you the truth. What happened was when we were designing our crew patch it had to get approved by George Abbey. The first crew patch I took over there to show George, I showed it to him and he said, "Well, I thought I had seen ugly patches before, but Mr. Gibson, you have really taken the prize this time, that is the ugliest patch I've ever seen." He wouldn't approve it. In hindsight, I looked back at it and I thought you know what, it really wasn't a very enlightened patch. It didn't have an Orbiter on it. It basically was a view of the Earth from space and everybody's names on it. I'm glad George didn't approve it because we wound up coming up with a very simple patch for 61C, but I remember looking at a book one time that was called *Space Shuttle Crew Emblems*. It went through them all and it showed 61C and it said, "This is one of the prettiest patches ever put together."

It was. It was real pretty, and it was clever the way that it was done. I'm glad he didn't approve it. I think maybe when we first drew it with the Orbiter on it, and I took it over to show George he said, "Well, where's the dragon?" I said, "A dragon?" He said, "Yes, why don't you put a dragon on it?" I said, "George, why a dragon?" He said, "Well, because nobody's ever put a dragon on their patch before."

I said, "George, that's silly." He said, "Well, you can bring it back when you've put a dragon on it." So I went back and I drew that one that you saw. I had forgotten all about that thing. I drew that picture of a big fire-breathing dragon that I'd cut out of a magazine

somewhere and then drew a patch around it. I put the dragon blowing fire on the Russian space station. I drew this little station looking thing that said CCCP on the side of it. Then I had the Orbiter *Columbia* firing all its thrusters at the Russian space station. I sent it back over to George, and I said, "Okay, George, how's this?"

Of course that wasn't any good either. What we wound up doing was in the black sky on the very top of the patch we put in the constellation Draco, the dragon. I took the patch back over to George, and he looked at it and he said, "Well, where's the dragon?" I said, "It's right there, George. That's Draco, the dragon. That's the constellation Draco." He bought it.

What was even funnier though was the 41D crew, Steve Hawley, Hank [Henry W.] Hartsfield, I don't know if he told you that story. They were the first flight of *Discovery*. *Discovery* was Captain Cook's ship. When they took their first crew patch suggestion to George, George looked at it and said, "Well, you need to have a penguin on it." They said, "A penguin? Why?"

He said, "Well, it's *Discovery*, it's Captain Cook, it's Antarctica, you need an emperor penguin on it." They didn't want to put a stupid penguin on their patch. Same trick, they drew up a constellation. Since Stevie was an astronomer, he could make it believable. He drew it up, and he drew a phony star chart. They went back to George. Same deal, George looked at it and said, "Well, where's the penguin?" Stevie said, "That is the constellation *Penguinus Antarcticus*. So that's the penguin." George lets them fly it.

ROSS-NAZZAL: I had not heard that one.

GIBSON: Yes, *Penguinus Antarcticus*.

ROSS-NAZZAL: When you're that smart I guess you have that much authority. That's funny.

GIBSON: Yes, George bought it with the penguin on it.

ROSS-NAZZAL: You guys had a lot of fun back then.

GIBSON: Oh, we sure did. Yes, we sure did. The other thing that I would tell crews, I thought of it while we were talking. Two more things. One had to do with the patch. The other one was "Okay, anybody can come in here and do this and do a mission and make it look really difficult. We're not going to do that. We're going to come in, we're going to do it, and we're going to make it look like it was easy. It's not easy but we're going to make it look like it was easy." We always had that philosophy. It worked. During the mission we weren't calling Mission Control lamenting how difficult everything was, like you sometimes got out of some crews. I said, "We are going to go do it, and we're going to make it easy."

One of the lessons I learned from my first mission was we put so much effort into putting the view of the Orbiter landing, because we were probably going to do the first landing at the Cape, we had the satellite blasting off into space. We had one of the guys flying the MMU. We had so much detail on the patch that as an afterthought the names got added to the underneath. They got crammed in there, and they were so small that in order to make them where you could even see them the patch had to be about this big.

It was way too big of a patch. What's really unique about this mission? The one thing that I would say to my crews was what's the most unique thing about this particular flight is us.

The names of the crew members. So don't shortchange the crew names on the patch. Make sure they're big enough. Make sure you don't wind up with such a big unwieldy patch with little tiny names on it that you can just barely read.

That's the way the 41B patch really was. The names were tiny compared to the rest of the patch. If you look at the 61C patch the names are very prominent. The way we arranged them on there, they fit on there very nicely. You could read them real well. Those were I guess the three things that I would explain to crews that I think are really worth remembering as we go forward. Designing our patch, don't shortchange the names, because that's the one really distinctive thing about this mission is who the people are.

ROSS-NAZZAL: There's some interesting characters, that's for sure. I think this might be a good stopping place. Next time whenever you come visit we can talk about your last—well, however much we can talk about 27, I don't know how much we can talk about it.

GIBSON: Yes, there's quite a bit we can talk about 27.

ROSS-NAZZAL: Yes, you had a wide variety of missions. STS-47 and 71.

GIBSON: Did you happen to watch *Secret Space Escapes*?

ROSS-NAZZAL: No, I don't think I've seen that.

GIBSON: That was on the Science Channel. I just got a copy of it. You probably know STS-27 we had all that tile damage.

ROSS-NAZZAL: Yes, I was thinking about that when you were talking about the other problem you had with the OMS.

GIBSON: Yes. They interviewed Mullane, they interviewed me, they interviewed Frank [L.] Culbertson, because he was I guess CapCom for reentry I think for that one. They put together a whole hour program on STS-27.

ROSS-NAZZAL: Oh, I'd love to see that.

GIBSON: On the difficulties. I don't know if I can get another copy of it. They sent me a DVD [Digital Video Disc] of it, and it was called *Secret Space Escapes*. It was on the Science Channel. November I guess is when they actually showed it. They had interviewed Jerry [M.] Linenger and he talked about the fire on *Mir*. Oh, shoot, I don't even know who all they interviewed.

ROSS-NAZZAL: We might be able to get a copy of that, because I think they've been asking us for stuff from Shuttle-Mir about that. So I wonder if we can get a copy. They haven't been working with me, they've been working with some other colleague.

GIBSON: Jaime Hanaway, I think, was the one who contacted me. Then when I did the interview I came to Houston. They had set themselves up a little studio in one of the hotels downtown. This would have been like six months ago, something like that, that I came and talked to them. They did a whole entire hour on STS-27 and our mess with the tiles and the reentry. They ramped it up a little bit like they always do, but still it was pretty interesting production that they put together on it.

ROSS-NAZZAL: I'll see if I can track a copy down.

GIBSON: It was episode 104 they called it. Episode 101 was "Fire on the *Mir*" with Jerry Linenger. Episode 104 wound up focusing on STS-27 and the tile damage. They did quite a bang-up job of it. They had some actors. They picked someone who resembled me and someone who resembled Mullane except he had hair. Actually back then Mullane had a little bit of hair. They did quite a good show.

ROSS-NAZZAL: I'll see. A lot of times people are posting their shows to the Web these days. I'll have to go out and see.

GIBSON: They put it together as an hour show. It was pretty well done.

ROSS-NAZZAL: That would be a good starting place then. Take a look at it.

[End of interview]