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EDITED ORAL HISTORY TRANSCRIPT

ALAN LADWIG
INTERVIEWED BY SANDRA JOHNSON
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JOHNSON: Today is April 11, 2017. This interview with Alan Ladwig is being conducted at NASA Headquarters in Washington, DC for the NASA Headquarters Oral History Project. Interviewer is Sandra Johnson, assisted by Jennifer Ross-Nazzal. I want to thank you again for joining us today. We appreciate you taking time out of your busy schedule to come visit with us.

LADWIG: I'll tell you what though. Being retired, I don't know how I ever got anything done. I'm busy all the time.

JOHNSON: I've heard that before. First, if we could talk about the beginning of your career. Back in 1981, you started as a program manager for the Shuttle Student Involvement Project [SSIP, for Secondary Schools, an annual competition which invited students to propose experiments for flight aboard the Space Shuttle]. How did you first come to work for NASA?

LADWIG: When I got out of the Army in 1974, I came to Washington, DC to be the president of a group called the Forum for the Advancement of Students in Science and Technology. At that time, a group that I worked with in college called the Committee for the Future had moved to DC. I had tried to get my old job that I had in college with the committee, but they weren't in a position to pay anybody. They had this mansion in Rock Creek Park [Washington, DC]. You

could live there, room and board and $25 a week, which wasn't all that attractive to me at that point in my life.

I stumbled on this group called the Forum for the Advancement of Students in Science and Technology, FASST. They hired me to be their president, so I started working for them for five years between '75 and '80. During that time, FASST was an organization that promoted college student participation in aerospace, energy, and biomedical technologies. We tried to find ways to get students directly involved in those. We had conferences at the White House, we had conferences sponsored by government agencies. We did a big project for NASA on solar power satellites, seeing what students thought of that.

We were doing fairly well, and in that period we met a guy named Dr. Glenn [P.] Wilson [Jr.], who was on the Senate aerospace committee [Committee on Aeronautical and Space Sciences]. He was also one of the primary individuals who helped write the [1958 National Aeronautics and] Space Act for NASA. He took a shine to our organization, and we got along with him very well. We were promoting an idea at the time to put college student experiments on the Space Shuttle. This is back in the mid '70s, so the Shuttle isn't built yet, they're still talking about how it's going to go. The last thing people at NASA wanted was a bunch of young people like us running around the halls trying to push them to create a student program. They just wanted to get it built.

We didn't get a lot of sympathy from NASA or a lot of cooperation at that time, but Glenn Wilson thought it was a great idea. He arranged to have myself, Leonard David, who worked at FASST—Leonard David is one of my longtime friends who today is still a very great aerospace reporter for *SpaceNews* [publication]—and a student named Rex [W.] Ridenoure, who had been a Viking student winner when they put student experiments on Viking.

We got to testify on the Senate committee before Senator Adlai [E.] Stevenson [III], Senator Harrison [H. "Jack"] Schmitt, I forget who else was there. We were promoting this concept. They were receptive, they thought it'd be a good idea, but again the Shuttle is not built yet so "go back and be patient."

Wilson, in the meantime, left the Senate and came to NASA [in 1978] to head up an education division. He came to a party I had one night, pulled me aside, and said, "I would like you to come to NASA. We're going to do this student program, but it's probably going to be done for high school students." I said, "Okay," because FASST, the student organization, at that time was starting to peter out. We had funding issues. It was a struggle to keep the doors open, and after five years I was like, "Enough is enough."

Glenn then worked to get me into NASA, and this was in January of 1981. He tracked me down on the day before the inauguration of [President] Ronald [W.] Reagan, because Reagan had said the first thing he was going to do was sign a hiring freeze. I was out doing goodness knows what, and he actually tracked me down through my ex-wife who I seldom spoke to. I had talked to her the day before, so she happened to know where I was. Dr. Wilson found me and he said, "Get over to NASA Headquarters right away, we've got to get you sworn in."

I got over here, and a guy named Charlie Carter had hand-carried the paperwork through the personnel offices. Sarah [G.] Keegan was in personnel at the time, then later in public affairs where I worked with her again. At 3:00 or 4:00 in the afternoon, Sarah swore me in as a temporary employee. That's all they could do at that time to get through the process quickly. So I came in as a temporary employee and the next day Reagan takes the oath of office, goes in the Capitol building, and signed a hiring freeze. I always felt there was a certain magic about that moment, that things just aligned. Had I been a day late, who knows where I'd be?

The Committee for the Future, by the way, was interesting. I met them when I was in college, and they were one of the first public advocacy groups for space. This was in 1969, '70. I went out to visit a couple of college friends in New York City and their father, Colonel John [J.] Whiteside, was the head of the Air Force's public affairs office in New York City. He picked me up at the airport. It was a blizzard, and this little guy—Russian hat on, little beady eyes poking out of a fur coat—the first words out of his mouth to me were, "Hi, we're going to new worlds." I said, "Okay."

He and a woman named Barbara Marx Hubbard were starting this Committee for the Future, and they wanted me to be their student leader. We had national conferences at Southern Illinois University [Carbondale] where I went to school, so I worked for them for a couple years. Then I got drafted [into the U.S. Army], was away for two years, and then when I tried to rehook up with them I ended up with FASST. FASST leads to NASA, set up the Shuttle Student Involvement Project.

Luckily there was a new Associate Administrator [for the Space Shuttle Program] at the time, General James [A.] Abrahamson had just come in. When he did his tour of the Centers, he met the education people down at [NASA] Marshall [Space Flight Center, Huntsville, Alabama] who told him about the Shuttle Student Involvement Project. He immediately locked on to it. He thought that was a great idea. He said, "How do I find out more about this?" John Taylor, the Marshall person said, "When you get back to Headquarters find Alan Ladwig."

I want to set a context here. This is in 1981. I'm a temporary employee, I'm a GS [General Schedule (civil service level)]-7. Maybe young people feel this way today, but back then an Associate Administrator was a pretty big deal to me. I thought that was really special.

Wilson is gone that day. I walk by his office, and I see this man standing by his desk looking around, so I popped in. I said, "Can I help you?"

He said, "Yes, I'm looking for Alan Ladwig."

I said, "I'm Alan Ladwig."

He said, "I'm General Abrahamson." I almost gasped because I thought, "General Abrahamson coming to see me?" He and I sat down and I told him about the vision we had for the Shuttle Student Involvement Project.

He said, "What can I do to help?" When Wilson came back, they got together and again he said, "What can I do to help?"

He said, "Ladwig needs a permanent position. He's only temporary." I think it was a three-month deal. "We've got to get him in here somehow."

Abrahamson said, "Okay, we'll transfer him into the Office of Space Flight." That's what they did, they transferred me over. I was working on the project there in collaboration with the education division, certainly with Glenn Wilson. General Abrahamson was so supportive that when we selected the first student winners—there were 10 winners that first year, I guess we announced it probably April or June of '81. Abrahamson says, "I want one on the first Shuttle flight."

At that time JSC didn't want anything to do with this program. They were focused on getting the Shuttle flying for the first time. In fact, when we sent the 10 winning proposals down to them, the note that came back—I think it's in the history file somewhere—said, "You don't expect to fly these things, do you?" We replied, "Yes, that's what it's all about."

Then Abrahamson said, "Okay, get me one on STS-3." That's what we focused on. We picked Todd [E.] Nelson's moth, fly, and bee experiment. It was in a see-through plastic locket

in the middeck. We had to get corporate sponsors to help pay to turn the winning proposals into flight-ready experiments. That was a big deal, little that I knew at the time.

Years later I once noted that had I known in the beginning how hard it would be to get an experiment approved for flight, I'm not sure I would have persisted. There was an advantage to being naïve. I didn't know about safety reviews and the process they go through to put something on the Shuttle. It was going to cost money to do this. The Office of Spaceflight didn't have the money to do it; education didn't have the money. We came up with this notion, "We'll go out and find corporate sponsors."

We asked industry representatives if they would be willing to help a student. Not only pay for the development of the experiment, but also to mentor that student, pay for related travel, and turn that proposal into a flight-ready experiment. Then we also picked a NASA scientist or engineer to work with them. So we had a great combo [combination] of the student, his or her teacher, the corporate sponsor, and a NASA sponsor. That made all the difference in the world to get things done, because the corporations were like me. They didn't necessarily know—at least the people I was working with didn't know—what it took. I worked with public affairs people. They didn't know anything more than I did about the process.

We worked really well together. They had a very lengthy paperwork process for safety. I went to General Abrahamson and I said, "Look, this is an experiment with some insects for God's sakes. We shouldn't have to do this." He said, "You're right." So we were able to reduce the necessary forms. If memory serves me, we were able to reduce the form to four pages.

Honeywell [Inc.] worked with Todd Nelson from Minnesota, Rose Creek, to prepare the experiment. He flew his experiment on STS-3, and we actually got the astronauts to pull it out and take a picture. The result of that experiment was that after a few days in space the moths and

flies adapted, but the bees kind of spun around a lot. The complaint at the time was this was taking away space from a professional scientist. Our response was that "Hey, it's a middeck locker, just ease up. This is a good way to get students interested in science." Todd Nelson was on top of the world. He was on all the morning [TV] talk shows, [*The*] *Today Show*, CBS [TV network], all the shows back then. He became a mini-celebrity, and it was neat in a way because here a science kid is getting as much attention as an athlete.

After he completed his experiment, he turned in his report [Experiment Results: Insect Flight Observation at Zero Gravity, NASA-CR-173028 (1983)]. Then he called me up one day and he said, "When do I get to go again?"

I said, "Sorry, this was a one-time-only opportunity." He was really crushed because he became so notorious with this thing. He really enjoyed that attention. He even ended up being recruited by different colleges. I want to say he went somewhere in Texas [University of Houston], but they actually held a press conference the day they signed him up. This was pretty cool stuff. Over the years I have tried to track down the 10 original SSIP winners to see where they are today. I've only been really successful with one of them, Dan [Daniel J.] Weber, who now has kids older than he was when he did the program, but I stay in touch with him. Another one of the students ended up being a history intern here at Headquarters. That was neat.

Eventually, I think all but one or two of those 10 experiments actually flew. One of them needed two simultaneous Shuttle launches, so I never understood how the judges selected him to begin with. But, overall, SSIP was a successful program, and I was in charge of it until 1983. I then became General Abrahamson's executive officer until he was tapped by President Reagan to go to the Pentagon to run the Star Wars program, the Strategic Defense Initiative. Abrahamson asked me if I wanted to go with him. Even though I'd been in the Army, I thought

the notion of me at the Pentagon and my challenges with authority probably wasn't going to work real well.

So I said, "If it's all the same to you, I'm going to stay here."

He said, "What would you like to do?"

At that time, they were just developing the notion of what they then called the Citizen in Space program [later the Space Flight Participant Program]. I said, "I'd like to manage that program."

He said, "Okay," and made the assignment. He had Jess [Jesse W.] Moore, who was his replacement, make the arrangement, so I got to be the head of that program from the very beginning. Nat [Nathaniel B.] Cohen had done the initial legwork. He was working with the NASA Advisory Council [NAC], and they had set up a special task force to take a look and see if it made sense to fly a civilian on the Shuttle. They looked at things like safety, for what purpose, and a whole list of things. They had a really good task force. It was led by one of the NAC members, Dan [Daniel J.] Fink. They went out to all the Centers, they interviewed a lot of people and had the public submit letters. They turned in their report in [June] '83 that said, "Yes, we think it's okay to fly a civilian."

By the way, this task force was done because Jim [James M.] Beggs, the [NASA] Administrator, got tired of getting calls and letters from self-proclaimed VIPs [very important people] that thought they should get to fly on the Shuttle. There had been articles in *Parade* magazine, *Omni* [science fiction] magazine or others. NASA has a list. [Actors] Jane Fonda and Robert Redford were on the list. I'd have to go back and look up, but there were celebrity-types on the list.

One day Mr. Beggs declared, "We're without a procedure to deal with this," and he didn't want to deal with it anymore. He gave it to the Advisory Council, and they set up the task force. The task force came back, said, "Yes, we think it's probably okay to do. But it has to be done with a purpose." That purpose was communication. They developed three categories. They said a broadcast communicator, a written communicator, or an educator communicator. Of course those of us from the education background—my Master's was in higher ed [education]—we were elated that an educator had made the list.

We assumed that a journalist would go first, just because journalists always thought they would go first. This dates back into the mid-'70s where NASA looked at flying non-astronauts a couple different times. There were studies back then on it, they called it the "Unique Personality program. They looked at different categories of people to fly.

Ultimately, the Naugle task force led to an internal NASA committee that was led by Ann [P.] Bradley, who at the time was the number three person, Associate Deputy Administrator. Other associate administrators were also on the committee. The membership included the heads of the Office of Spaceflight, Chief Scientist, Chief Engineer, and External Affairs. They got together to review the three recommended categories. There was a lot of thought that went into this, because you pick one category, the other two categories are going to be ticked off.

I was the executive secretary of that group. I don't recall that I had a vote, because I was a GS-12 or something by then. They gave it a lot of thought, and they ultimately decided the first opportunity ought to go to an educator. We thought that was great, because at the time educators had a bad rap [reputation] going. They didn't get the credit we thought they deserved. I saw this with the Shuttle Student Involvement Project. It was the teachers that got the student

to the finish line, and then too often the teacher was forgotten. Todd Nelson got all the publicity, and we had to fight to get the teacher any recognition.

We liked this idea that an educator would get to go. Then it was like, "Well, what kind of educator?" That group decided we need an external organization to manage the program much like the National Science Teachers Association [NSTA] had managed the Viking [Mars probes launched in 1975] student program and the Shuttle Student Involvement Program.

That was an important point. That was the other piece of the Shuttle Student Involvement Program. It was managed and run by the NSTA. We could not have done it without them, because they went out and got volunteers to read all these student proposals and winnowed it down. We had a selection committee that picked the final 10.

JOHNSON: How many actual entries did you have for those proposals?

LADWIG: It was in the thousands, then over time it got to be even better because the word got out. I think we probably ended up flying over 40-something experiments over time, but it was always a struggle. These kids came in when they were 14; I remember one kid was in college when he finally got to fly. JSC never made it easy for us, it was always something.

With the Teacher program we had a decision memo for the Administrator. Ann Bradley penned it, and it laid out the rationale for flying a teacher. At the end it said, "For approval." There was a line for Beggs to sign. We sent it in to him in March. We didn't hear anything and didn't hear anything. We're starting to get nervous, "Maybe he's changed his mind, doesn't want to do this."

On June 21, 1984, he approved the decision memo. Underneath his signature he wrote, "Longest day of the year." For years I thought, "Oh, the poor man. This was such a hard decision for him. This was really a long day for him." I told this story to someone. They said, "No, you idiot, that is the longest day of the year [summer solstice]." I've had a good laugh on that one many times.

Then the political appointees of Reagan got involved. They decided, "Oh, the president should announce this." Here at Headquarters, we thought any other category of people that flew—be it the science astronaut back in the Apollo era [Harrison Schmitt], the mission specialists in the early '70s, corporate payload specialists—that was all announced by NASA officials. Political appointees—and I don't want to speak ill of them because I became one—always looking for a way to get exposure with the White House.

The appointees convinced the White House that the president should make the announcement. Remember, by this time there's another election going on, Reagan and [opponent Walter F.] Mondale. President Reagan made the announcement on August 27, 1984, at Jefferson Junior High School, Washington, DC. Reagan stood up and said, "The first civilian to fly on the Shuttle is going to be one of America's finest, a teacher."

Then we had a press conference here at Headquarters that Mr. Beggs led. I was on the panel, along with Ann Bradley, and we announced how we were going implement the program. We had selected the Council of Chief State School Officers [CCSSO], an organization of the superintendents of education of all the states. We needed them to, number one, to give us a little bit of distance from the process that let them develop the criteria, because this thing was going to be fraught with people complaining.

They came up with the notion that you had to have five years of teaching experience, no administrators, full-time teachers at the elementary or secondary level. Of course, immediately we started hearing from administrators that were pissed off that they didn't get to apply. I think in either Oklahoma or Kansas some administrator threatened to go to court to block the program. It was just absurd. Part-time teachers were ticked off because they didn't get to go, teachers that had only taught four years were ticked off they didn't get to go. But we got through all that.

We came up with this in collaboration with the CCSSO, and we developed a 12-14-page application. We wanted some self-selection going, because we knew this was going to be a big deal. So, how do you start to narrow the pool and yet get good people from the beginning? The length of the application was step number one. Again, had we not had the council, we'd have never been able to do this. We wouldn't be able to afford it—just all the volunteer help that they got that read those applications.

There were more than 40,000 requests for applications at the beginning, and 11,400 teachers actually submitted it. They're out there, then you have to come down to two winners per state. A videotape of the teacher being interviewed was part of the entry process. So the evaluators had to watch all these videotapes, but God bless them. They did a wonderful job and came up with two winners per state and the District of Columbia, Puerto Rico, Department of Defense schools, Bureau of Indian Affairs. We ended up with [114] finalists, two per state.

Oh, and by the way, as I said the election was going on. Immediately, there was criticism over the selection of a teacher. The NEA, National Education Association, was supporting Mondale, and felt this was a ploy by Reagan to get the teacher vote. "This was a publicity stunt, and there was nothing good going to come out of this." Thankfully, some journalists thought it

was wonderful. I'll always remember an op-ed [opinion-editorial] by Joseph Kraft that was very meaningful to me, because he really got it.

The next day I went down to [NASA] Kennedy [Space Center (KSC)] because there was a launch going on, and we had a press conference to talk about the selection of a teacher. NBC reporter, Jay Barbree got up and complained, "I think this is horrible, this is an insult to journalists. We were on the beaches [Florida launch sites] in the '60s, sleeping in tents, and this was stolen from us." I've never liked Jay Barbree ever since then. My response was, "Well, teachers must be doing something good, because look at all the great journalists in the room." Then he shut up.

We went through the process, we got the [114]. They all came to DC for a national conference. We held it at the L'Enfant Plaza Hotel [Washington, DC] and we gave them briefings on all of NASA's programs. We didn't want this to be just a beauty contest. We wanted to get something out of this, and we wanted the teachers to get something out of it. Even if they didn't win, they'd go back home a winner. Again, this was in the Office of Space Flight, but we picked a teacher, so there was a lot of collaboration with Dr. Robert [W.] Brown, Frank [C.] Owens of the Educational Affairs Division. "What are we going to do? How do we make this work?"

We had all these briefings for them, we had astronauts come up and talk about the risk involved. Dick [Francis R.] Scobee was one of the people that came up, Judy [Judith A.] Resnik and Michael [J.] Smith also came up and spoke to them. Scobee was pretty straight about it. "This isn't something to screw around with, this is serious stuff." One of the finalists later was quoted in a book saying, "Yes, they talked about safety, but that was like reading the safety

instructions on a bottle of oven cleaner." I thought, "Boy, am I glad you didn't make it to the top 10."

[The main focus of the week was the judging process to narrow the 114 state winners down to 10 finalists. For this task, Terri Adams of CCSSO established a diverse National Review Panel that included: former Apollo astronauts, Gene Cernan, Ed Gibson, Harrison Schmitt, and Deke Slayton; academic representatives, Dr. Richard Berendzen of American University, Dr. Virginia Smith of Vassar College, former Senator, now President of Duke University, Terry Stanford, Phyllis Curtin, Dean of Fine Arts and Music at Boston University, Dr. Sidney Marland, former U. S. Commissioner of Education, Dr. Anne Campbell, Vice President, National Parents Teachers Association, Hortnese Canady, President Delta Sigma Theata, and Leroy Hay, 1983 Teacher of the Year.

The business community was represented by Dr. Dennis Carey of The Hay Group, Ralph Caulo, Executive Vice President, Harcourt, Brace, Jovanovich, and Dolores Wharton, President of the Fund for Corporate Initiatives; professionals from the science and engineering research community, including former NASA engineer, Dr. Konrad Dannenberg, Estaban Sorian from Lawrence Berkeley Laboratory, and Dr. Robert Jarvik of the artificial heart fame; and from the celebrity community, former Washington Bullet's player Wes Unseld and actress Pam Dawber of the Mork and Mindy TV show. The latter two were included to help assess how the selected teacher might handle celebrity status.]

I was really impressed with the group of people we came up—they did a great job. They interviewed all the teachers and recommended the final list of 10. The NASA committee had to approve that list, and they did, then the education folks and I got together. At the national conference, Mr. Beggs appointed all the teachers as Space Ambassadors to further expand

NASA's educational message. Many of them ended up being the representatives of their state to the Aerospace States Association, which was an organization from all the states. They weren't all involved; maybe 31 states or so were members. Usually it was the lieutenant governor that represented their state on ASA, but in many cases the winning teacher ended up that assignment.

Then NASA decided that they would hire all 10 finalists to work at NASA Centers. I took them to each of the human spaceflight Centers—JSC, KSC, Marshall—to give them a tour. So they had that experience going for them, which by the way is the same thing we did for the student winners of the SSIP; we took the students to KSC so they could see things.

The tour of the Centers also gave me a chance to observe them unofficially. Again, I didn't have a vote, but the NASA committee wanted to know what did I see, what did I think. That group of 10 got along together famously, they just instantly clicked. We had a birthday party for Christa McAuliffe at my house, and everybody got along really, really well.

Then the day comes to announce the winner [July 19, 1985], and Ann Bradley brought the 10 into her office. The White House didn't want us telling them in advance who won. Since Reagan had made the original announcement, they wanted to bring it back to the White House to make the announcement of the winner. Reagan was in the hospital at the time undergoing an operation. So, we met with the Vice President [George H.W. Bush] in the Roosevelt Room [West Wing, White House].

The 10 teachers united and said to Ann Bradley, "We don't want to go over there and not know who the winner is. It'll feel too much like a beauty contest in that we'll be put on the spot. They'll look at our reactions, and we want to be supportive."

Ann said, "Okay." She announced Christa was the winner, and Barbara [R.] Morgan was the backup. Hugs, kisses all around, tears. We go over to the White House, go into the

Roosevelt Room. The 10 lined up and it just so happened that Christa ended up standing next to the Vice President. It was just happenstance.

He announced, "And the winner is Christa McAuliffe." He then looks to his left and says, "Oh, it's you." She gave this lovely response. To this day, I get a little choked up when I see her telling the story about how she would be one teacher but she would be going with nine other souls. She was in tears. It couldn't have been more genuine had we planned it, but it was spontaneous.

Despite the spontaneity, a female staffer from the White House came and grabbed me. "You could tell they knew. They knew, you told them. You've embarrassed the Vice President of the United States!"

I go, "Well, what can I say? We told them."

"Listen, buster, this is Ronald Reagan's program, and you had no right."

I said, "Excuse me?" She's berating me. So I said, "Let me have you talk to my boss, Ann Bradely. Ann, in turn, referred the irate staffer over to Mr. Beggs, to whom she started ranting again.

He said, "Well, if the vice president has any problems with it have him call me." I thought, "God bless Jim Beggs," because he didn't back down on it. That was a funny moment.

It was a little irritating that we couldn't get the White House to allow the spouses of the teachers to come along. It was like "No, no, only the 10." Then we needed to get back to Headquarters right away. We had a station wagon waiting out front, and we all piled into the car to drive away from the White House. Running after us was a journalist from the *Concord Monitor* [New Hampshire newspaper]. Christa said, "Oh, can we please let him come along?"

So he jumped in the car and got the immediate story. It was probably not the right thing to do, but it was her moment and I wasn't going to say no to anything.

From that moment, the program shifted from the Office of Space Flight to Education. They worked with Christa on her lesson plan. Thankfully to George [W. S.] Abbey [director of the Flight Crew Operations at JSC] and Dr. Carolyn [L.] Huntoon [Deputy Center Director] approved Barbara going through the same training that Christa did. That was unusual, because at that time, when corporate payload specialists went through the program, the backups didn't get to go through the full training; they only got to go through bits and pieces. Barbara got to do the KC-135 [reduced-gravity aircraft], she got to go to the classes, she got the same experience that Christa did. Meanwhile, the other eight were hired to work for NASA for a year.

JOHNSON: I know you met a lot of them, and then it got narrowed down to that 10. Were you surprised at the ones that were chosen, and then ultimately when Christa and Barb were chosen?

LADWIG: I wasn't at all surprised by Christa and Barb. To me they really stood out of the 10. There were some other good ones in the 10, and I think there were some other good ones that didn't make the 10. I'm still in touch with these people, a lot of them on Facebook, on Twitter [social media]—we've had reunions.

There was a reunion last year for the 30th anniversary of the [Space Shuttle *Challenger* STS-51L] explosion. We must have had 60 of the teachers show up. Some have died, some we can't find, but that group has kept in touch for over 30 years. They were committed and they are still. I would say 80 percent of them are still committed to the NASA mission and to the Teacher

in Space program. We did bring them back to Barbara's flight when she finally got to fly [STS-118 in August 2007]. That was neat. We had a good turnout for that as well.

To me, I wasn't surprised about Christa. We got a little criticism from some people that she wasn't a science teacher. She was a social science teacher and Barbara was an elementary teacher. "What could she possibly know?" But they both came through like champs. They were accepted by the crew.

By the way, I think it helped a lot that Dick Scobee's wife, Dr. June Scobee—now June Scobee Rodgers—was what they called a master teacher. I never quite understood what that meant, a really good teacher I guess. She was very supportive, and I think put the bug in Dick's ear to "let's make sure this works." We were always very thankful for that. The crew couldn't have been nicer to work with. That hadn't been my experience necessarily with all the student experiments, because the crew, "Oh, we got to do this for this kid." I won't generalize, but there were certain flights where they just wouldn't do it.

I had another program going on simultaneously called the nonscientific science payload program. Up to that point, you could only fly scientific things on the Shuttle. Then there was this concept "What if we flew some nonscientific things?" Again, broaden the interest of people. We put a call out and we got some interesting replies. Doug [Douglas J.] Henning, the magician, submitted some ideas. He was going to do these magic tricks from Earth on the Shuttle. David Letterman, from his [late-night TV talk] show, sent in some things. He wanted to put on a decal of a fake gas tank that showed "Empty," he wanted to put something on one of the windows that showed an alien looking in, some silly stuff.

But we also had an artist named [Dr.] Lowry Burgess. At that time he was at [Massachusetts College of Art] in Boston, today he's at Carnegie Mellon University [Pittsburgh,

Pennsylvania]. He had a concept for a work of art called "The Boundless Cubic Lunar Aperture." It was a five-inch cube that contained a hologram of nothing, including water from eight sacred rivers of the world that he distilled on a solar cooker in the Grand Canyon [Arizona]. When this came back it was [placed in its own magnetic field in a 400-million-year-old rock outcrop beside Sandy Pond in Lincoln, Massachusetts]. It was very esoteric. If Lowry explained it to you, it made perfect sense. But it was out there.

All we wanted to do was fly this cube in a middeck locker, have the astronauts take it out, let it float, take a picture, put it back. They wouldn't do it. They were embarrassed by the whole thing, they thought they'd have to explain it. They couldn't explain it. We never got a picture of the frigging cube, but that was the first. That program was eventually abolished, and there has been art and things flown since then, but that was the very first one. That was another side job I had.

While the teacher thing is going on, the NASA committee decided, "What about the second opportunity?" The second opportunity was decided for a journalist. Both broadcast and written journalists applied, so we didn't go with the task force committee only selecting one or the other. For that we picked the Association of Schools of Journalism and Mass Communications. They were headquartered in [Columbia] South Carolina. They helped develop the criteria, because again we didn't want to touch that one. That was a losing situation.

They made the criteria for what kind of journalist you had to be. We ended up with 1,700 applications. I forget how many requested the application, but the journalist was going to be a much different deal than the teacher, because the journalists were journalists. It was like "Well, we're not coming to any kind of NASA briefing, or some conference. We're going to be

independent when we're on board, we're not going to report to the commander." We're like, "Oh yes, you are."

We got through it, but it was ticklish because a journalist is a different profession entirely than a teacher. The teachers would do anything. They loved the recognition for their profession, they loved NASA. Journalists were a little more skeptical. We narrowed the list to 40 semifinalists.

I was not at Kennedy the day of the *Challenger* accident. I was there for a conference with all the teachers, all the winners. However with the [launch] delays I had to get back to a meeting on the Journalist in Space program. So I was here at Headquarters for that. Of course after the accident nobody wanted to talk about a journalist in space. That got shoved to the side. We would get letters every now and then, phone calls from the journalists, especially the ones on the list, that said, "Hey, what's happening?"

But it wasn't going to happen, it was clear that things had changed. Every subsequent Administrator until Dan [Daniel S.] Goldin kept kicking that can down the road. Even NEA, which had started out as a critic of the Teacher in Space program, became one of its greatest advocates. They would write to NASA Administrator, NASA education, "When are you going to fly Barbara Morgan as the backup?" Nobody was willing to touch that one. Richard [H. "Dick"] Truly, on his last day as Administrator said, "Yes, I think we should probably fly the teacher." Dan Goldin was very upset, because it was like "What, he could have made the decision. Now he's going to put it on me."

It languished for several years until John [H.] Glenn's [1998] flight [STS-95]. John Glenn, former hero of NASA, astronaut, wanted to fly on the Shuttle. He's in his 70s, hadn't been in a space environment for 35 years, but he was a Marine. The Deputy Administrator,

General [John R. "Jack"] Dailey, was a Marine, and the chief of staff, Mike [Michael I.] Mott, was a Marine. So guess what, a Marine was going to fly on the Shuttle, because he "deserved it."

At that time I was back [at NASA]. I had left NASA in 1990 because I just got burned out. I came back as a political appointee under [President William J. "Bill"] Clinton [in 1994]. I was in a meeting where they were going to discuss "Should they fly John Glenn?" My problem with it was not that he wasn't a wonderful hero and that people loved him, but I didn't like it when they said he "deserved" it. How do you determine who deserves to fly on the Shuttle? I thought that was opening a huge hole, because then were all the Apollo astronauts going to come and say, "Hey, I deserve to fly"? Certainly I always expected Buzz Aldrin would be on the phone. Others might.

Then they said, "Well, we're going to do this for medical reasons." They came up with that cockamamie one-off medical experiment. In that meeting it was Goldin; Fred [Frederick D.] Gregory, who was the [Associate Administrator for the Office of Safety and Mission Assurance] at the time; George Abbey; Mike Mott; General Dailey; and I forget who else was in the room.

They said, "Okay, we're going to allow John Glenn to fly."

I said, "What about Barbara Morgan?"

They said, "What's this got to do with Barb Morgan?"

I said, "Well, you're flying a non-astronaut."

"He's an astronaut."

I said, "He hasn't been an astronaut for 30 years. People are going to ask."

They hemmed and they hawed. Fred Gregory, God bless him, came up with the perfect solution. If people were nervous about flying a civilian again, let's make Barbara Morgan an

astronaut. So boom, that's how she then joined an astronaut class. Barbara had to go through all the astronaut training, waited her turn, eventually got her flight, and flew. I felt vindicated.

JOHNSON: Probably the most patient astronaut we've ever had.

LADWIG: Yes. Let me just step back for a minute. After the accident, certainly the Journalist in Space program was put on hold. I didn't have a job, so now what? Sally [K.] Ride had come to Dr. [James C. "Jim"] Fletcher, who was the head at the time, and said she wanted to do something to help get NASA back on track. "How do we recover from this accident?"

That's when they came up with the notion of this long-range planning study she did that became known as the Ride Report ["NASA Leadership and America's Future in Space: A Report to the Administrator" (1987)]. I became affiliated with the study because of Dr. Carolyn Huntoon—who I had met through the Shuttle Student Involvement Program when she was the head of [Space and] Life Sciences [at JSC]. She helped us with a couple of the students from that first year that did food-related experiments, and we became great friends.

Sally didn't know Headquarters, she had been an astronaut down at JSC. Carolyn felt that Sally was going to need somebody to run interference for her at Headquarters, and take care of all the administrative crap that Sally wouldn't want to do and help her out that way. Carolyn arranged for Sally and me to meet. I had known of Sally, but I had never met her before. In fact, initially, as I said at one of her memorial services, I really didn't like Sally Ride at first, because I had been told that on her flight [STS-7] she had specifically said she didn't want to fly any student experiments. I thought, "What's that all about?"

After we met, I said to her, "What did you have against student experiments?" Because she seemed like somebody who's really for young people, interested in education.

She said, "I have no idea what you're talking about."

I said, "I was told that you specifically didn't want student experiments on your flight."

She said, "Absolutely not true. I never knew anything about it." We backtracked later and found out sometimes if people in the [flight] integration office didn't want to do something, they'd blame it on an astronaut, because who's going to argue with an astronaut?

With that behind us, we became great pals. We worked together on her long-range study. Four different groups were formed: one on a human mission to Mars, mission to the Moon, mission to a comet with a penetrator, and Earth science. That's where the title for Mission to Planet Earth [Earth-observing satellites] came from.

One of Sally's the great things that she did, I thought, was to involve young people in that effort. Up to that time, all the commissions and studies that had been done at NASA were always full of older middle-aged white males. She thought, "We're going to keep getting the same answers, because we keep going to the same people."

She called it the Task Group 1A. I can't for the life of me remember what that referred to; I think she just pulled it out of the air. She went to the directors of every Center and said, "Give me one of your best people to be on this committee." Each one stepped up, gave us a rep [representative] from each Center. They met on their own, kicking around ideas.

This is at the beginning of email. None of the other people were doing email, but these kids, they networked. They were in touch with each other all the time, their emails. That's how I learned email, watching them. It was really neat to see them get involved and get enthused and get some young perspective.

By the way, a lot of those young people ended up in senior NASA positions here later. Brian [K.] Muirhead out at [NASA] JPL [Jet Propulsion Laboratory, Pasadena, California], John [F.] Muratore down at JSC. Nancy E. Swila from [NASA] Langley [Research Center, Hampton, Virginia] who—I don't think became Center Director, but Deputy Center Director. They were really standout young people.

At the end we come up with a report. I helped do some of the writing and editing. Sally did a lot of the writing. We had an SAIC [Science Applications International Corporation] contractor named Terri Ramlose who worked with me on editing and writing the report. When it was completed, she [Sally] didn't want to recommend any one of the four initiatives. She made a case for each of the four, and then felt it was up to the senior management to make that decision.

For the report, normally you would do a press conference. She said, "I'm not doing a press conference."

I go, "Sally, you have to do a press conference, we have to talk about this."

"No, I don't, I'm not going to." She ended up calling Craig Covault from *Aviation Week* [*& Space Technology* weekly magazine] and pretty much gave him the story. "Here's what we did, here's what we're recommending, have a nice day." All the other journalists got really pissed off. To her credit, she said, "I don't want this to be about me, because it'll invariably be about well, would you ever fly in the Shuttle again, would you train again, would you do this, would you do that." Instead, she resigned from NASA after the report came out.

One of the recommendations was to establish an Office of Space Exploration. My next job became setting that office up, and I became the Director of Special Projects. I did that until 1990, and then I got burned out. We're talking about going to Moon and Mars, and there's no

money, and it's all bullshit. I just couldn't go out and give that speech anymore. I would go out and give a lot of speeches and get everybody revved up. "We're going to Mars." I was like, "Hmm, probably not." So I left.

I initially was going to write a book—of which I've written quite a bit, but all these years later it still is just sitting there—called *See You in Orbit?* It's a question mark at the end of that. I was going to tell the story of the dream people have to fly in space. It was a two-level story. There was "Here's what was happening historically about what we thought of spaceflight and our dream to fly in space." I went back to the letters people wrote to Robert [H.] Goddard in the '30s saying, "I want to volunteer to fly in your rocket to the Moon." They're just precious, perfect letters.

Then in the '50s when [Wernher] von Braun spoke at the Hayden Planetarium [New York City, New York]. They did a program and Hayden put out a form, "Interplanetary tour, sign up! Where do you want to go? Jupiter, Mars, Saturn, the Moon. Expected departure 1975." That thing went viral, viral at the time. They got 22,000 applications from people around the world that wanted to sign up for that, and people got little cards that certified they were signed up for this flight.

Then Pan Am [Pan American World Airways] comes in the late '60s with the First Moon Flights Club. They get 90,000 people signed up for the Moon Flights Club, and they get cards. People used to send me those cards, copies of them, from Hayden and from Pan Am for the Space Flight Participant Program [Teacher and Journalist in Space projects]. "Can I turn in my card now?" It was great. That was that one level there.

The other level was "Well, here's what's really happening." It started off with Christa on the launchpad, the explosion. The question is how did we get from test pilots to a teacher in

space? Then it goes back and tells—the Mercury Program and only pilots, and then science astronauts, and African American astronauts, and mission [specialists]. I went through that history, even telling some of the stories from Gemini and Apollo of near catastrophes.

But then, at the same time, "We're going to live in space," [according to] the stories being told in the general public. Then it was going to end with looking to the future. At that time the [Ansari] X Prize [for Suborbital Spaceflight] was just starting. That's how I was going to end it.

I couldn't get a publisher at the time. When I finally did get a publisher, I had a job, I couldn't work on it anymore. I keep thinking maybe now that I'm retired I'll try to salvage it somehow. I've used it a lot in speeches, I've used it for other things. I still may tell it, because it's an interesting story. If you lay down the letters that Robert Goddard got, next to the Hayden Planetarium letters, next to Pan Am letters, next to the letters I got for the Space Flight Participant Program, you could not tell the date they were written. If I covered up the date you wouldn't know. The dream is the same, has been the same forever.

(Since the time of this interview, I have finished the book with the title, *See You in Orbit: The Long and Winding Road to Private Citizen Spaceflight.* It will be published through a Print on Demand company. I hope to have it on the street in time for the 50th Anniversary of Apollo and/or the first commercial suborbital flight of Richard Branson.)

JOHNSON: I was reading something when I was doing the research. You had mentioned that even the teachers that had been selected for that group of 10—when the explosion happened they were contacting NASA saying, "I still want to fly." I think that dream, like you said, is there in these people.

LADWIG: Yes. I left, then I needed to make money, so I worked for SAIC for a few years as a contractor. That was interesting because here I had been at NASA, a civil servant, then I'm a contractor. Those are different worlds, as you may know, altogether. The way you're treated, the way you're looked at. I hope that's not the case for you guys with history. But who knows?

JOHNSON: I think it's universal.

LADWIG: Then Sally comes knocking at my door again. When Clinton won the election, she became head of the Science, Technology, and Space cluster for the transition team. She called me up and said, "Do you think SAIC would lend you to me? I'd like you to be my assistant on this transition."

I said, "Absolutely." SAIC was thrilled to let me do that. I worked with her for the next several months on that effort. Then that allowed me to throw my hat in the ring for a political appointment. It took until October after Clinton was sworn in—so that would have been in October of '93 when I finally returned to NASA. It was a gruesome personnel process to go through. I kept a list of all the calls and times I sent packages in. It was three pages long, but I finally got in.

I worked directly for Mr. Goldin, and he decided he wanted to reestablish the Office of Policy and Plans, which had not been in existence for a number of years. In setting that up I really utilized the history archives [NASA Headquarters Historical Reference Collection]. I came downstairs and they helped me. We went through all the previous Policy and Plans files; we saw how it was set up. I'll have to look it up somewhere, but it seemed to me at the time that

in the 25-year history of NASA the policy function had been reorganized 18 times. It was just ridiculous.

We tried to learn "Okay, well, why didn't it last? What was the flaw?" We went and we talked to the former people that were heads of those offices. We came up with this idea for a new Policy and Plans Office with an Associate Administrator leading it. Goldin then put me in charge of that office.

It worked pretty well. That office lasted until 2000 when [President George W.] Bush came in, so it lasted to the end of Clinton's tenure. I thought we did a lot of good things. We developed the first strategic plan under the Government Performance and Results Act [GPRA, Public Law 103–62]. We developed the Strategic Management System, we had booklets made. We were the main conduit to respond to the Government Performance and Results Act to make sure we did all those things.

The first strategic plan we got done, and it was not an easy effort. You had to get the approval of all the program offices, all the Centers. Everybody wanted to write their own section, but there was no continuity to it. We put our best foot forward and said, "Look, we're going to take your input but we're writing this thing." General Dailey wouldn't let us use any photographs or color. I said, "Are you kidding me? NASA is a visual agency. We got to have pictures."

"No, no pictures."

When I was at SAIC, one of my tasks with space science was to develop a brochure on each planet. At that time, NASA did not have information on each individual planet. We wanted one of these accordion brochures that listed all the missions that had gone to the planet, which ones were successful, what was planned, information about the planet—all on the front

part. Then you opened it up, and you had the best picture available of the planet, so it'd be a nice little poster for the classroom.

We got Jupiter, Saturn, and I think Mars completed until General Dailey discovered it. He was against the fact that they were all full-color, and the project got canceled. It wasn't till years later, with the introduction of lithographs, that you could actually get a pack of lithographs from the [Office of] Space Science that showed all the planets. What a concept, in color.

JOHNSON: Was it the cost that he was objecting to?

LADWIG: I don't know, maybe it was the cost. It wasn't that much, give me a break. Anyway, we got the first one done, and we got very good reviews on our strategic plan. I think we were in the top five that were rated by whoever rated those things back then. I can't remember if it was that one or the next year—the next year the plan looked very much like the first one, only we got to use blue ink. I don't know, was it that one or even the next one?

One of them, I'll never forget, there was a senior management meeting and there was a debate going on. I didn't feel that our plan had satisfied all the instructions of the GPRA, specifically about goals and budgets. There was no budget in the strategic plan, and the program offices for some reason were reluctant to call out goals. They said, "Well, the purposes are—." I said, "They asked for a goal, we need a goal."

General Dailey said at the time, "Sometimes getting a C-plus is okay. We'll just get a C-plus."

I said, "I never thought I'd be in a meeting of NASA senior managers and be told a C-plus is okay." I said, "This is an outrage." Then I was told to shut up, and that was that. I can't remember—was I still in charge? I think so—when we finally got a strategic plan that was in color and had photos. Nobody paid any attention to it, so it didn't matter. I was very proud of the strategic plan. The Strategic Management System we set up with a lot of other offices, we weren't the only ones on the Strategic Management System.

The other thing I was proud of was being NASA's rep on the National Space Policy discussion under Clinton. I represented NASA, then they had a civil group and a defense group and a commercial group. I was also in charge of the civil group within OSTP [Office of Science and Technology Policy] that was looking at that.

We came up with the space policy in 1996. It took a long time, because you had all these agencies. There's a lot more agencies involved in space than people realize. Words mattered, so there'd be a lot of argument over individual words and sentences, "What does this mean, what does that mean?" But we finally got it signed in '96, and shortly after it was signed some astronauts from down at JSC—and I think maybe even George Abbey. I don't want to take his name in vain, because it'll always come back to bite you—they thought that NASA should be allowed to fly commercial payloads again.

After the accident, we weren't allowed to fly commercial satellites anymore. That had to go to the private sector. I said, "Well, you can't do that. The space policy forbids NASA from doing that."

They said, "Well, can't we just change that?" This is after a two-and-a-half-year period of writing this thing.

I go, "No, you can't."

I'll never forget this—I forget specifically who the astronaut was, but he said, "Well, I may just be a dumb astronaut, but I don't see what's so hard about it."

I said, "Well, that's because you're a dumb astronaut." I couldn't believe it. I said, "Look, I won't try to fly the Shuttle. You don't tell me what to do in space policy." That faded away quickly, but it was indicative of how little some people understood space policy, or appreciated it, or even thought they needed to know anything about it.

I did that for several years, and good stuff came out. We started collaborating more with commercial people. One of the things we did was invite the business reps from the aerospace companies in for briefings every now and then. We gave them a briefing before the budget came out. That was all new.

Then in 1999, in the summer, Sally Ride called me up and said, "I'm going to become the president of Space.com [space and astronomy news website]. I'd like you to come with me." Space.com was this new portal that was being established. Lou [Louis C.] Dobbs of CNN [Cable News Network] fame was the CEO [chief executive officer]. He had gotten money from investors to set it up, and he wanted to create a portal that was all things space. She was going to be the president and she wanted me to work for her. I was going to be here in DC as a liaison with NASA and other aerospace companies.

I set up an office in the corner of the very far end of this building on the corner of 4th [Street Southwest] and E [Street Southwest]. That office space is now used by NASA, but had been empty for eight years. I was able to get a lease, and we had Space.com's office in the NASA Headquarters building.

It was great. We had a cappuccino machine, people came down, spilled their guts. It was wonderful. Sally and I worked together. She was especially big on a kids' portal for Space.com,

SpaceKids she called it. Her interest was to do education things. But Space.com in the early days struggled finding "Who is its target audience? Where's the market? How are you going to make any money out of this?"

They ramped up way too quickly. They hired over 125 people in the first six months. Then the dot-com crash [of speculative internet ventures] hit. Sally saw the writing on the wall and she got out early. She went to the University of California, San Diego. I remained in the DC office. We had three people working here, Leonard David was one of them. Then, on New Year's Eve of 2000-2001, that afternoon, the general counsel showed up at the front door. I said, "Oh, this can't be good," because I had survived the first cut.

He said, "No, we're closing down the office. You've got two weeks, goodbye." That was my short-lived experience with the dot-com world. Initially I was given some stock options. It was funny because Dan Goldin heard about it, and Goldin said to Ed [Edward] Heffernan—who was my good friend and his chief of staff—"Eddie, Alan has options."

Ed thought he meant options for a job. Ed goes, "No, he doesn't. He's already gone through his options, he's going to work for Space.com."

"No, I mean he has stock options." Dan was so impressed with that. That ended up never amounting to anything, but it was an interesting experience. I worked for Lou Dobbs, who was a very unusual character to work for. I loved, of course, working with Sally. We tried to do some good things, just didn't work out.

Then I went and hooked up with Charlie [Charles M.] Chafer. He's runs Celestis [Inc.], which is the ashes-in-space people [cremated remains launched into space]. But he had a separate project called Team Encounter [LLC] where he wanted to send a solar sail the size of a football field into the solar system. On it, he was going to have this little capsule that had DNA

[deoxyribonucleic acid (genetic material)] of people. People wrote in their message to the future and sent us a lock of their hair, and this was all going to be sent. Then that ran out of money.

While I was doing that though, I had free time. Sally hired me as a consultant with her back at San Diego to work on what became EarthKAM [Earth Knowledge Acquired by Middle school students] and some other things she was doing. The beginning of Sally Ride Science [at UC San Diego] started then, so I was involved in that a little bit.

Then Zero Gravity Corporation, Peter [H.] Diamandis, came to me. He had been working for 11 years to try to get approval for parabolic flight. He brought me on board to be his chief operating officer, so I was there during the start-up phase when we finally got certification from FAA [Federal Aviation Administration] and started flying. I was there for probably the first 27, 28 flights. Then they ran into a cash problem and it was "Well, can you work for deferred salary and someday money?" and I said no. I had a mortgage, I had a wife, it wasn't going to work.

Then Northrop Grumman [Corporation] picked me up to work on their CEV (Crew Exploration Vehicle) proposal. This is in the 2004, 2005 timeframe. I was on that team, again in DC, working for them with [The] Boeing [Company]-Northrop team. We bid on that and we lost to Lockheed [Martin]. Northrop wasn't quite sure what they were going to do with human spaceflight. It had never been a big thing for them. My supervisor advised that if I could find another position, I should probably start looking because the layoffs were coming.

Then I ended up with WBB [Whitney, Bradley & Brown, Inc.], a consulting company in town that mainly did defense consulting, but they wanted to start space consulting. So I started their space consulting, and our first contract was with Space Florida [aerospace economic development agency of the State of Florida] down in the Cape Canaveral area.

JOHNSON: Can we go back just for a minute, back to the ’90s? When you were still with SAIC, you were a coauthor on the Space Station redesign task group final report [Final Report to the President: Advisory Committee on the Redesign of the Space Station (1993)]. A lot was going on in the ’90s, especially with Space Station and Shuttle-Mir [Phase 1 of the International Space Station, ISS] and then beginning the ISS. You were also, later when you were back working with NASA, the primary alternate for events and media interviews for the Administrator. Talk a little bit about that Space Station task group.

LADWIG: Yes. At SAIC, in addition to the space science task I was on, they got the contract to work with the task force that was looking at the Space Station. It was Space Station Freedom, but what should it become? That was a committee led by Charles [M.] Vest, the president of MIT [Massachusetts Institute of Technology, Cambridge, Massachusetts].

We worked as contractors for a guy that was the executive director or secretary of that task force. I’ve long since forgotten his name, but it was one of those instances where we were put in our place. “At the end of the day, you’re a contractor, we don’t really care about your ideas.” But we helped write the final report. Again, Terri Ramlose, who I had worked with on the Ride Report—then when I was at the Office of Exploration, we did a follow-up to the Ride Report called “Beyond Earth’s Boundaries [Human Exploration of the Solar System in the 21st Century” (1988)]. She and I worked on that together, and then we worked on this International Space Station task force report.

They took a hard look at what should they do with the Station, because it had been voted on many times up to that point [Congressional votes for funding]. The purposes had changed,

the direction had changed. At one time it was going to be two keels, and it was going to be used as an assembly station to go to Mars, then it was different.

This task force was supposed to set out, "What are the options that make sense that we could do?" I think they had three different options in that report of different complexities. They didn't necessarily give a specific recommendation, but said, "Here are the three options, you all decide what you want to do." Out of that grew the International Space Station and the change in direction in the architecture.

It was an interesting time because that was going to be the next big leap for NASA. The Shuttle was still of course flying, but people were already looking to the next thing. "What was going to come? What was the next big thing?" The Shuttle was becoming routine for people. Even some of the engineers didn't want to work on it any more, they wanted the next cool thing. A lot of them moved over to the Space Station Program.

I felt really fortunate to get to work on that. Then somewhere in there was Tom [Thomas P.] Stafford's project, the "America at the Threshold [America's Space Exploration Initiative" (1991)] report. I want to say that was in '91.

JOHNSON: It was '91, the Vest report was '93.

LADWIG: So that was another one. I got hired as a consultant to help with that final report as an editor, and worked with that group. They were set up over in Crystal City [Virginia]. I would go over there and get all the input from people and work with their art director. There was another contractor that had the responsibility to put the report together, but I was one of the editors. I got to work with that group, and again that was a forward-looking thing. "We're going to the Moon,

we're going to Mars." The whole time I'm thinking like, "Well, maybe this time. Maybe this time we'll do it." Of course, that report went no further than most other reports went.

JOHNSON: Part of that is the administration, because that was the initiative the first President [H.W.] Bush, and then in '92 we got a new President [Clinton] and initiatives changed.

LADWIG: Yes. In '89 it was "Oh, we're going to go back to the Moon, we're going to Mars. We're going to build a Space Station, we're going to do all this cool stuff." Oh yes, by the way, it's going to cost $500 billion. They said, "Rrrr, I don't think so." That was the worst thing that ever happened, that number getting out. It should have never happened.

Number one, somebody licked their finger and stuck it up in the wind to try to figure out what it might cost. It included a cumulative cost over time, it wasn't just to make the launch. It just was a stupid number, but it became a real deterrent at the time. That's all anybody wanted to talk about. The Stafford Report was to try to figure out, "How do we implement the Bush Space Exploration Initiative?" That's what that report was all about. Then Clinton comes in, "Station is a mess, over budget, behind schedule." The task force comes out, "Here's what you should do."

I give Dan Goldin a lot of credit for saving the Space Station Program, because there was a lot of opposition to it. It was, as I said, over budget and behind schedule. Nobody knew what it was supposed to do. There had been many votes in Congress to kill it. He convinced Congressman John [R.] Lewis to cast the deciding vote in favor of the station. Goldin caught him going into the vote and changed his mind, so we won by one vote [June 23, 1993]. Also a

great story if you could ever get Mr. Goldin to tell it. I've tried to encourage him to do it, maybe somebody's got the story, I don't know.

But the story of the NASA delegation over in Moscow during the overthrow of the government [1993 Russian constitutional crisis], when they were there discussing the Space Station partnership—this is when Clinton decides we're going to have Russia as a partner. They're off-site somewhere talking about all this. Meantime, this is the whole [Russian president Boris N.] Yeltsin thing and tanks are firing into the Russian White House. They had to make a decision. Were they going to get the heck out of town while they could? Or were they going to see it through?

Mr. Goldin took a vote of everyone. I guess everybody voted to stay, and that was all the difference in the world for the future of that program as far as I'm concerned. Of course I'm hearing the story secondhand, but it seemed to me to be pretty genuine. I heard the story from enough different sources that it sounded like a pretty heroic act on the part of those people that were there. I think it could be a beautiful story sometime.

There was that report, "At the Threshold." I really hated that name, "America at the Threshold," because threshold had been used numerous times. It's like, "Let's get past the threshold, let's go do something." Then, as I said, I was doing those things and then finally got to come to NASA as a political appointee.

JOHNSON: Budget, as it always does, affects a lot of things. During all that time was that Clinton-[Vice President Albert A.] Gore [Jr.] initiative to reform and streamline the federal government. With the Space Station going on, and as you said that number that got out, it was an interesting time to be in your position.

LADWIG: It was also during the [Lockheed Martin] X-33 [suborbital spaceplane] activity. I want to say Gore presided over a major event related to the X-33. Unfortunately it didn't quite pan out, but for a moment there it was like, "Okay, here's the replacement for the Shuttle." A lot of "Let's all go towards that."

It was a fascinating time because there was all this churn going on. Then, under Dan's entire 9-year period that he was there, the budget was flat the whole time, no matter how hard he tried to get more money. Boy, Dan Goldin could talk. He was a visionary. He had some social issues with people that are a different story, but boy, when he was up on stage, he could paint a vision like nobody. But he could not crack OMB [Office of Management and Budget], he could not get more money out of Congress.

I think he did the best he could. That's when he came up with the notion "Okay, if they're not going to give me more money, let's do it faster, better, cheaper." I always felt that that didn't quite get the support it should have. There were a lot of cynics. It was like faster, better, cheaper—pick two. But he really did, I thought, a great effort keeping things together, keeping the Station going.

Following it was the Mars Observer [Mars Geoscience/Climatology Orbiter] that we lost [on August 21, 1993]. That's when he really focused on—he called them "Battleship Galactica" missions. We just can't afford these billion-dollar spacecraft that if you lose them you're screwed. That's when he started going towards a series of smaller things.

He got very interested in the whole Origins Program [missions to study origins of universe], he was a big supporter of that. He got that to be a major event at the White House that Vice President Gore led with people from different walks of life that came over to participate in

that meeting. Unfortunately, and I've never understood this, OSTP didn't record it, didn't want notes on it, and never had any release of information afterwards about it. You had these brilliant minds in the room talking about the origins of life, and I'm going, "God, we got to talk about this." I don't know, it was some weird thing. They just chose—I don't know if they thought it was going to be laughed at or what.

Dan Goldin had another great idea. He brought together a bunch of theologians in Chicago. We had a priest on the NASA Advisory Council, Father [Rev. John P.] Minogue, who was the president of DePaul University [Chicago, Illinois]. He gathered people from different religious denominations. We had Catholics and Lutherans and Baptists and Muslims and [Jewish] rabbis—there had to have been 10, 11 different religions represented to talk about the subject, "What if we found life in the universe, what would that mean to religion?"

There was some uncomfortableness and some preconceived notions that religious organizations didn't want to hear about life in the universe, that this would somehow go contrary to their doctrine because God created life. The discussion was fabulous. At the end of the day they were like, "Well, it's okay with us."

But Dan was a little nervous about that topic. Couldn't record it, couldn't take notes, no publication came out of it. I'm going, "Jesus." I was fortunate I got to be in the room, but I couldn't take notes, and that was a long time ago, I can't remember everything. Then all of a sudden some foundations started funding things about science and religion. It became the thing. Dan was ahead of the curve on it, but he was a little nervous about that. That was fun.

JOHNSON: President Clinton did decide to support the Space Station design that was finally picked, then of course the Shuttle-Mir program. Do you want to talk about that? Did you have anything to do with that?

LADWIG: I wasn't all that involved with that, unfortunately. That was all done in the Office of Space Flight. There weren't many policy issues connected with that, it was a done deal. It was more handled at the international affairs level.

International affairs and policy always had a curious relationship. One, because we took The History program away from them, and two, they felt that "Well, when it comes to international policy we'll handle that. You don't have to worry your pretty little head about it." I never got to go on any of the international trips. I seldom met my counterparts from other countries. I think I finally got to meet Jean-Jacques Dordain when he came to visit Headquarters. He was the [European Space Agency (ESA)] head of policy [associate director for strategy, planning and international policy] at the time, and he later became the director general of ESA. All that stuff—Mir, most of the International Space Station stuff—was handled elsewhere. We didn't get real involved in that.

I did like the fact we were involved in commercial stuff, and we did try to get NASA more engaged in that. I'll never forget the late Jim [James W.] Benson, who started SpaceDev [Inc.], which evolved into the [Sierra Nevada Corporation] Dream Chaser [Cargo System], the winged spacecraft. He came into my office in the mid '90s and said, "I want to know what the policy is about mining an asteroid. Can I go out and mine an asteroid if I want to?"

I said, "Good question, nobody's asked that before." I mean, hadn't asked me.

We went and looked at treaties. He said, "Well, how's anybody going to stop me? If I want to go and bring something back, who's going to stop me?"

I said, "I'm sure some federal organization will try to stop you." But it was cool because he came to us to try to get that discussion going. We ended up being on panels talking about "What are the mineral rights to places? What's the Moon Treaty [Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (1979)] implications if somebody goes back to the Moon?"

Of course back then, in the '90s, that was all smoke. Nobody really thought it'd happen. Now today you've got two companies out there ready to mine asteroids. You've got the Google Lunar X Prize ready to land commercial robots on the Moon, and you've got Elon [R.] Musk saying he's going to send two people around the Moon, do space tours.

All that stuff—in the '90s we were in our office, and nobody wanted to talk about that. That was all the snicker factor. Space tours, "ha ha ha ha." Commercial spaceflight, "No, not going to happen." It was a fascinating time to be there and see some of those people in their beginnings of all this stuff. John [C.] Mankins and I became great friends because he was a NASA employee, but he was big on solar-powered satellites and space tourism. Because of my experience in the '70s with FASST on solar-powered satellites, we became joined at the hip trying to promote solar-powered satellites.

That one never quite went anywhere here—too much opposition to it, too expensive. But mark my words, it's being discussed again now and it will come back at some point. The concepts that were promoted in the '70s were too grandiose. They were solar-power stations the size of Manhattan Island [New York City] requiring 400 astronauts to assemble. Really? I don't think so.

The Clinton administration was an interesting time to be there. I got to be involved in the [National Partnership for Reinventing Government] Golden Hammer Awards. I would go out and present hammers to agencies that had won them. I was part of that group, and that was always fun.

JOHNSON: What was that given out for?

LADWIG: For finding some way to save the government money. I went out one time to Utah to [Hill] Air Force Base [Ogden] that had invented something that saved $1 million, "Here's a hammer." That was always fun.

The Clinton administration liked space. He was a supporter, they liked space. They didn't come through with a budget for space, but they liked it, they were always receptive to stuff. Couldn't ever get him to a launch. White House staff was always like, "Well, we don't want to be at a launch, because what if it blows up, we don't want the president there." My response was always, "What better place for the president to be to reassure the nation?" He never made it down.

Gore was a big space guy, loved space stuff. I got to brief him once. It was something on the Mars Pathfinder I think. It was getting ready to launch [December 1996]. Everybody from space science, Administrator, everybody's out of town. I'm the only one left. The White House calls, says, "Vice President Gore needs a briefing on Pathfinder, get over here." I'm a policy guy, I don't follow the technical details all that closely. But by God, in a half hour I became an expert. I got to go over and talk to him about it, because he was going to be on CNN. I had to take him a model. He did a great job, it was fabulous.

It was crazy things like that. There was another time, I think probably back during the Office of Space Exploration time. There was some event at the White House that they were having, and they wanted models of rockets. I'm not talking about desk[-sized], I mean like 10-foot-tall rockets. We scrambled, but we found a couple. I think a Delta rocket, maybe an Atlas—I forget what kind they were.

They were these huge boxes, and I get this station wagon from the carpool to go over to the White House. This was before 9/11 [terrorist attacks of September 11, 2011], of course, and all the gates. But still, I pull up to the gate of the White House with these two rockets in the backseat. They're going, "Huh?" Everything was supposed to have been cleared, I was going to come right through. Didn't happen. That German shepherd [police dog] was all over that car. That was funny, taking that in.

The Clinton years were good. I did get to meet President Clinton once down at JSC. He was there to tour with his science adviser, [John H. Gibbons]. I literally ran into him in the space station mockup. He was coming down one module and Dave [David K.] Alonso and I were coming down another. And boom, we met him right there. He was very friendly, he chatted us up a little bit. Of course his handlers kept him moving on. Very nice guy.

Hillary [Rodham Clinton], I met her at a couple receptions. She was a lovely person. When you were with her, she was talking to you. She wasn't looking around the room of where else should she go, she was on you. I was always impressed with that. Too bad she was such a lousy campaigner [in 2016 presidential race].

Also, by the way, the Clinton administration was very good to its political appointees. A lot of good events that they allowed us to come to. You could always get tickets for the White House garden tour, and I got tickets to sit in the president's box at the [John F.] Kennedy

[Memorial] Center [for the Performing Arts] one time. They would have special briefings for us every now and then. Really took care of the care and feeding of political appointees, made you feel like you were a member of the team.

My experience with the [President Barack H.] Obama administration was somewhat different, and that actually started out from the beginning. The Clinton transition team were all in the same building over on Mount Vernon Avenue [Alexandria, Virginia]. You intersected with the other clusters, you got to know a lot of people, you went to a lot of meetings.

Obama was much different. We were a small group, and we were headquartered here at NASA Headquarters. We had offices, the four, five of us. Lori [B.] Garver was the head of the team for Obama, and she was the only one allowed to go to the main transition office over near Judiciary Square [Washington, DC]. She interfaced with the other heads, but you didn't have that camaraderie, you didn't have that discussion with your peers in other sectors, which I thought was a little odd. They were—not secretive exactly, but very closed in their bringing people in.

JOHNSON: Do you think that came from the top down?

LADWIG: Yes, oh yes. Lori got me on the transition team. I left WBB, came to be on the transition team. We had a guy on the transition team that had been a high-level guy in the campaign, had great connections at White House personnel, and he had it arranged for himself, George [T.] Whitesides, and I to all begin on the day after Obama was sworn in. Last time it took me nine months to get in, this time I was in the day after.

But the administration was much more hands-on, especially in communications. Press releases had to be approved by the White House, and we never used to have to do that. They had a meeting for political appointees at the White House, and they broke us into groups. They were all young people. They were from the campaign, full of themselves and their victory. They had this one young guy sit at the end of a long table, and there are a bunch of us from different agencies. "This is how we're going to do things with the White House." Everybody in the room is in their 30's or 40's, probably. He says, "So are there any questions?"

I said, "Yes, I have a question." I said, "I've noticed that so far there seems to be much more hands-on for communications than we had with Clinton. So I'm just curious, is that because we're getting started? Or is this going to continue?" Everybody's head nodded up and down around the room.

He said, "That's a very good question. We found that our communications team was excellent on the campaign. Most of them are now here at the White House, and we like the way that worked, so if I were you I'd get used to it."

I said, "Oh, okay." There was much less interaction with political appointees. I did get to go to one event that he spoke at, but nobody was allowed to take pictures. They did have some ice cream socials and things, but it was for 6,000 people and it took forever to get in. I never got the sense that they valued political appointees as much as the Clinton group did. That was a difference.

Initially, I was in the Front Office of Headquarters because I was one of the only ones here, along with George Whitesides and David Noble. Eventually I was assigned to the [Office of] Communications as the head [Deputy Associate Administrator] of Public Outreach. The

Associate Administrator for Communications was let go not very long after getting there, for a long, involved stupid thing he did.

Because I was the deputy as a political appointee, and Bob [Robert] Jacobs was the deputy as a civil servant on the communications side, I should have become the acting [Associate Administrator]. But I didn't because I did a boo-boo that was the beginning of my demise, if you will, and we don't have time to tell that story.

JOHNSON: No, I was going to tell you it's about time for us to close down. But I appreciate you talking to us today, and when we come back maybe we can pick up on that.

LADWIG: Yes, it happened over at the International Space University in Strasbourg, France. In a speech I gave, I made a smart-ass comment that I thought was a joke, and it didn't go over well with certain people. Ended up being mentioned at a congressional hearing with the Administrator.

JOHNSON: It definitely gives us something to talk about.

[End of interview]