

NASA JOHNSON SPACE CENTER ORAL HISTORY PROJECT

EDITED ORAL HISTORY TRANSCRIPT 6

SHANNON W. LUCID
INTERVIEWED BY JENNIFER ROSS-NAZZAL
HOUSTON, TEXAS – JUNE 17, 2021

ROSS-NAZZAL: Today is June 17th, 2021. This interview with Shannon Lucid is being conducted in Houston, Texas, for the JSC Oral History Project. The interviewer is Jennifer Ross-Nazzal. [Shannon begins by reading a letter she authored about wanting to pilot the T-38s.]

LUCID: Carolyn, imagine you were a PhD chemist and working in a lab as the lowest-paid technician. Having done that for a few months while waiting for the politics of my postdoc to work out, I don't have to imagine what it feels like. I know. I vowed never to be in that position. But for the last year and a half I've been in a similar position that is all the more noxious because it is more subtle and insidious.

And the last few months I've been told by five of my peers in the Astronaut Office, "But you are not a pilot." This offhand comment was made by people who didn't even know what a stick felt like when I had already flown solo coast to coast. True, they have subsequently flown higher thrust aircraft that I have been denied access to because I happened to be born an unacceptable sex at the wrong time. Over the last 17 years I have spent over \$50,000 in order to fly and to keep improving myself as a pilot. A denial of that hard-earned status is intolerable. It is doubly intolerable because it inhibits the performance of my job.

The office is divided into those that fly T-38s, and those that don't. Whoever thinks that a NASA nonflying crewmember is going to be fully accepted into a Shuttle crew by the pilot

members is just kidding themselves. And to a certain extent this feeling on the flier's part is justified. There's no training which places the astronaut in a potentially dire peril situation but T-38 flying. Not that it is especially dangerous. It is just that survival depends on one's own skills and reliability. Fliers cannot and will not accept as equals those who don't possess these skills. These skills are not obtainable by sitting in the back seat of a T-38 twiddling some radio knobs.

Personally, I've been doing all the radio calls plus the navigation plus all the flying in all types of challenging circumstances since I was 19. So, you can see that being demoted to a knob twister for the next 10 to 20 years, being separated by 3 feet and a sheet of plexiglass from what I have yearned to do since I knew jets existed, does not fill me with boundless enthusiasm. Nor does it provide me with the feeling that I am being effectively trained to participate as an equal on the Shuttle team. This training is not a one-time affair. It is essentially a mental-readiness type training. It is the type of training that will allow the mission specialist to effectively function in EVA [extravehicular activity]. It will help them understand what is going on in the pilots' minds and be able to respond accordingly in emergency situations.

Because I recognize my need for that type of training, I pay for it myself, and I do it on my own time, which leads to a very interesting question. Why am I the only instrument-rated multiengine pilot in the office paying for maintaining instrument currency? If it is so important for the other instrument-rated MSs [mission specialists] to maintain their currency, why isn't it important for me?

I have been given two reasons for not being allowed to fly the T-38, both of which are invalid. The first is lack of money. If this were a valid reason, why was I the one instrument-rated pilot not checked out? Why wasn't one of the other instrument-rated MSs? Furthermore,

if it is money, why can NASA hire more pilots and MSs to come in and fly and still do not have enough money for me to fly?

The second reason I've been given is that I've not been to some military flight school. One flying MS went to military helicopter school, not even fixed wing. It is inconceivable that NASA believes that training controlled and regulated by the primary federal agency responsible for commercial aviation, the FAA [Federal Aviation Administration], is somehow inferior. Even if it were, exclusion of a particular individual on that basis is ridiculous. It is somewhat like saying that only chemists who have a degree from Harvard [University, Cambridge, Massachusetts] are really and truly chemists. Requiring that all pilots above 30 must have gone to a military flight school arbitrarily eliminates half of the population who are excluded from this avenue by accident of birth.

An additional problem is the misrepresentation of the position of female astronauts by the media with the apparent sanction of NASA. For example, posing in flight suits and with the T-38s. This inevitably leads to an interview sequence like the following. Question: Do you girls enjoy flying the jets? Answer: NASA does not send MSs to pilot training. Question: Oh. And why not? Do they lower the standards now that they let women into the program? Answer: dead silence. To date, the interviewers have not followed up on the dead silence. I don't believe this situation is necessary or in NASA's best interest.

Now comes the purpose of this note. I intend to do something about this intolerable situation. If I'm ever assigned to be a Shuttle crew, I do not plan on being an Amelia Earhart crossing the Atlantic on a bunch of mailbags. I plan to be a crewmember, not a passenger that the pilot and commander feel obligated to take care of. I believe I have a number of valuable options for attacking this problem, but I would like your advice. Your knowledge of the system

and the people involved can help me accomplish my goals with only ripples, while if left to my own devices I might cause tidal waves.

First, I need information. What is the real reason I am not flying? How was the decision made to draw the line at me in checking out MS pilots in the T-38s? What were the pros and cons or was there even any discussion? Is there anything in the works that would be upset by my actions? Second, what about timing? Will before or after the new selection be better? Third, is there anybody in the organization that would be on my side. Thank you for reading this rather long note. If you can, I would really appreciate your help. Incidentally, after evaluating my ability to fly from the back seat, a NASA IP [instructor pilot] has told me that he would have no problem with turning me loose in the front on my own after 20 hours of dual with me in the front seat.

ROSS-NAZZAL: What was the reaction? Did you get any response?

LUCID: No.

ROSS-NAZZAL: No?

LUCID: No, I never got responses.

ROSS-NAZZAL: I don't see a date on it. Do you remember? I know it's been—

LUCID: No, it said year and a half, so you can sort of—and I think it must have been before the '80 group came in.

ROSS-NAZZAL: Before the '80 class. You made some excellent points.

LUCID: Of course. Then I pushed a little further and named names. I asked why a certain person—I was very specific—got to fly and not me, because we had the same amount of fixed wing time. He was a helicopter military pilot. The answer was, “Shannon, he got shot at.”

My reply was, “Well, if I go fly over the Gulf and let someone shoot at me, then can I fly in the T-38s?”

ROSS-NAZZAL: I was surprised by the number that you gave, \$50,000, that's a lot of money.

LUCID: Oh yes. That's a lot of money.

ROSS-NAZZAL: Yes, especially back then.

LUCID: Practically everything I ever earned went into flying.

ROSS-NAZZAL: That's amazing. Did you ever give any thought to maybe going into the military at any point—it wasn't test pilot school at that point, but they were doing some undergraduate flight training with women.

LUCID: No, they weren't. Eileen [M. Collins] was just about in the first group. She's a fair amount younger than I am. No, I applied to all the airlines. I applied to every job that I could find. That's why I had my rejection file. I think I told you this. I had an epiphany one day. I was on a PR [public relations tour]. It was at Chris [Christopher C.] Kraft's school in Virginia.

ROSS-NAZZAL: Virginia Tech [Blacksburg, Virginia].

LUCID: Yes, Virginia Tech, that's what it was, which is a whole other story. After my presentation, there were questions and answers. And there was the typical question by this guy. He said, "And how do you become an astronaut?"

I said, "Well, the pilots go through military flight training. The MSs mostly have science degrees and are not in the military."

He looked at me and he said, "So in order to be a pilot on the Shuttle, you have to be willing to kill people?" That just really hit me. That is true. If you're in the military, you have to be willing to kill people. Then I thought to myself, I am so thankful that I was not in the military. Because when I was younger I wouldn't have thought that much about the ethics of killing people in war. I'm so thankful. I am so thankful. Flying jets isn't worth killing for. Flying jets isn't worth being in a job where you would be expected to kill people.

ROSS-NAZZAL: I guess I never thought about it that way. You think about test pilots testing planes.

LUCID: Yes. Early on if somebody'd given me the opportunity, I never would have thought that you were doing it to kill people.

LUCID: I'll read you what I wrote about *Challenger* [STS-51L]. It's just stream of consciousness. I titled it, "The Major Malfunction."

I was sitting next to Lacy [Charles L. Veach], half listening to the lecture on Centaur, the flight after next, getting ready to CapCom [Capsule Communicator] for it. An agitated person came in and shook the person next to Lacy and said, "Quick, I need you." It crossed my mind that something was wrong, maybe the TDRS [Tracking and Data Relay Satellite] was just getting ready to launch.

But he seemed more than technically agitated. Yes, there was a launch countdown in progress. The Space Shuttle was operational, so we were all going about doing our normal affairs. Can't stop working on the future to view the present.

Then too, there had been so many launch holds of late. Why, just yesterday there was that farce with the dead batteries and the stuck hatch door. That didn't make NASA look any too sharp.

The door on the other side of the room opened and John [W. Young] stuck his head in in extreme agitation and said, "We just lost the Shuttle." No movement, no response from the class.

I said, "We just lost the Shuttle?" Immediately in my eye's mind I saw a fireball on the launchpad.

The third time that he repeated, "We just lost a Shuttle," it was as though he was saying, "It's awful; it's a disaster, believe me."

Lacy said, “We’ve got to get upstairs.”

We were both out of our seats like a shot and ran up the stairs. You knew it was so, but you kept thinking surely it was not. When we got upstairs, we knew it was so because it was so empty. Members of the office were walking around stunned. Everyone was covered with emptiness and enveloped by hollowness. In the background there were the hysterical secretaries screaming. We went into Room 3014 with the TV monitor, and there were a dozen people staring at the empty launchpad framed by the brilliant blue sky. The waves lapped hypnotically against the beach. The only activity in the room was someone writing notes in a green government notebook. Perhaps for a future book?

Then [Robert F.] Overmyer took charge and said, “There is a plan for such a contingency. Call the guards, cancel PR, lock the crew offices.” Then only did the crew become individuals lost, not a crew lost. Each crewmember in turn floated into my mind, and you could catch your breath and oh no, not five times, then six, but seven. And then the technical talk started, and the acronyms flowed forth as a soothing balm. There were logical technical reasons for the explosions, they just had to be tracked down with a few clues and then fixed. No one talked of the crew.

Dick’s [Francis R. Scobee] smile, Mike’s [Michael J. Smith] good nature, Mike’s optimism. There in 3014 was like Mission Control shifted into automatic. Oh, there in 3014 just like in Mission Control, we shifted into automatic control, saving data, sending ships out to the disaster area. The voice of Mission Control acknowledging that there had been a major malfunction and then shifting back to the pad monitors. That glorious morning and the empty pad. And then the empty hearts. And besides all the other losses there is the loss of the immediate—of something—of being able to see Judy [Judith A. Resnik] release and capture

SPARTAN [Shuttle Pointed Autonomous Research Tool for Astronomy]. And then there's the intense physical urge to rewind the film of the day and play it again. And you see it played to the wrong ending. And it's hard to understand something.

And the main, the explosion, replays over and over but not like the TV shows it. The mind always instantly before the fireball, just when the force of the explosion causes *Challenger* to rip apart, just at the surprised look at the crew's face as the helmeted heads fly off bodies and something unfastens waiting for the deploy only hours away fly out of the something. And Judy's hair flying up underneath her helmet. An instantaneous picture that none of the crew ever saw.

And then you feel the sadness of unfulfillment for Mike, who never experienced zero G, and for Dick, who would never now land the Shuttle after all he had gone through. And then the president's speech about touching the face of God and the desolation, knowing that some did not. And, of course, the families frozen in horror on the roof as they gazed up in the sky. So you throttle up, but there will never be a Pc less than 50. "Go for throttle up," Dick said. And we as a country must remember those words and forge ahead.

ROSS-NAZZAL: That's a great piece of writing. I could see everything so vividly.

LUCID: It's just stream of conscious. I typed without periods or commas. The spelling is—I just didn't ever worry about things like that.

ROSS-NAZZAL: I think it really speaks to what was happening for you at that moment. Have you looked at Arnie [Arnold D.] Aldrich's interview? He was the program manager then. It haunted

him till he died, the loss of that crew, because he didn't know about the O-rings. We did a couple of interviews with him. He felt like he had to explain this, so he wrote a paper, and we've uploaded it to our website, so that people can read it. He can talk about the crew and things that were happening. I think it's worth including because it really speaks to what was happening.

LUCID: I can clean it up. But anyway, you can see why I was something of an outlier.

ROSS-NAZZAL: Based on that e-mail yesterday, about how you were a square peg trying to fit in a round hole, I was just curious about that comment. You've obviously given an example with the T-38. But if you would talk more about that. Did you ever eventually feel like you belonged, like you were part of that group?

LUCID: Never really. There were so many reasons not to. Number one, which group are we talking about?

ROSS-NAZZAL: The astronaut corps. You were selected.

LUCID: Oh yes. I was a part, but I never took part in happy hours. I couldn't because I had to take care of the family, etc. I told you just after we came here it was very nice of Judy. She called up one evening and said, "Shannon, we're all at somewhere, drinking. Someone from [NASA] Headquarters [Washington, DC] is here. You need to come over."

I said, “Judy, I can’t come over tonight. I’m planning my son’s birthday party. We’re having a birthday party tomorrow, so I’ve got to get ready.” At that moment I knew that I was not going to have any important part in the early flights.

But I thought it doesn’t make any difference, because we’re going to be flying 50 times a year. Judy had said the women were there—they can all fly before me. At 50 flights a year there’ll be plenty of flights left. Oh, how innocent we were. It was all okay.

ROSS-NAZZAL: Were there other ways you didn’t feel that you fit in because you weren’t part of the social group and you weren’t a pilot?

LUCID: It wasn’t just me. There were two groups. There were the pilots and the MSs. It was very segregated. Some of the MSs that were in the military, and they had flown jets in the military, they got to fly T-38s when we first got here for quite a while. Then the administration took them out of the T-38s and wouldn’t let them fly anymore. Oh, my goodness, it just really tore all these guys up.

ROSS-NAZZAL: I’ll bet.

LUCID: It was horrible. Of course, they were very open with me because I could appreciate it.

ROSS-NAZZAL: Right, you were sympathetic.

LUCID: Oh yes. It's much harder to have something taken away from you than never being given it in the first place. You were very different that way. You were very different. The military has a culture, and if you're not in the military you're not in that culture. Now it was amazing when I came, first worked here, and I saw some people that were just nonmilitary MSs and it was like oh my goodness, there was a transformation within six or seven weeks. They were outmilitarying the military guys in their persona.

I had seen the same thing happen in the lab, when you had people working in the lab, and they were really nice, they worked all summer long, and we got along, then they went to medical school. Six weeks later if they showed up, oh my goodness, they were in a separate world. They were the kings of whatever. They still couldn't pipette, and they still couldn't grow cells, but they were on the path. It was just an amazing thing; it was a similar thing that I saw here.

Then I had kids, so I was in a different culture, because it's a different culture when you have kids than if you're single. Then too my spouse was male. When we first came in, another female was married, but it was different because her spouse was an astronaut wannabe. When the spouses would get together for social events, I was the one that was invited, not Mike.

ROSS-NAZZAL: But you're not a spouse.

LUCID: But I was a female. Of course, I went because I wanted to be nice to everybody. But you're just a little out of kilter, just a little bit.

ROSS-NAZZAL: Did you feel different because you were a woman, being in the Astronaut Office? Or was that never an issue for you?

LUCID: That wasn't an issue. I never had any doubt—but then the other thing was when we first came in, you remember it was in the late '70s, early '80s, and things were just changing, the culture of America, and so I remember I had long conversations with some of the guys, arguments. They said, "Well, if women have equal access to things in the military how can that be, because they're not on the draft?"

I said, "Obviously women should be drafted just like the guys. Why should you not draft women?" That's another argument. I would say to draft people was wrong because I was beginning to be fairly antiwar. Women should be drafted just like the males. There's nothing special about our sex. It's true, you shouldn't discriminate. We had several discussions like that. It was just really interesting.

Like I told you, when I was in graduate school, because in academia they move faster into new culture areas, it was like I was the ultraconservative, working in the labs. I showed up down here at NASA, and it was like, "Whoa, I never knew I was an ultraliberal." But it was the difference of being in academia and being in a military culture. It was just very interesting.

ROSS-NAZZAL: Were the other women involved in those conversations with you?

LUCID: No, I never discussed it with them.

ROSS-NAZZAL: That is interesting. I thought that was an interesting statement that you had made in that e-mail.

LUCID: I did say that. It's not the type of thing that a NASA person would have said.

ROSS-NAZZAL: When I read it—we'll get to it. But just the way that it was written so poetically, I thought, what is he talking about? That's why I sent it to you. ["For almost a dozen years, Lucid had lived and worked with the reality that her job was an overwhelmingly technical one, drawing from its roots in engineering and pure science ... but on this day, as Galileo and its Inertial Upper Stage (IUS) booster floated silently into the inky void, she beheld a new reality: the *romance* of adventure. Emblazoned across the base of the spacecraft which would one day circle Jupiter and deposit an instrumented probe into its atmosphere were two names: "Galileo" in script and "NASA" in worm-like block capitals. To Lucid, those two words symbolized exactly what the mission stood for: The script represented the romance of adventure and exploration, whilst the worm was indicative of the outstanding engineering and scientific talent which had brought this awesome project from the drawing board to fruition. Yet Galileo's journey to the launch pad had been a long and tortured one, and its voyage to Jupiter would be longer and harder still."]¹ I thought I'm not going to ask you unless you remember saying something similar to it.

LUCID: Yes, I did. I tried to not say things like that.

ROSS-NAZZAL: Tried to be more technical, more hardwired, less soft?

¹ Text sent to Lucid from an article about her second flight available at <https://www.americaspace.com/2012/10/20/the-romance-of-adventure-sts-34-and-the-voyage-of-galileo/>:

LUCID: Yes. You have to move with the culture.

ROSS-NAZZAL: Did you try to be more military, then, when you came down here?

LUCID: Oh, no, no, I was myself. When I grew up, I never knew anybody that was in the military voluntarily. I had never ever known anybody that joined the military on purpose to make a career. There were a lot of guys that were getting drafted. My brother joined up because he saw the writing on the wall, so he joined up so he could get in the band and not have to shoot people. But I don't count that. That wasn't a voluntary thing really. I was just amazed when we met all these people, and they had wanted to have a career in the military.

Obviously I was aware of that, but I'd just never met anybody. It was a new cultural experience to be around people like that. It was very interesting.

ROSS-NAZZAL: I can imagine, coming from your background. I thought we would talk about your role as CapCom. You were a CapCom for two missions. I know sometimes people don't have too much to share about CapComming duties, but was there anything that stood out to you on [STS]-61A? I think that was the German Spacelab.

LUCID: I loved being a CapCom. In my opinion if you can't be training for a flight or on a flight, the next best job was being a CapCom and working in Mission Control. There was just an aura about working in Mission Control, being part of a team. You just couldn't beat it. It was just a wonderful, wonderful thing. I just really really enjoyed being a CapCom.

On the D-1 mission, the German Spacelab, it was very interesting. Back in those days you didn't have continuous coverage. You had com breaks, fairly long breaks, in between satellite coverage. On that mission, payload people were getting on the loop and talking to the crew about the experiments that they were doing. It was just so funny, because as you watched the video when they were coming on, the crew stopped working just to listen. It just really struck me that the more that you were talking, the less you were actually getting done. It hit me again then when I was on Mir because we didn't have very much com at all. So, I was able to be very efficient and get stuff done.

I was just talking to a crewmember, who just got back from ISS, and she said that now on the International Space Station they have almost continuous over-the-shoulder contact with PIs [principal investigators]. It is good in some sense, but it can really impact your productivity too—so anyway I just thought that was interesting.

ROSS-NAZZAL: Steve [Steven R.] Nagel, he was commander—or was he pilot of that mission?

LUCID: No. Hank [Henry W.] Hartsfield was the commander and Steve Nagel was the pilot.

ROSS-NAZZAL: Then you were also CapComming on STS-61C; our new NASA Administrator [Bill Nelson] is on that mission.

LUCID: Yes.

ROSS-NAZZAL: Any memorable anecdotes from that mission?

LUCID: Things worked fine; it was a nice mission.

ROSS-NAZZAL: I think when I talked to Pinky [George D. Nelson] he said some of them were questioning why that mission was a mission. That it was just kind of a grab bag.

LUCID: Oh yes.

ROSS-NAZZAL: We talked about the accident, and you read where you were at that time. But what role did you play in the aftermath? There was an investigation. There was a recovery effort. Did you play any role in that?

LUCID: Not an important role. There's a hierarchy in the office, and the people that always were important were important. That's just the way it was.

In the immediate aftermath, what I did a whole lot of was going to different memorial services. It just seemed like life just went into being a support person from the office, because we always supported all these different ones. They just went on and on forever.

I did learn one thing doing that. As I attended different memorial services, it dawned on me that when you're dead you don't control your persona. It was very interesting to be at memorial services and hear how different people thought about the crewmembers that I knew. It was very different. It was a very interesting realization to come to.

I was still CapCom. They had some crews put together that were training to keep everybody up, and so we were just doing all these generic sims. I spent a lot of time doing

generic sims. Then also they decided they were going to go line by line through all flight data file, and I was the CB [Astronaut Office] rep to most of those. Oh, my goodness. It was very long.

ROSS-NAZZAL: Sounds tedious.

LUCID: It was very long. Just had to keep waiting for everything to come together so that we would return to flight.

ROSS-NAZZAL: Did you do anything with the families of the crew? Did you spend any time with them after the accident?

LUCID: Only when I was at the different memorial services.

ROSS-NAZZAL: I wondered if you would talk about the impact that the accident had on the Astronaut Office, FCOD [Flight Crew Operations Directorate], and JSC.

LUCID: Obviously it had a huge impact. You know how it is. You think nothing bad is ever going to really happen to you. If you're 18 you think you can drive 100 miles an hour. As you get older, then you realize that's not so true. But the office was sort of a military culture, and things like disasters, etc. were sort of common. They just went into their survival mode and finding answers and getting ready to move on.

What I would have liked to have had happen but didn't happen in the immediate afterwards of that week would have been for everybody to have gotten together and just talk about the crew.

ROSS-NAZZAL: Oh, that would have been nice.

LUCID: To share everything. Because all these different things that you knew about the crew were running through your head, and no one really—well, at least I wasn't part of where you really just sat and talked about the people as people, and all the wonderful things that you had done with the different ones. I just think that would have been a nice thing to have happened.

ROSS-NAZZAL: That would have been. You hear bits and pieces from people. But it'd be nice to know more. You never know about everyone's contributions.

LUCID: It would have been really nice to share the different good times that you've had with the different ones, etc.

ROSS-NAZZAL: I imagine that would have helped everyone, and the families would have appreciated that as well, I'm sure. In the midst of all this happening Steve Nagel was working on bailout concepts. How closely were you following what he was up to?

LUCID: Steve Nagel was briefing the office all the time. I wasn't involved in it, but we were all very aware of what was going on and how they were working out bailout options. Then when

they came through and had things, you wanted crew inputs, and to try things out, then I was involved in a lot of those things. But I was glad Steve was the office rep that was doing that, the CB person, because you always knew that if Steve Nagel was involved it was going to get done right. It gave you a lot of confidence.

ROSS-NAZZAL: That's good. I'm sure his family would appreciate that. Did you think that the concept they eventually decided on was a good concept? Was it workable?

LUCID: It was about the only thing they could really come up with if they weren't going to put ejection seats in. If everything was just right, it would have worked. But then how often are things just right? But it was an effort. It was better than having no options.

ROSS-NAZZAL: At any point did you think about leaving the office?

LUCID: No. I wasn't sure I'd ever be assigned to another flight. Then you think, "Well, what else could I do; do I want to sit here forever?" Because flights were far and few between. But then you get in a bind, because when we came down here Mike changed jobs. It was a big deal. It's hard for two people that are in professional jobs to get co-located, especially back then. I always think it was a miracle that Mike got such a good job when he came down.

Mike had done that once, and I couldn't very well say, "Okay, Mike, now I'm going to do something else." That's just not something that would have been a legitimate thing to do. The other thing is what would I have done if I'd left the office. I'd been gone too long to go into a lab and be a wonderful researcher. Now a lot of people in the military, their experience back in

the military, companies like that experience, and they would take it, and a lot of people had engineering backgrounds, and working for NASA, we were doing engineering work even though we weren't trained engineers. I couldn't very well go out and sell myself as an engineer, and I couldn't sell myself as a management person. I would never want to do that anyway. I couldn't sell myself as a scientist, and I certainly wasn't going to sell myself as on the PR circuit. There were not a ton of options I'd say. So, it was a good thing that I didn't want to leave.

ROSS-NAZZAL: It ended up working out for you in the end anyway. You had a very nice career.

LUCID: Yes. Everything worked out just very nicely.

ROSS-NAZZAL: I did want to ask, because you seem to have a broader knowledge than most people. We had a new Center Director around the time of *Challenger*, and that was Jesse Moore. Was that anything you had ever talked about or discussed?

LUCID: No. When you mention that, I have absolutely no recollection whatsoever. I don't know what that means. But the name doesn't even—

ROSS-NAZZAL: Oh, didn't ring a bell. He was here for such a short time.

LUCID: The name doesn't even ring a bell. It's just funny.

ROSS-NAZZAL: A lot was going on at that point. I was just curious about that because you seem to have your pulse more on the institution and bureaucracy than other people we've talked to.

LUCID: The name, I'm drawing a total blank. That must say something in itself.

ROSS-NAZZAL: Right, yes, exactly. What are your memories of the Return to Flight mission, STS-26? Mike [Richard M.] Mullane has that funny story about Hoot's mission [STS-27 commander Robert L. Gibson] and then also the stories of being downtown and the way that they were treated and portrayed. But what are your memories of that time and then finally getting back to flight?

LUCID: Oh, it was just wonderful that they actually flew. I thought okay, now things are going to happen. It was like the roadblock had been removed, and we were going to move on. There looked like there would be a future. It was just a very very good time. Then there were some changes in management, which was very helpful. In some respects, it was like sunshine had been let into the office a little bit. It was like all of a sudden things were sort of happening in a rational manner and you could see why things were happening versus having no idea as to what was happening, why. So that was a very welcome change too.

ROSS-NAZZAL: Do you attribute that to any specific individual?

LUCID: I know it happened when [Donald R.] Puddy was named head of the FCOD. Then all of a sudden crew assignments made some sense. You could just see. Maybe I say that because I

got assigned to a second flight. But things just seemed to be more in the world of reality, and you could make sense of how things were happening.

ROSS-NAZZAL: Were they based on experience and background and training?

LUCID: Yes. Based on the same things that you would have picked. Anybody could have looked around and said, “Oh, well, this person would have fit better there, and this person would fit, and this person has been able to do this so much, so it’s time for somebody else.” Those were never factors before. Now they were factors. It was a very welcoming breath of fresh air.

ROSS-NAZZAL: I think you had mentioned to me also previously that there had been no reviews. No one was giving you an update in terms of how you were doing in the office. Did that also change?

LUCID: No one ever came and said, “Oh, you’re doing a good job,” or, “You’re doing a horrible job.” I mean, no one that ever had any authority over you. No one ever said anything, anything. You were just working in the blind. Then actually—and I could be wrong—but that did not change until I came back from Mir, which was in ’96. Then all of a sudden, oh. We have year-end reviews? It was really strange.

ROSS-NAZZAL: Yes, you’d been in the office for quite some time.

LUCID: Yes, it had been a very long time. You talked to other people that were working, not in the Astro Office, and they would talk about having their annual review, and you just thought okay. You wonder why. But if someone wanted to be in control, then it's best not to let know people where they stand.

ROSS-NAZZAL: That's some good advice. What are your memories of being named to that second mission? Are there any memories of your flying in the T-38s?

LUCID: Oh, it was great. It was just so neat to be named to the second mission, because obviously I wanted to fly a lot. I was very excited that I was going to fly with Ellen [S. Baker] and Mike [Michael J.] McCulley. Oh, and then there was Franklin [R. Chang-Diaz] too, because I'd been working some with Franklin. It was just a wonderful, wonderful thing to be named to a crew. Also, it was Galileo, which was a very important mission.

ROSS-NAZZAL: You specifically mentioned Ellen. I was just curious. You were on an all-male crew before. Did things change? Were there any differences because you had now another woman on board with you?

LUCID: Not really. Every crew was different in the makeup, and it's not really based on whether you're male or female. But it was very nice being with Ellen. Karen, her daughter, was roughly a year old at that time. She was just learning to walk when we got down to the Cape [Canaveral, Florida]. That was really nice. I had known Ellen a little bit when she was in Flight Medicine and then when she came into the office, but I hadn't gotten to know her that much. It was great

being on a crew together and working together. We were assigned as the IUS deploy crew. She was just super to work together.

In flight we, Ellen and I, just hit it off as a good team. It was so funny because Mike McCulley was in the astronaut class that she was in, so they had a nice relationship also. Mike was such a good guy, and he was so easy to joke around with. There was a couple of times where we would be joking with Mike on the flight, and he would say, "What is up with you two?" He would be so puzzled.

I remember one time Ellen and I just broke out laughing, and I couldn't really tell you exactly why. It had something to do with a handkerchief that we had found. We'd tied little knots in the end of it and put it on Mike's head, and it was floating off and it was so funny. It was just so funny. We just laughed and laughed. Mike kept saying, "What is wrong with you?" It doesn't sound that funny just to talk about. You had to have been there; it was one of those things where you just had to have been there. We just had a really good time together.

It was funny, because we were the deploy team together, so we were doing that together. We got tagged as the women of *Atlantis*. Then there was a picture, I guess Franklin must have taken it, of us on orbit. Ellen and I are by the deploy panel, and I have on my sunglasses.

ROSS-NAZZAL: I've seen that, yes.

LUCID: We gave that to different people after the flight that had been involved and signed it as the women of *Atlantis*.

ROSS-NAZZAL: Is that something that people in NASA called you or is that something that the media had decided to name you?

LUCID: Oh no, the media didn't. It was just, I don't know, somebody in either our training team or the Mission Control or somebody. Somebody said that once and it just caught on.

ROSS-NAZZAL: If you have that photo—well, I have access to it on IO [Imagery Online]. But if you have one signed, we can put it with your transcript.

LUCID: This is really funny, something that happened with Ellen too. We were up and we were looking out the window, observing the Earth. We were flying across the United States, and I said, "Oh, Ellen, Ellen, look, there's the Red River," because the Red River separates Texas and Oklahoma.

She looks and she says, "It really is red."

I said, "Yes, that's why it's called the Red River." We got talking about what we were looking at, and we called down to the ground. Milt [J. Milton] Heflin was the flight director for that orbit, I think. He got involved through the CapCom in the conversation. Somehow the conversation—I don't know exactly how it happened—but somebody looked at Rand McNally. There was a new atlas that had just come out. And lo and behold, Oklahoma was not in it. They'd forgotten to put it in. It was so funny.

Then we had a little bit of banter back and forth about all these people from Oklahoma, because Milt was from Oklahoma too. We weren't even in the atlas. It was pretty funny.

ROSS-NAZZAL: How can you miss a state? That's bizarre.

LUCID: Yes. They didn't have the state in the atlas.

ROSS-NAZZAL: Milt said that you were one of his favorite people to work with. I wondered what your ties were with flight directors and flight controllers, especially this mission, since you had a unique relationship with Milt being from Oklahoma. I don't know if that had any impact.

LUCID: Milt was from Oklahoma, and I was from Oklahoma. If I remember correctly his father was a band director in a small town that was very close to where I grew up. We were somewhat similar in age. We came up in the same culture. We both were promoting Oklahoma and proud of being from Oklahoma. We just always really enjoyed working together whenever we did. I CapCommed a lot of different missions, and you had a certain relationship with a flight director when you CapCommed. Flight directors are just absolutely super people to work with. I always thought it was really neat to watch how a flight director—they're all different—how they orchestrated a flight and got the room to be a whole and a team. It was just great.

It was funny, Milt and I talked about it once. You talk with different people, back in those days, and it was amazing how many people were from Oklahoma.

ROSS-NAZZAL: Yes, that's true.

LUCID: It was absolutely amazing.

ROSS-NAZZAL: Yes, and very well-known people too in the program.

LUCID: Yes, there were just lots of people from Oklahoma back in the timeframe that were working for NASA, working down in Mission Control, and working at JSC.

ROSS-NAZZAL: You definitely had an impact on the space program.

LUCID: Yes, I told somebody sometime, “We wouldn’t have had a Shuttle if it hadn’t been for the wonderful people of Oklahoma.”

ROSS-NAZZAL: This was your first flight since *Challenger*. Had training changed at all? You had the launch entry suits.

LUCID: Yes. We had the launch entry suit, and we did a lot of aborts, training for getting in and out of the Shuttle. But the thing that amazed me as we were training along and learning different things, it dawned on me, I had this thought quite a few times. “Oh, my goodness, I’ve flown once and I didn’t know this? I didn’t know this?” After you have a flight, you think you know everything. It was just amazing to me going through the flow the second time how much I didn’t know, and how much I learned.

ROSS-NAZZAL: Is there one thing that stands out?

LUCID: No, it was just lots, because I did have the thought quite often. “Oh, I flew and I didn’t really know this?”

ROSS-NAZZAL: I bet you that’s the case for a lot of people.

LUCID: Oh, I would think so.

ROSS-NAZZAL: How comfortable was that launch entry suit? Was it challenging to put on and get into?

LUCID: For some people it was, but I had an easy time getting in and out of it. But it could be very uncomfortable, and it had to be adjusted just right. I don’t think it was STS-34, but for one flight—you always did dry count before launch, so you went through the whole launch sequence there in the vehicle. Maybe it was the next flight, it was dry count, and I didn’t think I was going to make it through dry count because I was in such pain from the way the parachute harness and the launch entry suit fit. Oh, my goodness, I think Troy [M.] Stewart was the suit tech. We talked about it a little bit.

He came in on July 4th, and he and I were over in the suit tech area. He worked all morning. He took his vacation day and worked with me to make sure that I had a comfortable suit for the next exercise that we were going to do. He adjusted the parachute and everything. It was just super, but the suit techs were like that. They were so supportive. That just always struck me, because that was the only day that we could have done it. He was willing to take of his vacation and make sure that I was comfortable.

ROSS-NAZZAL: Yes, that's really nice.

LUCID: Yes, that was very nice of him.

ROSS-NAZZAL: Not everyone would do that. I've heard that suit was pretty hot.

LUCID: Oh yes, you'd die in the suit; it was so hot.

ROSS-NAZZAL: I was watching video of you all bailing out of the Orbiter. I thought it was interesting. At least the video I was watching of your crew. It didn't look like you were in the water. The exercise I was watching, you were in the full fuselage trainer, and you were just sort of tumbling, which I thought was interesting, that you'd practice like a somersault.

LUCID: Yes, we rolled out. We did different things. In the mock-up over in Building 9 they had a big slide so that you went out and you needed to move in a certain way so that you would get off the pole and get your chute deployed, because you didn't want to get tangled up in the tail of the Shuttle.

ROSS-NAZZAL: What about some of the training you participated in in the experiments? You obviously had a number of experiments on that mission. Anything stand out?

LUCID: I don't remember much—so many of the payload experiments that you did, they didn't really require a lot of crew interface. I don't remember too much about any of the experiments.

ROSS-NAZZAL: What about training on the cameras? It seemed like from the videos that I was watching from your flight you spent quite a bit of time using cameras to document the mission. What sort of training did you participate in for that?

LUCID: It's interesting with cameras. I've never been a big cameraperson, and I've never spent a lot of my life taking pictures. The reason why is it always was like okay, if you have something exciting going on you either spend your time taking pictures, or you can enjoy what's going on. I always thought, I'm not going to waste my time taking the pictures; I'm just living in the moment. I know always on every crew, there was somebody that absolutely loved taking pictures. I was always willing for somebody else to be the prime photographer person.

On STS-34 Franklin was the prime IMAX person. He did a really good job. The IMAX people—this is true—they did so much work, and they did such a good job making those IMAX films.

Was it after that flight that *The Blue Planet* was released, the IMAX film? Anyway, there was a shot.

ROSS-NAZZAL: I think so.

LUCID: I think it was Ellen and I with our bare legs because we had our shorts on. It was a lot of leg in the beginning. My son said, “Aren’t you horribly embarrassed, Mom, to have something like that on a huge movie screen?”

ROSS-NAZZAL: What did you say?

LUCID: I said, “Well, it’s part of the job.” But I could see his point.

ROSS-NAZZAL: I guess it didn’t strike me when I was watching them.

LUCID: You weren’t my son.

ROSS-NAZZAL: How knowledgeable did you have to be about Galileo?

LUCID: We had to be knowledgeable about the systems that we interacted with on the IUS. Obviously, we didn’t have to be knowledgeable about what was going to happen to Galileo after it launched. That was JPL [Jet Propulsion Laboratory, Pasadena, California]. They were the people that were in charge of that and doing that. Our responsibility was to get it out of the payload bay.

ROSS-NAZZAL: Did you spend much time out at JPL?

LUCID: No. We didn’t spend much time out at JPL at all because the training was here.

ROSS-NAZZAL: I wasn't sure if you spent any time out there.

LUCID: I think we made a tour and met the people. We met all these people, and they had devoted so many years of their life to constructing this satellite and this planetary probe. You really thought, "Oh my goodness, I hope I don't screw anything up." Can you imagine what you'd feel like if you did something that made all their work of the last 10 years or however many years they dedicated their lives to be of no avail?

ROSS-NAZZAL: Yes. That's a lot of pressure. Who was your family escort for the mission?

LUCID: I don't remember launch, but I remember Bill [William F.] Readdy was there at landing. The reason why I'll always remember that is Bill, he had this little camera, he took such a super picture of Mike and Michael and myself. It's my favorite picture of the three of us. Of course, Michael got to go to the landing; the girls didn't, because we'd have to pay for them.

ROSS-NAZZAL: So the family plan didn't include landing, just launch?

LUCID: We had to pay for the girls on launch too because they were above 16.

ROSS-NAZZAL: Oh, right, okay.

LUCID: But Michael came to the landing. It was a discussion, should he go to the landing or should he not go to the landing. It was a free trip for him, but he'd have to miss school. He was going to miss this huge important test in biology. I told Mike, "Just let him come. It doesn't make any difference if he flunks. Okay, so it impacts the semester grade but he's only in the ninth grade. Life goes on." He came out to the landing.

He had such a good time; he really did. He took pictures, but he took pictures of the little plants that were coming up in the cracks of the runway out there at Edwards [Air Force Base, California].

ROSS-NAZZAL: So it was an educational trip.

LUCID: I guess you could call it that. I hadn't thought about that. But anyway, Bill Readdy took this picture. It was such a super picture, and it was just after we had landed. It was funny because on that flight we were in quarantine so long before the flight, and Michael was under 16, so I couldn't see him. It was quite a while, I want to say maybe three weeks or more, that I hadn't seen him. As soon as I saw him after the flight his first words were, "Wow, Mom, look at this. I'm taller than you are now." And he was.

ROSS-NAZZAL: He had a growth spurt during that time?

LUCID: He was growing a lot, and he had inched up above me.

ROSS-NAZZAL: I guess the good news was he didn't ask what you were making for dinner that night, right?

LUCID: No. But I guess that was a little better than when I landed on Mir. His first words to me were, "Your hair has certainly turned gray. It's more gray than Rich [Michael R.] Clifford's hair now."

ROSS-NAZZAL: Yes, kids have a way of saying things that make you feel special.

LUCID: Absolutely. The important things.

ROSS-NAZZAL: Had you served as a family escort previously?

LUCID: Not during the Shuttle era. It was interesting because I would have liked to have done that. I'd have to go back and check, because you can just make assumptions, but it was mostly males that they assigned as family escorts. I'd have to go back and look, but that's the thought I had at the time. Then, of course, some crews had input into who was going to be the escorts. It was sort of an in thing.

But after Mir, when we started launching from Russia, I was a family support person many times. I just loved doing that job, because then it involved going to Russia. That's why I got the job because no one else wanted to do it. It was just wonderful. I just loved doing that, and then supporting the family during the flight.

ROSS-NAZZAL: That means a lot to people to have that support.

LUCID: I just really enjoyed it. You felt like you had part of a flight.

ROSS-NAZZAL: Yes, plus you get to travel.

LUCID: I got all these free trips to Russia; you can't ask for much more than that.

ROSS-NAZZAL: What was the press interest in this mission? You had this amazing payload that was going to go on and do a lot of great research, but you also had plutonium on board, so what was that like?

LUCID: The press just focused on the plutonium, the RTGs [radioisotope thermoelectric generators]. Because it was a planetary mission and Galileo was going to go way off, far away, it couldn't be powered with solar cells because it would be too far from the Sun, so they had the RTGs, which had plutonium in them. The press just really picked up on that because there'd been some nuclear incidents. It's a legitimate thing to ask and to think about and want to make sure that there was plenty of safety. I'm not sure about this, but I think it came down to President [George H.W.] Bush having to sign that it was okay to do. There were protestors down at the Cape protesting it. That was the question that the journalists would ask. They said, "Well, is your family going to be down at the Cape?"

"Yes."

“Well, aren’t you afraid that if it blows up they’re going to get annihilated by the plutonium?”

I said, “I think it’s going to be safe.” But that’s where the interest was.

ROSS-NAZZAL: Nothing else on that mission that was of interest.

LUCID: That was the main focus that I remember people talking about.

ROSS-NAZZAL: We talked about quarantine. Did you spend time at the beach house before your flight? Is that something that you would do regularly for your flights?

LUCID: Yes. We did that before every flight. That was nice. It was very nice to have a little time just for the crew and the spouses.

ROSS-NAZZAL: Sounds like fun. I know we’ve e-mailed back and forth because someone had an interest in astronaut breakfast recently. Steak and eggs were the big thing, at least during the Gemini and Apollo years. Was that pretty common at that point?

LUCID: Oh, no. Oh, no. In crew quarters the food was really really good. They had a couple people that were just super super good cooks down there at that time. They just came in for the launch support. They just fixed absolutely wonderful meals. You could have whatever you wanted for breakfast, but it was certainly not steak and eggs. I don’t remember anybody having that.

ROSS-NAZZAL: I've been looking at pictures lately of Mike [Michael] Collins eating steak and eggs.

LUCID: It's a different era.

ROSS-NAZZAL: Yes. Are there other traditions? The steak and eggs thing kind of sticks with people. Having beans at Launch Control for launch. Were there other traditions that the astronaut corps had before launch?

LUCID: Yes, somebody always made a cake for the crew with a patch on it, and it was down there. That was very nice. I can't think of anything right off the top of my head.

ROSS-NAZZAL: The sad part about the cake is you never got to eat it though.

LUCID: I know, I know.

ROSS-NAZZAL: That's the sad part, right?

LUCID: But it was all decorated with a patch and everything on it. It was the decoration that counted.

ROSS-NAZZAL: I think I noticed in some of the pictures for your crew that you had sort of a jack-o'-lantern astronaut as you were eating breakfast. It just stuck out to me.

LUCID: Maybe. I don't know. It could have been somebody that was working there in crew quarters.

ROSS-NAZZAL: I thought it was interesting. What about the launch of STS-34? Were there any special memories of that mission?

LUCID: There were a couple malfunctions that they were working. I could be wrong, but I think they had a message on the APU [auxiliary power unit] and then Mission Control said it was okay. Something happened with the flash evaporator so that when we got on orbit it was really hot. It was just really really hot.

Then that impacted us in preparation for landing—because we had to cool the Orbiter down, so while we were in orbit waiting for the deorbit burn, a couple hours, oh my goodness, it got so cold. I put everything I could find on, and I was still cold. It was really cold because we had to cool down the vehicle. They were worried about the flash evaporators getting too hot on entry. But that's all I remember about it.

ROSS-NAZZAL: We have hit noon. Think this is a good place to stop?

LUCID: Yes, because you want to go to the Gilruth [Center, Houston].

ROSS-NAZZAL: Oh, no, that's fine. On interview days I don't because I never know what my day is going to bring. But we could pick up with the IUS deploy.

LUCID: All right. That sounds good.

ROSS-NAZZAL: Then we can talk about your romance and adventure next time.

LUCID: That's so funny, I can't believe you found that.

[End of interview]