NASA JOHNSON SPACE CENTER ORAL HISTORY PROJECT
EDITED ORAL HISTORY 2 TRANSCRIPT

MARGARET RHEA SEDDON
INTERVIEWED BY JENNIFER ROSS-NAZZAL
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ROSS-NAZZAL: Today is May 21st, 2010. This interview with Rhea Seddon is being conducted for the Johnson Space Center Oral History Project in Murfreesboro, Tennessee. The interviewer is Jennifer Ross-Nazzal, assisted by Rebecca Wright. Dr. Seddon begins by talking about Mike [Michael L.] Coats.

SEDDON: He was one of the first two folks that I met when our class went down there. I don't remember how it happened. I think we all decided we were going to go to a bar. We had something to do the next morning, and if everybody was there, we were just going to meet all over at some place. There were two guys that I recognized or knew, and I walked up and I said, "Hi, I'm Rhea Seddon." One was Mike Coats, and one was Hoot [Robert L.] Gibson. I thought these are good-looking men, both with big blue eyes. I feel like I've known Mike for a long time. Good, good man.

ROSS-NAZZAL: He seems like a nice guy. When we were talking to Kathy [Kathryn D. Sullivan], she was talking about weighing who might go first, and she mentioned you in a red Corvette. Did you have a red Corvette when you first came to JSC?

SEDDON: Her memory is good but not that good. I had a Silver Anniversary Corvette. It was time for me to get a new car, and I figured I might get something really cool and had a friend

who had an order in for one, but didn't want it. He helped me get the one that he had ordered. It was neat; I was pretty flashy. I had forgotten that.

ROSS-NAZZAL: She didn't think she would be first to fly. She was like well, "We have Sally [K. Ride] and Anna [L. Fisher], and Rhea comes in with this beautiful red Corvette." I just thought it was an interesting story. I thought I would ask you.

SEDDON: It was a silver one, it was new, and it was beautiful.

WRIGHT: What a fun car, at a fun age.

SEDDON: Yes, exactly.

ROSS-NAZZAL: The other thing I wanted to ask you about. I asked Kathy about this as well. You had mentioned the Cape Crusader yesterday. I'd asked her where the term came from, because I can't remember anybody in the Apollo Program ever telling us where that came from.

SEDDON: The cartoon character.

ROSS-NAZZAL: Is it from Batman?

SEDDON: No. I don't think so. I think there was a cartoon character called that. Have you tried Googling it?

ROSS-NAZZAL: No, I'll have to go out and see.

SEDDON: Batman was the Caped Crusader, maybe that's where it came from. I recall that there was a little cartoon character that either that was their nickname or that's what they were called, crusader somebody. It came out of comic books or TV, and it was a silly thing. Not that we all took ourselves very seriously.

ROSS-NAZZAL: You had pretty serious positions. Yesterday you were talking about your engagement on Valentine's Day of '81. Do you want to pick up there? We'll put all the rest of this in the transcript too.

SEDDON: Hoot and I knew we were pretty serious. We went out to dinner for Valentine's Day, and we went to Galveston to one of the seafood restaurants there and walked out on the pier, and in the midst of that he asked me to marry him. Of course I said yes, because we'd been thinking about that for a while and then we discussed when. We were both just so incredibly busy getting ready for STS-1 that we knew that we would have to wait till after that got off the ground to set a date and begin the planning. We did.

ROSS-NAZZAL: I remember reading the Hoot was contacted by *Brides Magazine*.

SEDDON: I didn't know that.

ROSS-NAZZAL: We'll have to ask him when we talk to him.

SEDDON: By the way, he said he would be happy to talk to you, it's just today is insane, and his schedule is insane. He does have your email, and he will eventually be happy to sit down.

WRIGHT: We'll figure whenever he's got that block we'll be ready.

SEDDON: I told him that it'd be wonderful to have a transcript of things that the kids kind of knew or didn't know. He's excited about doing that.

WRIGHT: We'll look forward to talking with him.

ROSS-NAZZAL: I was also thinking, if you want, we could try a joint session between the two of you, and then do his oral history separately, if you want to do something like that. That might be interesting. Also *People Magazine* covered your [marriage]. I think they had a three-page spread. They talked about the possibility of you two flying in space at some point. Was that ever a reality, do you think?

SEDDON: No, I didn't feel like NASA was going to do that. I suppose there was an unwritten rule that they didn't put married couples in the same flight. Not that anybody ever said, "No, that won't ever happen," but I think I knew that. I only vaguely remember that article. But yes I guess they did. It was unusual.

ROSS-NAZZAL: I thought it was interesting. Did Anna Fisher and Bill [William F.] Fisher offer any advice? I know that they had a lot of interest in the two of them because she was selected, he wasn't, but they were married, and then he got selected.

SEDDON: Then he selected. I don't remember a whole lot of discussion about that. Their situation was a little different. We had talked over time about the two of them, but I don't remember there being any discussion about it. I think the only thing that Bill, Anna, and I did together—after Kristin was born someone requested the four of us with our two babies, and pictures were made for some magazine or newspaper, because I've got the picture. Kristin probably two months old, and Paul squirming trying to get away. They were just about a year's difference between them.

ROSS-NAZZAL: I'll have to go and see if I can find it. There was a married couple on your husband's flight, on STS-47.

SEDDON: They married each other after they'd been training for a long time. They didn't have any children, and it was difficult to decide who to take off the flight, if they were going to do that, and so they let them fly together. They did tell us it was an unwritten rule, that they really didn't want to do that. There were several married couples along the way in the Astronaut Office. I guess they just wanted to formally tell us, "We're making an exception for [N.] Jan [Davis] and Mark [C. Lee], but we don't want any other married couples to fly together."

ROSS-NAZZAL: The press was definitely interested in that flight. Did you offer any advice to Sally and Steve [Steven A. Hawley], when they announced that they were engaged?

SEDDON: No, I don't think they needed any advice. We congratulated them, thought that was swell, and knew them both very well. We were happy for them.

ROSS-NAZZAL: Was there much interest in the wedding when you came here to be married?

SEDDON: There was. There were press pictures and things like that, I think, but this is a fairly small town. The press wasn't allowed in the church or in the reception. They snapped some photos of us coming out of the church, but that was about it. There was a big write-up in the local paper, because it was of local interest. We had a very small wedding at the church that my great-grandparents attended. Just some very close family friends, because it was a small church. Then we had a big reception out at the country club so it was a good time. There were a fair number of my friends still in town, but a lot of friends, people that my parents knew well, so it was probably 80, 90 percent my parents' friends. My mother had died by then. My mother died in '76, rather suddenly. I married in '81. It was mostly my dad and couples and friends that they had.

ROSS-NAZZAL: You married very soon after STS-1 launched.

SEDDON: Yes. We married May 30th. The launch was the 12th of April, and the landing was the 14th. Then I came home and planned a wedding real quick. The biggest thing was getting

the country club, because it's usually booked up for weddings that time of year. But because it wasn't quite June, it was available. We just scurried around and got it all done.

ROSS-NAZZAL: How would you describe your family experience, having grown up in a household where your parents weren't astronauts?

SEDDON: My father was an attorney. My mother was a typical '50s homemaker. Very artistic, very creative. An English major, very smart, beautiful, and very much involved in this town. I think they envisioned for me the same kind of life that my mother had, and the same kind of life that all the girls in this area aspired to or planned for. I guess because there were only two girls, maybe, my father was happy for me to want to have a career and encouraged that and supported that. I was lucky. I think my mother was a little amused by it all, but never said, "Ladies don't do that." I think my father would have preferred that I go to law school and take over one of the businesses that he owned and run his law practice, but that just wasn't what I was interested in. He was pleased that I wanted to go to medical school. He thought that was a great thing to do. I guess that was a little odd for both of my parents that I was taking a different route, but I think they realized that women were doing that at that time. They were supportive.

ROSS-NAZZAL: When your father heard that you were going to be an astronaut, what was his reaction?

SEDDON: I told him when I applied. He said, "Well, that's kind of strange, isn't it," something along those lines. I said, "Yes, but I probably won't get in." I just thought that would be a neat

thing to do, to apply. I told him about the timing, and how it could be a logical break in my medical career; I could always come back to medicine. Then when I was selected he just sort of like, "Are you really sure you want to do this? It's going away from all the things that you had planned."

I was about to finish all that training, and he had supported me through med school. I was pretty much on my own through residency, but he had helped along the way. It was like, "You had this big future as a wealthy doctor, and now you're going to go be a government employee." Once he knew that I really wanted to do that, I'd thought it out, he gave me the benefit of the doubt on whether it was the right thing or not, and was excited about it for me, obviously. I was lucky to have a parent that was supportive and didn't think any of these things were too off the wall to make it a difficult thing.

ROSS-NAZZAL: I thought we'd talk about some of the material that Amy [Foster] has discussed in her dissertation. Anna had talked to us a little bit about this. When you came into the office originally the crew systems folks were trying to figure out a way for women to use the bathroom during launch, reentry and EVA [Extravehicular Activity]. They came up with a diaper system called the DA[C]T, the Disposable Absorption Containment Trunk, which looks very comfortable.

SEDDON: Oh yes. That worked and was acceptable, and they gave us a chance to try it out.

ROSS-NAZZAL: Would you tell us about testing that product?

SEDDON: I'm trying to think. I think we flew in the KC-135. I remember the idea was to try to get two voids during the flight so you didn't just have one opportunity. We would try to go with a full bladder and void. They had a little bathroom area or curtained area where we could be. Then try to drink enough water that you could pee again before the thing landed. I don't remember an awful lot about it. It was a fairly simple solution that was acceptable. At the time I don't think they had diapers for adults so this was a very expensive thing. They measured you and form-fitted you. It was like a panty girdle with an absorbent middle section. I think there was comment about how much they each cost. We didn't have anything to do with it. We needed something. Obviously we couldn't use the male variety. We didn't take them on cross-country trips with us or anything like that. We had a few to try out and then once we were happy with it they just put it on board for us.

ROSS-NAZZAL: Were there ever any complaints or concerns that anyone voiced?

SEDDON: I don't think really. They're fairly comfortable. I think the only thing is because of the padding they made you look heavy. You put your flight suit on, and you looked like a sausage. I never did any of the suit training, so I can't tell you whether people were comfortable in the EVA suits. I thought of all of the ideas they came up with, that one was the simplest and easiest and most reliable.

ROSS-NAZZAL: What about the Shuttle's waste collection system? They had to come up with a way for women to use the bathroom in space. Did you play a role in testing that?

SEDDON: Yes, I got called over one day to test the seat belt on the toilet. They had several different designs, you know a seat belt type seat belt. But you couldn't get stable that way. They finally came up with the thigh bars. That was one of the things that I tried out. I went over to the water tank on scuba and just sat on a simulated toilet seat and tried seat belt this way, seat belt this way, thigh bars this way. It was pretty obvious to everybody who tried it that the thigh bars were the things you needed and that they were very simple, easy to use, and kept you very stable, didn't have to hold on to anything. That was my big contribution to the space program. [Laughs]

ROSS-NAZZAL: Quite important actually. Did you do any testing in the KC-135? Was that required as well?

SEDDON: Yes. I remember testing out the urine funnel on the KC. It wasn't entirely satisfactory. Number one, you had 30 seconds or less. The KC, it's sort of weightless, but because it's a little bit up and down, you can't make it entirely smooth. I'm not sure that we were really comfortable that it would work well for women, the urine funnel, until Sally flew and said, "Works fine." So that was one that in theory it could work; it worked sort of okay on the KC, but you really didn't get a good chance to use it until you got to space. Everybody knew that, and had extra toilet paper, so that if urine got out, you got to go chase it around.

ROSS-NAZZAL: Did it perform well on Sally's flight?

SEDDON: She said it did. Seems like we talked after her flight and asked a few questions about the stuff that was female-related, not much stuff. The toilet was. She said, "Yes, make sure you do this, make sure you do that." I don't even remember what it was. She said, "It works fine."

ROSS-NAZZAL: What were some of the other female issues you guys discussed when she came back?

SEDDON: I can't even remember what they were, because I don't think Sally wore makeup, so we didn't ask about that. She obviously had female underwear, but I can't remember that there was anything in that that was in any way different. A lot of public interest that she had to deal with, and she may have talked about that. I don't remember anything specific, but I know it was difficult for her. I don't remember any other issues.

A lot of people thought, "Oh it's going to be really different." It just wasn't. When Sally flew, when Judy [Judith A. Resnik] flew, when Kathy flew, it was just like you're one of the guys. You get to decide I think how modest you want to be or how private you want to be. There was accommodation for everything. If I was going to change clothes I either went in the air lock or went in the bathroom, pulled the curtain closed. If the guys wanted to change clothes they said, "I need to change clothes. Turn around." You just worked out whatever was comfortable for you and your crew and the guys. It wasn't a big deal.

ROSS-NAZZAL: Were there any changes made or any consideration made after Judy's flight when the waste collection system didn't work and she actually ended up using bags?

SEDDON: No. Except that that was just really unacceptable. We had to figure out how to make the toilet reliable, but we knew that it was survivable. We knew that, for the women, it was going to be very unpleasant. You had to pee into a towel and then stuff it in a bag. I'm not sure that we decided to stow extra DACTs. That may have been one of the fixes. Presumably you wore one for launch. Then you had a couple for landing in case you did a waveoff. Then obviously if there were women going to do a spacewalk they had more for wearing in the suits. I don't really remember there being any fix for that.

ROSS-NAZZAL: Did it work well on your first flight, the waste collection system?

SEDDON: Yes. I think on one or two occasions you'd see some urine coming out and collect it. You had to get comfortable with where you wanted the funnel to be and the airflow, but the toilet worked well. On one of my flights there was some problem with one of the downstream filters getting clogged. It smelled like urine. The guys had to take it apart and clean out the filter while we were working in the lab. Other than that it was pretty reliable.

ROSS-NAZZAL: You don't hear too much problem about it today except for the Station toilet. That seems to be the problem. Was there ever any discussion about menstruation and flying in space when you were in the office?

SEDDON: There was concern about it. It was one of those unknowns. A lot of people predicted retrograde flow of menstrual blood, and it would get out in your abdomen, get peritonitis, and horrible things would happen. All the women were going, "I don't think so." But you couldn't

prove it or disprove it. We were asked, "What do we do about this?" We said, "How about we just consider it a nonproblem until it becomes a problem? If anybody gets sick in space you can bring us home. Then we'll deal with it as a problem, but let's consider it a nonproblem." They did. I'm not totally sure who had the first period in space, but they came back and said, "Period in space, just like period on the ground. Don't worry about it." I think the big controversy was about—and a lot of the women disagreed—how many feminine hygiene products do you put [onboard].

Of course the more you put, the less room you have in your drawer for your clothes and stuff. Or in *a* drawer. I don't even remember where they put it. I helped make that decision with the docs. We had to do worst case. Tampons or pads, how many would you use if you had a heavy flow, five days or seven days of flow. Because we didn't know how it would be different up there. What's the max that you could use?

Most of the women said, "I would never, ever use that many." "Yes, but somebody else might. You sure don't want to be worried about do I have enough." So it was like, "Uh." The men were all, "Oh man, that's a lot of stuff!" I don't know; it was another one of those issues that was really kind of a nonissue.

ROSS-NAZZAL: How much did you end up putting on board? Do you recall?

SEDDON: I don't remember. It was probably—because we included both pads and tampons—probably at least twice as many as someone would use, and then probably 50 percent more than that just in case. It was a big wad of stuff.

ROSS-NAZZAL: I was reading an article [about] Anna Fisher. She said that the one problem that the women seemed to have was getting clothes to fit properly. I was wondering if you could talk about that.

SEDDON: From the very beginning when we chose our flight suit sizes, they were men's flight suits. You either got something that was too tight, or you got it to fit your hips and it was too big for your shoulders. They were just ugly. After a while they allowed us to get them tailored. They said, "We'll pay you to have them tailored." That helped, but it was the same way with the in-flight suits. They had small, medium and large pants, and you got to choose whichever ones you wanted to wear. They were not very flattering.

Then after a while, when I was on crew equipment, we talked them into letting us buy our own shirts from whatever vendor they told us. Because it turned out that the shirts, there were certain sizes, and when you flew you had your patch put on them. Then when they came back they had to be laundered, dry-cleaned, the patches taken off, inventoried, and stored. The cost of doing all of that was significantly more than what it would cost to just buy you a set of shirts, and then they're yours. The crews could get creative. Probably after *Challenger* [STS 51-L], if you look at crews in flight, they've got rugby shirts on, they've got colorful other shirts on, they've got different things written on their shirts.

To me, one of the things that interested me about flying in space was what do people want to take with them? What's going to be important? How do they want to live? The Shuttle is very basic, green. What people take is things to stick on the wall, pictures of their family, pictures of their cows or their dog. They limit the number of things that you can take, but it's like they do their own decoration. The shirts were the same way. It's how to be an individual in

the midst of something that's all very standardized. That was nice. You could also figure out what size you needed and get the ladies' version of the polo shirt. All that sizing stuff, I don't think NASA thought out too well. Obviously they just thought they could make smaller spacewalk suits, EVA suits, and they'd proportionately fit the women. They just never did.

ROSS-NAZZAL: Mae [C.] Jemison, we talked to her a few weeks ago. She had mentioned that they were all men's clothes, it was like if you took men to Lane Bryant and tried to tailor them for men.

SEDDON: Exactly. Exactly.

ROSS-NAZZAL: What about undergarments in space? Was that something that you supplied or was it something NASA supplied?

SEDDON: I think that's something that might have changed, that at first we supplied them. That's what it was, I think. We went out and bought them. "These are what we're happy with; this is the size I need." They had certain specifications about what you could and couldn't have. We bought them, they reimbursed us, and then they stowed them on board. Then, I think, they discovered sports bras that don't have to be individually sized. The women were wearing those to run in anyway. So I think that changed. It may be different now, but it seems like to me we went to standard underwear. It was yours, and it got stowed for you, but it wasn't stuff that you went out and bought. I think they bought it for us. I can't remember exactly, but I think that's close to what it was.

ROSS-NAZZAL: Where were these items stowed?

SEDDON: You had a clothes locker. Everybody had, I think, two clothes lockers. Everything was rolled up very tight and put in the clothing lockers. You knew where yours was, and everybody else knew where theirs was. It had your color on it. All your stuff was in there. Of course it was packed for launch. It was all just wadded up as tight as they could get it. If you ever took stuff out, if it ever came out, you'd never get it back in.

ROSS-NAZZAL: In Amy's dissertation she had a quote from Kathy about a dress code. Do you remember any discussions about a dress code for female astronauts?

SEDDON: No. I came out of a world where you had to dress professionally, and I think some of the people came out of a very casual academic setting, and didn't really dress professionally, but I don't remember there being a dress code. I think the only code that eventually developed was if you had long hair you had to pull your hair back, your hair had to be contained. That was okay. I don't want my hair in my face anyway. That's the only thing I remember. There may have been one, but because I was already meeting that dress code it was like, "Oh okay." So I don't remember one.

ROSS-NAZZAL: When you came to JSC were women primarily wearing dresses and skirts? Or were they also wearing pantsuits by that point?

SEDDON: I think we were wearing pantsuits by then. I think I wore a mixture of things. I can tell you that we had to be able to dress up. I was sent to the Paris Air Show, 1979, and there were a number of formal events so I had to have formal clothes. There were other times that were very business-like, "Valery Giscard d'Estaing is coming to our display today. Look nice." You had to have appropriate clothes when you were put in those kinds of situations. As I say, I had a friend who had a dress shop here in Murfreesboro, and I could say, "We're going to the White House after we get back, help me pick out what I want to wear to go to the White House," and she did. I was very lucky. As a surgery resident, we could wear scrubs part of the time, but the rest of the time we were expected to look professional. The men wore ties, and the women had to match that in a female sort of way, so that was the way I dressed anyway; it wasn't a big deal.

ROSS-NAZZAL: Tell us about going to the Paris Air Show. How did you get picked for that?

SEDDON: Probably because I had clothes that I could wear. I don't know. I was just told, "We need somebody to go to the Paris Air Show. We want to send a woman this year, because we just picked women, and you're it." "Oh, swell." Went with Deke [Donald K.] Slayton, which was interesting, because he was macho man himself. I was dating Hoot at the time, but it wasn't really appropriate for him to go with me. My dad went with me, so we had a nice time. My dad traveled a lot in Europe and was a wonderful companion to have along. We got to do some fabulous things. A lot of the contractors put on big dinners.

It was wonderful, but it was being on stage. It was being sort of assessed, as, "What kind of people do they pick as women astronauts?" I was probably more on the feminine side, I

guess. I had to shake hands, make small talk, look professional, and represent NASA well. Gave several talks wherever we were. Deke talked about the flying characteristics of the Space Shuttle, and then I could talk about the people that were selected to be mission specialists, I think. It was a nice experience. It was wonderful to be able to go represent NASA that way, and I had a good time. Went back when Hoot was invited to the air show later on, late '80s, early '90s.

ROSS-NAZZAL: Pretty city. Recently I came across a *US News and World Report* quote from Sally Ride which I thought was interesting. She recalled coming to JSC, and she said that NASA had a culture that didn't know how to work with women on a day-to-day basis professional level, that there was a cultural adjustment that in some cases is still going on. I'm just curious if you could comment on that.

SEDDON: Well, as I said earlier, there just were no women in that field, very few women engineers. Men, I think, were used to working with women, but the women were their secretaries. As Mike [Richard M.] Mullane talks about in his book [*Riding Rockets: The Outrageous Tales of A Space Shuttle Astronaut*], it just took a while to figure out how to treat women. "Do we treat them just like a man? Do they want the door opened for them, or do I need to carry their parachute for them? If I tell this joke that I think is funny will they take offense?" I think there was concern that women weren't really serious about this, that they couldn't really do the job.

Whether it was unspoken or whispered or you just got the feeling that they doubted whether or not you could make a contribution to what you were working on, it was there, but I

think NASA was very determined that this was going to work. I think that if there were problems they were handled. Other than an undercurrent maybe initially of, "What is this and how is this going to work," I don't think I felt an awful lot of discrimination. We were given good job assignments, we were given opportunities, we were treated as equals, I think. Different people I think felt it to different degrees. Having been with male surgeons for four years and male medical students before that, I didn't take offense if they made some silly joke about dumb blondes or something, because I was part of the group. I didn't feel like they were trying to persuade the other people that I really was stupid. Those sorts of things didn't really bother me.

I know for some of the women it did. They didn't want to tolerate it; they didn't want any questions about things. In interviews with the press, they would take offense if the reporter wrote about what they had on. I thought, "I'm just not going to worry about that. So what? It's a stupid article." There's nothing you can do about it. There's no way you can go in for an interview, talk about serious stuff, be a competent female and not have them write about your eye shadow or the shoes you had on. There's no way to get around that. If they're going to do it, they're going to do it. You can't ask for a retraction. It isn't incorrect; you haven't been slandered. So what, don't worry about it, don't let it ruin your day. It wasn't terribly obvious to me, although it may have been to some of the others.

ROSS-NAZZAL: Do you think NASA is still trying to learn how to work with women? Or do you think that they learned that in the late '70s?

SEDDON: I don't go back enough to know, but certainly by the time I left there were women in all aspects of NASA. We had women flight directors, we had women Shuttle commanders, we

had women in management making decisions, we had women pilots out at Ellington [Field, Houston, Texas]. There were just women doing everything, and they were doing it very well, there wasn't this question of, "Well, we tried women as flight controllers in mission control but they haven't done a very good job and we'll have to reassess those decisions." They did terrific jobs. Everybody recognized that, and it was accepted.

I think compared to health care, NASA was way ahead. Way ahead. Maybe some people still see problems, and things have happened to them that were unfair. In general I didn't feel that that was going on.

ROSS-NAZZAL: What role do you think the six of you played in paving the path for future women like Eileen [M.] Collins and some of the other female pilots and commanders?

SEDDON: Obviously I think we felt the weight of that and we felt that we needed to succeed. We didn't need to ask for any favors. We didn't need to turn down jobs. I think most of us, if we asked for a job—like my management experience—when you showed an interest in something, if there was something that you wanted to do, I don't recall that there was ever anyone to say, "That's a job that the guys do." I don't remember that. I can remember when we didn't have any women pilots, and so when we interviewed women that began to have piloting credentials we looked really hard at whether or not this was a woman pilot that we needed to take that had all the credentials that we wanted to see. I think we interviewed a couple before Eileen came in. It didn't have to do with, "We have to take a woman at all costs," it's like, "What does this woman bring in her credentials, in her personality, in her approach to being a female in a male world, how do we weigh all of these things, and is this the right person to take?"

I think we were cognizant of the fact that if we took a woman pilot she was going to be looked at carefully, just the way the six of us were. I think Eileen just was a wonderful representative. She came through when I was on selection board. I was pleased that she had the credentials to do what she eventually got to do and did well.

ROSS-NAZZAL: Jeff [Jeffrey A.] Hoffman recalled when you came into the office, the six of you, that you changed things in a way by making things more comfortable in the office. He remembered when you first came everyone referred to themselves by their last name. Called Al Bean, I guess, Bean.

SEDDON: They all had their military nicknames, Beano, and I don't remember what else.

ROSS-NAZZAL: He had mentioned that apparently it was an issue calling women by their last name, so eventually everyone came to call each other by their first name.

SEDDON: That went on behind my back, or without my knowing. I had heard that there was pretty rough language in astronaut meetings before we came and that that was toned down, but I don't know that to be so, or the extent that was there. There was no swearing and filth. The meeting was held professionally, and it wasn't that we were offended by the occasional four-letter word. They just weren't slung around, didn't need to be. If we cleaned things up, that's fine, but I don't think anybody complained about that.

ROSS-NAZZAL: Do you think you changed the office in any other ways that were visible to you?

SEDDON: Well, I think it gave men a chance to learn how to work with women on a professional peer-to-peer level. Women were serious, women were well trained, and women were intelligent. I think to that extent not only the people in our office but the people at JSC, the contractor people. We're sending an astronaut out to look at that satellite. "Oh, it's a woman!" So what? She's a smart woman, and she can do just a fine job. I think the whole world of spaceflight had to deal with the fact that there were people who were going to fly in space that were perfectly capable of doing so but they were female.

I think maybe there were things that had to be modified because they had been assuming the average height male, or the equipment fit the standards of astronauts before women. I think the smallest they could be was I think five-six or five-eight. Suddenly I came in and was five-two. Sometimes they had designed something that was a little awkward. I made a real effort to not ask them to redesign the equipment but to give me equipment that would help me to be able to work on a piece of equipment like that.

One of the things, the remote manipulator arm, the panel for that, I think you know where that is. It's at the back of the cockpit, and then there's a window to look out into the cargo bay so you could see what you're doing out there. That window is high so I had to stand on something to be able to see out that window. I didn't ask them to change the whole design of the back end of the cockpit. It was, "Okay how can I accommodate to this?" I stood on a box. Then obviously I didn't need to stand on a box when I got into weightlessness, but I knew that I didn't want to be floating around back there when you're using hand controllers. I developed a bungee system, where I bungeed myself onto the panel.

I was not one of those people that demanded that NASA redesign equipment to accommodate the standards that they had now set. I think when we found that the suits didn't fit some small people there was considerable concern about that on the part of some of the women. I tried my best, I tried everything I can, I can't get in that suit, and even if they spend $25 million designing a specific suit for me, that's hard physical labor. If I needed to do it I would have, just like the scuba training. I'd have trained myself to be able to do it; I'd have bulked up and been overly fit. It wasn't what I really wanted to do, but I recognized the fact that there were women who really wanted to do a spacewalk and didn't get the opportunity.

That to a certain extent was unfair, and I think NASA recognized that was unfair. They just didn't feel like they could redesign the whole suit to accommodate the few women. It was about less than five-foot-four. The standard was you had to be five feet tall, but I think Kathy [Kathryn C.] Thornton was not terribly much taller than I was, and neither was Anna, and they both did suit work. It was really just the tiniest of women. Mary [L.] Cleave, Rhea Seddon, and maybe some of the others just because they were smaller through the shoulders. I figured I could accommodate to most things, and the other things they needed to accommodate to, but not if it was going to spend a whole lot of NASA money.

ROSS-NAZZAL: It's interesting you say that, because Kathy had mentioned for her first EVA that the suit had not fit properly but she didn't make a big to-do about it. She was worried that NASA would say, "Well I told you we shouldn't have women; they're making all these demands." What do you attribute that attitude to?

SEDDON: I think it's the can-do spirit. "I can do this, even if it's not perfect, because if I complain too much they won't let me do this. Or I'll put barriers in the way of other women as they come along." I think a lot of people accommodate to that. I think everybody does it in one way or another. Maybe some of the women had to do a little bit more just because of size and proportion. People increased the standard height so that big guys and a majority of women could get in. I think they said if the height standard had been held at five-foot-six that most of the female population wouldn't have been able to apply simply because of their height. They did expand those, but I don't think they did a full inventory of, "What do we have that will be a problem for someone who is five feet tall?" Then when they found out about it they figured, "Well we'll just redesign what we need to redesign." Sometimes they couldn't do that. You had the choice of "Do I make a big deal out of this, do I want to use a silver bullet on this one, can I accommodate to it, or do I want to just not force the issue?"

I think a lot of people did that. Probably some of the tall guys were not terribly comfortable in some of the equipment they had to be in. The launch and entry suits—"Here they are. We'll try to fit them to you. And oh, by the way, fully outfitted they weigh like 80 pounds." Yes, they sized it really well to me, but it was really heavy. If you weigh 160 or 180, 80 pounds is a lot. If you weigh 120, 80 pounds is really a lot. But again, what am I going to say? "Oh, no, I want a little dainty suit" I got to be able to lug 80 pounds' worth of stuff around, or they're going to say ,"Hm, maybe you're not qualified for flight," so we just did it. We just did it.

ROSS-NAZZAL: I was giving a paper last summer, and someone asked me an interesting question, something that I hadn't thought of before. They were curious if anybody from your

class ever made a proclamation or statement, "I'm going to use the feminine approach to things, or a manly approach to a solution."

SEDDON: Not that I know of. Not that I know of. It was just like, "We want to be part of this group and we don't want to demand that the feminine approach or the female approach is better." No one ever told us to act like a man. Just as far as I know we were just part of the group. We never declared that we would approach things in a different way.

ROSS-NAZZAL: Would you tell us a little bit about Judy Resnik? Everyone we've talked to seems to have a close relationship with Judy. A lot of people mentioned that they were her best friend. I guess she had a lot of best friends, and I was curious if you could talk about her.

SEDDON: I can't say that I was Judy's best friend, but we certainly did a lot of things together, chatted a lot, that sort of stuff. I always found her very straightforward about things. I think it was that Midwestern Ohio, just tell it like it is. There were times when I was a little taken aback by something she said, and it wasn't that it was not true, it was just to the Southern person in me it was a little forward. I thought she was really really bright, obviously a very beautiful person, flirtatious, funny. She was just a live wire. We would do the happy hours, or we'd go on these NASA trips, and Judy was just a star attraction. She was just having a great time and was obviously friends with everybody. I'm sorry she's not around. I think she would have had a great time with NASA and done a lot of good work for NASA. She was obviously very very bright. She had an engineering degree, which a lot of us didn't have. She understood a lot of things that were beyond me when I got there.

Other than Anna, I didn't really hang out individually with the other women. Liked them, had a great time with them, admired them, depended on them when we had to make decisions about things or when we all wanted to find out if we did need to make decisions about it. I didn't hang out that much one to one with the other women. We were all just going in different directions working on different things at different points in our lives. That's the way it was.

ROSS-NAZZAL: Tell us about the day that you learned Sally would be the first American woman to fly in space, when they made the announcements for STS-7, 8 and 9.

SEDDON: I think there was a little disappointment. I always felt like it would be Sally or Judy. They had received the assignments and had a lot of the up-front knowledge that you really needed to fly in space. Judy had gotten to NASA I think three months before we got there. She could finish up the job that she was in. She had a head start on us. She was an engineer; she understood all the stuff. I think she worked with the arm. Sally I think was a CapCom [Capsule Communicator] early on. They had the sorts of technical assignments that really prepared them for flight. I worked on food systems and I worked in SAIL, but those were not the sorts of things that I was going to have to do on a flight. I think most of us felt it would be Sally or Judy, but all of us thought, "Well, maybe it will be me."

Hoot knew that I was disappointed, and he said, "I think later on in life you'll be just as happy that you got to fly but that you weren't the first." He was right. When you carry that title the rest of your days, it puts a special kind of responsibility on you that I'm sure that Sally sometimes wishes that she didn't have. But she was the right person. She did a terrific job.

There was no doubt that she would be fine. As I say, I think all of us probably were just a little disappointed that our name wasn't on the list. At the time I had other things going on and other things to do, like a baby.

ROSS-NAZZAL: Was there ever any discussion amongst the group about who might be first? Or was that just unspoken?

SEDDON: I think it was unspoken, because certainly the six of us didn't get together and say. "Well I think I'll be first." "No, I'll be first." Maybe there were groups of two that got together that said, "How come she got that assignment?" I don't remember there really being any discussion about it. We were all doing different things. We all had our own specialty areas. I don't remember there being discussion about it.

As I recall, we probably all congratulated Sally and told her how happy we were for her and told her that we were her backup crew, all of us. We were there to support her in that flight, because it was important to *all of us* that she do well. I think she knew that, and it was a responsibility for her. She didn't want to mess anything up and have somebody say, "Oh well, that's what you get when you fly women." She trained hard; she did a great job. She got along well with her crew; the flight was fine. It all just worked out great.

ROSS-NAZZAL: Were there ever any issues that popped up in the midst of training that you all had to deal with?

SEDDON: Well, as I say, Sally often asked us, "What do we want to do about this, and this question has been asked, how do we deal with it?" Other than the ones that I've talked about, I don't really remember any.

ROSS-NAZZAL: Were you at her launch?

SEDDON: I was. We all went down there for her launch. John Denver was there. Had dinner with Bonnie [J. Dunbar] and John Denver, which was fun. John Denver sang at the reception the night before for her. It was a spectacular launch. Lots of important women were there. It was pretty exciting, and all of us were very happy for her and had our fingers crossed that all was going to go well. It did. It was a very important milestone, I think, for NASA, and it was good to be a part of it.

ROSS-NAZZAL: Tell us about the day that you learned you had been selected for a flight.

SEDDON: As I recall, rather than being at a happy hour, Mr. [George W.S.] Abbey called me over to his office and asked me if I wanted to go on STS 41-E. I said, "Yes of course. Who's going to be on the flight? What's on the flight?"

He just gave me some very basic stuff; Bo [Karol J.] Bobko was going to be the commander and Don [Donald E.] Williams was going to be the pilot. Just gave me some basic information and congratulated me and said, "Go over and start talking to your new crew." He called everybody over that day, or everybody got together once we knew that everybody knew. It was pretty exciting. Obviously I went and told Hoot, "Mr. Abbey called me over."

Knew that it was going to be busy. Ended up being kind of insane. If you look back on the history of our crew, we had multiple different crews, we had multiple different flights, we had multiple different training plans. It got really frustrating; it got very difficult when they would cancel our flights. We just trucked along. I was the third woman assigned, and I was so proud of that, that Sally flew and Judy flew, and then I was number three of six. I was so excited about that and then the way the schedule ended up I was fifth to fly.

I remember telling someone that, and they said, "Who ever remembers any of that?" Unless they ask you, "Were you first?" "No, I wasn't first, Sally was first." "What were you?" "I was fifth of six." In the grand scheme of things, who the heck cares? My hometown still to this day thinks I was the first American woman in space. They introduce me, "This is Rhea Seddon, she was an astronaut, she was the first woman to fly in space." Not really, but if you want to think so that's fine. So the important thing was getting to fly.

And you go through that frustration of not being named to a flight, being named to a flight, having them cancel the flight, having to retrain for a different payload. We trained on three different payloads. We had Patrick Baudry, the French astronaut, with us for a while. We had Patrick and Jake [Edwin Jacob] Garn for a while. Who else did we have? We had Greg [Gregory B.] Jarvis for a while, unfortunately, he flew on *Challenger* 51-L. Then we had Charlie [Charles D.] Walker. We ended up with Garn and Walker. But it was that turmoil of, "Who's really going to fly with us, what are we really going to fly on, and are we really going to get to fly?"

It had its ups and downs. Bo Bobko was just always cool and calm. He just never got upset about stuff like that. That's the kind of commander to have. When they cancel your flight Bo says, "They'll give us another one. Don't worry about it. We'll get to fly, we'll have fun,

let's go take a vacation for a week and come back, and they'll have decided." That made it really easy. I think if Bo had been absolutely furious at NASA and the world and had led us in that direction we'd all have been furious at the world but he just handled it with great aplomb, and so did we. We went home and put a fist through the wall, felt sorry for ourselves, and then we came back and started over. We eventually got to fly.

ROSS-NAZZAL: Tell us about the rest of the crew and the crew relationship besides Bobko.

SEDDON: It was a good crew. The ones from my class—Jeff and I were, I think, good friends. I just thought the world of Jeff Hoffman. I wasn't particularly close to Dave [S. David] Griggs. He was a man's man. I knew Don Williams from multiple happy hours and knew his wife well, and so I knew Don well and was very comfortable with him. Jake Garn was at first this unknown who was thrust upon us. Jake was a pilot. Jake was bound and determined to fit in well, and he did. He knew flying, he knew the piloting environment, he wanted to do a good job, he didn't want to just be a visitor. Charlie Walker had flown before. I had worked with him. He had a payload on STS-6 when I was the support crew so I knew Charlie, and I knew his experiment. I was very comfortable with him. It was a good crew. It was a very good crew.

We divided up all the duties, backed each other up, helped each other, and went through all of that together and then went through another training thing for a different payload. Had to reconfigure who was going to do what. Then eventually trained on a third payload—I think we were like a month from launch when we got that third payload. Luckily it was a combination mostly of payloads that we'd had before, but there were some things that were different. We just

had to reconfigure ourselves and in a month's time train to fly a third payload. Some things came off, other things went back on. It was kind of insane. It was a stressful time.

For most of us it was our first flight, and we didn't care what they did to us as long as they launched us.

ROSS-NAZZAL: What did the crew think when they heard that a US senator was going to be on the crew?

SEDDON: I remember we—the four that were flying on the flight deck—were in the simulator when Mr. Abbey called Bo over. We all looked at each other, and we said, "Hm, we think we know what this means." He came back, and said Mr. Abbey said he could tell the crew but not anyone else because it hadn't been announced. As we were getting ready for another simulator run, he wrote a little note so our training team wouldn't hear us on the intercom, "Jake Garn is on our flight." We all looked at each other.

Bo says I said, although I don't quite remember saying it, (but if he says I did, I probably did, because I was certainly thinking it), "This may turn out to be a good thing." There was certainly more focus on our flight than there would have been if we were just carrying the payloads, because it was kind of a dull five-day flight. The fact that Jake was on there, there was a lot more interest around it. He was excited and the press was excited. There was controversy, but we learned to deal with that. It ended up being a good addition, and Jake is still a good friend to this day. I think he did a good job, and he certainly represented NASA well when he went back to the Senate. Then we had the *Challenger* accident and we really needed supporters there.

ROSS-NAZZAL: Tell us about the press interest in the flight having a senator on board. Did that have any impact on the flight or the training?

SEDDON: The training went on, and Jake volunteered for medical experiments. I helped him with that, and so that was some additional stuff that I backed him up on, although he really took most of the responsibility himself. He volunteered to be a subject for one of the experiments that I was doing, the echocardiograph so I appreciated that. He was very accommodating. He wanted to help us when he wasn't busy. He learned how to operate the food system and certainly was willing to hold things, lift things, be there to do whatever he could do to help.

There was a lot of press interest, a lot of evening news or talk show people saying, "Why would we use up a seat to fly a senator?" It was just an interesting other thing, and there was a woman on the flight, and I was starting out to be the third, so there was still some interest in females flying. I guess it all came together.

ROSS-NAZZAL: What were some of the things that the reporters would ask you at some of the press conferences? Were they focused still on gender issues? Or were they focused on the flight itself?

SEDDON: They were pretty much not focused on gender issues anymore. We'd answered those questions. Certainly by the time I flew and was fifth, there was no longer this question about, "Do you think women can do this job" or "How's it different for women?" Now it was becoming more accepted, and that was great. Everybody was pleased that there were no longer

those sometimes silly questions "How does it feel to be flying in space?" What are you going to say? I think it was to a certain extent more focused on Jake, "How do you feel about having a senator on board?" By that time we were very happy to have him on board. He was a good crew member and we could honestly say, "We're happy to have him. He's great, he's going to help us out, he's doing some useful work, help us answer some questions about human physiology in space." There was more focus on that.

The flight itself, we took two satellites of the type that had been flown before. I was taking the echo. Jake was doing some experiments and Charlie was growing crystals. There were a few other little things. It was a pretty ho-hum flight. There wasn't anything very new on that flight and then it ended up being pretty interesting. I don't know if you've read, but we had a satellite that didn't work. We had to use the arm. They did an unplanned spacewalk. It ended up being on the front page.

That was interesting. We got to do some fun stuff. We didn't turn the satellite on, but we did everything they told us to do. I hadn't really been trained on using the arm to do the things they asked me to do. It ended up being a great flight. We got a chance to really work together and to work with mission control. They were all excited about it because they became stars too, designing new pieces of equipment. It was certainly more fun than what it was when we started out.

ROSS-NAZZAL: Since you brought it up, let's talk about that, we can go back to some of the other questions. Talk about when you knew that the LEASAT that you deployed wasn't working properly and then what happened from there.

SEDDON: Well, we looked at it and knew that it was supposed to spin up, and it didn't. We talked to the ground, and they said, "Are you sure? Did the antenna come up? Look at it again. Let's give it a little time." Then they knew that the booster was set to ignite halfway around the world, 45 minutes later, and we had to get away from it just in case something failed, but it wasn't the booster timer.

We got away from it and were drifting off, and we said, "Was it anything we did?" As I recall, Jeff Hoffman and I—I think I was the prime on that. It may have been me and Dave. We went back over everything that we did, every switch. We cross-checked one another. I'm flipping this switch, I've checked it; this talkback came on, I've checked it. There was nothing that went wrong, so we didn't have to scramble around and handle malfunctions during the deploy. Everything worked exactly as it was supposed to work. It was one of those fairly lazy. "Power up the satellite, check this out, do this, turn this on, count down, push the button." Bam! It comes out. We just knew we hadn't done anything wrong.

The ground had some insight into that and could have told us "Oops, you didn't turn that switch on." We knew that there was nothing that we did that was wrong. We figured it's a lost satellite; there's nothing much we can do about it. Then the ground came up and said, "We'd like for you to stop your separation rate from the satellite." Once they knew that the booster wasn't going to fire. It was like, "Quit moving away from the satellite." We're all going, "What are they thinking?"

I think Bo may have even asked, "Okay, we've completed that burn," or whatever it was. "What exactly are you thinking?"

Mission control gave a very general answer. "We're looking at what the possible failure was and whether there's anything that can be done about it." So we thought, "Well, this is

interesting." Then it wasn't very long after that that they told us, "We're coming up with a plan. We think that the only malfunction that could have happened was that the deploy switch that should have popped open when it came out of the payload bay didn't get put in the on position, and it's an external switch that you may be able to do something about. We're planning now to figure out how we might do that. It may involve an EVA."

Of course Jeff and Dave were just bouncing off the walls. I think even at that point they began thinking, "Okay, what can we do to be ready if they tell us that we're going to do this?" Lo and behold, they came up pretty quickly with, "Okay, here's the plan, and here's what we've decided to do. Do you think it's doable? Do you think it's safe? Do you think you're capable of doing it?" Because Bo and Don had had a little bit of rendezvous training for our first payload, but we'd only gotten within a month or six weeks of launch, we hadn't gone through all the training and the simulations. I had done some arm training to deploy and berth the payload that we had on that flight, but I hadn't really done much in the way of arm stuff. The second payload we had, we didn't even have an arm. The third payload, the only thing we were going to do was move the arm to certain coordinates to watch the booster burns.

So I hadn't had any training in doing a lot of arm operations. Dave and Jeff obviously had only had the very basic training in EVAs to do very basic stuff, close the doors, I guess free payloads if they got hung up, just very basic stuff. When they told us what they wanted to do, Bo asked questions. He said, "I'd like to talk to my crew." We talked about what the plan was, what each of us would have to do. Bo really went around and asked everybody, "Are you comfortable doing this? Does this sound like something that we can manage?"

All along I really thought that Bo and Don had probably the toughest part, the most dangerous part, the part that could really get us into trouble if they messed it up. My part, using

the arm, I had a good bit of concern about, but I was willing to do it. They made it so that I didn't have a person on the end of the arm. I think that might have made me even more anxious. I also knew that Jeff Hoffman had trained as a backup, and that if I was having difficulty I could hand it over to Jeff. That's the good thing about Shuttle flights, you know that if for some reason you're having difficulty there's always another person who can take over for you.

We all were very excited about doing it. It was like, "We can do this," again the can-do spirit, "We can do this!" To a certain extent we were all probably faking it a little bit, but we were willing to try. We knew mission control had done a lot of work, were going to do a lot more work, were there to support us. If parts of it didn't work, no one was probably going to die from it. It would just be something that couldn't be done or we couldn't do it, and we were willing to take that chance.

It all worked really well. We didn't have any major problems. Bo and Don did a fabulous job of getting us close. Dave and Jeff had just the best time going out and doing spacewalks. They did what they had to do but then they had a chance to improve their experience base. "We need to do a little bit more practice while we're out here with some of the equipment," so they got a little extra time to be out there and get better at spacewalks. Dave never had a chance to do another spacewalk but Jeff did, so Jeff was happy that he had as much experience as he had.

The arm part for me, I guess I'd had enough training, and the task itself was fairly routine, and Jeff was there watching carefully and giving suggestions. I did exactly what they told me to do. We pulled on that switch, we tugged on it, we could see the switch when we came up on it, and it looked like it was in the on position, so we were pretty sure that we were not going to make a big difference.

But, we didn't know whether that switch was almost to the on position, and a good tug on it would pull it or make the contact and start the sequence. We did what we were told to do. We told them that we had and they could watch our cameras. We backed off a little bit. The thing never did spin up. Once again they thought well, maybe they banged on it enough that the booster will ignite, better get away from it. They gave us the coordinates I believe, with the arm, to drape it over the payload bay and watch for the booster burn, and it didn't happen that we could see, or there wasn't any explosion, and they didn't see anything.

We said, "Well, we gave it our try." We celebrated, because we had done it. We had done it. It's too bad the satellite didn't come on, but we did our part. When we got home people said, "Oh, weren't you disappointed?"

We said, "Well, it's too bad the satellite is lost, but we had a great time." We got everything done. We had two extra days on orbit. We had a chance to do things that we didn't think we would have a chance to do. It was a very positive flight. Had a good time. Had a good time debriefing it and telling people things that we learned. If anybody ever had to do that again, maybe some things that should be thought about. Really good debrief with mission control. They filled us in on all the stuff that went on behind the scenes before the final plan was out there. We came to appreciate the people that had done the simulations with the suits. They had tried different things. Everybody was running 24 hours a day, trying to figure out what's the best way to do this. Wonderful to team with those people.

They were so excited that we were getting to do the stuff that they had planned. It's really a participatory flight. Everybody had a good time.

ROSS-NAZZAL: How long from the time the satellite malfunctioned until you used the arm? What was that time span?

SEDDON: Let me see. The satellite malfunctioned on day two. I know that day six of the flight we took off. They offered us an extra day on orbit, we said, "We'll take it." I think it was on day five that we did the arm stuff. There was a lot of stuff that had to be done to get ready so it was probably day five. After that was all over the ground said, "We can hurry up and bring you home tomorrow, or we can give you an extra day. Bo says, "Let me poll my crew; we'll take the extra day." We were running out of food. We were eating hot dogs for breakfast. We had to patch together meals, but we didn't let the ground know about that. We probably could have eked out another day if we'd had to have Twinkies for dinner.

It was a very very busy flight, because we had to do all of these additional things but we wanted to make sure that we accomplished all the things that we had in the timeline to do: my echo, Charlie Walker's experiments, Jake's stuff. We wanted to make sure all of that got done too. So we worked pretty hard.

ROSS-NAZZAL: Tell us about assembling that flyswatter. It's almost like an Apollo 13 story.

SEDDON: Exactly. At the time all we had was a teleprinter to uplink information and voice. Couldn't send up pictures, couldn't send up video; no computer uplinks. They had to describe what they wanted by talking to us and by describing it in a teleprinter message. "First take this, do this with it, do that with it." Then we could send pictures down to them. We would do something and we'd say, "Like this?"

They'd say, "Well, no, a little bit more like that."

We pulled out book covers and a swizzle stick, and I don't remember what else. We took some of the metal out of the covers that went over the interdeck access to block out light at night, or during the day if we were sleeping.

We just pulled out all kinds of stuff, and it was arts and crafts time. Jake really wanted to help with all of that. I was making the flyswatters and Jake was helping me with the stuff that was hard to do. He was very pleased to be able [to help]. There's a nice picture of him with his head up through the interdeck access and the two of us working on the flyswatter.

It was great. We eventually put these two flyswatters together and we downlinked the picture. We said, "Okay, finished product. Is this what you want?"

They said, "Ah, it's even better than what we described," because we had looked at it and put a little additional tape here and there and reinforced certain places. We understood the concept. They were really good about saying, "Here's what we want, here's what we want it to accomplish, and here's why we want it to look that way." Great communication with I guess it's MMACS [Maintenance, Mechanical, Arm and Crew Systems], the mechanical guy that does the fix-it stuff in mission control. The CapComs having to relay messages through those folks and answer, "Yes, no, more, less, bigger, smaller." There was a lot of that going on, but it worked and we had a good time.

ROSS-NAZZAL: What happened to the flyswatters after they didn't work?

SEDDON: We were not allowed to carry them off, but I did let the crew equipment people know I'd really like one of those. A guy told me that he would get it for me, and then he said he

couldn't get it for me. I don't know what happened. It's probably stored somewhere. They were very interested in how duct tape responded to space, heat, cold, radiation, sunlight so they were doing some testing on it, which I could understand, and that's fine. But I sure would have liked to frame it and put it on my wall. They really don't want you to have space stuff. They were very careful that any stuff that came back from space didn't go home with astronauts. Somebody else may have it hanging on their wall, I don't know.

ROSS-NAZZAL: How big was the flyswatter once you put it all together?

SEDDON: The swatter part was the size of a book cover. It was the book cover off one of our flight books, so that was the size of it, eight-by-ten size. Then the swizzle stick was probably two feet long. The whole thing was about that size. Then of course Jeff and Dave had to strap it, actually the two of them, on the end of the arm. It was fun seeing them float out into space in their spacesuits with these two devices tethered to themselves. "Please don't let go of them when you get out there. We spent some time putting them together; we don't have the stuff to do it again. Don't drop it." They did a really nice job of that.

ROSS-NAZZAL: Tell us about eating in space and your crew. Did you all eat together? Was that something you did as a crew?

SEDDON: Frequently we did. We took a food warmer because Charlie Walker's experiment took up the place of the galley. When we wanted a meal we all put our order in, and frequently it was Jake that made the meal. What a great guy. We were all scurrying around. He's seeing that it's

past lunchtime, he goes around, takes everybody's order, puts it in the food warmer, says, "Hey, food is ready."

Sometimes we would eat together, and sometimes we would just take our food and go to where we were doing other stuff and eat as we went. Sometimes stand around in the cockpit area looking out the window or floating around looking out the window while we ate lunch.

We took a fair number of our meals together. Bo thought that was important that we get together as a crew and make sure [we knew] what everybody else was doing. My other flights were that way too, to a certain extent. It's the time that the crew can all just take a break. You have to remind people to take a break. You can just drive yourself into the ground. Other commanders may feel differently, but the ones that I flew with felt like everybody needs to take a break. "Let's touch base with each other and see what's going on, because we're all doing different things, and we need to make sure everybody knows what's happening."

ROSS-NAZZAL: Tell us about your work on the echocardiogram. What did you learn from that, and how did that function in space?

SEDDON: That was an off-the-shelf item that the Life Sciences people proposed as a test, and they put together. I think it was put together and put on my flight because I was an MD and was capable of doing that. I had to recruit a couple of other people as subjects. I was going to do it on myself, and then Charlie, then Jeff and Jake, agreed to be subjects.

The fluid redistributes itself [in space]. They felt pretty sure that the heart had to swell a little bit, and there was a question about exactly what was the position of the heart in weightlessness, because your diaphragm comes up a little bit, your chest expands a little bit.

Does the heart move? What does the heart look like over time? Does it swell up and get smaller as might be predicted, or how did it work? It was pretty basic stuff, but I think I brought home good data. Tape-recorded it, and we could downlink a little bit of it so that the ground could see that we really were doing it.

My other two subjects, I think it probably was Jeff and Jake, because they're tall and thin, so they make good echo subjects. That data was brand-new, so I was happy because of my medical background that I had the opportunity to bring back some science and had the opportunity to train, help develop equipment, work out the procedures, do it in space, get data and see the results. That was all my science thing. It was a very small part of the flight but it was important to me. That's what I wanted to do in space, and I was hoping to make the Spacelab flight. It helped to have the opportunity to practice in a small way doing what I would be doing on Spacelab.

ROSS-NAZZAL: Was the heart bigger in space?

SEDDON: It was. It got bigger and got smaller the way it was predicted to be. Some decrease in volume of the left ventricle, the pumping part, because you're not pumping against gravity anymore. It was pretty much as predicted. The echo machine had been assigned on my first mission and then it had been taken off for my second mission, and then it was sort of not on there I think for my third mission. It was like, "Can't we put that back on? Is there some way we can? I'll take off one of my lockers full of clothes. Is there some way we can get that back on"

They did, as I recall. I'm remembering something from 25 years ago. I was delighted that I had some science to do.

ROSS-NAZZAL: Were you working with Jake on some of the medical experiments he was handling?

SEDDON: I did. Jake asked if I would back him up on some of the things. Bo asked me, "Make sure Jake is comfortable. He doesn't quite understand about how things are going to work in zero-G." Not that I knew a whole lot more, but I'd been around people who had talked about things so Bo asked me to make sure that Jake had everything he needed.

I sat through some of the training with Jake. Once he had been trained, I sat down with him and looked at what he hoped to accomplish, what he was going to do, and how I could help. There were only small things. They made it pretty self-contained so there were only a few things that he needed help with. There was one where you were supposed to see how green he was when he was sick, or how pale, so they had a color chart that he had to hold up next to his face, and he needed somebody to take a picture so they could determine was he more pale when he was sick.

There were a couple of things that if he really wasn't well I could do to him or help him do, but he didn't need an awful lot of my help. I was awful busy the first couple days, and then got really busy towards the end, so Jake did pretty much his own stuff. We helped when he needed. Any of us could do most of the stuff. We just kept an eye on him, "What do you need? Holler when you need something." If we floated by and he needed something he'd say, "Do you have a minute? Can you do this?" He was a really good crew member. Did his stuff, was helpful to us, and completed the things that they asked him to do.

ROSS-NAZZAL: Were you one of the medical officers on this flight?

SEDDON: Yes, Jeff Hoffman and I. Jeff's whole family are physicians. I told them that we would make him an honorary physician when he got back. "This is real Dr. Hoffman, not PhD doctor, but now he's an honorary physician." He had a lot of fun doing that kind of training. I think his dad and his brother and a lot of people in the family are physicians, and he was the black sheep for being an astronomer, astrophysicist, whatever he is. He had a lot of fun. I think probably he was a medical officer on more than one of his flights.

ROSS-NAZZAL: Your group was called the SWAT team. Can you tell us about that nickname?

SEDDON: I don't remember when we found out about it, but I think it was a term that was coined, and the ground let us know during the flight that, "Oh there's a lot of press about you guys and they're calling you the SWAT team because of the flyswatters." We thought that's cute, that's funny, so we'll be the SWAT team. The flyswatter became the symbol of our flight, and when we got off the flight we were handed flyswatters. There are a number of postflight pictures made, and we all have flyswatters. It was very interesting. When you're in flight they tell you, "Well, there's news today about this or this has happened," and they uplink messages. It's like, "Yeah yeah yeah, whatever." But then to get back, and Hoot had saved all the newspapers, and it was just, "Oh, my gosh, there were a lot of people watching." Probably good that I didn't focus too much on that. The whole world is watching you use this arm. A lot of good stories and good press about mission control working with us and doing what we needed to do. That was interesting. We became known as the SWAT team.

ROSS-NAZZAL: Take us back to the day of launch. You get up, you get ready, you go, you eat breakfast, you got the cake there. Walk us through that day.

SEDDON: We did the typical things. We got up as I recall early early. The weather was crummy, and we were all going, "Oh well, we'll practice going through this today because the weather is too bad to launch." The ground people told us it probably was not going to be good for launch today, but maybe there'll be a hole in the clouds. We'll send you out. Get strapped in, pretend you're going to launch. We did that. You could look out the front windows, and it was just a gray drizzly yucky rotten day.

We're all going, "How long are they going to make us sit here?" We get to the end of our window, it's like we've got 15 minutes. We had gotten down to nine-minute hold. I'd been sitting there for a couple hours. If we don't do something soon we're not going to go, but we're not going to go because there's rain on the windshield, and the NASA TD [Test Director] or whoever it was calling from launch control said, "Hey, Bo, what's the best way to get this thing in orbit today?"

Bo says, "I guess you'd have to pick up the count."

He says, "Okay. In two minutes we're going to pick up the count at nine, T minus nine minutes."

We're all going, "Yea, we're going to go!" We picked up the count. Don started up the APUs [Auxiliary Power Units]. Bo set a clock, because there's no countdown clock on board, and nobody's counting down in your ear, so Bo is saying, "Okay, two minutes, this is going to happen; one minute, this is going to happen."

He says, "In a minute you'll hear a little rumble and a wiggle, because that's the main engines." He just was really good about our folks downstairs, keeping them up to date, especially Jake and Charlie. We counted down, and there was this huge explosion. I thought, "I think we blew up," because the simulator just can't simulate that. Even though you hear it, it's just "Boom!" And a lot of acceleration, motion, vibration. Luckily I was upstairs, and I was watching the clocks and the displays. We were going the right direction. So it was just a fairly normal launch.

ROSS-NAZZAL: Were you the flight engineer?

SEDDON: No, I was MS1 [Mission Specialist 1]. I was sitting over next to Dave Griggs, who was the flight engineer.

ROSS-NAZZAL: Tell us what you did for free time on your first flight or that extra day that you had in flight.

SEDDON: I think all first-time fliers spend a lot of time looking out the window, because we were pretty close to windows. When you're on a lab flight, somebody says "Hey look at that," by the time you get up to the window it's gone. If you're down puttering around on the middeck and somebody says, "Oh we're coming up on the coast of Africa. There's a really great desert," you run upstairs and ooh and ah for a while and go back to your work. I spent as much time as I could looking out the window and trying to figure out where we were, because that wasn't real easy to figure out. On later missions, we had to set up a laptop to tell us where we were.

Just playing around with weightlessness. Doing somersaults, getting in a ball and having somebody spin you around, putting liquid blobs out into the air and watching what happens to them. Just the typical first-time tourist, "What's different about this and how does it feel different?" Doing funny things, like you can put your feet in the foot loops down on the middeck, so you're standing there, and if you do deep knee bends, pretty soon you're not feeling like you're doing knee bends anymore, it feels like you're pushing the Shuttle away from you. It's just this odd sensation. Looking at your living quarters or looking at the cockpit from being upside down, like you did when you were a little kid and stood on your head and thought where am I. So just those things, about learning about being weightless, because all of us figured we were going to go again, we needed to learn everything that we could about it.

That's what we went about doing. We had a chance to do that a little bit early, and then we had that extra day off that we could goof off and spend the day looking out the window, so that was nice. Everything in between, it was like we don't have time to do that. We've got to figure out all the other things that we got to do. Early on and late we got a chance to just play.

ROSS-NAZZAL: Tell us about your memories of that first landing.

SEDDON: Bo told me I could stay up on the flight deck standing behind his seat to watch until we got to a certain point during the landing phase. I was going to sit downstairs for landing. Jeff was upstairs. So the deal was, with the onset of Gs, in other words when we can feel G-forces, probably need you to get downstairs, get down the ladder, because he didn't want me to fall down and hurt myself and worry about that. I watched the big fireball part, and then pretty soon I noticed that my hands were resting on the back of his seat. I said, "I think we've got some Gs."

He says, "Yes, the G-meter says we got a bit."

I said, "I'm going downstairs." I didn't have the big orange suit on for that flight but I had to get into my helmet and get strapped in. I went downstairs. Bo again was very good about saying where we were, what we were doing, and what was happening. He called things out, and I could hear the calls from mission control. Here I'm looking at the face of the locker, boring. You could feel the onset of Gs. Certainly as you turn to line up with the runway it was like, "Whoa, I'm being squashed down in my sea." It was only one and a half Ggs, but when you haven't felt Gs for a while, it was a lot. We came in. They told Bo that there was a good bit of crosswind, so he was prepared for that. We landed. It was a nice, soft, steady landing. Roll out down the runway. Could feel that Bo was braking. Came almost to a stop, and hear this big bang. It felt like it was right under my seat.

Of course somebody said what you're never supposed to say in the Shuttle, which is, "What was that?" We were stopped, we were safe, nothing bad was happening. Mission control hadn't called to say, "There's smoke coming out the back" or anything like that.

I think somebody said, "Maybe that was the brakes releasing." I thought, "I don't know about that." When they came to get us out they told us we'd blown a tire, and luckily it was late enough that we didn't swerve or anything like that. We were not allowed to walk around. The crews get out and walk around. We couldn't do that, because they were afraid the tires had overheated and another one might blow. We could look over and see that yes indeed. I can't remember whether it was near side or far side from where I was. We got to see that we had shredded the tire.

That was exciting too I guess. After that they went back to landing at Edwards [Air Force Base, California] until they figured out how to fix the tires, brakes, and put the chute on board.

ROSS-NAZZAL: Was your family there to greet you when you got off the Orbiter?

SEDDON: Yes. They were back at crew quarters. Hoot and Julie were there in crew quarters. You wait for the door to open. There's your family, there's everybody's family, and they're so happy to see you home safe. Everybody's just jabber jabber jabber. I think we had lunch together, had a meal, and then got ready to come back home.

There were people waiting to greet us at Ellington Field so that was nice. Paul did not come to that landing, because Paul greeted me. Somebody, don't quite remember who, had kept him while Hoot and Julie came down for the landing. He was at Ellington Field. There's a wonderful *People Magazine* picture of him running across the tarmac. He was not yet three. I've got my little flyswatter in my hand, and I'm kneeling down waiting for the baby. That was wonderful. He was old enough to know that Mommy was getting back from somewhere. He hadn't seen Mommy in a while. So that was nice. It was a nice family reunion.

ROSS-NAZZAL: Tell us about the PR [Public Relations] trips you took. You mentioned that you went to the White House for instance.

SEDDON: We did. Jake had a lot to do with that probably. We had a great visit to Washington. Sometimes crews get to go to the White House, sometimes they don't. Of course [Ronald]

Reagan was President, and Jake was a very loyal Republican senator, and so we got to go to the White House, the Oval Office, meet President Reagan, have our pictures done, and that was very nice. Nice man, nice visit, fairly brief. Jake was good about taking us around to meet important senators, friends of his, fellow Republicans for the most part. I think we met mostly Republicans. Usually when crews go up there, we're sent out individually to talk to the congressmen from our state, present them with a montage. We did that, but we also got a chance to meet other important senators. I can't even remember all of them, but friends of Jake's.

[Break in tape]

ROSS-NAZZAL: You were talking about going around and meeting with the congressmen.

SEDDON: We had a chance to do that. I had a wonderful what they call a "hometowner." Murfreesboro made a big deal out of my coming back. They had a big function at my old high school. Got to see some of my high school teachers again. I was a cheerleader. They gave me back one of my cheerleader sweaters. We passed those on, so I didn't have any memento from that, so they gave me one of my old cheerleading sweaters. I brought back some stuff. I had flown some things for my school and for the city so I got a chance to bring those back. Just great hoopla around that.

My congressman Bart Gordon was a fellow that I'd gone to high school with. Usually the crews come up and they do a little congressional hearing about the flight, or at least that's what was going on back then. He persuaded the chairman of that subcommittee to come to Murfreesboro and do the debriefing here instead of in Washington, DC. That happened to be

Congressman Bill [Clarence William] Nelson from Florida, who we got to know during that occasion, and of course he ended up flying with Hoot on one of Hoot's flights. Closed the loop on that one. A great deal of hoopla about, "Local girl makes good." I had a good time with that.

I think one of the most memorable things was that we got to go out and be with Jake when he did his hometowner. The Mormon Tabernacle Choir put on a concert for us that was just the most spectacular thing I have ever heard in my life. They sang all the patriotic songs, "The Battle Hymn of the Republic," and just an awesome venue, an awesome choir. Just to be there with your crew and the spouses. It was just spectacular. We had a chance to do that.

They had a luncheon for us at one of the ski resorts near Salt Lake [City, Utah], so that was nice, got a chance to see a ski area, and we took up snow-skiing after that, so that was fun. A whirlwind of putting together your postflight report, your postflight press conference, going to Washington, going to Utah and going home; it was just an insane time. You think that the preflight getting ready to fly is busy, but your postflight can be just as busy, or at least it was on that flight, because this was still kind of new and different, and so there was a lot of stuff going on around that. It was fun.

ROSS-NAZZAL: Tell us about where you were when the *Challenger* accident occurred. Were you watching the launch?

SEDDON: Hoot's second flight had landed ten days prior so we had been busy. Seems like they had tried to launch before Christmas, mid December, several times, didn't go off, had a lot of problems. Came back in January, had a lot of problems. Finally got off the ground, and so we'd been very busy with that. It was like, "Well, okay, he just got home." Then he was involved in

all the busyness. I had been assigned to the Spacelab flight, and we were doing training for that. My Spacelab crews and I were at a training session. We were sitting in the conference room at a contractor facility and said, "Oh, the Shuttle is going to launch; let's turn on the TV."

We watched it, and it was like, "What was that?" Then I realized, maybe before the others, that this is something really bad. When you began to see these big chunks of stuff falling into the ocean it was clear to me that this was not just an early separation of the boosters, this was a catastrophic failure. Here I was off site. All I could think of is, "I got to get back to the office, find out what's going on. Someone tell me for sure."

I went tearing back to Johnson Space Center, and it was just like the whole world was calm and quiet, and nothing seemed to be going on. The people walking around the Center just didn't know yet. Hoot had been trying to track me down, this was before cell phones, and he found out on my schedule where I was. He called the contractor, and he was afraid that I didn't know this had happened, and that I was sitting over there fat, dumb, and happy. They had told him that I had left right after the launch and that I was on my way back. He met me at the door of our office building.

I was just incredulous. I could tell from his face that it was bad. I had a good cry on his shoulder and asked him what was going on in the office. He said they're trying to figure out what to do. The leaders were being leaders, giving directions and making plans and doing all the right things. We watched the TV for a while and listened to the NASA loop to see if there was anything that was known, and there wasn't. It was just the thing blew up, and everything had just disintegrated. They had to blow up the boosters, because the boosters broke loose. We just assumed everything exploded, didn't know why.

Went home that night not knowing. The President [Ronald Reagan] made a statement that evening, and we had a lot of friends and family calling. Initially I think there were people who didn't know whether the two of us were on the flight or not. Then all of them realized that something horrible had happened to close friends of ours so they wanted to call and tell us how sorry they were, chat, and ask if we knew what had happened. The phone just rang and rang and rang. We were both just basket cases, because the *Challenger* crew, some of them were very close friends.

Ellison [S.] Onizuka certainly and Hoot were just terrifically close. Judy and I had been through a lot together. Mike [Michael J.] Smith was just a wonderful person that we had gotten to know real well. Dick [Francis R.] Scobee and [Ronald E.] Ron McNair were part of our class. I think we were just stunned.

We realized that stuff was on TV, but I don't think we realized that it was as big a national tragedy as it came to be, because it was all over the news all the time and replayed and replayed and replayed. Initially there was this great coming together to get the *Challenger* spouses back home. Where were they, where were their families, what do we need to do? Send airplanes down to the Cape [Canaveral, Florida], send extra people. How do we need to get organized? Who needs to do what? It seemed like everybody had some kind of job.

Then we found out the President was coming for a Memorial Service and I had the job of calling all the former astronauts to see if they wanted to come to this ceremony where the President was going to be. Some did, and some didn't. The protocol of getting through all that.

Then just dealing with "Okay, what's next? What do we need to do?" They named the [Rogers] Commission, and there were people that were sent to support the commission, and then

there were others of us who were supposed to be available to track down answers. I wasn't terribly involved, because it was mostly engineering.

Hoot was sent to the Cape, I think, to follow what was being done for the boosters and main engines. He attended all the meetings where failure modes of those systems—because everybody felt like it had to have been something with the boosters or the tank or the main engines. He was gone. We were just, "What do we need to do today," and doing whatever needed to be done. It became clear that the crew compartment had come off the front end of the vehicle, and then there was this, "Oh, my gosh." Had a lot of further salvage. The salvage initially was just pull up stuff so that we know where the failure was, what caused the massive explosion, and everything disintegrated. Then it became clear that the crew compartment was out there somewhere, and a lot of salvage that went along with that.

Most of us just followed that peripherally. You felt like you needed to know what was going on, and yet everybody was pretty closemouthed about it. There were a lot of, "Okay, come in, sit down, close the doors and we're going to tell you what we know so far, and it doesn't go outside this room." There was just all this secrecy around it. "Yes, they found the crew compartment. Yes, they found remains. Yes, this is what's going to happen."

Then somewhere along the line, somebody saw that it was the booster, and we had to figure out what to do about the booster. In the midst of all this, this tragedy of good friends dying, everybody starts raising the issue of, "Should we do away with human spaceflight?" There was a lot of talk about "Can they do that, would they do that, who supports us, who doesn't, is my job going to go away? Even if my job doesn't go away, are we ever going to fly again, and if so, how many years is it going to be?"

It was just a horrible year, just a horrible year. Hoot was gone first to the Cape, and then he was put in charge of following the booster redesign for our Astronaut Office. He was gone out to Utah to figure out what they were going to do to redesign the boosters.

Figuring out what am I going to do. I had jobs. We were still following the flight. They started doing make-work stuff to keep us all busy. I was put on a team that was supposed to look at, "What are the answers that we need before we go to Mars and what's the best way to do it. Do we go direct, do we go to a station first, should we do construction?" It was this whole gang of people that just came together, and we all would look at each other like, "Who the hell cares?" It was make-work, it kept us all busy, and it kept our brains alive. We all had peripheral duties, and we did that, did that, did that. It became pretty clear it was going to be a while before we flew again. So I'm thinking I need to have another baby. We were not having any luck. Again, it was just a downer. I asked the office if I could go do some sabbatical work in one of the hospitals around just to get my skills together, and it was like, "Why?" I had to force the issue.

They said, "Well, it's because you're doing that emergency room work." "Well, partially yes, but I'm a physician, you expect me to know answers to physician-type questions, and I need to go back and do a little remedial work." I went for a week a month and did some emergency room work.

It was just like we were dragging through this; '86 was just awful. Then '87, it was like okay, they think we're going to fly again in '88. Somewhere along the line, Hoot gets assigned to the second mission after we return to flight, so he's thinking about that. I'm thinking, "Oh darn, it's going to be a military mission. I have no idea what's going to be on it; he can't talk about it. He has to go off and train. Just get through this year, get through this next year."

In the middle of ’88, I got pregnant. That was good in a lot of ways, because it was like the timing is all right on this. Return to flight was in September. Hoot’s flight was I think in December, because I was very pregnant by then, six months pregnant by the time he flew. It was like. “Okay, I got one kid by the hand, I got one in the oven. I’ll waddle down to the Cape.” That’s when I got my job with Mr. [Donald R.] Puddy, the Director of Flight Crew Operations, which was interesting and good work and a lot of planning for getting back to flight. Pregnancy went well. Huge baby. Huge belly. Pretending like, “Well, this is easy, I can do this.” We got through it. It was a very very tough time in many ways.

Every time I would feel sorry for myself or my family, I would think about the *Challenger* families. There was so much publicity. That explosion was just shown over and over and over again. The Rogers Commission and whose fault was it, and it could have been prevented. It was just like, “This is horrible. This was just horrible, go away, leave us alone. Just let us get back to flying again.” We eventually did, and it was a good lesson.

Military folks had had friends die in airplane crashes. I had never had a friend die. I didn’t know what I was supposed to do. I didn’t know how I was supposed to feel. I didn’t know how long it was going to hurt. I had to go to all kinds of memorial services. There were a lot of things that I wanted to go to that I couldn’t, funerals in faraway places. I had a baby at home. I had a little kid. I didn’t have any family that could stay with him while I went to somebody’s funeral, so I missed all the funerals. Hoot went to them all, and I felt bad and guilty about that. It was the typical, “Why did they die and why am I alive?” It was really tough.

I think there were a number of people who decided to leave the office at that time, because they weren’t assigned to a flight, and they knew it was going to be a long time before they got to fly again, before the Shuttle flew, and then before they got assigned, and then they

got to fly. I think there were others whose wives said, "You've made a flight or two. What else is there that you want to do? Let's go home. Let's go someplace. I don't want to see this happen to you."

So there were people that left. There were a lot of wives I think that really had trouble with this. We didn't hear details about it, but we heard about it in general: stress reactions. The Flight Medicine Clinic, to a certain extent they tried to help, but we were in a world of the macho men, who never would admit that something had affected them. Everybody was in denial, and nobody wanted to talk about their wife was a basket case and that they were having trouble with their marriage because she wanted to go, they wanted to stay. The kids were upset. It was just like all of this was swirling around in the background and you would hear "Flight Medicine said that Dr. [Terry] McGuire, the psychologist, will talk to anyone at any time, so will the flight surgeons, no questions asked.

People figured if you went and said you were having trouble coping with life that it would somehow get on your record and it would affect your career. It was a strange and bizarre time. Have the other folks talked to you much about *Challenger*, because I'm sure we all faced it in different ways.

ROSS-NAZZAL: I think when we talked to Jeff he talked about going back to school, that there was such a large lag time. I think Kathy talked about the fact that there was a big discussion about maybe the military payloads would be going first and there was some concern so she got a naval appointment.

SEDDON: Different people had different coping mechanisms. Being a very intelligent, busy, workaholic bunch of people, I think everybody did a reassessment of, "What do I need to do here? What do I need to do elsewhere?" There were all kinds of suppositions about what's going to happen. Will they reorder the schedule, and they did. There were priority payloads. So even though my Spacelab flight was pretty close to launch for a long time we had no idea when that flight was going to fly. We could see the return to flight, we could see the military, we could see the TDRS [Tracking and Data Relay] Satellite. You're thinking "Why does that one have priority over us?" There was a rationale to it, but there wasn't a lot of information, at least that I recall, about the rationale for the schedule. You would just find out.

I think all of us did a reassessment. "Do we stay, or do we go? Do we do some other stuff and will NASA support it?" I think people did those things. Again Kathy probably tried to figure out what's going to be best for her career. For me I had to think about obviously another baby. I had to think about my medicine. I had to think about the fact that Hoot was going to be gone, just gone all the time. "I want a shoulder to cry on. Boo-hoo for me." Raising another kid, getting through a pregnancy, and smiling through it. Each of us had to approach it in our own way. I don't even remember that we all got together and had a beer and discussed how we were all going to do it. You would just hear so-and-so has done this and so-and-so has done that and somebody has decided to retire and somebody is going to go work on this project at another NASA Center.

Okay, everybody's getting creative. Luckily, NASA was pretty good about letting us do some of the things we wanted to do.

ROSS-NAZZAL: You mentioned when you were working with Don Puddy you were working on that return to flight effort. What were some of the key issues you were working then?

SEDDON: Oh, Lord, I don't even remember. I was mostly an assistant so I was not in the decision making loop on many things. I would sit in meetings where they would discuss, "Okay, what are we going to do? Here's what the decision is, here's what needs to be done." I'm taking notes so that afterwards he can say, "Okay, I got these six actions. I need you to take these three, and I need you to appoint this person, this person, and this person to this. Who do you think out of the office could do this one? Call up these people and get this information." Gosh, I'm trying to remember. "Who should we invite to the return to flight flight, who's going to come, and who should be on the VIP [Very Important Persons] list," and it was like okay, "Now I get to be social secretary."

Again, in the midst of return to flight, my husband was going to return to flight. I had all the spouse things. Got to have a party at the Cape; I'm the commander's wife so I'm the organizer person. Get together with the spouses. Decide what we're going to do. Let's all get together and have a party. Whose house? We can do it at my house. Just all those things that the spouses had to do. Luckily, they were great spouses. Good time. Having fun, but just like 47 things to do on the do list today. So getting ready for his flight, which was going to follow not long after return to flight.

He was gone a lot for training for STS-27, a Department of Defense mission. We didn't know what they were going to fly on their flight. We didn't know exactly when they were going to launch. The deal was, "We'll just let you know when we maybe should go down to the Cape. Maybe they'll get to launch sometime." It was just all bizarre.

That and waddling around carrying this baby. It was a good pregnancy, just a very large baby. So doing all that stuff. It was just going from one busy time, to another busy time, to another busy time. Training for my flight.

It worked out well to work in Mr. Puddy's office. I got a chance to see a lot of things, understand how management worked, how decisions were made, how to be a good boss. We were using email by then. Learning all about email and how the boss, if he didn't want to he didn't ever need to talk to me, he could just email me. I'm sitting right across the hall from him, but I would get all this stuff by email. I'm thinking, "Why don't you just come over here and tell me?" That was a change that was going on in the world.

I had to summarize a lot of meeting minutes, run them by him, and get them out to the world. That was a responsible task, to make sure that you got it right, and that you summarized in the right way. You put enough and not too much. Thinking about what's the real issue, what's the real decision, what do we need the rest of the world to know about, because that report went out from him every week.

For some people, the world revolved around what Mr. Puddy said in his weekly report, which I had to type up. Sometimes I got it wrong, and he'd say, "Why'd you put that in there?"

"Sounded important to me."

He said, "That's not important."

Anyway, that's how we got returned to flight. There was such a hoopla about return to flight. It was an important milestone, but Hoot would make fun of how important people thought that was.

ROSS-NAZZAL: Do you agree with Mike Mullane's assessment in the book? I think it was Hoot's crew, where they stood up with the fire extinguisher. Is that it?

SEDDON: I'll let that be in Mike's portion of the report. Some people thought that was really funny, and some people didn't think it was funny at all. Just like some people think Mike Mullane's book is wonderful, and some people are offended by it. I'm one of those that loves it, love Mike Mullane. It's his view of what happened. Some people feel like you ought not to talk about other people, even if they can't be identified or you're saying good things. "Don't talk about me in your book."

ROSS-NAZZAL: We're never sure what to make of the book.

SEDDON: It's the world according to Mike Mullane.

ROSS-NAZZAL: Well, I think this would be a good place for us to stop today. Next time I come back we can talk about your other flights.

SEDDON: Okay.

[End of interview]