

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

ANNA L. FISHER
INTERVIEWED BY JENNIFER ROSS-NAZZAL
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ROSS-NAZZAL: Today is March 3rd, 2011. This oral history with Dr. Anna Fisher is being conducted for the Johnson Space Center Oral History Project in Houston, Texas. Jennifer Ross-Nazzal is the interviewer, assisted by Sandra Johnson. Thanks again for joining us today. I certainly appreciate it.

FISHER: Glad to be here.

ROSS-NAZZAL: I know how busy you've been, so thank you very much. I have a couple of questions for you about your preflight experience that we didn't cover last time. Did you continue to work as an ER [Emergency Room] doctor once you came to Houston or was that something you pretty much gave up?

FISHER: For the first year a little bit, very little bit. The group I belonged to in Los Angeles [California] had a hospital in—let me think where was it? Tampa [Florida], I believe. So I did a few ER shifts, but it was just too difficult to try to do both. Being in a visible position, I just felt that was probably not a good thing to do. I had so much to learn. So that pretty quickly stopped.

ROSS-NAZZAL: I had read that you were in charge of medical ops for the first orbital test flights. Can you talk about that assignment?

FISHER: Well, I wasn't in charge of medical ops. What they did was they took all the doctors in the office, and we were sent to each of the launch and landing sites. So for STS-1, I was actually out at White Sands [Northrup Strip, New Mexico]. We had the doctors at KSC [Kennedy Space Center, Florida], White Sands, and Edwards [Air Force Base, California] for the full duration of the mission. We participated in exercises like Mode 8s, if the Shuttle goes off the end of the runway and you have to rescue the crew. Worked with the PJs from the military, which are the paramedic jumpers, but I wasn't in charge of it. I just participated in all of that, as did all of the doctors in the office.

ROSS-NAZZAL: Did you come up with a list of how you might save the crew, how you would get into the Orbiter, and what sort of things you might encounter? Did you come up with checklists and things like that?

FISHER: No, we really didn't have checklists. It's a lot like EMTs [Emergency Medical Technicians]. The rescue folks who are trained to do that in all kinds of situations would actually do the actual rescuing or bringing the crew out. We were there to provide medical assistance and to answer any questions they'd have. We practiced things like which way the wind was blowing, because you were worried about nitrazine and some of the fluids that are on board the Shuttle harming the rescue workers and crew. So we were more there in an advisory capacity. If there were an accident to be the link to Houston, to let people know what was going on. We never really got into the mode of post accident, what would happen. That was how more we envisioned the role, I think, was just being the liaison between the rescue folks and NASA.

ROSS-NAZZAL: Did you simulate those possibilities?

FISHER: Oh yes. I was out at White Sands where we did a Mode 8. The helicopters came in, and we practiced taking the crew away and flying the helicopters. I talked with the PJs to tell them a bit about the Shuttle and what to expect, if they had to go inside. Then I was there for the entire STS-1 flight. I was there probably about three or four days before and then for the entire flight.

ROSS-NAZZAL: Since you had practiced emergency medicine, did you feel like you offered advice to some of the other folks who hadn't practiced like [M.] Rhea Seddon or Jim [James P.] Bagian?

FISHER: Well, she was a surgeon, so she's well versed in all those kind of things. No, I think we were all equally well trained and ready for those things. I don't think we particularly talked among ourselves about how to do it. I think it was left to each of us to figure out how to do it ourselves, which is kind of the way things were in those days. Everybody was expected to perform, and you figured out what you needed to know.

ROSS-NAZZAL: It just sounds like a very interesting assignment.

FISHER: Oh it was. It was really fun to see how all that worked and very educational. Then they stopped doing that. I think STS-4 was probably the last one. I was at Kennedy for STS-4 the entire time. I was at Edwards for STS-2 and then White Sands for STS-1 and 3.

ROSS-NAZZAL: Oh, interesting. So did you get to see the crew land the Orbiter at Northrup Strip?

FISHER: Yes, the one and only time. It was definitely an interesting time. Of course it went well, so there was no need for a Mode 8 or medical things like that. That all went very well.

ROSS-NAZZAL: Yes, that's interesting. I know we talked a little bit about Bill last time. You were the first married couple in the Astronaut Office. Do you think that had any impact on your career or your experiences?

FISHER: I don't think it had an impact on my career or anything. There was a lot of attention given to it when he was first selected. It was like a lot more interest in the media. We had parallel interests from the time we met, which is probably one reason we were attracted to each other. So it was nice to have somebody who really understood exactly how the office worked, but it was more of a personal benefit than a professional benefit.

ROSS-NAZZAL: When Rhea Seddon decided that she was going to marry Hoot [Robert L.] Gibson, did you offer her any advice in terms of how to deal with all the media interest?

FISHER: No, Rhea was well versed in how to do that. She didn't need any advice from me. It was fine. Right in my closet at home I have this picture of the four of us, Bill and me and Hoot and Rhea and our two babies. It was a cute picture. I think we were both being interviewed for one of the morning shows or something and then someone shot that picture of us as we were sitting there. It was cute.

ROSS-NAZZAL: Oh that's funny. We talked to her actually. She was talking about how her son introduces himself as an astrotot. I suppose you have two astrotots as well.

FISHER: I totally embarrass my younger daughter when I say, "Well, half of your DNA was in space." She goes, "Mom!" At least when she was younger, she would get embarrassed. She's probably proud of it now. There's a very small number of people who both parents have been in space. Kara gets that distinction, my youngest.

ROSS-NAZZAL: Yes, it's an interesting title, I hadn't read about it before. Last time you had also talked about the personal hygiene kit and the Nivea cream that you had put in there. What else was in the personal hygiene kit for the women? Did you talk about other things that would go in it at the time?

FISHER: Yes, I canvassed them and asked what things they wanted. It's a pretty diverse group there from Judy [Judith A. Resnik] to Shannon [W. Lucid]. So some people didn't care at all. I think there was a little bit of makeup that went in there, probably some mascara. I honestly don't remember. I'd have to go back and check, but we really didn't have a lot of extra things. We just

added things that were appropriate for women. Some creams and a little bit of makeup, and that's about all I can remember that we added that was different than what was already there for the guys.

ROSS-NAZZAL: What about feminine hygiene products? Was that something that you dealt with at all?

FISHER: You know what? I think it was left to each person to deal with it. In fact, I'm going through training right now to be a CapCom [Capsule Communicator] for ISS [International Space Station], and that was one of the questions I was asked. Back then everybody just did their own thing. I think most women elect to just stay on birth control pills so that they don't have to deal with it. You've got enough to deal with without dealing with anything else. I'm sure we carry something on board just in case of an emergency or something like that. It's not something that we all talked about. That's what I personally did. I think that's what quite a few of the females do even now who are on board Space Station, because it's just one less thing you have to worry about. With all the products they have now that I hear advertised about birth control pills, where you don't even have to have periods for long periods of time, that's what I would opt to do. The only people who might opt not to do that would be if you're still planning on having children after you fly on ISS then you might not want to suppress everything, particularly if you're up there for six months.

But again it's pretty much an individual decision with you and your flight surgeon. In fact, I'm trying to think if we even discussed it. I probably did discuss it. Being a doctor, I just told them, "This is what I'm going to do."

ROSS-NAZZAL: When I talked to Kathy [Kathryn D. Sullivan] and Rhea, and we've talked to Sally [K. Ride], it all sounds like everyone had their personal preferences for things.

FISHER: Yes, it was very rare for us to get together and discuss things and have a consensus. I don't remember. We would have some social get-togethers once in a while, but I don't really remember us ever getting together that much and discussing issues unique to us.

ROSS-NAZZAL: That's interesting. That says a lot actually.

FISHER: Well, Carolyn [L.] Huntoon was of course available. She was assigned to be our mentor, someone we could go to if we had issues or problems. I don't think any of the issues we faced were that much different from the guys. Wondering how you were doing, when were you going to fly. I think it was more issues unique to being an astronaut than specifically being female.

ROSS-NAZZAL: Oh, that's really interesting. So you feel like you were treated particularly equal in the Astronaut Office.

FISHER: I really do. I think NASA had made the commitment to accept women, and they were very accepting. They really tried very hard to develop the extra small EMU [Extravehicular Mobility Unit]. A lot of the development effort was put into it. I think I discussed that last time. I was involved in a lot of that early work. I think only after we just ran into a lot of technical

problems and then the cost of it was going to be so great that they decided to cancel that. I think we were all treated very fairly. If anything I think the guys felt we got too much attention compared to them.

ROSS-NAZZAL: That's funny that you say that.

FISHER: They would always make comments like, "Here, let me carry your bags for you." But it was all just teasing.

ROSS-NAZZAL: Just for fun.

FISHER: When it came to being treated professionally, sims [simulations], and as CapComs and our various support roles, I never felt like we weren't wanted. I have to say that even when I was in medical school, that was actually a little probably more difficult, particularly around some of the surgeons at that time. It was just at a cusp. I read an interesting article recently about the number of women in medical school classes around that time, and mine was very typical. We were probably like 15 in a class of 150. You would encounter little things at that point. There weren't that many women in medicine. Now it's 50-50. I might have told you that story where I was working in the emergency room and there was a male nurse, a really big tall guy. No matter how many times I would say I was Dr. Fisher and he was the nurse, they kept looking at him. He was the doctor, and I was the nurse. Finally we just joked about it. I just said, "Go ahead, just be the doctor. Tell them what they want." It was just funny. Those kind of things happened a lot more in medicine actually than when I came to NASA.

ROSS-NAZZAL: That's interesting. That's good for NASA.

FISHER: There was another interesting thing that happened to me. I was at the [STS]-133 launch, and I arrived just as the Blue Angels were flying. That was really neat. I got in the elevator with this lady who was one of the Blue Angel pilots. It was just so interesting, because nobody thought anything different of her being a pilot. I was just thinking how far we had come in that short period of time, because nobody thought anything about her being a pilot in the Blue Angels. I was going like, "Oh wow, how neat."

ROSS-NAZZAL: That was one of the questions I wanted to ask you. What role do you think that you played in furthering women coming into the Astronaut Office, you and the other five women, and the acceptance of women as pilots and commanders in the office?

FISHER: Well, I'm sure it really helped that we were there. Then young women could look up and say, "Hey, if she can do it I can do it too." I've had funny experiences since I've been here so long. I've had some of the women astronauts say that they heard me speak, or one of the six of us, and that's when they decided they wanted to be an astronaut.

One Friday I was doing some ISS training, and one of the instructors asked specifically to teach my class, because she had had my picture on her wall when she was 12 years old. So a lot of people, not just becoming astronauts, but just going into science and math and engineering in general.

Another time about a year ago I was at the University of Hawaii Hilo for El [Ellison S.] Onizuka science day. This Oriental lady came up and asked if I had been in Japan about 20 years ago. I said, "Yes, my husband and I did go make a trip over there." She said she had heard me speak, and that's when she decided she wanted to be an astronomer. She was working at the observatory there in Hilo. It's been interesting to actually get feedback from people that it made a difference. I take it pretty seriously now when I go talk to schoolchildren. You never know when you're going to touch a life, somebody who either gets inspired or who thought they couldn't do something might be able to.

Another interesting experience was when I was on that same trip to Hawaii. One of the people involved in bringing me there was a wealthy businessman but came from a very disadvantaged background. He got his start at this particular YMCA [Young Men's Christian Association], and he asked if I would come speak to these kids. He kept warning me. "These are kids who do drugs; these are kids that are troubled, a lot of them dropping out of school." I think he was preparing me that they were going to be loud and maybe not as polite as some of the audiences.

They were the most polite audience. It was about 100. He twisted all their arms, and so I tried to talk about some of the hardships I had overcome. Neither of my parents had been to college. My father was in the military. He got his GED [high school equivalency] in the military. My mom only had an eighth grade education, because in Europe at eighth grade you decide whether you're going to the university or to trade school, and she went to trade school.

By the time I was in eighth grade I had gone to 13 different schools because my father was in the military. So I tried to tell them that even with all those kind of things in the United States, if you're motivated, and you get a good education, which you can do, that's your

decision. That's a particular group I would like to be able to follow in ten years and see what came of it. There were a couple people—I remember looking in the audience—that seemed to really be hearing that message. And afterwards all these big Hawaiian kids came up and wanted to take pictures. It was neat. That's, I think, one of the neat aspects of our job is that we do get to try to help motivate kids.

In this day and age, where everybody wants to be a rock star or an NBA [National Basketball Association] player, and they're so motivated by that type of thing, it's nice to be able to get kids to be excited about science and math too.

ROSS-NAZZAL: Well, there's a new push for that now with the Obama administration.

FISHER: It's hard though. It's a tough sell, when you see these guys making millions of dollars. Most rocket scientists don't make anywhere near that.

ROSS-NAZZAL: That's true, that's true. Do you ever do any work with Sally Ride and her science camp?

FISHER: She asked me haven't. I told her I'm happy to; I'm willing to do that. I don't know how she goes about who she asks.

ROSS-NAZZAL: It's an interesting concept. I wanted to ask you about the diaper concept. You had mentioned that in the last interview as well about using diapers for women for urine collection. Were you involved at all in the testing of that product before you flew?

FISHER: We all were. They gave us diapers, and we were supposed to go home and use them. Have you ever tried—after years and years of potty training—to lay on the floor in a seat with your seat laid back so you'd simulate being on the launch pad? It is not easy to do.

You have to overcome all these inhibitions you have. But by the time you're out on the pad for three hours you're going to go. Who wants to be uncomfortable in your flight into space? No matter if you absolutely drank nothing the morning of launch, absolutely nothing, just because of that position and the blood in your legs pooling, you're going to have to go to the bathroom.

Now it used to be that guys had a condom thing that they would put on that's hooked to a tube. That's what they used in all the early flights, but they had a couple of malfunctions of those, which that could be a gigantic mess. So now they just went unisex; everybody wears the same thing and for EVAs [Extravehicular Activity] too. You're in a suit six or seven hours, plus all that prebreathe time. Can't imagine that you don't have to go to the bathroom.

ROSS-NAZZAL: Did you make any suggestions for changes?

FISHER: The guy who developed this, what was his name? I'm sure you can find out if you call the Space and Life Sciences Division. He developed that really absorbent polymer which was what led to all the baby diapers that we now have whatever that stuff is that absorbs it. It was his research that led to—for us—all these billions probably of diapers we now have for babies that are so absorbent.

ROSS-NAZZAL: It's an interesting concept. I wanted to ask you when they made the announcement for the first crews that included people from your class, so STS-7, 8, and 9, was there any discussion amongst the six of you about who might go first? And when you heard that Sally Ride was going to be the first woman in space?

FISHER: Not really. We all knew that was coming up eventually. I don't think it was something you discussed. You just were aware of it. To me it was apparent that Sally was a front-runner because of the positions they put her in. They put her to be a CapCom and put her to do different things so I guess I wasn't really surprised.

ROSS-NAZZAL: Was there a lot of competition amongst your class for flights at that point?

FISHER: Well, I think everybody wants to fly first. Everybody wanted to fly and get into space as soon as you can. But that's also tempered with hey, I'm really lucky to be here, doesn't matter if I'm first or last. Other than Sally, I don't think anyone remembers who flew first and who flew last in our class, unless somebody tells you. I think Shannon was the last woman, and yet look how she had the endurance record on Mir for so long. I don't know if she still does. I lose track of all those kind of things.

At the time those things seem like big deals but you need to keep things in perspective. I do think it's interesting that the first three women that flew didn't have children and the last three women that flew had children so I don't know if that was a factor. I don't think it was performance, because everybody did pretty good jobs, I think.

ROSS-NAZZAL: So you weren't surprised?

FISHER: It was just interesting. No, I wasn't surprised.

ROSS-NAZZAL: You had mentioned last time that you were working at the Cape [Canaveral, Florida] with Sally for her flight. Were you there for the launch of STS-7?

FISHER: Oh, yes, yes, I was there for the launch, because I was the lead Cape Crusader. I was eight months pregnant at the time, so it was a definite difference.

ROSS-NAZZAL: Can you tell us about that day? Is there anything that stands out about that time for the launch of Sally's mission?

FISHER: No, for some reason I remember more the time we were doing the payload testing together. It's just strange what things stick in your mind more than others. The launch itself, I was there doing my job so I don't even remember. Because I was pregnant, I wasn't the person who helped them strap in so I wasn't out there. I was doing one of the shifts, where we did the cockpit configuration or something like that.

ROSS-NAZZAL: Did you actually get to see it lift off the pad?

FISHER: Oh yes. I was at the roof of the LCC [Launch Control Center]. All of us that worked at the Cape would always go there and be there to be ready to help in case there was a problem with

families. That was of course before [STS]-51L [the *Challenger* accident] so at that time there really wasn't a formal plan for what to do if there was an accident. We learned our lessons after 51-L and now have a much more tightly controlled environment. At that time we were just there ready to help if there was a problem, but there was no plan of what we would do.

ROSS-NAZZAL: When you came to the Center did you have contact with other professional women who worked at JSC like Ivy [F.] Hooks or Rita [M.] Rapp?

FISHER: Not really. Nitza [M.] Cintron, who was in our group, of course I knew her and then Carolyn. Basically we were in our own little world. It's only if you encountered someone through your food testing. In fact I've even noticed that just in general, not just with other women, our biggest interaction was with MOD [Mission Operations Directorate]. Well, early on I guess our class probably had a little more interaction with Engineering Directorate because we got here before the Shuttle flew, so we interacted with a lot of the subsystem managers for the Shuttle. But other than that our interactions tend to be primarily with Mission Operations Directorate, our training folks and our flight controllers.

For different reasons, I've had chances to go lately to other buildings or other areas, and it's like wow, there's a whole part of the Johnson Space Center that I really don't know much about.

ROSS-NAZZAL: I was just curious if you had any sort of interaction. If they offered any sort of career advice, as most people were fairly young when they came in.

FISHER: Not really. Like I said, we were—and I don't mean that in a bad way—we were just left on our own. I see a lot more intentional mentoring now. Also it's probably really important—not that it wasn't important then—but it's really important now as you get ready to go do these six-month-long missions. There's a great deal more hardship in terms of the traveling and training for ISS. Your training is so long, and you're gone so long. So I think there's a lot more mentoring of folks to be sure that they're ready for what they're getting into.

It was more like we were selected and you were expected to do well and that's it. Kind of the same as it was in medical school, too. I think now they tend to do a little more mentoring of medical students as well. Kind of watching out, because it's a pretty difficult time as well. It used to be, "We picked these people that are talented." But just because you have good grades and everything doesn't necessarily mean you're ready for all of that. I think now maybe in a lot of those areas they do a little bit more mentoring.

ROSS-NAZZAL: I had read an article in the *New York Times*. I don't know, from 1980. You said that the only trouble that the female AsCans [Astronaut Candidates] seemed to have were getting the clothes to fit. Can you talk about that? I'm assuming you meant the flight suits.

FISHER: Yes, I was probably just joking—just getting flight suits that weren't big and baggy and stuff. They wound up having ours special-made.

ROSS-NAZZAL: They were cut for men.

FISHER: I was probably also referring to the EMU, because at the time in 1980 I was still doing WETF [Weightless Environment Training Facility] runs in Pete [Charles] Conrad's A7LB Moon suit, which was like being in a big balloon.

ROSS-NAZZAL: Yes, I think you had talked about that last time, the difficulty that you had.

FISHER: One of my officemates right now was an EVA trainer, and he was telling me how for the smaller women if you can get a good suit fit, they can do just as well, but if you don't have a good suit fit, you're lost. That's it. You just cannot do things if you don't have a good fit. That's true for male and female, but it's just harder to get a good fit. So it was definitely a struggle. We've learned so much with all the EVAs we've done in building the Space Station which we just did not have that experience back when I came.

ROSS-NAZZAL: I thought we would turn our attention to your flight, STS-51A. You had told us about how you had been selected maybe about two weeks before you gave birth.

FISHER: Yes, it was a very interesting time. Our commander was Rick [Frederick H.] Hauck, who just finished STS-7 and was back. They were still doing their postflight appearances. Now the AsCan class has finished the 2000 level Shuttle training series, which is the introductory classes; you do that as part of your AsCan year. Back then we didn't have that kind of training. Dave [David M. Walker] and I were the two inexperienced people so we had to complete that whole 2000 series flow, which we did together, to catch up with our other crew members who had flown on previous flights.

So that was our focus. I was a CapCom at the time, and Rick actually wanted me to give that job up. This was like Julyish, I think. STS-9 flew in October so it was fairly early in my flow. I spoke with him and said, “I really want to do that, because I think you’ll be a better crew member if you are CapCom and you see how Mission Control works.” It was really hard for me, because I have a new baby, I was CapComing, and I was also trying to get my training flow done, but I really felt that I needed to do that. Because I was breastfeeding at the time, I can still remember being on these shifts trying to go to the bathroom and pump.

Now everything’s so nice. They have these little protected areas where you can go breastfeed, not so back then. Nothing was really set up. It’s not that people were bad. I don’t think they really thought about stuff like that. Of course as women we didn’t want to draw attention to those things. You don’t want to ask for something special. That was pretty challenging to try to do both, but I’m still glad I did.

So those first couple of weeks, when I had a sim either with Dave for our 2000 flow or when I had a CapCom sim, I would come into work. When I didn’t have anything on a schedule—and they were nice, they tried to bunch it up—then I could be home with Kristin a bit. So I never really had time off. I never took a leave of absence for six weeks or something like that, but they were really nice about trying to balance my schedule so at least I had some days off.

Then I had a wonderful lady, Susie Galvin, whose husband actually is a contractor working in the space program as well. At the time she didn’t have any children, so she was really good about being there in the morning with Kristin. She took a nap in the afternoon so that when I got home at 4:30 or 5:00 we basically had that whole evening together. I didn’t put her to bed till 9:00 or 10:00 or something.

We actually had quite a bit of time together, and it worked out. Towards the end of the flight that was probably really hard. I thought it was hard having a little baby and training. Now that I'm an experienced parent, I know that it would have been way worse if she was in school and I was trying to worry how was she getting to this, how was she getting to that, because with a baby you totally control everything. They're not off going doing activities and you're not missing performances of this, that, and the other. Now in retrospect I realize that that was probably good.

For example, Karen [L.] Nyberg who was assigned to an ISS crew and just had a new baby, she's traveling back and forth to Russia and to Europe. I probably wouldn't have been as good at that. So I admire her, that she can do that, because that must be really hard.

ROSS-NAZZAL: You received recognition for being the first mother in space. Was that a big deal at that point do you think?

FISHER: It was neat. Although I think I told you that I find it ironic that when I was gone a lot I get a mother of the year award but when I stay home and take a seven-year leave of absence to be with my girls there's no award. But it's come in handy. I can show it to the girls and say, "See? I got a mother of the year award. So don't argue with me." It's just funny. It was neat. Susan Lucci was in the group that I was with, and there was a female governor of Kentucky at the time. It was an interesting group. A fun trip to New York [City, New York]. It's some group based in New York City that makes those selections. I don't know if they still do it or not. Probably do.

ROSS-NAZZAL: Did you win that award after your flight?

FISHER: Yes, that was the Mother's Day after I flew. I flew in November, so that following Mother's Day, the following May.

ROSS-NAZZAL: You were in this book *Starring Mothers: [30 Portraits of Accomplished Women* by Jill Barber].

FISHER: That was really fun. I remember Jill. It was really fun. I thought it was a really interesting book. That was a fun picture with Kristin and the mockup over in Building 9. I thought she did a really nice job, back in those days where people were trying to say yes you can work and you can have children too.

ROSS-NAZZAL: Did you write the piece that was in there? Or was that an interview?

FISHER: No, I didn't write it, no, that was her interview. I think if I recall correctly she sent copies and let you review it for accuracy, which I always appreciate and think is nice when people do that.

ROSS-NAZZAL: Yes, it's always important; don't want to get something wrong. Tell us about the crew relationship for this mission.

FISHER: Well, the first thing was really funny. When we first got assigned to our flight we were an IUS [Inertial Upper Stage] deploy flight. So we went all the way up to Seattle [Washington] to get training from Boeing on the IUS. On our way back we found out oops, it's not going to be our payload. It was shifting around for some reason.

I don't even remember what the next one was. Let's see. I was assigned in July. In February I was sent up to be on the *Today Show* because it was the first flight of the manned maneuvering unit. They wanted somebody there in case Bruce [McCandless II] got lost in space, I guess. They were also deploying two satellites. Just before I left, the first satellite was deployed, and about four seconds into what's supposed to be a four-minute burn to take it to geosynchronous orbit it failed a few seconds into the burn. So basically this good satellite is right in a useless orbit.

I figure there's no way they were going to launch the second one until they understood what the situation was so I flew into New York. Before I left I knew that they decided to launch the second one, which I was really surprised. I was traveling on the plane while it happened. So I asked the taxi driver, "Hey, you heard anything about."

"Yes, they launched the second one and same thing happened." I was surprised the taxi driver knew. I was sitting here going, "Oh great. Now I'm going to be on the *Today Show*." Sure enough they started asking me all these questions. I'm trying to explain why they launched the second one, which I don't understand either so it's hard for me to defend them. They asked me specifically did I think NASA would try to go get those satellites.

I said, "No way." The Hughes 376 spacecraft was basically a cylinder. The whole thing is solar arrays, and then there's a motor at the end. It's probably a little bit taller than this room, about the size of a little school bus.

ROSS-NAZZAL: That's a big satellite.

FISHER: Well, as satellites go it's not that big, but relative to people yes it's pretty big. It's a cylinder, and it's got total solar arrays all around it. It was not designed to be handled. I knew that, because we were launching a Hughes 376 on our flight. We had already at least had that part of it defined so I knew a fair amount about them, and I said, "No, NASA has never done anything like this before." The satellites weren't designed to be retrieved.

Then I got back to NASA, and it turned out the insurance industry was really pushing NASA to do the retrieval mission. I don't think NASA really wanted to do it. I think they thought it was a pretty high-risk mission, not risk of death but risk of failure. This was only the 14th Shuttle flight, so it's pretty early in our experience with that. I don't know what negotiations went on at the high levels. Somehow the insurance industry convinced NASA to do the retrieval mission, although it was in doubt all the way through up to when we flew. I think they didn't sign the final paperwork baselining it till maybe a few weeks before we launched.

So we got real excited about it, the four of us on the crew. Rick, I think, this was his first command. I think he was a little less enthusiastic because he considered it as a chance to fail. I think he became more enthusiastic as time went by. I could certainly understand that as a first time commander, you're going to sign up to do this, something that nobody's ever done before. You'd probably like just a nice plain vanilla flight, if you can call any Shuttle flight vanilla.

Dale [A.] Gardner and Joe [Joseph P.] Allen were the two EVA crew members on board. Dale was actually fairly instrumental in coming up with the concept of how you would get the satellite, because at the time we didn't think you could just handle something that big. He came

up with a concept of a thing called the stinger. The satellite like I said is a cylinder, and there's a nozzle at the end for the engine. If you take something and put this up the nozzle end and then open it up like an umbrella, it captures it. [Demonstrates] On that piece of hardware was a grapple fixture. This thing attached to the manned maneuvering unit so he would fly the manned maneuvering unit over to the satellite and dock with the satellite. I could use the arm to grab it and bring it down into the payload bay.

Then the problem is how are you going to hook that satellite into the Shuttle and have it be secure for entry and landing. The only part of the satellite that is structurally sound is the same end that Dale had stuck the stinger into so you had to somehow get the stinger out. They designed another piece of hardware that went over the top. I don't remember exactly how it all attached.

Then I was supposed to release from this grapple fixture, come across to this top grapple fixture, and grab it. [Demonstrates] Then they would take the stinger out and put a docking mechanism in and then hook it into the Shuttle bay with that structure. So that was the plan.

While we were training and doing ascent/entry training and all that sort of stuff, Joe and Dale—and Dave was the IVA [Intravehicular Activity] person inside—they were training how to do the EVA portion of it. I was training doing the grapple, the release, and the reggrapple.

I still remember one night. We were intimately involved in developing the procedures with our flight controllers and our trainers. There was so little time. This is February to November where you're designing a whole new thing that no one's ever done before. I remember being over at the SES [Systems Engineering Simulator], which is where I trained for the arm stuff. I had Kristin in the little car seat, because we were coming up after hours. We were doing something. We wanted to develop some new procedure for something to try the next

day so I just brought Kristin with me and put her on the floor. We were there working on stuff. So that all was developing as we were doing all the routine things that you have to do, the ascent/entry training; I was also the flight engineer.

We flew pretty much as a three-person crew. Joe Allen was MS [Mission Specialist]-1, but he was just too busy with EVA stuff to train with us as we do now with pretty much a four-person crew on the flight deck. So it was the three of us off doing our own thing, ascent/entry, and me doing robotics training. They were just off doing the EVA stuff with that compressed time. We would occasionally be together for integrated sims or for postinsertion deorbit preps.

It was a pretty intense time. We didn't really know up until the very very end if NASA was going to get comfortable and say, "Yes you really can do it." It was really interesting watching that whole process; now the payloads and everything are pretty well defined in advance now. Crews are not that much involved in developing procedures. All that is pretty well done and handed to them by the trainers now so that was really fun, demanding but fun.

ROSS-NAZZAL: What was the media interest like in this mission where you're going to release two satellites and then you're going to salvage two satellites?

FISHER: They were really interested, plus flying the manned maneuvering unit. Quite honestly, we were so busy we didn't have time for any of that. Six weeks before launch, they had the day where you do all your interviews. I did a little extra stuff with Kristin. They took some pictures with Kristin over in Building 9. My poor mom. We brought Kristin and all Kristin wanted to do, by this time she's like about 13 months old, was climb the stairs. Those stairs that go up to the mockups, she's climbing up and down the stairs, climbing up and down the stairs. Whenever

Mom tried to pick her up, she didn't want to be picked up. Mom didn't want her to cry so Kristin climbed up and down those stairs a million times, I think, that day. Then I would take her, we'd do a picture for somebody, but that was pretty much all of the media that we had time for. We were just too busy.

ROSS-NAZZAL: Take us back to that day of launch, getting up, and getting ready for that flight and launching.

FISHER: Well, I'll go back a little bit further, because finally sometime in the October timeframe the mission was agreed to and we knew what we were going to do. Those last few weeks are very very intense. I tell people you almost had to tell your scheduler, "Schedule time to go to the bathroom." Literally you're just either in a sim, going by checking—at that time—phone messages. Thank God we didn't have e-mail then. I think that would have put me over the edge, having to respond to e-mail. So that was nice, you kind of lived in this little cocoon of not knowing what was going on. Every other moment that I had I was spending with Kristin.

We went into quarantine on Halloween, and it was Kristin's first real Halloween because the previous Halloween she was just a baby. I know you're not supposed to, but I ran back home real quick. We just took her trick-or-treating to three or four of our neighbors, because I just wanted to be there. Then I came back. I don't know if anyone even noticed I was gone, or if they noticed and just didn't say anything. Technically I was in quarantine, but I just wasn't going to miss that.

I think Bill, my mom, Kristin, and Susie left for the Cape a day before me to get down there and be there. I remember going home. We launched on a Thursday, but we were supposed

to launch on Wednesday. So I guess it was a Sunday that we left to go to the Cape. I remember going by the house because it was okay; I could go by the house because nobody was there. It wasn't breaking quarantine. I remember it all just seeming so surreal. It's like I'm really getting ready to go to the Cape, and I'm really going to launch. It doesn't seem real.

We flew down in formation in T-38s, which was really neat. Our families were waiting there. That was hard, because I couldn't really hug Kristin. She was over there. She was always really good. We had a little blue flight suit made for her so she was in the flight suit. The really nice people who have our flight suits gave me a little bit of that material. It was out of the light blue ones that we used to wear, so it was really fun.

ROSS-NAZZAL: Oh, how fun.

FISHER: We get to the Cape, and I went jogging. Of course it really helped that Bill is an astronaut. So I went jogging, and he brought Kristin for me to see her while I was out jogging. That was really nice. The first launch attempt, we scrubbed that first day. The first launch attempt, again it just has this whole air of unreality about it. You've been training so long. You've been looking forward to this for so long. It's like when Christmas finally comes when you were a kid, and you were looking forward to it, and finally it's really there. It just doesn't seem real.

Because it was back before the *Challenger* accident, there wasn't as formal a process. Again since Bill was an astronaut he could do things that other spouses would not be able to do. He came and brought my mom and Kristin to where you see the crews walking out. They were

back there in the rental van he had. He told my mom to not get out, because they weren't supposed to be there.

I told my mom that was going to be looking to see Kristin and her. Because we launched around sevenish, it's still dark; all the cameras are flashing. Just one thing is on my mind, looking for Kristin and my mom, and Bill too of course. But I'm looking for Kristin. My mom saw my eyes, and she saw that I wasn't seeing Kristin. She knew Bill told her not to get out of the van. She saw my eyes. She got out of the van. Somewhere in the netherworld of articles, there's a picture of my mom and Kristin that some newspaperperson took. It didn't get out too much though.

So that was neat. Once I saw her that was fine. "Okay, that's behind me." Like I said, Dave Walker and I were the two rookies on board; the others had flown previously. I can remember us moving up to the front of the Astrovan. Looking out, because it was dark, and the lights are shining on the Shuttle. It was just gorgeous. We were both looking at each other going, "Are we really going to go do this?" Also we had had a weather briefing. We knew that the winds at altitude were pretty high. So we already knew that we were probably going to scrub unless something dramatic changed, because it wasn't like a storm, it was a front coming in. It's not something that's going to change in a couple hours. I think in the back of our minds we were already prepared for a scrub. That happened fairly early in the count. We didn't sit out there for a long time before they just said that the winds were too high and they are not going to change, so we'll scrub, turn around for tomorrow.

The first two things you think about, I thought, one, "Oh my God, we've got to pay for those buses again for our guests." Back then all the guest stuff you took care of yourself. I think after *Challenger* they've got some plan that NASA helps with some of that stuff. We're all

sitting there, “Oh, God, we got to pay for those buses again?” Got to figure out who’s staying, not stuff you should be thinking about. My second thought was, “Oh, God, I saw Kristin, now I’m going to have to try to redo that again tomorrow.” So it was fun.

We go back to crew quarters. I went jogging, saw Kristin. That night we were getting ready for bed. The first night I went to bed. Joe Allen looks at me and he goes, “Did you go out and see the rocket ship on the pad last night?”

I said, “No, Joe, of course not. I went to bed like we were supposed to.”

Joe is a real avid photographer. I don’t know, have you seen? He published a book [*Entering Space: An Astronaut’s Odyssey*] with pictures. He’s a real avid photographer. In fact he’s responsible for getting me interested in it. So we decide to go out to take pictures at the pad. This is November 7th now, and it was pretty cold. I have no idea why he’s wearing shorts and a T-shirt. I was dressed more appropriately in a jogging outfit or something. I don’t remember. We didn’t put on our flight suits. I know he didn’t for sure. We get out to the pad with our badges, and they won’t let us in because he’s not dressed; you’re supposed to be completely covered, in case of fire.

The guard wouldn’t let us in. We explained. We said, “We’re the crew; we’re going to launch tomorrow.”

He goes, “I’m sorry, but my rules are you can’t come in shorts.”

All we could do was drive around the perimeter and take pictures and head back. We didn’t have time to go all the way back, get other clothes, and come all the way back. That was fun.

The next morning we get up and do it all again. This time it’s feeling real. This time the winds are okay, the weather looked good. So again we walk out. Same thing happened,

although now Bill was really upset at my mom. Again she saw me looking, and she got out again. Saw Kristin. This time we get out to the pad, and I'm lying there. As the time goes by thinking more and more about the diaper, "Oh my God. This is not feeling good. I really want to enjoy my launch. I don't want to be uncomfortable." Going through all the formalities. Then as it starts to go inside 30 seconds, that's when you start to say, "I changed my mind, let me out of here." No, just kidding.

When you see those engine bells move you can really feel that from way up in the cockpit. Then the solids ignite. Comes bright as day. We launched around 7:00 or something. It was Dale Gardner's birthday. When they said goodbye to us, he said he promised not to blow the candles out. It was cute. I remember just as we lifted off Dave turned around and looked and reached his hand back. All I remember is watching engines, altitude, airspeed, engines, altitude, airspeed. That's all I cared about was that those engines keep working and that we were hitting all of our marks. Of course I was MS-2, flight engineer, so I was watching all of our abort boundaries. That single engine press to MECO [Main Engine Cutoff] call was just beautiful. You can lose two engines and still make it to orbit. So that was good. Then right at MECO I knew immediately. You could just feel the blood rush to your face.

You see all the pictures of how all the astronauts look so fat in their face because all the blood rushes to your face. It's great for wrinkles. Didn't have them then. I wish I could go do it now. I knew almost immediately that I'm going to be the 50% that doesn't feel well. Joe was so sweet. He came up. Joe and Dale were doing all the postinsertion stuff, because the three of us on the flight deck, we're having to reconfigure all the GPC [General-Purpose Computers], the computers for on orbit.

That whole process and doing the OMS [Orbital Maneuvering System]-2 burn, all of that takes about an hour and a half, two hours. So basically we're in our seats. They came up. I remember Joe came up and helped me take off my boots and started stowing our helmets. We're staying right on the timeline so they were just helping us in whatever way. Just really sweet, great crew members.

We were really fortunate in that our first day was a relatively relaxed day. I had to do the RMS [Remote Manipulator System] checkout. Did not feel well. Thankfully our training is so good you can do anything, no matter what. Every moment I had I just wanted to sleep. You're really tired with the adrenaline rush, and you've been up early. It's a long day. So even if you don't have a lot to do you're still pretty tired. I remember that.

Sleeping the first night is so strange, because you feel like you want to put your head somewhere, but you can't figure out what to do with your head. You don't realize you don't have to do anything with your head, but you feel like you want to. I remember the first night laying there thinking, "I wanted to come into space so badly. I feel so terrible. Why did I do this?"

The third day I remember Rick looked at me and said, "Anna is back with us." It's not like you're feeling so bad that you can't do anything. It's like if you have a cold, and you feel out of it. You're not totally there. You can still function, you can drive, you can do everything you need to do, it's just not as much fun.

I remember the morning of the third day there was a hot dog that we had. I'm not a big hot dog eater, but boy that was a good hot dog. It's my favorite hot dog I ever had. Thereafter the rest of the flight was just absolutely so much fun. Very demanding, very long days. We deployed two satellites. I was the lead for one of the deploys, and Dale was the lead for the

other. Then we had the day in between where we had to get the spacesuits all ready. Then on day five and on day seven we did the rendezvous with the satellites.

Nowadays when you do a rendezvous to go to Station, you're not getting ready to do an EVA at the same time. The whole crew is doing the rendezvous together. Well, Joe and Dale were on the middeck getting into their suits. Dave was having to help them so it was just me and Rick doing the rendezvous. I'm in the pilot's seat, Rick is in the commander's seat. Even though we had trained and I should have realized it, I didn't realize that for a lot of that last part of the rendezvous, you're just nose down to the Earth. You're just straight looking down through those windows. We'd come across Houston. You could see Houston, Dallas, and San Antonio. It was just a crystal clear night. You're just 200 miles looking straight down. You could see San Antonio with this, like a hub of a wheel; the way their freeway system is, they have a loop and then wheels. Just very distinctive, because when you fly T-38s you see it all the time.

We called down to Mission Control. "Hey, tallyho." It turned out that Bill and my mom and Kristin—we live over on Mud Lake there, so it's pretty dark there. There's not a lot of light. They're out on our dock, because we live right on the water. They could see. You could see the satellite and the Shuttle, like two stars going overhead. My mom gets real excited, so she was apparently screaming really loud. That is Kristin's first real memory that she can remember. She doesn't exactly remember seeing that but she remembers the excitement and everything. When she was in lower school, all the teachers knew me and knew what I was doing, but then when she went into middle school the teachers weren't as familiar, and there were more kids in that whole class. They were given an assignment to write about their earliest memory. So

Kristin writes this story. The teacher said, “Well, that’s really nice, Kristin, but you’re supposed to tell a true memory.”

All of her friends go, “But it is true.”

ROSS-NAZZAL: Her mom is an astronaut!

FISHER: So that was funny. So we’re doing the rendezvous up to the point where they’re in the air lock and are ready to go out. At that last portion of it Dave comes up to the flight deck. I don’t think anyone’s ever done that before and realized how challenging it was. And we were only a five-person crew; we weren’t a seven-person crew.

There were a couple times in those two days that it would have been nice to have an additional crew member. If you look at the photography from our flight, the first rendezvous, we got almost no pictures at all. We were just too busy. On the second one we had to very consciously say, “We’ve got to make the time to take some pictures.” By the second one we felt a little more comfortable, like we knew what we were doing. The first one it was just total focus on our jobs.

The one other thing that had happened was when we were in quarantine back at JSC we had talked with the flight director. [J.] Milt [Milton] Heflin, that was his first lead, our flight. It’s really neat to see him and remember that. We had talked with them. The one concern we had about the whole thing was that piece I told you about that had to go over the top. Because the satellites were on orbit, there was no way to fit-check things like we do at the Cape. We do lots of fit-checks of everything particularly. If you look back at the program historically, a lot of the failures had to do with mechanical interferences. So that was the one thing we were worried

about. Joe and Dale talked with Milt and told him they had a plan—and Dave—of how to just actually manually pull in the satellite if they had to.

We get out in the EVA, all the flying over goes great. Our training was really excellent—the only thing that really surprised me was the lighting, because you can't really simulate the lighting. For example when Dale was flying over to rendezvous with the satellite the Sun was directly in his eyes and he had to figure out some way to see. You're in a spacesuit. You can't put your hand over your eyes. He had to adjust his approach to get the satellite to give him some shadow because he couldn't see what he was doing.

When I was operating the arm, the satellite is spinning, because it's stabilized, very slowly. The Shuttle is moving a little bit. I'm moving the arm. You're going by the Earth. The clouds are moving. The thing I remember so vividly is all the motion. I'm supposed to stay focused on this arm and what I'm doing. I was so grateful for all the training I had, because your tendency is then to start doing everything really slowly when you're used to doing it a certain way. That was the thing I really remember, was that I really had to focus hard, because it was so much motion.

That first part everything goes well. I've grappled it. Bringing it down. They're trying to attach the metal across the top. Dale said, "It doesn't fit. And it's not going to fit." There was an interference somewhere where it was supposed to attach. If Dale tells you it's not going to fit, there's nothing you're going to do; there's no work-around for it. Dale is one of the smartest guys I know, one of the most capable. There was no point.

So luckily it was back then. We only had one TDRS [Tracking and Data Relay Satellite]. Right now we were out of com [communication] with the ground, so we talked about it a few

minutes. They told Rick that they're ready to go with their backup plan that they had discussed with Milt.

So we came AOS [Acquisition of Signal], and we explained the situation and said, "We'd like permission to go ahead with our backup plan." Five minutes. You don't have a lot of time to discuss it when they're out EVA, and we're already probably two hours into the EVA. So five minutes later they came back and said, "You're go for your backup plan." Which nowadays they would have told them to come back in; they would have had mission management team, all this stuff. It was just neat.

I released the arm, and Joe got in foot restraints on the side. Basically Joe just held the satellite at the nozzle end. They slowly turned it around. We are looking out the back window and using our cameras giving them a GCA [Ground Controlled Approach]. He can't see anything when they're holding the satellite. He can't see if he's going to bump it into the longeron or hit something. He's moving it very very slowly. We're telling him what to do, and he maneuvers it down. Dale put the docking mechanism on the bottom, and then EVAwise the two of them worked together to hook the satellite down that way. That's the first time anyone had ever handled something that big in space.

Now we do it routinely all the time but that was the first time. So then we came inside. We had a day between. We got to change our plan a little bit from what we were planning to do. The first time Joe did the docking with the satellite. The second EVA Dale did the docking with the satellite, and I maneuvered Joe on the arm, because he's going to take the satellite. Joe always tells the story. He says, "Woman, be careful with me." He says he felt like he was on the highest diving board ever.

It wasn't like now where you're around the Station. Basically there's the Shuttle and nothing. We didn't have as formal protocols as they have now. When you talk with Dale who's very much of an engineer, who also was an arm operator, he would tell me in arm terms how to move him around. Joe is just the opposite. Joe is this wonderful free spirit. So I interacted with them differently, and they gave me their commands of where they wanted me to move them differently. So it was really fun.

That EVA, everything went well too. I think then that evening we looked out, and we had launched two satellites successfully. We had the two satellites in the bay. I think we just couldn't believe it. It was like did we really do it? Did it all work just like we had planned it would? The last day was just so much fun.

President [Ronald] Reagan called, which was neat to have got to talk to him. We did some interviews in space. I remember some guy asked me how did operating the arm make me a better mother. I said, "Oh, I don't think it did." You try to quietly say, "That's a stupid question."

It was so fun. I remember Dale also had a baby just a few months older than Kristin. We were the only two that had little children at home. All the others had older children. I remember we were packing things up. He looked over, and he says, "Are you glad to be going home?" It was really a neat moment because he really understood.

It was one of those days where you wish you could stay longer, but you're also glad you're coming home and you're excited about everything. It was really neat. I just got a note from Dale just about two weeks ago. That son just died unexpectedly at 28, just a few months older than Kristin.

ROSS-NAZZAL: Oh. What a shame.

FISHER: I felt so bad because I was just remembering that neat moment. That's the son he was referring to when he was talking with me.

But anyway a really neat flight. We deorbited on the morning of the ninth day, landed at the Cape. It was only the second or third landing at KSC. It was pretty early in that program. I was really glad I was going back to the Cape, because that's where everybody was. My ex-husband wound up having to land at Edwards when they thought they were going to be at the Cape, and it's really hard. It's much more fun to land at the Cape and be right there.

I remember when we landed I felt like an 800-pound gorilla. I had some switches to safe the OMS and RCS [Reaction Control System] overhead. About eight or ten switches I had to throw in the postlanding. In the simulator I'd just go chnk chnk chnk chnk chnk. I felt like I had to lift my arm up. [Demonstrates] Again the same thing. I also felt really lightheaded, because they want you to drink all these containers of water and take salt pills. I knew if I did that I was going to throw up, because it just tasted horrible. So I did the best I could, but I know I was not hydrated. Now they have that vehicle that pulls up to the Orbiter, and they take you out. A lot of times people need an IV to get some fluids.

Back in those days, you were going to walk down the stairs. I was really worried that I was going to fall. You don't want to faint on TV. Plus I was excited. I wanted to see the Shuttle. I was really worried that I was going to not make it. Finally we went out. We walked around. Went back to crew quarters. Finally you get to take a shower. Here I am flying with four other guys. You know they're going to be out of the shower in two seconds, and I really wanted to wash my hair.

I really remember being in the shower and thinking, "I could fall over here." There was nobody there. Now I think they keep somebody with you, because I'm sure they probably have had people fall. You're just a little bit disoriented when you come back.

I didn't want to take long. I was trying to hurry. I think within five hours we were on the plane heading back to Houston. I remember landing at Houston and getting in the car. Again that was pre-*Challenger*. We just got in our own car, went home. All my neighbors were out and had signs, "Welcome Anna," which is really nice. You really appreciate it, but you're also really tired and still really unstable on your feet. You're just trying to get through that long day, because you started way early. You've now deorbited from space. Now you're just coming home. It was just a very surreal experience.

One of my officemates remembers we were one of the first flights that actually just went right overhead Houston. We apparently left some really huge contrail, because the weather conditions were just right at the time to do that. Of course we didn't see it but everybody said it was really one of the really impressive entries. You go over Houston, and you land at the Cape four or five minutes later. Pretty amazing.

ROSS-NAZZAL: That's quick.

FISHER: Pretty amazing stuff. Then had a lot of neat postflight experiences. I just can't say enough about the crew that I was with. They become like your second family. You've spent so much time with them. Rick was just in town last week, and we had dinner together. Joe is up in DC. I see him frequently. We had a get-together for our 20th reunion. Even now I miss Dave

so much. He died of cancer a couple years back. You really miss them. They become part of your family.

ROSS-NAZZAL: Your crew actually received the Lloyd's of London Silver Medal, and I understand you're the second woman to receive that. Will you tell us about that?

FISHER: Yes, that was really neat. Oh, one other thing. They were joking when we landed, asking if we had anything—custom officials—to declare, because we were the first crew to bring anything back from space. Now they do it all the time, but that was the first time we had brought something back.

As I told you, the insurance industry, which if you had asked me before my flight, I would have said they're the most boring thing you could possibly imagine. But boy, I won't say that again, because really and truly they pushed very hard for this flight. Then it was the second largest—or financially largest—recovery that Lloyd's of London ever had. The first was a Spanish galleon with tons of gold that went down somewhere in the 1800s. This was the second largest recovery of money and stuff.

What was really kind of funny is the satellites were refurbished. They were launched about three years later by the Chinese, because that was after *Challenger*. After *Challenger* they said no more deploying satellites, it's not worth risking crews for. Somehow they contracted with the Chinese.

But anyway so they gave us that award. We went to the White House and President Reagan presented it. It was so neat getting to actually meet him and be there. We got to meet

[British Prime Minister] Margaret Thatcher, because Lloyd's brought us to London afterwards for a week of activities. We got to go see how that actually works, which is really fascinating.

Did I tell you the story about going on the Concorde?

ROSS-NAZZAL: No.

FISHER: I had signed up to do an appearance in Tortola months before I flew. Because I thought, "Oh, by the time February comes, our flight will be over, and it'd be nice. Bill, Kristin, and I could take a little vacation there."

As it turns out, the trip to Tortola I was committed to. Nowadays I'd probably just say, "Send somebody else to do it," but I was committed to it. Right after that our crew was leaving for a week to go to London. I go do the appearance in Tortola, and so it must have been a Saturday. Then I'm coming back the Sunday. Alexander [M.] Haig was there wearing his power suit. I'm in this little flowery thing. It was just kind of a whole weird thing trying to talk to these people, but it was really interesting. I give my talk.

Getting to Tortola is no easy feat. You have to fly to Miami [Florida]. It was like three plane changes and then three plane things coming back. I just made my flight coming back. I almost missed that connection. I remember I walked in the door about 11:00 p.m. that night. Kristin was asleep already and walked out the door at 5:00 a.m. the next morning to go to London [United Kingdom] for a week.

I didn't want to miss that trip, because they flew us over in the Concorde. It was just so neat. We flew to [Washington] Dulles [International Airport, Virginia], because that's when the Concorde was flying out of Dulles. The Concorde is just an amazing aircraft. Because it flies at

50,000 feet, you can start to see the curvature of the Earth. Felt a little bit like being back on the Shuttle. I got to sit in the jump seat, because again this was all pre 9/11. So I could sit in the jump seat for the landing at Heathrow [Airport, London]. Oh, it was just really neat.

Then we met with Prince Charles at Kensington Palace [London, United Kingdom]. We had dinner at the mayor's place. It was so cold. They said it was one of the coldest winters they ever had. Oh, it was freezing, but it was still fun.

ROSS-NAZZAL: I understand that Margaret Thatcher was a chemist. Did you have a conversation with her?

FISHER: Oh I didn't know that. No, I would have. She's one of my heroes. That was really one of the highlights for me of all my time in the space program. So that was that. I was assigned to my second flight two weeks after I landed.

It would have been the flight after *Challenger*. After that happened, Bill and I decided to have a second child, because we didn't know how long all that was going to go. Then they redid the crews. They named a special crew for the post-*Challenger* flight. My commander Rick Hauck was the commander of STS-26. Then I wound up taking that seven-year leave of absence, and came back in '96, which was very interesting.

I don't know if you want to stop there.

ROSS-NAZZAL: I think it would be a good place, because actually I wanted to ask some questions about *Challenger*. I know you went to school at UCLA [University of California, Los Angeles] to get your master's in chemistry.

FISHER: Oh no, that's another funny story. I didn't actually do that. I was doing an appearance at UCLA, where they were trying to get women to go into science and math. I was doing it for the lady in the chemistry department who looked over people's requirements who were getting masters' and PhDs and kept track of all that stuff.

We were on a panel. Afterwards I was sitting there joking with her, because I had been on the MD/PhD program. So I spent a year there, because the first year I was on the waiting list to go to UCLA Medical School. That year I was a TA in chemistry. I took all the courses.

But the way things work, I think that's true in most places, if you're on a PhD program you just bypass the master's. You're never even awarded a master's. You just get the PhD. Well, I elected not to continue my PhD and then went on to medical school and my internship, came to NASA, and totally forgot about it to be honest.

So I was just joking with her and I said, "Gee, I certainly did enough work. I should probably get a master's."

She said, "Well I'll go back and check the records."

I said, "No, I'm just joking. I really am just joking."

She went back and checked, and I had all the requirements for a coursework master's, so they awarded me my master's.

ROSS-NAZZAL: I was wondering how that worked with you being in Houston and going to LA.

FISHER: Truly that year was a lot of work in chemistry. Because my plans changed so drastically, I just never thought about it. So it was just purely coincidental that I even thought to say anything to her.

ROSS-NAZZAL: How funny.

FISHER: If I hadn't done that appearance and hadn't done that, I would have probably never even thought about it. I try as much as I can to do. I go to UCLA at least once a year, both at the undergraduate and at the medical school level. I try to because I feel very strongly that getting a good education was vital to my being able to do what I do. I like to be able to go back and say thank you and help them any way I can.

ROSS-NAZZAL: I'm sure they appreciate that.

FISHER: Oh yes. That'd probably be a good stopping point. I'll try to not let so much time go by, because the rest of it probably won't take that long. But it is interesting, because having been in the office as long as I have, I've got to see a lot of changes. It was very interesting being gone for seven years and coming back. That was hard but very interesting.

ROSS-NAZZAL: I did want to talk to you about that. So I think that'd be great.

[End of interview]