

The oral histories placed on this CD are from a few of the many people who worked together to meet the challenges of the Shuttle-Mir Program. The words that you will read are the transcripts from the audio-recorded, personal interviews conducted with each of these individuals.

In order to preserve the integrity of their audio record, these histories are presented with limited revisions and reflect the candid conversational style of the oral history format. Brackets or an ellipsis mark will indicate if the text has been annotated or edited to provide the reader a better understanding of the content.

Enjoy “hearing” these factual accountings from these people who were among those who were involved in the day-to-day activities of this historic partnership between the United States and Russia.

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WENDY LAWRENCE

July 21, 1998

Interviewers: Rebecca Wright, Paul Rollins, Frank Tarazona

Wright: Today is July 21, 1998. We're speaking with Wendy Lawrence, astronaut with the Shuttle-Mir Program. It's Rebecca Wright, Paul Rollins, and Frank Tarazona. Thank you again for taking time out of your schedule.

Lawrence: Sure. You're welcome.

Wright: And we know you just returned, not just a few weeks ago, from a flight. Would you like to begin by telling us how you feel, and what your experiences have been since you've been home?

Lawrence: Well, I think everyone thinks that the job of an astronaut is rather glamorous, and I'm always amazed that when we come back from a flight, where you've spent many, many months preparing and you've been very, very busy in space, usually with the help of lots of people on the ground, and the mission is a great success, then you come back and you very quickly get wrapped up in the mundane things of life, and so I think that's where all of us in the [STS] 91 crew are now, is we're back to the mundane aspect of life, dealing with the snail mail and the E-mail.

You have to fight hard to remember and preserve the memories of the flight. It's amazing just how quickly you're forced to almost leave that behind and move on to other things, and before you know it, it feels like it was long ago that you actually did the flight. It already feels like it was months ago that we actually docked with Mir for the last time and said goodbye to the cosmonauts on board and closed the hatch for the final time of the Phase One Program.

Wright: Did the time seem to go quickly while you were there?

Lawrence: It always goes very quickly on orbit, unfortunately. That's the philosophy of a short-duration mission, is to maximize every moment while you're up there. With a long-duration mission, you know that you have time and you don't have to work as furiously to get everything done. During our ten days, we were very, very busy, I think at times to the detriment of being able just to enjoy each other's company, to go over and spend some time in the Mir base block and get a chance to talk with your Russian counterparts. Certainly it's difficult to grab a couple of minutes just to look out the window. You have to fight to protect that time, also.

Wright: You have specific duties when you're on these flights.

Lawrence: Yes, yes.

Wright: And have they differed from this last time or the time before, when you were there?

Lawrence: Well, the time before was a unique situation, because I was originally on the STS-86 crew as simply a mission specialist who was going up to Mir, and not to return on that flight. I got replaced about six weeks prior to launch, so my roles changed as well, when I was no longer the long-duration crew member.

So, on 86, because I got added to that crew so late, there weren't a lot of responsibilities that I could be given and have time to train for, so my focus on that flight was to get the U.S. laboratory set up for Dave Wolf, who was going to be the NASA-6 crew member. On 91, I was a member of the crew from the onset, so certainly my roles on that flight, there were more of them and the responsibilities were greater. On 91, I served as the flight engineer during ascent entry, and then while we were docked, I was in charge of all the transfers, so you can imagine during the dock time frame, I was very busy making sure that we got our 6,000 pounds of logistics transferred between the two vehicles.

Wright: This is, of course, how you ended your time with Phase One, but you began your time with Phase One back when?

Lawrence: It was kind of special for me, because during the mission was my three-year anniversary of working in the Phase One Program. I started in June of '95, after I had completed my first mission and had finished all my post-flight responsibilities. In June of '95, I started full-time language training, because at that time we thought that I would be going over to Russia to train as John Blaha's backup for the NASA-4 long-duration flight. But Norm [Norman] Thagard had completed the first one, Shannon [Lucid] was scheduled for the second one, Jerry Linenger for the third, John Blaha for the fourth, and Scott Parazynski for the fifth.

So I started a Russian language training program that was to end around the end of September, so I could go over in October to start training, as I said, to be John Blaha's backup. Well, come about late August, early September, I began to hear rumblings that Scott Parazynski was too tall, and that it was not likely that he would be allowed to continue the training because he was too tall to fit in the Soyuz seat, the special seat in the Soyuz spacecraft. So we knew that was going to change the order a little bit, and people were scratching their heads and trying to work around the situation, and I continued to study language.

Late September, I had an opportunity to go over to Hamilton Standard and try on the Russian Orlon spacesuit, which is the suit they use for their space walks. When I was there, I ran into one of the flight surgeons who said, "I just came across this memo from the Russians that said the minimum height

now for Soyuz has been changed from 160 centimeters to 164 centimeters." I looked at the flight surgeon, I said, "Oh, we have a problem. I'm 160 centimeters exactly. If it's 164, then I'm not qualified anymore."

So he got me a copy of the memo, and I walked into the chief of the astronaut office's office. The chief at that time was Bob Cabana. I said, "Bob, we have a small problem. Look at this memo. I don't fit. I don't meet these qualifications."

He looked at me and he said, "You're kidding!" He had never seen the memo before. They had been sent directly to the Space Station program, and not to the Phase One Program. So at that point I was literally four days from leaving for Russia, and the decision was made that I would still leave on that trip to go to Russia, in hopes that once I was there, we could get an agreement with the Russians for me to go to the place where the seat liners for the Soyuz seat are made, and get measured by the experts.

Well, I went over to Russia and they were not able to complete all the arrangements for me to get measured. The Russians just basically said, "No, we can't make it happen this trip."

So I came on back, and Bob Cabana, at that point, asked me if I would be willing to go back over as the Director of Operations [-Russia], and I said, "Sure." So I, at that point, continued to work in the Phase One Program in a capacity of kind of a crew representative, was working some mission issues for Shannon and John, trying to do some procedures verification, and help the principal investigators develop their payloads. I was basically the crew representative back in Houston, so that John and Shannon would have somebody here to help them with their mission preparation. So myself and Rhea Seddon and Bill Hartwell were working those issues.

I continued my language training, and then in March of '96, I went over to be the director. Once I got over there, the Russians measured me. It just was a matter, I think, of, they had to get to know me first, and so once I'd been there about a month, at that point it looked like it was likely that we were going to expand the Phase One Program to have seven astronauts stay on board and do a total of nine docking flights. So in April, I went off to the corporation that makes the seats, and they measured me and said I fit, no problem. They made my seat liner and they officially put me into the Russian spacesuit at that time, the one for EVAs, and had me do a functional checkout. It was clear to all of us that I just did not fit that suit. I could not get my hands down in the gloves fully when it was pressurized.

So Valery Ryumin [Russian Phase 1 Program Manager] wrote a letter, granting me a waiver, saying that I could start training for a flight on Mir, provided that I would never, ever be considered for a space walk in the Russian spacesuit. So that letter, and after I finished my DOR tour in--actually, I started training for my increment, which would have been the sixth flight, in September, around the first part of September '96, while I was still working as DOR. My relief, [Michael] Mike Lopez-Alegria, came in late

September, early October, I think, and we turned over as quickly I could, and I went to focus on training full time.

Wright: Became a home away from home, I think. You were there for so long.

Lawrence: Yes, it did. And as most people know, the whole nature of the program changed when the Progress resupply vehicle collided with the station in June, and for a while there, it looked like none of us were going to get a chance to go up to Mir. It looked like it would probably be the end of the program, but the Russians persevered.

Then they became focused on repairing Spektr with space walks. They were adamant about that. They were very determined that that was the course of action that they wanted to take, and based on that, both sides felt that all three crew members on board should be able to do an EVA in a Russian suit, and it would be an opportunity for U.S. astronauts to get some more space walk experience, particularly in the Russian suit.

So, let's see. July of '97, towards the end of that month, I was replaced with my backup, and I have to give a lot of kudos to Bob Cabana. He felt pretty adamant about making sure that my participation in the Phase One Program at that point would be rewarded. What most people didn't know at that time, that I knew, was that I would fly on 86 and fly on 91, so that's why a lot of reporters just couldn't understand why I wasn't devastated. I knew that I was getting two space flights out of it, and that I would walk right off of 86, which I did. I literally walked right off of 86. Right after landing, Charlie Precourt was at the Cape, and two of the crew members from 91 were there, serving as family escorts, Dom Gorie and Janet Kavanti. I literally hadn't been back on Earth more than about four or five hours, and we were already having a crew meeting. [Laughter]

Wright: No rest for you.

Lawrence: I looked at Charlie and said, "Hey, just give me a couple weeks to wrap up the debriefs and I'm ready to go." I mean, that wasn't a bad deal for me. Dave Wolf got a space walk out of it, and I got to fly twice and got to fly on 91 as the flight engineer, which is a job that I really enjoy doing, so I think we were both satisfied with how everything worked out.

Wright: Reading the debriefs from [C. Michael] Mike Foale, he many, many times complimented the work and how well that you were able to transfer so much of the cargo and stow, and just set up everything, ready to go, for Dave Wolf.

Lawrence: Well, that was a daunting task that had been placed on the shoulders of the previous astronauts, and that's something they had all debriefed, was that we had a very ambitious science program. From the moment the new astronaut got on board Mir, they wanted them to start full-time science operations, without any opportunity, really, to unpack, get settled into a new environment, to get a good, thorough brief by the astronaut who had been on board for four months, about, you know, just the daily to-do's of living, you know, what you needed to do to live on Mir, to eat, to bathe, to sleep, what the typical schedule was like, how you needed to communicate with the ground, you know, what are really some critical essentials, essential knowledge that that person was going to need for the next four months, and yet we had this, like I said, an ambitious science program that was driving them to a full day of doing operations.

I just thought, psychologically, that has got to be so overwhelming, where you have this Shuttle crew that comes in, which the Russians jokingly call "the hurricane," and we deliver thousands of pounds of equipment, and we put all this science hardware in. In the beginning of the program, you had two modules you could put it in--Priroda and Spektr--and in the end, just Priroda, but to transfer all this and then to say goodbye, close the hatch, and leave the long-duration astronaut with all this stuff to sort through, I thought, you know, that's not the way that we should be doing business. That does not get a person off to the type of start that you want to get them off to.

It was a simple matter, the fact that I really did have a more in-depth knowledge of the experiments than Dave did, because he had been the backup until just six weeks before the mission, so I felt that that was the role that I could best fulfill on 86, was to set up his lab for him and get all that unpacked. That's something that we've suggested for Phase Two, the ISS [International Space Station], and it's going to be difficult to implement it, but I do think, psychologically, that's what we ought to do for the long-duration crew member.

Wright: Was Mir, when you actually got to see it, anything like you had expected?

Lawrence: I purposely did not go see "Mission to Mir," because I wanted my first impression to be pure, so to speak. I didn't want to get tipped off. I mean, I had heard Shannon and John and Jerry all come back and say, "It is not at all like what you trained in, in Star City. It does not resemble the mockups, only the basic structure, but it's a completely different beast." So I had heard all those comments, and I was ready for a Mir that was packed with stuff, but I didn't want to go see the movie because I really wanted to have some pure initial impressions.

Everything they said was completely accurate. There was just an amazing amount of stuff there. But generally, for something that had been in space for twelve years, it looked in pretty good condition.

The cosmonaut crews over the years had kept it in good shape, and are still working hard to keep it in good shape. In fact, Mir looked better this past time, on 91, than it did on 86. So you have to give them compliments because it takes a lot of effort, at this point, to keep that thing up and running, to keep it in good shape, and they're able to do it.

Wright: Could you share some of your experiences while you were training in Russia, what it was like to be there, so far away from home, and the differences of how they train here compared to there?

Lawrence: Well, I think the biggest problem was the language. If you looked at the instructors, I don't think there was a significant difference between instructors over there and instructors over here. They were very committed to their task, which was preparing cosmonauts and astronauts to perform their mission. Instructors on both sides of the ocean, they know their area of expertise very well, and they spend a lot of hours making sure that they're able to answer the most in-depth question from the crew members that they're training, so they are truly professionals.

The frustrating part was trying to do it in another language, when you felt like you didn't have the level of proficiency that you needed, so I think that was a constant frustration for most of us over there, was always feeling like we weren't 100 percent sure of what the person was saying, you know, being able to catch maybe 80 percent of the conversation rather than 100 percent, and always having to focus so hard on what they were saying, trying to make sure you understood it, and then the frustration of not being able to exactly ask the question that you wanted to ask, because your vocabulary didn't enable you to do that.

To me, that was the biggest frustration of being over there. Not so much the differences in systems, but in methods of teaching, I should say, was that I was having to do it in another language, which, I really would have loved to have had another year of nothing but full-time language training, so I could've gone over there and then started the training program. I think it would have been much easier.

Wright: Did you speak Russian almost all day when you were there?

Lawrence: Well, the NASA office kind of became the--we had a handful of Americans over there, and the Russians that we had hired, the three secretaries and interpreters in the office, all spoke English extremely well, so you tended to speak English over at the office, usually because by the end of the day, you were tired of having to do everything in another language.

So typically, from about nine to six, Monday through Friday, you operated in a Russian world and you listened to Russian all day long and you spoke in Russian, and it was really nice at the end of the day to stop by the office and switch back to your native language, because your brain was just tired, it was

wrung out at that point.

Wright: Have you ever encountered anything like this before?

Lawrence: I had learned Spanish in high school. Growing up in Southern California, that was the logical thing to do, but Spanish is an easier language to learn. Being a romance language, I think it's more akin to the language we speak. Russian is a Slavic language, derived from that, and it's a different alphabet, a different way of handling grammar and conjugation and it's a harder language to learn.

Wright: And of course, too, you became part of that culture, as well.

Lawrence: Well, yes and no. I think even though we lived over there, you don't necessarily--it's like people who come to the United States, you live in the United States, but you don't necessarily lose the culture that you've come from. If we had stayed there longer, I think we would have been more immersed in the Russian culture, but, truthfully, probably the longest period I spent there continuously was four months, and then you would have trips back to the U.S. for training, that would be about a month long. So I think it's a little bit more difficult to get immersed in a culture when you're not in a country for a long period of time.

Wright: Did you ever have a chance to see the country for the country, and not as a training ground?

Lawrence: I made, let's see, probably two trips, really, outside of the Moscow region. One was to Tiksi, up about seventy-two degrees latitude in the Arctic Circle, about 6,000 kilometers from Moscow, and the other one was down to the Black Sea, to Djubka, Russia, but that was really the extent of it. I would have loved to have traveled more, but when I was DOR, that was just out of the question. There was absolutely no time to do that, and then when I was training, I felt like I really needed to study on the weekends, so I didn't even have a chance to make it up to St. Petersburg, unfortunately.

Wright: Planning a trip back soon? Is there anything else over there for you?

Lawrence: No. I hate the trip, to be completely honest. Going over to Russia is a full day, leaving Houston, and usually we flew through Amsterdam. You leave like four in the afternoon, and by the time you landed in Amsterdam it's ten o'clock the next morning, their time, and by the time you get into Moscow, it's two or three in their afternoon. You've been up all night, you're exhausted. The Moscow airport is--I don't know if any other people have talked about it, but it's a free-for-all, first come, first

served. The concept of well-ordered lines doesn't exist over there, so clearing Customs can be overwhelming at times. And then the trip back, usually you end up being up about twenty-four hours, so I didn't like the travel aspect of it.

I didn't mind actually living over in Russia, but the travel to and from, I felt it was really hard. It took a lot out of you. I think the benefit of the Phase One Program over the Phase Two program is we did get to stay in Russia for longer periods of time, and we weren't traveling every month or every other month, which, I think, over the long haul, will take a lot out of a person. Better ways to do it.

Wright: Over these last few years, certainly you've had a lot happen, in one way or the other. Is there a significant episode or something that you'll always remember as being one of the highlights of being part of the Phase One Program?

Lawrence: I think finally having an opportunity to see Mir, after having spent so much time in Russia, you know, just working on the Phase One Program, and then studying to be a crew member, I think, on 86, the rendezvous was pretty exciting, because, you know, at long last I finally got to see the station and then dock with it, and interact with the cosmonauts on board.

The fly-around on 86, I think, will always be very memorable. It's one of those situations where you just kind of step back and just take it all in. It's like, we have these two 100-ton spacecrafts that are literally doing this dance around one another, while both of them are traveling around the Earth at 17,500 miles per hour. And then Mir, the modules are white, and with the sun shining on them, they absolutely glisten, and then that, set against the very, very blackness of space, is a strikingly beautiful sight. I think that's a memory I'll have all of my life, was just the beauty of that moment.

But then the fact that we were doing this in space and that two different countries that had formerly been enemies were now closely cooperating, so that we could maneuver these vehicles around one another. And the same thing on 91, we got to repeat that process, but on 91, I think, for both Charlie Precourt and myself--I think Charlie had had three flights to Mir, and then I was on my second trip--closing the hatch was hard for both of us, because it was the end of a program that both of us had spent many, many years participating in, but I think we went out on a good note. It was closure for me.

I told Bob Cabana at one point in time, and he asked me if I wanted to fly on 91, and I said, "Yes, I do, because I want to finish the Phase One Program. I've invested three years." You know, at that point, around two and a half years of my life in the program, and I said, "I want to bring this program to a successful conclusion, and I think 91 will be a very fitting way to do that, to go on the last flight." I think that flight went well, although we weren't able to find the leak in Spektr, but I think the flight, in general,

went well. As I said, it was a great way to close out what has been a very successful program.

Wright: How was it to close out the program with the director from the Mir side up on board, the man who gave you the papers for you to be able to be certified? He was right there with you.

Lawrence: It was interesting to watch Valery's [Ryumin] reaction. Here was a guy that had helped designed the Mir. It was a neat opportunity to him to actually see, on orbit, what he had been such a significant part of, but I think it was also very interesting for me to see his initial reaction, because, basically, the folks on the ground, the people in Moscow who work at the Control Center, really had no concept of what Mir looked like on the inside. They had lost track. And Valery said it himself, he said, "After about three years of operation, we completely lost track of what was on board Mir."

I can remember after the first dock day, he came over, he said, "What do you think? What do you think about Mir? It looks so different than Shuttle. Shuttle is clean and systems look good. And Mir, it looks old, it looks tired, and there's all this stuff." [Laughter] I had already been there. It was like, "Well, yeah, Valery, I know that. You know, crews coming back could have told you that." But I think it was just, to watch his first-hand reactions was another interesting aspect of this program. It was neat, because I guess it's like a parent watching their child succeed at something. You could see that aspect in him. You know, here was the parent who was getting to see how well his child had done. I think anybody who gets to observe a situation like that finds it to be pretty rewarding.

Wright: It must be a great feeling to watch, or exchange that with each of your crew members as you all were docking the two spacecraft together, and just knowing that that feeling of success that you all were all sharing, each time that you've gone, to know that, as a crew, that you were able to do that.

Lawrence: Well, it's any crew that comes back after a flight. I mean, there's a lot of work that goes into it, not just by the crew, but by hundreds of people down on the ground. When the Shuttle lands, everybody can take satisfaction in the fact that the mission has gone well, because many, many people have worked very, very long hours to pull that off. So, yes, like I say, right after you land, you feel great, wow, mission's over, it went well, and then, poof, before you know it, you're back to the mundane things. You're like, "Did we go fly? We did this, right?" [Laughter]

Wright: And the word "short duration" all of a sudden comes true.

Lawrence: Oh, yes, I mean, it passes so quickly, and then before you know it, you're not--you're just not allowed to dwell on the memories, because you're very quickly moved off into other areas, and there are a

lot of to-do's after the flight that have to be taken care of immediately. It would be nice to be able to savor the moment a little bit longer, but that doesn't happen.

Wright: Are you glad you got a chance to participate in Phase One?

Lawrence: Oh yes, yes. Yes, because it was an operational program. It was an operational space station, and I like that aspect. After having worked as a crew support person and going to meeting after meeting, talking about what needed to be done, it was nice, one, to get over to Russia and have an opportunity to actually do things, and, two, to train for a mission on something that was already built and operating. I think that's the key difference between Phase One and Phase Two.

Phase Two, we're talking about putting this thing together, and in Phase One, you knew it was already there and you knew you were going to have a flight. I think, from that aspect, that's the key difference. Phase One was an operational program and Phase Two, first, it's construction, so a lot of it is on paper right now.

I think at times it's hard to keep your motivation when you don't really have a lot of hardware to look at, and in the case for those of us who trained for a flight on the Mir, even though the mock-ups didn't look anything like it, at least we could go to the mockups, we could see that, and we could see video that came down from the Mir, and we could see pictures that had been taken by previous flights. That aspect, I think I really enjoyed in Phase One, was that we were talking about real, no kidding missions to a space station. They were not just on paper.

Wright: Real-time experience. And what's next for you?

Lawrence: Oh, I'm at the bottom of the list. [Laughter] So I tell people, they say, "What are you going to do next?" Well, one, I'm going to go on vacation, and two, having done back-to-back flights, I'll have to pay my dues. [Laughter]

Wright: But it was great while it lasted.

Lawrence: Oh, it was great. Right now I'm trying to help Marcia Ivins with some of the stowage issues for the International Space Station. Where do we put everything? So we have an exercise this week to kind of recreate the flight deck and the mid-deck and the Spacehab area of STS-91, to show some people the difficulties of doing logistics flights, from the Shuttle crew members' point of view. So I think I'll be wrapped up in that for a while, just trying to figure out the best way, since it looks like from here on out, the Shuttle, primarily, is going to be a logistics carrier.

We need to get a little bit better at how we do that, and we certainly need to think long and hard about how we're going to stow things on ISS so that we don't go off and recreate the Mir, and Valery Ryumin has said that himself. You know, we really have to keep track of what goes up to the International Space Station, or in three years it will look just like Mir, and that's not satisfactory. We have got to learn lessons from the Phase One Program and pass on those lessons to Phase Two, and do it better.

Wright: Have you enjoyed working with all the international partners?

Lawrence: I've only worked with Russia, so one international partner. I have not really been involved in Phase Two in any significant capacity. I've heard people talk about what it's like to try and bring everybody together and get a consensus, but my only experience is working with the Russians and working with them in a program where we were guests on their station. So, some of my experience in Phase One doesn't necessarily apply to Phase Two, because it is a joint station with everyone making contributions; it's not controlled by one partner.

Wright: Did most go well or smoothly when you were working with your--

Lawrence: It takes a long time to get things accomplished in Russia. That's my one comment about that situation, is, it takes a while to learn how things are structured over there. It takes a longer period of time to figure out who you really need to talk to, to get something done, and then I found that it took a long time to get things accomplished. Some of it is just based on lack of communications over there. Their telephone system, its infrastructure is not as good as ours over here, and there isn't E-mail. You have to go visit people, and then you have to try and catch them into their office, and so you just had to take a different approach over there. I can make a long to-do list, but I've got to keep in mind that I may not get anything crossed off it today. I learned that you really have to be persistent over there in trying to get things done.

But we drive the Russians nuts, because, you know, they come over here, and we want to go boom, boom, boom, boom, boom. We just want to go through this long list of things, and they take a different approach. It's cultural. We're a very fast-paced society, and we want to see results and we want to see them now, and the Russians are, you know, "We've got time. We get it done today, we get it done tomorrow. We'll get it done, but it doesn't really matter which day we do it." That's a cultural difference that I'm not sure we're going to change any time soon, but I think over the course of the Phase One Program, we've understood each other's differences a little bit better, and we've learned how to work with them a little bit better.

Wright: And that's an accomplishment there, I'm sure.

Lawrence: Yes. Yes, we've learned how to communicate. We've figured out who we need to talk to about certain issues, so I think that, more than anything, it's probably the lasting legacy of Phase One, is that it gave us an opportunity to learn how to work with one another.

Wright: Paul, you have a question?

Rollins: Yes. When did you decide that you wanted to be an astronaut, and what did you do to be able to succeed in that effort?

Lawrence: I decided I wanted to be an astronaut when I was sitting in front of a black and white television, when I was ten years old, watching Neil Armstrong walk on the moon. My mother's father had been in the Navy, had gone to the [U.S.] Naval Academy and gone into naval aviation. My dad went to the Naval Academy, went into naval aviation. So I grew up surrounded by planes, and certainly developed a fascination for them. I also knew that a lot of the first astronauts had gone to the Naval Academy and been naval aviators, so I thought, kill two birds with one stone; I'll go to the Naval Academy and I'll become a naval aviator, always keeping in the back of my mind that where I wanted the path to lead was to NASA.

So I got good enough grades in high school that I could qualify for the Naval Academy, and went there, and worked hard at the Naval Academy so I could get one of the aviation slots for women, and went to Pensacola, got my wings, flew helicopters for a while, and then got some more education, and in August of '92, came down here to start training as an astronaut candidate.

Rollins: You did everything right.

Wright: Your path here and to the Mir was one that not many women have chosen. Did you ever feel like you were treated any differently because you were female?

Lawrence: No. No. Certainly I think NASA's one of the best environments that I've worked at, for that, and I think it's because by the time somebody gets down here and is selected to be an astronaut, they're very well established in their own career fields, a very mature, accomplished group of people, accomplished to the point that I think a lot of the competitive aspect is gone, and they're secure in their career fields and what they've accomplished, and they just don't focus in on differences between people. I think also, in the astronaut office you already have pilots and mission specialists, so that's the division that exists over there, if you're going to segregate people; it's pilots and mission specialists. But I think people are pretty much

color blind to whether or not you're male, female, and what your race is and your other background is, and even color blind to the fact of whether you're military or civilian.

We basically realize, particularly when you're assigned to the crew, we are the people that are responsible for getting this mission accomplished, and so you very quickly realize that we have to come together as a crew or we're not going to be able to pull it off. It's a good environment to work in, with respect to what we've been talking about.

Wright: Everybody has a task and a lot of them, I guess.

Lawrence: Yes. [Laughter] If the training flow doesn't kill you.

Wright: We thank you. We appreciate taking your time.

Lawrence: Sure. I think Charlie Precourt says he's on his way over here.

Wright: Good.

Lawrence: He was already giving an interview when I left to come over here, so he's probably, he's in the groove.

Rollins: He's in the mood.

Lawrence: He's in the mood. Actually, I just gave one earlier today, too, but it was little bit shorter, and we talked about some other stuff.

Wright: Must be the day to interview, then.

Lawrence: Yes, well, I think so. And Alicia said, "How about Tuesday, right after your other one? We'll just do it on Tuesday." "Okay. Whatever works."

Wright: Well, we wish you luck. We hope that the missions will be many for you, and you can go visit the ISS, and then you can compare it to the--

Lawrence: Yes. Well, boy, we've got to get it built first. Charlie [Precourt] will probably talk about that some more, but that's one of the things that we've been saying in our debrief, is we've done it really well, we've learned a lot over Phase One. From the early days, he can compare it from '71 to '91, the first few flights, we were still learning how to do this logistics transfer, and we got really good at the end of the

process, but we had the benefit of dealing with a mature station, and now we have to go and do it with a station that we're trying to assemble, so we've got to get a little bit better in how we do this to make sure we can pull it off. So that's what we've been talking about to the folks, is how we can better accomplish this mission and gain some efficiency. It's the reason why we're going over to Building Nine on Thursday, to show people what our mid-deck looked like, to try and figure out how to do this a little bit better.

Wright: Good luck with it all.

Lawrence: Thanks.

[End of interview]