AL HOLLAND

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Wright: Today is August 13, 1998. We're speaking with Al Holland, with the Shuttle-Mir Oral History Project. We thank you for taking time out, and if you would start for us by explaining to us what your roles and responsibilities were with the program.

Holland: Well, like you said, they changed. It started essentially as a psychologist, or as the only psychologist. I did everything, including get the water and pick up kids from school, for crew members and stuff. Basically, what I was employed to do was to do all things psychological, which includes selection, psychological selection, the psychological aspects of training for long-duration flight, in-flight support. We had a full in-flight support program. In-flight monitoring, and post-flight debriefs for all the crew members and also their families, tracking their families throughout pre-flight, in-flight, post-flight phases, and making sure that the flyers reintegrated well, back into the office and the families.

We also were in charge--I say "we" because it was a team, it wasn't just me. I had two people, a lot of the time, who were helping me--Kelly Curtis and Steve Vanderark were really doing a lot of the legwork here. Basically, the selection was pretty minimal, what we did there. What I do normally for all the astronauts that come in, is I do astronaut selection, the psychological parts, so I do all the psych testing, I do the psychological interviews with them.

We have a psychiatrist, Chris Flynn now, who came on partway during the Mir series, who does all the what we call "select outscreening." I do the select in, which is looking at a person's normal personality traits and their suitability for long-duration flight. During the course of the series, it evolved so that Chris, especially now, has the in-flight monitoring tasks, and so toward the end of the series, I had less of the in-flight monitoring. So basically, that was it. I had the opportunity to interview some of the cosmonauts as well, post-flight and pre-flight.

In terms of the training, we did cross-cultural training, Russian cross-cultural training, for the flyers and for their families that wanted it, and we trained even some of the dependents, like Danny Thagard, on teen stuff, because he was a teenager at the time, on teen stuff in Russia, because they were going to live in Russia.

So we do the cross-cultural part. In terms of the training, we do psychological lessons learned from previous flights, and from what we learned from the Soviet long-duration flight experience in the Soyuz era and the Mir era. We bring in lessons learned from the polar winterovers, polar traverses that people have been on, undersea, in submarine environments, and there are lots of common lessons that apply for long-duration psychology in the space environment. So that's essentially what I did in terms of training.

Let's see. In monitoring, it was communicating with the crew members periodically, not frequently, just periodically, mostly over ham radio, and also following the air-to-ground transmissions and keeping track of the families. So we'd bring the families in for their weekly com sessions, and we would set up the weekly communication sessions between the flyer and their family, or between the flyer and friends on the ground, or like Shannon [Lucid]--we were talking about Shannon earlier--if she wanted to be patched through and talk to Grandma in Oklahoma City, we would patch her through on the ham set or on the formal air-ground channels, and take care of all the com from the family point of view.

In-flight support involved the team sending up care packages on the Russian Progress rocket, so we put those together. We put together a five-kilogram package from the family, and a two-kilogram package from ourselves, from the psych support team and their co-workers, manifested those up on the Russian vehicle. Let's see. What else? We did the ham radio. We made sure they had the usual stuff you'd want on board, like music and videos and Twinkies. We tried to get Twinkies up for Shannon. The Russians wouldn't allow us to send Twinkies up. I think they thought they would offgas too much or something. [Laughter] People don't eat these things. M&Ms and stuff. Just make sure they have what they wanted. So that's what we did in the support side.

In post-flight, we did debriefs, and what we learned from the early flyers we'd plow back into the subsequent flyer. So Norm [Thagard] gave us lessons that we plowed back into Shannon, and Shannon, plus Norm, went in to John Blaha, and so forth. So it was quite an experience. And personally, it was quite an experience. I learned a heck of a lot. You know, I thought I knew something before this series of flights, and so I realized how little I knew, and just loved learning all the things that we were able to learn.

Wright: How did you set about planning and preparing for all this in the beginning?

Holland: The Russians provided a template, basically. They didn't say, "Here's the template," but I mean, they had prior experience, and so we went out and tried to comb their knowledge banks for, how do you handle this situation, that situation. And our support program essentially mirrored the Russian support program, because we tried to, since it was a Russian vehicle, in Russia, and they were the host country, and everything went through TsUP, the Russian control, we had to integrate with their program, so we created a program which was a mirror of theirs, I would suppose. If they were sending up a Progress rocket, it had support items for their people, we supplied care packages for our person, but they would review the contents, tell us what could go, what couldn't go, that sort of thing, and just show us how to do that. So the Russians were very helpful in terms of psychological support.

In terms of selection, there wasn't that much to do, because we didn't have a big pool of people who

were knocking on the door to go fly, like we do knocking on the door to get in the astronaut corps. So essentially it came down to program management asking us--and that's usually the astronaut office or the program management--asking us, "Do you think this person can go the distance? Is this a good candidate, or is that a good candidate?" And then us sort of signing off on this person being able to go, or advising the program management if they had no one else to send, what the ups and the downs might be of sending this particular flyer.

So we had learned how to do selection pretty well, but we didn't have the wiggle room to perform selection, so we mostly went back, in a Bandaid approach, and said, "Okay, if you're going to fly this person, Person X, here are the things that we need, to be able to assure you that this person's going to make it to the end of the run." And so then we'd go back and we'd do Bandaid work and support work, to ensure that that person made it through.

Wright: What type of traits were you looking for, or did you find, that proved to be successful?

Holland: We found all sorts of traits, because you have the gamut. Every flight's unique. Every flight is unique. Not only what they do, but the events that occur, the stage the program was in, the stage of the infrastructure at the time that was supporting them during their deployed phase. All of these things were in flux, so each flight was different, and of course you had a different personality on each of the flights, and that American personality also drew a different crew, so the crew members, on the Russian side, had very different personalities, and, therefore, each crew had its own color to it.

So every one was different. And so it's really probably good that we weren't allowed to do selection in our usual manner beforehand, but we had to work with the people that were assigned to us, to fly, because in that way we learned a lot more. We saw a much wider range of personalities than we would have if we had done a rigorous selection.

So you're looking for the usual capabilities that you would assume for all long-duration missions, which are, what you want in an astronaut, which is your usual things like good judgment and experience in crisis, being able to handle crises or threat [unclear] situations, you want someone with good teamwork skills, you want someone with the ability to step in in a leadership capacity if you need it, someone with a sense of humor is very important, etc. But when you get to long-duration flight, you're looking for, and particularly weighting the qualities like social skills, teamwork. Those are very heavily weighted, and humor. So if you're able to negotiate the social landscape--it's a very odd social landscape that our flyers were put in on the Mir series--if you're able to negotiate that, then you have some pretty good skills. They were quite pressed, and from a psychological point of view, all these flyers were quite pressed. It was quite

an achievement for each one of them to complete the mission in the way that they did. They did a good job.

Wright: How were you able to help them from the ground, make it through the duration?

Holland: Very little. They have to do it themselves. I would have loved to have helped them more if I could have, but lots of times--and that's a feeling I think you get used to, for not just my discipline, but all the people on the ground, is that you can't intervene. There's nothing you can do to make it better, easier, different, solve the problems like this [snaps fingers], come up with the answers rapidly. It's a frustrating feeling to be back at home when someone's out in the field, having a tough time, so there's very little you can do.

On occasion, we did intervene and were able to be successful. My intervention was usually behind the scenes. If there was an issue with a flyer or there was an issue within the crew that was on orbit, between the Russians and the Americans, that sort of thing, I would hear about it, either from the flyers themselves, or through TsUP, the Russian counterparts, or more frequently from the flight surgeon. If it was indicated, I would then work with management, program management, and say, "You may want to consider this, that, or the other, as far as tweaking the mission a little bit and changing conditions, so that next time you go to the table with the Russians, you may want to bring up the following issues," or, "Please insist on the following changes." So I would do that frequently. So I would advise Frank [Culbertson] from what was coming over air to ground, and just bring him up to date on the psychological situation of the individual flyers and the crews.

Also another way to intervene was through the Russians. We have now, and always had, a really close relationship with my counterparts over there. They've been to my house, I've been to theirs. It's quite close, and they've been quite gracious about giving us their knowledge, their experience. If an issue came up, since they were the host country and it was their vehicle, they had the most control over the conditions, I would go back to them, and I'd say, "Is there anything you can do in this issue?"

At the same time, I may go to my own program management and do the same thing, or my own people at TsUP, and there may be a little bit different strategy at each, but we would all try to bear down on the same issue. So we did that a few times, and one or two times were successful at improving the situation.

Wright: How many times did your job take you to Russia? Were you there often?

Holland: I went about fifteen times, perhaps. Maybe somewhere between fifteen and twenty times, from about 1989 on, because I got involved before there was a Mir Program. I was involved with the Russians

when it was just going to be a one-time shot. Norm Thagard was going to go up, he was going to be a one-time flyer, and if we were lucky, maybe other opportunities would show up, but Norm was not part of a series of flights. It was not part of a phase one of anything. There was no Phase One.

At that time, it was the Soviet Union, it wasn't Russia, and so going over there was real different than it is now. It's pretty easy now. Things have opened up. But at that time, it was quite closed, and there were no resources at all, including copy machines or interpreters, or even a van to get in and out of Star City with. Once you're in, you're in. The door was closed. It was very difficult getting in and out of the military compound.

So at that time Norm was a real pathfinder. He and Bonnie [Dunbar] and their families basically cut a path between Houston and Moscow and made this thing work and laid the groundwork for this. So I started going over there as a science person, because there was no operational psychology group. I was the head of the psychology science side, and so I went over there negotiating to put together a science package for Norm to do.

At the same time, I was trying to negotiate the more operational issues, but when it was certain that he was going to be going, once there was a commitment, then I hopped over from SD-5, which was science at that time, to SD-2, and I helped form the operational psychology unit, so that we had a counterpart to the operational psychology unit in Russia, and were able to negotiate on a level playing field with those folks. So we had a mechanism to do that. But that wasn't until Norm had deployed, so we were always playing catch-up with Norm.

There was no infrastructure over there, there was no office, there were no vans, there were no secretaries. It was just Norm, Bonnie, and a SAT phone, and they gutted it out and did everything in Russian, learned Russian, got around by themselves and their flight surgeon. That was basically it.

So I went over there from time to time to see how things were going and to negotiate with the Russians. We put together a psychological support plan, which was, like I say, a mirror of the Russian plan, which was in place for Norm's flight, which is the same plan that was in place for Andy's flight. But Norm couldn't access it. That is, it was negotiated, we signed the documents, etc., with our counterparts, IBMP, but when it came time to implement it, once the flight was under way, the Russian Energia organization wouldn't honor the agreements that NASA had made with IBMP, because at that time, during Mir 18, there was no central Russian space agency. There was, but it existed with two or three people. They had no power, either.

So the Russian space effort was run by Energia primarily, because they owned the Mir station and the hardware, and Krunichev Works [phonetic]. There was IBMP over here, then there was Gagarin Cosmonaut Training Center over here. They were different organizations and quite competitive for

resources, competitive of one another.

So Energia wouldn't honor agreements that had been made with the IBMP people, even though Energia didn't have any psychology people there. So once the flight started, and it turned out that they wouldn't allow communication uplinks, they wouldn't allow news uplinks, they wouldn't allow lots of things, we had to go back and scramble and work with IBMP people, to try to change their Russian internal political situation. So we were only partially successful with that, found some back-door activities like the ham, which was a back-door channel for communication, was able to post news up to him after we got that up and going, and was able to smooth out some of the com problems. But that was a very rocky flight for those reasons.

Then in the year between Norm's flight and Shannon's flight, there then became a Mir Program, and so there were high-level agreements made, which validated the lower-level ones that we had already made, and which created a centralized or a stronger Russian counterpart, a Russian agency. So everybody sort of pulled together, and then our agreements were validated. When Shannon came on board, by that time we had not only refined what we were doing, but we had agreements in place that would be honored. It was the same agreement that would be honored by the whole Russian side. So Shannon was able to avail herself of more of the resources that we had, whereas Norm really wasn't. So there was lots of evolution in the whole program, as you've heard from other people, I'm sure, and it affected our discipline also.

Wright: Yes. It sounds like no day was ever a routine day.

Holland: No, it wasn't, and that was the exciting part about it. That was the exciting part about it, is that you were learning constantly, and it was a very difficult situation. This was the mission, these were the conditions, which were not good. It was done under the worst of conditions, in a foreign language, and you were going to have to work across the continents to make this happen, and you had to make it happen by a certain time. And it was all those constraints and the high stakes which made it very exciting and, I think, got the incredible response from all the ground organizations that I saw, people working long, long hours, weekends, and just through the night, for no compensation, no tangible compensation, but certainly there was a lot of sense of being involved in something that was hard to do. I was a challenge, and that's why they liked it, and they were learning, too. So it was a good experience.

Wright: Feel like things became more routine when Andy [Thomas] was there?

Holland: Yes. Yes, by the time Andy got up there, they were more routine, but there were still situations that we could not control, that we wanted to control, one of which was the fact that the American crew

member never, in my opinion, never was a fully integrated crew member with the other two flyers. When Norm flew, the whole month of May that Norm was up there, he didn't have his science equipment, so he had nothing to do. He just twiddled his thumbs, and the situation of work underload is one of the worst situations you can ask a high-achieving, bright, interested astronaut to subject themselves to.

So he's up there, and because of the way the roles were structured for Mir 18, he wasn't allowed to touch any of the Mir systems, so he wasn't able to do anything. He wasn't able to help maintain the station, he wasn't able to turn wrenches. It wasn't in the job description, and so what we did after Mir 18, and before Shannon's flight was, we were successful at changing the definition of the--what do they call it, cosmonaut researcher, at that time, for Mir. Changed the definition of that job into one of a board engineer, too, so that this person could actually be a member of the crew and to turn wrenches and have things to do in case there was an underload again.

But we never achieved, even though we were able to do some of the formal changes that provided a context by which you might expect integration to occur, we were never able to overcome the actualities of a person's work, an American's work on station, which was mostly as a laborer, when they weren't doing U.S. science. In many of the flights, after, let's see, I guess, with Jerry's [Linenger] flights, it started where there were lots of system problems, with the thermal system, you have the gyros, and the whole thing is basically falling apart, and so to keep the thing glued together required lots of work.

We were never able, I don't think, to have the American be on par with the Russian crew members, in the way that Americans think of the concept when they think of being on par. It was always that the American was at the bottom of the barrel, and did many of the menial tasks--not that they didn't want to do menial tasks--but a huge amount of their time was in menial tasks that fell to them, because they were not able to do the more advanced tasks on the systems.

Secondly, because their Russian language was not sufficient to allow them to integrate socially or technically with the Russian crew members, more time should have been spent on language, because that's really the door to integrating across multinational crews. So we were never able to do that. There was always a rub--not always--there was frequently a rub adjusting to the leadership style of the Russian commander as well.

So you put these pieces together and you never have a fully integrated Russian-American crew. You've always got these cultural differences working as well. So it was a hard row to hoe for the U.S. guys, and frequently they expected one thing before launch, and they got up there, and they were bowled over by not just the physical environment and the hours and their role, but by their inability to change their situation and to improve their status, vis-a-vis the other crew members. So that's just something we never were able to overcome, and that'll be the challenge for ISS [International Space Station].

Wright: Was there one increment, especially for you, that seemed to be more challenging than the others, other than Norm's? I'm sure that was the ultimate challenge, because that was the first one.

Holland: That was the ultimate frustration. It was certainly the ultimate challenge, I think, for the seven flyers, but there were lots and lots and lots and lots and lots of challenges along the way, and many stories and events that occurred that I'm not at liberty to talk about, but certainly each one was unique for different reasons, and had its own challenges.

Norm's, we talked about. Shannon had a wonderful crew. She had wonderful personality traits that--and she pulled two wonderful cards out of the deck to be with her, and even though her language skills weren't exceptional, all their values and their attitudes and their intent were lined up, and it worked out very well. The challenges there were just keeping her connected with her family and to provide enough books for her to read. She's an avid book reader, so we were always trying to get that, and M&Ms.

And then, let's see, as far as John [Blaha] goes, again, one of the big challenges there was keeping the connection between he and his family, particularly his wife, Brenda. We got very adept at tracking people all over the world. When they would go on vacations while the crew member was up, we patched com sessions through all over, to little trucks tops in the Midwest, pay phones, to cruise ships on the Mediterranean.

Wright: Was this a new adventure for you?

Holland: Oh, yes, yes. It was fun, though, working with the technical guys to make this happen, so that we were able to keep people in contact. But that was a big challenge.

On Jerry's flight, of course, the systems started breaking down. And then all the environmental challenges really came to the fore, particularly with Mike Foale's flight. I guess Mike's flight was one of the big challenges there, with the depressurization. We were involved, or had input, into the decision process, which ultimately led to their not conducting an IVA, or an internal EVA, into the Spektr module with that particular crew.

So we were also involved in assessing the performance readiness of the Russian crew members, as well as the American. So we became quite involved during Mike's flight in that process and had an active role in the decision to swap out Russian crews prior to doing an IVA. So that was extremely active.

Wright: How did you get to know your international partners? You mentioned you got along well with your counterparts, but there's always a first-time meeting. Can you share with us some of those first days of you, as professionals, getting to know each other, and then personally?

Holland: Well, it was over the negotiating table, was the first place I met my lead counterpart, who's still the lead over there. At that time, it was the Soviet Union, and we were real cautious of one another, I think, and it took some time to get to know each other. During that process, I took some Russian cultural training, and I'd had some Russian language training in high school, and I tried to resuscitate that, and so I think in making those efforts and trying to understand things from their view, and understand how they negotiate and what was important to them, and what the history of their flight program was, and their way of doing business, that that paid off, and he did the same. So we were able to cross the table, so to speak.

But when you're dealing with Russians, like many other internationals, the way you really do business is in off hours. It's informal, and you must have a social relationship in order to get anywhere in your work relationship. It's essential. It's the way things are done. So I learned lots of ways to establish rapport and establish a relationship with my counterparts, and I enjoyed that. I really value their friendship, as well as knowing them workwise.

And of course, I did lots of foolish things, in lots of cultures, which help break the ice a little bit. I remember one trip in a van. We were crossing Moscow one winter morning, going somewhere, and it was a Russian van and I was in there with several other of my Russian counterparts. We were crossing Moscow and we were trying to make a meeting time, and we were slushing along, you know, through the crowds and the jam. There was a big traffic jam up ahead. I was in the front passenger seat with the driver and my counterparts were in the back. They couldn't see what the issue was, really, and so they were asking, in Russian, what it was. "Schto eta? What's going on up there, and why are we delayed?" We were sitting in traffic.

I said, "Eta Bolshoy Proka," and I was very proud of this, because I found an opportunity to use the word that I thought meant traffic jam, which was *proka*, not *polka*. And so I screwed it up. *Proka* means *derriere*. And so they were saying, "What's up ahead?" and I would say, "It's a giant rear end, and that's why we're not--." So I succeeded in making an idiot out of myself in that, another culture.

So I think that whole process of getting to know each other and seeing the frailties and foibles on both sides was very good. So we had each other over at houses, and got to know kids, and watch weddings go by and grandkids be born, and that was very helpful. I think when you talk to Frank, you'll see that he had similar relationships with his counterparts.

Wright: How was it for your family when they came to visit here?

Holland: It was great. My kids--my son and daughter--I mean, they were young when we started, and now they're in their teens, and so they were able to have visitors come in from other countries and sit and eat and

hear about it, and sit for hours afterwards, talking about differences, and getting to know the habits. It was just a wonderful education for them. They became very comfortable with that. Good hostesses and hosts.

Wright: Were you able to bring your family to Russia at any point?

Holland: Never could afford it. [Laughter] Always wanted to, couldn't afford it.

Wright: So at least they had an international friend.

Holland: They did. Yes.

Wright: You listed, a while ago, all the different areas that you made a significant contribution to, everything from the selection to the post-flight debriefings, as far as your area.

Holland: Well, we did them, yes.

Wright: Was one of these areas more difficult than the other one?

Holland: No, I don't think so, but there were a lot of lessons learned in training and selection, of course. We learned a lot about personality traits for long-duration flyers, those that are very good, those that don't work out so well. But in terms of training, we did start with whatever personalities we had, and then tried to bring up to speed the capabilities that we understood were needed on board, pre-flight. Invariably, the crew member would say, "Yes, okay, thank you. These are lessons learned from past flights. I understand. Okay, this is probably going to occur in the first couple of weeks, and then this will probably occur, and I might feel this way, and yes, okay." They'd understand at a cognitive level, and then they'd get up there and they'd be rocked back on their heels by the emotional impact of these conditions and the daunting social challenge of integrating themselves into the crew and negotiating their place, with respect to the commander. So I feel like we were not able to get to the point in training where we were able to convey the emotional condition well and prepare them for that at a gut level. So we learned the deficits of that.

I was able to get out and see other training programs, not in the space industry, but other industries, that do prepare people that way, and so now we're trying to import and emplace those techniques for our ISS flyers. So I think training, psychological training, will change a great deal and be a little bit less didactic and a little bit more hands-on experiential.

Wright: In your post-flight briefings, was there a common thread that came through from each one?

Holland: Oh, they were great. Oh, yes, lots of common threads. [Laughter]

Wright: Can you share some of those with us?

Holland: They comprised the briefings that we now do on long-duration psychology, and the lessons we learned, basically, they're many, they're just hundreds, but basically they're in three categories: individual, that is, things pertaining to the individual crew member, him or herself; things pertaining to the whole crew, as an entity; and then things pertaining to the relationship between the organization and what it does, and the crew member's psychological well-being. And we saw lots of things.

One of the things that was astounding to me was that, traditionally, we had this focus on the individual, almost an exclusive focus on the individual, pre-Mir, thinking that that's where you need to put your effort. In the Mir series, what was so striking was the influence of the organizational policies and the organizational context on the individual's psychological health and well-being and performance levels. There were just so many organizational lessons that were learned, that the organization can do differently, in terms of policies and procedures, many of which were not in place. NASA just didn't have in place policies and procedures to deploy people and their families, and make sure that people got back and forth without a lot of problems. NASA's not like the military. It never had before deployed people for long periods of time in foreign countries, so there was no infrastructure at all to do that. We just gave them a ticket and sent them over there.

So we learned about how the organization, or the organizations, including the Russians, that field people into space, the impact that the ground team's relationship with the crew member, and the policies have on whether or not you launch a tired, exhausted crew member, or whether or not you are launching someone who is angry at the organization or who feels that they understand their role on board. I mean, just getting these things clear are huge things, which have very little to do with the traditional couch-diving view of psychology. So, lots of lessons there.

Lots of lessons at the individual level, in terms of adaptation and how an individual pursues different strategies to adapt to difficult environmental and social conditions, under conditions of poor, say, high heat, sleep deprivation, poor language skills, lack of communication, crowding, inability to find tools and equipment because it's so crowded, working in the dark for months. So we've seen those conditions and we've seen how individuals, different types of individuals, adapt, which I think will play back into the way we train ISS crew members. That will be very beneficial. It won't be for nought.

We also understand better how to support them. I think the psychological support program worked pretty well. I think, of all the aspects, it probably worked better than any. Once it was designed and up and running, although I was involved in it, really these other two people, Vanderark and Curtis, were principal people in that.

Then, of course, the psychiatrist, Chris Flynn, came in partway through the Mir missions, I think about either at the latter part of Shannon's mission, I think, perhaps, and really got involved with Dave Wolf and was the flight surgeon with Dave Wolf. Of course, being a flight surgeon, and being over there for months, he was able to bring some behavioral lessons that we could incorporate back home from that vantage point, that we didn't have before, so that was very valuable at the individual level.

Then at the team level, we learned a whole lot about international teams and the importance of, you can't copy tools from one culture to another. You can't use the same tests, you can't use the same criteria, but you must first have corresponding concepts, understand, across the different nations, and involve definitions and the implications of these definitions, of the different concepts you're trying to select for or train for or support, and then see if your tools correspond. So the integration issues are huge when you add more than countries together into a pot. They become quite, quite large, for psychology.

Wright: What about personally? Did you find out anything about yourself, going through these last years, working on this project?

Holland: Oh, gee. How much water can a sponge absorb? I mean, you know, it's just been fantastic, fantastic, and I wouldn't have traded it for anything. I see it as a piece of work, although crude, a piece of, like a sort of a rough, rough out of a sculpture or something, a piece of work that I can look back on with a sense of satisfaction, and say, "Given the conditions and the constraints from my organization as well as the conditions of working in Russia, we did a good job." And we learned a lot, so this will be worth something, beyond me, if we can take the lessons that we've learned in psychology from the Mir series and flop them forward into future extended space flights. If they don't cross that barrier, it's for nought, but we're trying to cross that barrier.

Wright: When you went over to visit, of course, you left your family here. Was that a help to you to understand how the families might have felt, that their family members were inside the Mir?

Holland: It was, but it really wasn't a counterpart, because I was only over there for a few weeks at a time. People were apart for months. Maybe you've been apart from your family for long periods of time. That's really more of a counterpart, even right here in the U.S. That's more the feeling of, "Gee, I've got a two-year-old at home, and I wonder what he's doing now." You know, because they're changing so fast when they're young. So there are different experiences for people with younger kids versus older kids. Very different experiences.

Wright: And how were you able to help the families here?

Holland: Well, we, the team, the psych support team, like I said earlier, did everything from giving them cross-cultural training, helping them understand the stresses that the crew members were going through, and the stages of flight, bringing them to their communication sessions, help them understand what's happening there. The family packages, the ham sessions, also to things like going out and fetching a spouse when she has a dead battery on Highway 3.

Wright: They knew who to call.

Holland: Yes. Or picking a kid up from Montessori school, because the wife's tied up over here. So we did just whatever was helpful, tried to do whatever was helpful.

Wright: Well, it had to be a good feeling for them to know that somebody was there.

Holland: Yes, and we feel like for the flyer, it helps the flyer sort of keep their head in the game up there, which is the mission, because there are so many stressors right there, and there are so many things they have to deal with that are very difficult psychologically, that if they're always having to worry about what's happening down at home, nobody's keeping track of that, then that's just one more thing, so we wanted to free them up from that, which I think we did.

Wright: Was there an impact on them, knowing that some of their communication was not private?

Holland: Oh, yes. Yes, the whole issue of no private com is a big one, because their was no secure com at all from Mir. Even the private medical conferences were not really private. But everyone went up understanding that. In some cases, we would work with the flyer and the family to work out a code, whereby it was their personal family code, and they could say more personal things to each other. And so that was helpful at times. But no private com is a big impact, and that's one of the lessons we'd like to pass forward to ISS and change that, and I think that will be. I think there will be some encrypted e-mail and encrypted com, which will help a lot. Technology advance has really helped out. Just in the five or ten years, you can see all the resources we have now that we didn't have then, so we're going to capitalize on all of those, hopefully on behalf of the crew member and their families.

Wright: You mentioned that in some of these care packages it was everything from M&Ms to books to movies.

Holland: Hockey pucks, shirts, calendars.

Wright: Hockey pucks?

Holland: Yes. [Laughter] Calendars, videos, videos from home, things that occurred, you know, like backyard things, and we'll send those up. You name it. Children's drawings, diskettes with photos that have been digitized on there. We sent up a photo album, initially on flight, of photos that the crew member had not seen of him/herself plus things that workers put together, and surprise things that the family put together, and then we sent up not only digitized pictures, but audio clips and video clips, and digitized all that into a package that they could sift through as they were up there. So we would replenish that also through the care packages. So all kinds of stuff.

Wright: How often did you get to send them?

Holland: Once every couple of months.

Wright: And it was like Christmas every couple of months, then.

Holland: Yes. And they get fresh fruit and candy, and they love that. The inside of the Progress would smell different than the station, so they liked the smell of fresh fruit.

Wright: Fresh air.

Holland: Yes, right, right.

Wright: Anything more unique than others that you can share with us, that got sent up? I mean, hockey pucks. I still haven't got over that one.

Holland: Yes. Well, there are all sorts of things like that. Toys for holidays, Christmas and Halloween. We supplied TsUP with Halloween masks so that they could uplink a Halloween skit. Just all sorts of things went on like that.

Wright: How did the Russian culture accept some of these suggestions that you all sent across? For instance, the Halloween masks.

Holland: Oh, they were okay with it. They were okay with it. There was a lot of flexibility in the Russian system for that, and that's one of the things that I hope we don't lose for ISS. There was a whole lot of flexibility. We were able to get something up at the last minute. If a crew member said, "Oh, wow, the Progress is going to launch in four weeks. Gee, I wish I'd brought my calendar, just a hard copy calendar.

I forgot that," or, "I forgot the patches," or, "I forgot something," then we could get it into our package, hand it to our Russian counterpart, and they would put it on the rocket, without a lot of paperwork. That's one thing the Russians do very well, is they don't have a lot of paper. They have a different view of information, and they don't have those kind of controls.

So that had the flexibility that I think we'll miss in the ISS, is the ability to get things up to crew members at the last minute, that they'd really like. Also, we sent up some things that maybe didn't fit precisely into the rules and definitions and operating procedures of traditional flight, for the Russians or the Americans, and so I think that flexibility aided us in doing some of those things that, with more paperwork, we might not be able to do in the future. But the conditions warranted that.

Wright: When you had an opportunity to visit with the cosmonauts, were you able to learn from them? Were they experienced cosmonauts that had already been in the Mir, or were they cosmonauts that were trained to go to the Mir? What did you learn from them?

Holland: Generally, a mix. A mix. And of course, you learn more from the experienced people, always. I learned something from everyone over there.

I don't see how you could contact somebody that works in the program without learning something that has some relevance on what we did. Going over to Star City was very important, and living in Star City, off the economy, so to speak, is very important. I used to very much enjoy riding the metros, getting myself around, with my rudimentary Russian, and being able to do that to a level where Russians would approach me for directions or something like that. I knew that I had been able to sort of understand the way they trust, the way they fit in, the way they live, and that was very helpful for me to understand so that I could convey that back to crew members or other ground support people that were going to be going over there. This was on a personal level. I didn't do this on a wide level, but I learned a great deal about flexibility and the way you integrate yourself into other cultures.

Wright: We've talked a lot about crew members, but you made an interesting point when you said, to help the ground support people as well. So you were there for them?

Holland: Yes. As much as we could be, and there were constraints on that, too. But certainly we established a two-way video com link, eventually, with Star City, and I think that probably started up around John's flight, maybe Jerry's flight, where the ground people at Star City could communicate back here. We also provided that channel to Russians who were here, so we would tie up with Russians who were at JSC [Johnson Space Center] and let them talk with their families back in Star City. I think that

was a really important thing. It's important to have the visual aspect of communication when you're far away and trying to keep in contact. So that was good for both sides, the U.S. ground people there and the Russian ground people here, or crews in training here.

We also had a video library that we established over in Star City for the folks over there, which had a hundred or so videos, and we called it "Blockbuster East." And magazine subscriptions and that sort of thing. But the real positive, or very effective support, most effective support, was hard to get, which was policies and procedures from the part of the organization, on the U.S. side, that controlled how long someone worked, how much support they had, how often they would come and go. That was difficult for our management to put together, because they had to negotiate with Russian management to do that, and the Russian economy, the political situation being what it was during the Mir series, always changing, very poor, it was very difficult to get those changes in place, and then to get them to stick. So we still have work to do on those issues, those organizational issues.

Wright: Out of all these issues and all these years, is there a point during that time that you almost wish that you hadn't been a part of it, like a low time, or the most frustrating time, where you felt that this was it, you were ready to walk away from it?

Holland: No. I was never ready to walk away from it. It was a unique, once-in-a-lifetime experience for me. I knew that. I was learning a lot, which was real important, and it was hard to do, which was real important to me. So those things were very appealing, but I also, personally, was not going to walk away until the last guy was back, and that was just a personal thing that I had established.

I was going to see it through the end, because I realized how hard they had it, much harder than we did. And we had nothing. You know, we suffered nothing compared to what they went through, their psychological achievements, their personal achievements, and so I felt that they were out there, they were putting themselves out to the very end of the rope, with lots of constraints, lots of obstacles, that impaired them, just learning their job, that I certainly wasn't going to quit before the end of the series.

Wright: I imagine your support continues today, even though the missions are completed. Your work hasn't stopped?

Holland: Yes, but it's radically--you know, here it is, August 13, so it's radically tailed down. We had the good fortune to see Andy's landing, ride back with him on the Gulf Stream, and spend some time with Andy, and that was over and above our debriefs, and that was a nice way to sort of wrap things up for the whole team. I took the whole group over there, so I thought that was important, but it feels like a work

done now. It feels like a completed work done, even though there are still some science activities being performed by the Russian cosmonauts on board, they're not my charges, and so my charges are back.

Wright: You also had charges in your own team, were responsible for these other guys and directed their activities, and so I imagine there were challenges involved with that as well.

Holland: Yes, there were a couple of knuckleheads, but I've shaped them up pretty well. [Laughter]

Wright: Well, I'm sure glad to hear that. Did their roles evolve as well, from when they first came on board with you?

Holland: Oh, yes. Yes, yes. We were a bunch of greenhorns, wet behind the ears, and they were even greener than I, and so they're now quite seasoned and they're very good at psychological support. Their primary job is psychological support, and they could carry it on without me. Did, during the last mission, basically ran the operation themselves. So they've done a great job.

Also, with the addition of Chris Flynn, and we gradually expanded our group from three--let's see, we started with two, I suppose. Well, with myself and then Roy Marsh, and then Roy Marsh left, and then it's myself and Steve came on, both from science, and then we added Kelly, so we gradually grew over the course of the Mir flights, so that we were able to just sort of keep treading water. We could have used two or three more people, easily, and now we continue to expand. We've added another psychologist on board. In fact, Monday's her first day, so we're getting there.

Wright: Was there a high point, something that if you had to stop and think about one thing or two things that really made the whole time that you've been in this worthwhile, or that you feel like you really made a significant contribution to the program, or just a great time that you remember, or a great feeling?

Holland: There are lots. Got all those. [Laughter] Got all those. But they're in one big package, and when you start pulling all the little threads, it just goes on for hours. I really, though, felt lots of high moments. It was just very good. It wasn't always easy, but I really enjoyed it overall. I think after good meetings, of course, when you feel like you've gotten something in writing that you really needed and you're making progress, as long as you feel like, you know, you've got this big rock out there, so you've been hitting your head on this rock, so you hit your head on this rock and you see this little chip fall down, you feel real good about this, you feel like you're making progress. So there were a lot of those little chips falling, after meetings.

I really enjoyed going to Russia. I like the Russian culture and I like the Russian history. I find it

fascinating and interesting. I always enjoyed being embedded in that culture, thought that was interesting. I feel like psychology, in general, did a good job in psych support, in particular, and my hat's off to those folks.

I think that we also earned our stripes when it came to Mike's flight, and in being involved in some of the decisions after the depress, and being involved in some of the activities that led to change in the Russian crew, because there was a lot of anguish about some of those decisions. The Russians were under a lot of pressure to keep that crew up there, and we had very little--it's hard to get information about the actual capabilities and status of the Russian crew members.

We were able to do that, and we were able to weigh in, and I think it was the right decision. It was the right decision for our crew member, his safety, his health, as well as for the Russians, and it worked out well, so I feel like that was a plus. I feel like we sort of earned our stripes with the program there. We did something that was meaningful.

Wright: That's great. Well, that covers what--

Holland: Great.

Wright: Do you have anything else you'd like to add, or any more you'd like to say?

Holland: Not that I can think of, no. I appreciate the opportunity to speak about it.

Wright: We appreciate your time. We certainly have learned a lot, and hopefully we'll be looking forward to hearing how some of the lessons learned that you have seen will be put together.

Holland: Hopefully they're institutionalized, because all this can pass, and in ten, fifteen years we can reinvent the wheel. So hopefully we'll get some of this stuff into documents, that it has a life beyond the individuals that were involved in this particular series.

Wright: We look forward to hearing about that, too.

Holland: Yes. I look forward to hearing some of these other stories.

Wright: We'll help you do that. Thanks, Al.

Holland: Great. Sure.

[End of interview]