

**CHRISTOPHER F. FLYNN**

**September 8, 1998**

Interviewers: Rebecca Wright, Frank Tarazona, Summer Bergen

*Wright:* Today is September 8, 1998. We're speaking with Dr. Chris Flynn as part of the Shuttle-Mir Oral History Project. Rebecca Wright, Franklin Tarazona, and Summer Bergen.

Thanks again for taking time out of your busy schedule.

*Flynn:* Glad to do it. Sorry it took us twice to get together.

*Wright:* That's okay. We just feel like it's more experiences for you to share with us. We'd like for you to start by sharing with us what your role and responsibilities were as part of this program.

*Flynn:* I had the privilege of being selected to be the NASA 6 flight surgeon. That happened toward the end of January '97, that I was informed that I had the chance to do that job. So I was real excited about it. I was going to be working with Wendy Lawrence and was looking forward to it, with a potential launch in about the second week of September of that year.

So I anticipated about nine months of preparatory work and then a four-month mission on Mir for Wendy, and for me that meant going to Russia to help her in her pre-flight training and then also staying in Russia during the 1997-1998 time frame with the mission, which would fly from September essentially through the end of January 1998, (September 1997 through the end of January '98).

So my role was to help her stay healthy through her training period up until the time of her flight. I was also to be her advocate for issues related to medical research that she would be participating in, making sure that she didn't get hurt in any way in that process, making sure that she was treated fairly in that process; and then while she was on orbit, to make sure that we kept her healthy and kind of kept her connected to Earth, the important people on Earth that she would want to talk to and be involved with, and to be her advocate with the Russian medical group while she flew.

So in the big sense, that was what I thought my roles and responsibilities were. I got my chance to start doing that in May '97. That was when my wife and I arrived in Russia in Star City. That was not our first time in Star City. We actually had gone out in November 1996 and spent a month there together. I was covering for one of the flight surgeons who was taking some time off for Thanksgiving, and I don't remember exactly whether it was Pat McGinniss or Tom Marshburn or both of those guys I might have been trying to help cover for. Nevertheless, we had had some experience living in Star City before, so we kind of looked forward to going back.

We got there in May and started working with Wendy and the other crew members who were in Star City at the time, because essentially we had decided, as a medical operations group, to keep one flight

surgeon available for the crews who were in Russia. Now currently, we're rotating crews about every six weeks, but at that time the crews basically stayed in Russia, except for brief periods of time they might go back home. So that meant we needed to have a flight surgeon all the time [in Star City].

So I arrived in May, which was the time of transition for Mike Foale to be launching. Terry Taddeo was going to work at the TsUP (mission control in Russia), and I was going to essentially be the flight surgeon in Star City, and we had the crew members Wendy Lawrence, Jim Voss, Dave Wolf, and Andy Thomas as the primary four who were still there in training. So, a very exciting time for me.

My Russian was pretty abysmal, and it was a real challenge to be working in an environment where the physicians that I was going to interact with spoke Russian and that was it. So it was a big challenge to go and do that. I had taken some Russian training before I'd left, but didn't really have as much time to do that. I probably had 120 hours of time studying, which seems like a lot until you arrive and start to try to use it. To learn to communicate with the doctors there was a big challenge.

The other big challenge was the difference in age between the American flight surgeons and our experience base, and the age and experience base of the Russian docs who we were interacting with, because their careers were built on being in Star City. Many of them are military-based, so their whole career has been stationed in that location and they have a tremendous amount of experience, a wealth of experience, really.

I think we all felt a little bit intimidated working with them. I know I did, simply because you're looking at someone who's been involved with many more missions than yourself. This was my first spaceflight mission that I was going to support, that I was responsible for. I'd been involved as a helper in one of the earlier Shuttle flights, but this was my first crew member and my first spaceflight mission. So, you would like (in that situation) to be able to talk a lot with your Russian colleagues and create a relationship with them where you felt like you were communicating and working together well. You definitely [did not want to have] any sort of animosity with them, because that would just make your lack of communication even worse.

So I think it was my first week in Star City, or maybe it was the second week. I was still jet-lagged, I know that. But I arrived to a training session where there was going to be a change in pressurization for the crew, and from the way we approached that situation, that's a safety issue and flight surgeons always participate in those simulations. I managed to get myself on the bus to go along with the crew member and we arrived at the site where this was going to happen, and I was promptly ushered into a room where the doctors basically wash their hands and hang their coats. I was told that's where I would be staying for the entire day while my crew member was involved in the simulation where there would be a

change in the atmospheric pressure.

I said, "Well, that's not acceptable." Of course, my Russian was not too good, and their English was not good, and although my crew member can certainly translate, my crew member had to go do the simulation. They weren't there to fight my case for me; they were there to go and take care of their own business, their own training.

So I got on the phone and called back to Star City, which was not really walking distance, but was pretty close by, and I complained that I was not being allowed to observe my crew member and be aware of the decisions that were being made. I couldn't observe the pressure of the chamber that they were in. I didn't know whether this was safe or not safe; and I was told: "We'll check on it and get back with you." So by the end of the day, by three o'clock or four o'clock that afternoon, I had spent the whole day in this room and I was really upset. Of course, my crew member had done all right and that was good, but I was definitely not going to be able to do my job in Russia if things stayed this way.

So I got back and scheduled a meeting for the very next day with the chief medical officer at Star City, his name is Colonel Morgun, and went there with a translator and started complaining about the fact that I was not allowed to do my job, which did not go over well, by the way. As is typically the case in this kind of a situation, you don't always get satisfaction the first time you do something. So I was not getting the response that I thought I should be getting, which was, "I'll fix it and we won't have this problem again." I was getting the response, "Well, you know, we think this is a safe environment, and we didn't know that you needed to go," all of the things that may, in fact, be true on his part, but I really thought wasn't true.

So I called back home that day to talk to my boss. So by the tenth day I was in Star City, my boss back home was writing letters and faxing them to the medical boss in Star City. So for all my good intentions of getting off on a good foot, and for all the respect that I had, and I still have, for the Russian medical group, I found myself within my first ten days being in a very big battle with my medical colleague counterparts in Star City. This was not what I wanted to do.

So that was the beginning of my stay in Star City for the NASA 6 mission, and it never really stopped being that way. In fact, almost every week there was a crisis of one type or another with training that makes your job as a flight surgeon never seem comfortable. Because, on the one hand, you face the reality that something might go wrong and you want to be there to help your crew member, so that's very important to you. That's your job: to be available and to help the crew member be safe. On the other hand, you can't make a battle out of every single thing that goes on in Star City that it isn't scheduled right or double-books you into two places at once. You can't jeopardize the ability for the crew member to get

their training done.

For instance, another thing that happened after Dave Wolf was selected for the NASA 6 mission was a zero-gravity flight where it's very clearly spelled out that a NASA flight surgeon is part of that flight, and yet when I arrived at the tarmac to get on the plane, I was told that there was not enough parachutes for me to have one. There was enough parachutes for everyone else, including six or seven civilians who were paying to fly on the flight, but there wasn't one for me.

So that was another crisis where as a flight surgeon you're trying to implement some safety for the crew member, fulfilling your role to NASA, (which is you'll be there if the astronaut needs help). Because the whole reason that you're there is to protect a national asset and to make sure that person doesn't get injured after all those years of training, all that hard work. Yet at the same time, the dilemma that I was in -- standing under the wing of that plane was either the crew member would fly without me or they wouldn't fly without me. If they didn't fly on that training flight, then they might not pass their training requirements and therefore the Russians would not allow them to fly to Mir. So the crew member had an impossible situation of saying, "Well, you know, Chris, I really want you to fly on the flight, but when it comes right down to it, I can't give up this flight if they won't let you get on." At the same time, as the flight surgeon, I'm standing there saying, "Well, the minute we stop having flight surgeons participate in dangerous things once, then that's the new set point for dealing with the Russian bureaucracy."

The Russians are very good at saying, "Well, the last time we did this, you didn't have [the flight surgeon there]." It's just their methodology, I think, of negotiation. It's not personal just to us. It is very Russian in their negotiation procedure to take you to your limit every single time you do something with them. That, I think, was one of the biggest learning curves that I had in working this job in Russia. [It was] trying to figure out how to negotiate with them so that, as much as possible, I didn't end up in a situation of ultimatums.

But, under the wing of the plane, the zero-G plane, we were down to ultimatums at that point, shouting at each other. Again, my whole idea of going to Russia was, you know, to work together with the Russians, to learn from their medical team, to cooperate with them and create a team environment. At these times, you really feel like you're not doing a very good job. At least for me, through that whole time frame, despite the number of hours that you work, (which you always worked Russian hours beginning at about eight o'clock in the morning Russian time, and then you'd start working Houston hours, which ended anywhere from ten to midnight to one o'clock at night). When you end up in these kind of battles with your Russian colleagues, you can end up feeling pretty lonely in Star City.

One of the things that I was lucky about was I had a very supportive spouse who had come with

me to help me through that time. Alice, my wife, was important to me for that reason, but she was also a big morale boost for other people at Star City because she made it a point to look after folks and to be nurturing, to shop for people, to make sure that the astronauts had food, because that was always a big trip into town that took most of the day to go grocery shopping, and just to do nice things for people, because you never had time. Everybody worked a schedule like that. You never seemed to have time to recuperate or to sort of catch your breath. Seemed like you were moving from one training session and one crisis to another a lot of the time, and it kind of wore you down.

So one of my biggest disappointments were those times where I felt like my goal of being a team with the Russian medical group didn't happen. Some of the nicest times, though, are the times where you feel like you've served your crew member well, where you've trained them medically for what they would use on orbit. We'd teach them how put IVs in, and we'd teach them how to sew, and we'd teach them how to use different medicines and what was in the medical kits.

*Wright:* Was that difficult knowing that what they were doing here wouldn't be exactly what they were going to be doing in space because of the different environments?

*Flynn:* Little bit of difficulty, but you hope against hope that would not be challenged in a time-critical way, that they'd have time on orbit to respond and you could talk to them. I really felt of those [training] times as rewarding. The crew members seemed to enjoy [the training], partly because, I think, the training was in English, and they, of course, took all the rest of their training. So I think they enjoyed it. I think they enjoyed it because it was understandable, it was in English, and they got to use their hands and do stuff. So those were some of the most rewarding times.

The times Wendy and I would run together, she'd sort of slow down, let me keep up with her running. Those were very rewarding times to have a chance to just feel like, in some very small way, I could contribute to her well-being while she was getting ready for this mission. Because they all had a lot of stress that they were living under, and if you could do something nice for them, like my wife would -- or as a flight doc, you could look after them, -- I think those were the times that were the best. The best times were those relationships that you got to build in the off hours.

*Wright:* Did your home become the home away from home for a lot of the Americans while you were all there?

*Flynn:* Well, we lived in the Prophecy. We had one of the dorm rooms in the Prophecy, so we didn't have a large space, but the second floor of the Prophecy did become a gathering spot. I don't want to overemphasize

or underemphasize Alice's role. When we first got there, Mike Lopez-Alegria and his wife, Daria, had been--he was the DOR, the Director of Operations, and so certainly he and Daria had made a very homey feeling, to the second floor of the Prophecy. So I think what happened really was Alice's ability to continue that process, because as they rotated out, Brent Jett came in as the DOR, and, unfortunately Janet, his wife, was not able to come with him. So we sort of had a bachelor DOR, which changes the tone of how business gets done.

So Alice was a nice counterbalance to that. She sort of took over Daria's role of making it a community there, a friendly community, and making it more homey. We enjoyed a big Fourth of July event, you know, that summer and it became a big, big deal. Alice cooked cakes for that. It was no small feat, since you have to really plan all those things out to be able to accomplish that. Plus she was cooking in one small oven, you know, trying to make a lot of different foods at once.

So those were the challenges, big challenges. But the community, I think, was what made it all survivable; the people that you got to work with. And that continued right up until the transition to Dave Wolf being named to go to NASA 6, which happened toward the beginning of August, the end of July. That was a time of upheaval for a lot of folks, because it wasn't standard to have your backup fly your mission. Everybody knows about Apollo 13, that there was a backup that flew and that sort of thing. But, in general, when you look at American space flight, we don't typically take backups and put them into the prime slot. So this was a whole new concept that happened right as, of course, we had the depressurization of Mir and Spektr. That big problem led to the need to have an EVA- certified American crew member onboard.

So, for Wendy, of course, that was not possible because she did not fit the Orlon suit, and that's probably been talked about by others, but it's just a different philosophy in the Russian space program. They fit roughly between the 40th and 60th percentile of stature of the Russian population, and they select their cosmonauts to fit that stature. So they don't have very tall or very short cosmonauts. In America, we build our gear to fit between the 5th and the 95th percentile of stature of Americans so that our gear can fit a wide range of people, and we select a wide variety of people. So it was a big disappointment for Wendy when the decision came that the mission requirement now for NASA 6 [was] a mission requirement she just couldn't fill.

You may know that she had fought to fly on Mir to begin with, because initially she was told that she was too short to fly to Mir, and they wouldn't allow her to do that. So it took a lot of effort on her part of overcome those biases in the Russian system, until she finally was accepted as a NASA 6 prime astronaut. So when you think about her loss in that, it was a huge one: many years of work, hard work,

learning the language, which she was very proficient at. At this point, her crew, Anatoly Solovyev, Pavel Vinogradov, (while the decision was being made for Dave to become the prime crew member for NASA 6) was about to launch in Baikonur.

So right up until the launch of her crew, really, she was the prime Flight Engineer Two for that Mir mission. So she had passed all of her tests, all of her medical exams and everything, so it was quite a challenge, I think, for her and for Dave as that decision was made. She accepted it and Dave accepted it. So that took us into a whole new set of questions.

I was the flight surgeon for Wendy. I was not necessarily the flight surgeon for Dave. In fact, Dave had been scheduled to fly NASA 7, the next mission, and Dave's flight surgeon was Pat McGinness, who had worked earlier with John Blaha. So a decision needed to be made, actually, at that point, about what would happen. Would Pat come and work now with Dave on NASA 6, come back early, work that flight? Or, would Dave want me to stay on and work with him? Then who would be the next crew member to fly? Would Andy Thomas actually fly, who was Dave's backup? Would he actually fly this NASA 7 mission, or would there be a NASA 7 mission?

At the time, (it doesn't seem like it now), but at that time, there was a whole lot of discussion going on right after the depressurization of Spektr about the safety of Mir, about whether we would send any more crew members to Mir. So, we were--we, I say "we." It may make myself way too important to say "we." Certainly Frank Culbertson and the astronaut corps and the Russian program, they were under a lot of scrutiny at that time, and Frank, in particular, was under a lot of scrutiny to demonstrate the safety of Mir before we launched another crew member. So there was a tremendous amount of pressure at that moment as these decisions were being made: about whether we would send another crew member at all to Mir, and whether they would be EVA-certified to be able to wear a Russian Orlon space suit.

Then as that was all happening, "who was the flight surgeon going to be" was one of the things [to be determined]. It's not a big-picture item to any of those folks back there, but to us it was very important, and to the crew members. So I remember very clearly Dave and I talking about that, and then we called Pat McGinness, and I talked to Pat separately, I talked to Dave separately, and then the three of us got together on the phone and we decided, well, what's the best and what did Dave want, because that's really the key issue. So at that point Dave asked that I continue with him on NASA 6, and then Pat essentially would transition on to the NASA 7 mission with Andy Thomas.

So that decision got made right around that same time frame, right at the first of August. Almost immediately then, (if you think about what was happening at the time, Dave was planning to launch in January '98) in August, he [still] had four months of training left to do and to pass all of his big exams in

Russian. Now suddenly he has to fly in a month of time. His launch was due on roughly the 15th, I think, of September, or the 17th was the original launch date. Now he had essentially the time from the first of August until the 17th of September to pass all of his exams in Russian, of work that he hadn't even completed yet -- and also to complete what essentially is typically a three-month EVA training program in Russia within a one-month time frame.

So if we thought we had pressure up until August, which was a very grueling schedule, really from the first of August until Dave went home at the very first week of September until that time frame, it was essentially six to seven days a week that Dave was working both in the hydro lab doing dives and the weightlessness simulator like we have here, doing dives in the Orlon suit, and then also doing chamber runs in a suit where he would be depressurized down to essentially vacuum.

So Dave entered into a period of time in that last month where not only was he intellectually challenged with every single possible thing you could possibly have thrown at you, but also he was physically challenged because of the grueling schedule. We recognize here in the United States that it's not optimal for you to be diving on one day and flying on the next, which is essentially the sequence that we were doing with Dave. We know that there's hazards related to that.

So this put me into a whole new environment, NASA doctors, we didn't always get to see the charts or the tables that Dr. Kraznov and Dr. Elizarov, (who are the two physicians most responsible for the diving tables that they used in Russia), we never really got to see those. They never went over those with us. We were just told that they were within their standards or their norms when they were diving in the hydro lab. So it was a real challenge for us, because they don't use U.S. Navy dive tables like we use here, so we didn't have a common language to talk about the "Bends," which is essentially what the danger was for Dave. We didn't have a common language. We only had the language that "we're doing diving and flying, and that's probably not good." But by this point (I had been in Star City and this was in August) I had used June and July to improve my language skills, so I could at least communicate now with Dr. Elizarov, Dr. Kraznov. I wouldn't say we had a great conversation about anything, we certainly didn't discuss Tolstoy or anything like that, but on technical things we could communicate.

On the chamber runs, the doctor who is responsible for that is Dr. Barer, and Dr. Barer is a mid-sixties gentleman, very distinguished, who I am confident if he wasn't there for [Yuri] Gagarin's flight, was certainly there within the first two flights of the Russian space program. Just a tremendous, tremendous scholar and physician and has a great presence about him. The presence about him is only added by the fact that--he's in his mid-sixties--there's two other physicians in their late forties, early fifties, who walk along with him and make recommendations to him about what should happen. I'm trying to get you a



mental image, but it's like a king holding court to see him and then to see them. As a young NASA flight surgeon, walking into that arena, you say, "Well, how am I going to interact here?" Because clearly this guy is really high up in the Russian medical chain when you've got two doctors that work around him and do the things that he wants them to do, two doctors who I also respect very much.

I guess you learned some of this from medicine because of your residency [training] time. [Think about doctors] like [Michael] DeBakey, you know, who makes rounds, I've never seen it, but I can imagine. There's probably eight physicians that walk with DeBakey when he makes rounds, and certainly when I was in training, your professors would always come with other doctors walking around.

So this was a very powerful figure, in my mind, but, nevertheless, here I am (once again) walking in with Dave Wolf to a chamber run. Always from Star City, one of the Russian doctors will come along, and you would anticipate that this doctor's job is to "fill in" Dr. Barer (and the other two physicians who work with him) about what's been going on with Dave Wolf during the previous twenty-four, forty-eight hours, especially because they did a small physical exam on him before he would leave from Star City. But, in fact, no information ever changes hands in these environments. So the doctor who rides dutifully with us to the chamber promptly goes, sits down, opens up his paper and starts reading. Of course, I was very concerned because I couldn't be exactly sure from what the Russians were doing whether they were following a similar fly-dive table [to ours]. We had certainly looked up our numbers, but I was a little bit concerned about the pre-breathe time, the amount of time that Dave would wash nitrogen out of his blood before his flight, which would reduce his risk for bends. So I wanted that pre-breathe time to be longer, because I knew that Dave had been diving in the hydro lab the day before.

Dr. Barer didn't know that, I didn't think. But, sort of going to Mount Olympus there, I decided I was going to go make a recommendation that we lengthen the pre-breathe time. Coming from a young American flight surgeon, so to speak, after Dr. Barer has been doing this all these years, was sort of intimidating to me and completely baffling to them. How I could come up and just say, "Well, I think we need to ---" in my bad Russian. Now remember, everything is happening through my bad Russian, saying, "Well, excuse me, but I think that the protocol is not correct and we need to change it." Not only does Dr. Barer's eyes get big, but, you know, his two helpers also can't imagine, you know, who--

*Wright:* Who are you?

*Flynn:* "Who are you?" and why would you even think that you would know something more than what the three of us have thought through? And in all fairness, you know, once they understood the information, then they said, "Okay, we agree. We think it would be okay to do it the way we're doing it, but because

you've asked us; we'll be glad to lengthen our pre-breathe time," for, I don't know, probably fifteen minutes or whatever it was. It was one of the points where in comparison to the very beginning of my time in Russia, (where I felt like I could never or feel part of the team), it was one of those moments in time when I finally felt like my Russian was now good enough to communicate slightly, and not to say [something] in a way that might be too harsh or whatever, and to feel part of the {Russian medical] team. That was very rewarding.

That became important and it was another gratifying time, when Dave ultimately needed to be medically qualified for his EVA, which happened while he was in flight. Dr. Barer was the doctor who manages part of that process, both with other Russian physicians and also as the primary doctor who speaks with Dave when he is outside of Mir and doing his space walk. So that relationship that we began back at the chamber followed into the flight and the very end of the flight,, because Dave's EVA was at the very end of his four months on Mir. In fact, I had the opportunity (Dr. Barer invited me to be with him and the other physicians during the EVA, which is not standard practice for us) to be able to sit with them. So he invited me to sit behind him, and that was a great privilege and a great honor.

He also supported me as the flight surgeon making recommendations for Dave's certification for the EVA, in a group of roughly twelve or sixteen other Russian physicians. To say it's a hostile group is not quite right, but to say it's a friendly group would not be correct either. It was a group where I was clearly an interloper, an outsider, and I did not have any authority for those flight surgeons, but I needed their support. I needed them to agree to let Dave do his EVA, which was a very, very important thing to Dave for his flight. One of the big accomplishments for his flight was to be able to do that.

So if you think again about my role, sort of never leaving that thought in my own mind: "What was my role and what were my duties?" There's a way that my job built up as a flight surgeon from those first times when maybe I did the right thing by saying "I'm not going to accept this, or maybe I'm not going to accept being ignored." Or, from that early time saying, "There is right and wrong, and you need to include me in this process, you can't just exclude me," to a process where at the end of feeling more a part of a team. Even with Dr. Barer, to that very final time when I needed someone else, in that group of twelve to sixteen flight surgeons, I needed others of those Russian flight surgeons to support Dave and to support me in our recommendation to have him do that job, do the EVA. That's when I felt a great sense of success. That was probably the point at which, out of my whole period of time now [at NASA] --and that was January 1998 -- where I felt like I had done something important for the program by taking care of Dave medically. He had passed all of his medical requirements to do the EVA onboard, which was important, because if he'd failed any one of those then I couldn't have gone to this meeting. Then I had

built in my own way, the best way I could, relationships with enough Russian physicians that when it came time that I had to rely on them to help me help Dave, that they could do that, and they would.

Dr. Barer was one of my advocates, and Dr. Alfeorova, who was the head of the mission control physician group and a couple of other of the physicians there, Dr. Goncharov and Dr. Bogomolov. So [creating] those relationships, I think, ultimately was how I felt like I had done my job well. Because once Dave got to orbit there's not a whole lot you can do. But if I understand my job right and if I've done it right, what I help happen is Dave completing all of his training and not getting injured before his flight, and then to have trained him well enough from the medical perspective (and get enough medical information to him during the flight) for him not to get sick so he can complete his mission and then come home.

*Wright:* While he was in orbit, did you have much communication with him?

*Flynn:* It seemed to me we only had about, total comm, an average about ten minutes a day with Dave during his whole mission. From a medical perspective, it was even more rare. We probably had on the order of four to five minutes a week where he and I would talk -- during what we called a "private medical conference," which we knew wasn't private at all. Actually, it got monitored by a guy on a ham radio in the Netherlands who would type out whatever we said. So while the Russians made an effort to do that [make it private], we knew that wasn't a private time. So was there ever any time that we really talked about private information? Not really.

But Dave and I had a chance to get to know each other in a couple of ways before the flight. One was during a time at the Black Sea where we went to water-survival training. He and Wendy and I were at the Black Sea for one week, and then the following week Andy Thomas and Bill Shepherd were there. So Dave and I roomed together in this barracks in Dzhubka, which is a small town on the Black Sea that we were at, and it was a great time for us to get to know each other. It probably was as important as any other time before the mission for this.

At that moment in time, I was still taking care of Wendy, and Dave was still planning to work with Pat McGinness. This was before the crew change had occurred. But, it was a good time. We got a chance to talk about what his goals were for flying and what he wanted out of this whole experience, and I think that helped me do my job better for him as his flight surgeon.

Then the next time [we were working closely together] was in August when this impossible training schedule came up, and we were very, very concerned. You know, if Dave had gotten the flu, for instance, he wouldn't have been able to dive and he wouldn't have been able to fly in the chamber. So, really, it's hard to emphasize how stressful a time that was, and you know that's when your immune system works

worse. So how Dave got through all that without getting sick is just a miracle in some ways, and partly it's due to Alice, my wife, because Dave wasn't really [getting enough to eat]. Dave would come and eat with us every night, and she would cook plenty so that he would get plenty to eat. I think Alice was a big part of [Dave staying healthy], and I think Dave was a big part, just doing his best to take care of himself. Then hopefully I played some small role in that, too, to make sure that we looked after him.

It certainly wasn't rocket science. It wasn't chest surgery or anything like that, being a flight surgeon. It had a lot more to do with observing him, trying to help him get rest, trying to anticipate things that I could do to make his life easier, trying to win the medical battles before they got to a battle, anticipating problems and trying to solve them. So that became my role, I think, in that very last period of time [pre-flight]. Sure enough, as soon as Dave left, he got sick. He got home to his vacation, and his vacation was really not a vacation for him at all. As probably many of us have experienced in our lives, after periods where we've pushed ourselves very, very hard and used up most of our reserves -- then there comes a period where your body sort of revolts and can't keep up anymore, and that's the time we're most susceptible to being ill.

*Wright:* How about you and Alice when you were able to leave Russia? Did you come back and have a chance to relax?

*Flynn:* No, we had only a brief period of time [between training and Dave's flight]. We got back the first week of September, and Dave was due to fly on the 25th of September. You would think, oh, well, that's three weeks that you ought to be able to do something about that: rest and relaxation. But in reality, Dave had medical evaluations that he was required to do for research almost immediately. So almost within a day or two of my return, I was helping with him and observing and monitoring all of his work up until the flight. In fact, that was another one of those flight surgeon times where I had to cancel some of the requirements or the "wished-for [medical studies] work" because they were just simply overloading my crew member.

So, again, the role of the flight surgeon, I think, is to "run interference" for your crew member, to try to reduce their workload whenever you can, and that role just carried right on through into the mission. You try to make their life a little easier, try to anticipate problems. Wherever there's a potential negative decision, you try to take the heat for that. So if there was an experiment that needed to be canceled, then the crew surgeon was going to cancel it, not the astronaut. If there was a difficult decision that someone had to be the voice for, then I tried to do that, because it seemed to me that that was my job. The crew member is in a no-win situation during those times. They can't say no. Oftentimes the NASA organization

looks at that askance, and sometimes it's very unforgiving, and I don't think it's right.

One of the things that I appreciated Frank Culbertson for and am very proud that he's now part of the Space Station era in Operations is that maybe more than any other manager that I've met at NASA, he appreciates that it's not just wiring, it's not just fuses that have limits, it's not just metal on the station that has a limit of how much it can be stressed -- but the human beings have limits. That's one of the things that I think gets lost the most without people like Frank Culbertson. I think the flight surgeon's role is to pay attention to the human limit and to make sure that the crew member doesn't suffer. If our job is to have the crew member complete their mission, then we've got to make them healthy enough to be able to do it. If we [watch the system] completely break them, they can't get their job done, nobody's happy.

*Wright:* The days seem so long and intense, were there times that as the flight surgeon you ordered the crew member to try to relax and do things that were fun?

*Flynn:* Well, that's a great idea. I wrote to myself after the flight. I said, "My job is to take care of the crew member to the degree they'll let me do it." You know, you have a role. If you do your job well, the crew member will listen to you and they'll take it under advisement. But you don't ever want to cross that line to where you think you control them, because I think that would be unhelpful.

Some of the most rewarding times for me were with Dave. I mentioned at Dzhubka, before we actually became a crew surgeon/astronaut pair, but I was the flight doc along. Just before his flight, Dave was very kind to me to include me in his thinking processes about it. A very nice thing that he did for me was during the obligatory view of the Shuttle that the '86 crew was doing, and we kind of broke off from that. He said, "Let me go show you a few things about the Shuttle," and the two of us just sort of broke away from the main crowd, which was not what he was supposed to do. He was supposed to be part of that crew, but he took some time aside to show me [some things], just to spend time, just a half an hour, forty-five minutes. That meant a lot because we were in such a hectic time before that, we never really had time to relax a little bit.

Then after the mission, the time that I felt very close to Dave and felt like I was doing my job well, was when we could communicate. Not like on Mir where I was sort of guessing what was going on between what he could tell me and what he couldn't. This time was our mornings. The mission didn't end when Dave landed. He had a lot of medical experiments that he was participating in, and, really, for the next sixty days after landing, he was very busy. I kind of became his chauffeur, and so I'd go pick him up in the morning. Those times in the morning when I'd get to his house, (we were typically fifteen minutes late getting to wherever we were supposed to go). I'd get to his place early enough that we'd take time for

him. Returning to gravity, you know, is a tough thing. So he was still physically getting used to being back home. Then, [I enjoyed] emotionally helping him riding into work. We'd stop and get doughnuts, get a cup of coffee, and we'd just kind of sit in the car for a few minutes thinking about the days: what we'd accomplished the day before, what was on the plate for that day, what was going right, what was going wrong.

Thinking about the roles and responsibilities of a flight surgeon, [the relationship with the crew member is] a privilege that is the best part of this job. It is when you have a crew member who will allow you to be close to them and to really do your job well. If your crew member will let you do that, there's hardly a better job in the whole world, but it is very crew-member specific and it just depends on how that crew member views you in the overall scheme of things. So I'm very grateful that Dave viewed me that way and let me be part of that experience with him.

*Wright:* We understand from another flight surgeon, who shall remain nameless, that to try to lighten up some of the time that Dave was aboard the Mir you used the telecoms; I understand one of the videos really took him by surprise.

*Flynn:* Yes.

*Wright:* Would you share that with us?

*Flynn:* Well, sure. I'm smiling. That's a funny time. Well, you've got to transition a little bit. We've talked a lot about Star City, because that was the preface to the flight, and one of the reasons we talk most about that, I think, is just the pressure on the crew members that I could see. But when you talk about mission control, you talk about a whole different pressure, and that's the pressure on the ground team.

You have a group of eight or nine or ten people. We work sixteen hours a day, you know, ten hours there with two overlapping ten-hour shifts. Lot of hours, six days a week and not much time off, and you're doing all this hanging on a few minutes of communication with a crew member a day. So it's almost odd, if you step away from that, I mean, if I'm telling you this and you're thinking about it, you're probably thinking, that's an odd job, you know, you work, work, work all these hours. You think about this person up on Mir. You think about what they're doing. You worry about how they're turning a knob on an experiment or whether they're throwing the switch right or all that. But you're just sort of spinning your wheels waiting on ten minutes of com, and then on those ten minutes, you want all this information. And you want it now! Because that's the last ten minutes you're going to get until tomorrow or the next day.

There's, of course, eight or ten hours of work that the crew member has done from the last time you

got to talk to them, and you only have three or four minutes. So what you want is for the crew member to feed information to you as rapidly as possible. You don't want to hear about problems, you don't want to hear about what didn't he get done, you want, you know, "Just tell me what you did," because we've got to report back. Because this ground team is getting calls from Houston saying, "Well, what did Dave do? Did he do this experiment? Did he do that experiment?" We don't know, you know, and you don't have the answer because you can't get com.

Well, what became pretty clear to me in the first month of doing this job is that the crew member really had "no place to hide." In other words, there was not a good moment for them, it didn't seem to me, because Dave was working very hard on Mir. We knew his hours were very long. Then whenever he got a chance to talk to the people he could talk to in English, (not that his Russian was bad, mind you, his Russian was good, but, you know, you want to talk to your own buddies down at TsUP), and all we'd do is ask him for stuff. You know, we'd want to know what he'd accomplished. We never joked. You never had time to joke. You never had time to do anything to give something back to Dave on orbit.

Then the other part of this was, you have these ten or so guys on the ground who are just obsessing over every detail. Hour after hour, despite all this obsessing and all the calls that we made back home and all the details that we try to look up, inevitably we'd screw something up. In those three or four minutes of comm, we'd say something wrong or we'd do something wrong. I remember in the Bio 3-D, for instance, we had three different naming paradigms for what Dave was doing, and when you have four minutes to talk about what to do next, we'd often spend two of the four minutes trying to figure out what paradigm we were using to communicate. "Well, Dave, we want you to change the gold cell line in chamber number one to the blue cell line in chamber number--" "Well, do you mean the A cell line in the B module?" So you'd go through this whole thing. Well, anyway, you can kind of get the feel of it. If you didn't pay attention, a lot of things could go wrong, and on the other hand, there's a lot to laugh about, just how goofy we all were in this whole process.

So I decided, in conjunction with our Ops Lead, Patty Moore, who is just a great, great person, she and I talked about it and we decided we would do a skit. We'd write up some vignettes for Dave, the reason being, I thought, as the crew doc, (and she agreed,) that we needed to give something to Dave instead of just taking all the time. The concept of operations was we'd have a two-way video between the astronaut and the ground, and you get on there and you sort of have a great time. But, in reality what happens is you get on there with a crew member, and if you don't have something planned, you're going to talk about work, which is not fun. Or, you put the crew member "on the spot" to try to entertain you, sort of on the ground -- which is not very fair either, because it's just "taking" some more. So, we thought we

ought to do something in reverse. We ought to give something back, and there was plenty of things to laugh about, about the things that we made mistakes on.

So anyway, I said to the crew, the ground crew, "Why don't we do a skit for Dave?" And out of about those eight or nine people, there was me and Patty and probably two more or three more, so we probably had five of the ten that said, "Yeah, we'll do it." And we had five that said, "No, that's a stupid idea. I don't think we want to do that," or whatever.

I went home and wrote it out. I scheduled it with the Russian medical group, so we had it all squared away, and then I went home and wrote the skits and came in the next day and they edited them some. But once everybody saw the skits, then everybody participated. So we had a really, really good time doing that with Dave. We did one at Halloween time frame, and then we did the other one around Christmastime, which is when Tom Marshburn, (the unnamed flight surgeon,) when Tom Marshburn was there to participate. Tom is very athletic, so it was just natural.

To give you an example of kind of what I mean by all this, Dave was having to pass some medical exams for his EVA at that time in the December time frame. In fact, if he didn't pass them, he wouldn't be able to do his EVA. So it was a very tense time exercise-wise. The Russian medical group would frequently call him and ask for medical information, or we would be talking to him about medical stuff. He was also participating in a calcium kinetics study, which was very demanding on him physically. Also, the Russian exercise person was sort of badgering him about his exercise routine. So there was a lot of stuff going on about exercise, a lot of demands going on.

So we had Tom there. We had this video comm coming up, and so we hit on the idea to do something about that. So the opening of the video comm was two guys, Tom Marshburn was one and Joel Montelbano was the other, and they walked in front of the camera from off screen. They walked on with exercise suits stuffed with rags so they had these huge muscles, or fake-looking muscles. It really wasn't meant to look perfect; it was meant to look funny. So they had been practicing their Hans and Franz imitation from *Saturday Night Live*, and so their routine was to talk to Dave about pumping him up and why he needed to do more exercise and how he ought to look like them, and they were two of the sorriest-looking characters that you've ever seen in those outfits. [Laughter] So the visual humor was really funny. Their accents were awful, that was really funny, and sort of the punch line was they were recommending that Dave lift weights on orbit, which, of course, means nothing because things are weightless on orbit. So that was their ninety seconds or two minutes of time.

We had about fifteen minutes that we could use, and what we tried to do is fill up about ten minutes with skits and then have the other five just to laugh about it and get more interaction. So, two or



three minutes of Tom and Joel making fun of themselves and making fun of us on the ground, making dumb recommendations or badgering him with recommendations that in the long run didn't make sense. And we'd go from one thing to the next like that. Everybody had a chance. The schedulers would do something that was totally goofy. They'd unroll a six-foot-long piece of paper and say, "Well, Dave, what we'd like for you to do, if you'd just start on this list and maybe if you could get this done by tomorrow." Just everybody would have a chance.

That was one of the ways that the ground team really tried to consolidate ourselves, too. After that, I think it meant a lot to each of us to have been participating. The second time around, nobody was hesitant about doing the skit, and Dave kept asking us to do another one, so we did.

*Wright:* Encore.

*Flynn:* Encore, yes. That was a way for us to share. We were all real proud to be working for Dave. It was also a way for us to be together that wasn't work-related, and that was hard. Alice again came through because she would cook almost every Saturday a big dinner for the whole ground team, whoever could come or wanted to come. That was over the holidays, so we had a big Thanksgiving dinner at our apartment. We had a big Christmas/New Year's dinner at our apartment.

So when you're spinning your wheels all day waiting for a few minutes of comm, you have to take care of each other during that time and try to look after each other and try to maintain your own health because it's a very grueling schedule, and in the wintertime in Moscow, it's easy to get sick. So those were the really high points. Red Square on New Year's Eve was another great time for the ground crew. We went out and it was snowing, but just sort of had a time to be together and celebrate doing something that very few people have the privilege to do.

Christmas Eve, though, was "the van ride from hell" for one of our groups. Alice had been cooking for a couple of days and had help from Tony Sang, and we had this huge dinner planned. The dining room table is like four and a half feet, so we had three of those together, so we had twelve feet of table for twenty-two people, I think, that were coming. Christine Chiodo had come back [to Moscow] with some Christmas presents. She had just rotated back, and Alice and I had bought some Christmas presents for everybody, a little something or other. We had a Christmas tree. Alice [and Tom Marshburn] went out and got a Christmas tree and decorated it with whatever they could find. So it was sort of Christmasy.

The crew day was going to end early. In fact, they were due to leave at six o'clock that night from TsUP -- end early and get home. There was a huge traffic jam, the worst ever that night. They sat in traffic for four hours. So we had planned dinner at eight o'clock. They got in at ten. Anyway, the night

ended up very nice, but it was one of those crystallizing moments about living in Russia, how things can go horribly wrong in a brief period of time. Yet, if you have people working together and looking after each other, you can recover. That night ended with us opening presents and watching *The Grinch Who Stole Christmas* in Moscow, which was a real piece of home -- with a couple of our Russian translators there with us under blankets, sitting on the floor in front of the TV. It was great.

*Wright:* Did you have to translate Dr. Seuss for the translators?

*Flynn:* No, no, they got the image pretty well. The other things that we did were on the van rides, which were typically--sometimes they were four hours long. Luckily, that's not typical, but they were usually an hour to an hour and a half. We have little kind of games that we would play, which had some serious consequences, like you couldn't get off the van if you couldn't name a band with a number in their name. So you'd have to go rifling through your mind. Okay, well, what's a band with a number in their name? Of course, the easy ones would always go first, like the B-52s, you know, "Oh, damn, I wanted that one." So, you know, you'd be circling around the van, and, of course, they were harsh taskmasters, these guys, if you didn't come up with a number they were just prodding you. "Well, you know, Chris, it's getting real close to the time for you to get off the van. If you don't come up with something, you're going to be in trouble." We ranged from doing that kind of stuff to humming themes from television shows from when we were growing up, and somebody would have to guess what they were. It was fun. It was a fun group of people.

It was a very difficult time work-wise. We worked a lot of hours. That was not fun. The team was worn out. Dave was worn out when he landed, but those were the times when you tried your very best to take care of each other. Again, if in some way I helped, then I think in my role and responsibility as a flight surgeon, I did a good job.

*Wright:* So no regrets for being away from America for a year?

*Flynn:* Yes, almost a year. I have a son who's in his twenties, and I have two grandkids that we didn't see for quite some time. But would I do it again? Yes. I'm going to be the crew surgeon for the fourth increment, the fourth expedition, which I'm real proud that they allowed me to do that. To work with, that's going to be Carl Walz and Dan Bursch and Yuri Onenfrienko. So, yes, I look forward to doing this job again as many times as there are crews that would like for me to help.

But it's not to say it doesn't cost you something. It's hard to recover from that. I think it takes an amount of time equal to the time you're there to really get your life back in order again in the United States. Just so many things change, so many things you haven't done, so many things get out of context, out of

kilter between your job here and the other responsibilities that you have. I think it was finally, after probably six months, (which would have been July time frame) did I really start feeling like I'm getting back into being in America. You overcome the initial things pretty quickly. Well, I got my car again and I can shop at Kroger or HEB or whatever, you know, those things come pretty quickly. But just, gosh, you know, my finances have been out of shape now for all this time, and you try to get all that back reorganized again. And the termite plan needs to be paid for, and when's the last time you sprayed your yard for bugs? You know what I mean? It's the mundane that you just don't have time for. You've lost that routine. The cars are not serviced. You know, boring things, but, nevertheless, it's a personal expense.

You don't come home to a ticker-tape parade; you come home to helping your crew member through another two months of getting recovered from their flight, which is a very demanding time. You come home to all the work that people had been waiting for you to do while you've been gone eight months -- that's not done and now is waiting for you to get done. And all the things in your normal life, are you going to go spend some time with your son and your grandkids? And when are you going to do it? Are you going to spend time with your mom and dad, your brothers? Somehow all that has to get put back in to the mix, and it doesn't just happen easily. I don't think I've done it well, but somehow you have to try to do that.

Having said all that, you're right. I came away from that experience (after my two and a half years at NASA), as clearly being the high point for me. My relationship with my colleagues in Russia, with my ground crew, and with my crew member has been a high point for me in my career.

*Wright:* It sounds like you've learned a lot and was able to share a lot with those that were there.

*Flynn:* I hope so, hope they felt that way.

*Wright:* We certainly have learned a lot this afternoon. I know our time is up and I don't want to keep you from getting all those things done that you couldn't do. [Laughter] So we certainly appreciate your time and the information that you shared with us.

*Flynn:* I hope it will be helpful.

*Wright:* It will be. Thank you.

*Flynn:* Thanks.

[End of interview]