

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

JOHN M. FABIAN
INTERVIEWED BY JENNIFER ROSS-NAZZAL
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ROSS-NAZZAL: Today is February 10th, 2006. This oral history with John M. Fabian is being conducted for the Johnson Space Center Oral History Project in Houston, Texas. Jennifer Ross-Nazzal is the interviewer, and she is assisted by Sandra Johnson.

Thanks again for joining us this afternoon. We appreciate it.

FABIAN: My great pleasure. Thank you.

ROSS-NAZZAL: I'd like to begin by asking you to describe your Air Force career before you joined NASA.

FABIAN: Sure. I was an ROTC [Reserve Officers' Training Corps] student at Washington State University [Pullman, Washington] and was preparing to move on to pilot training when the Air Force initiated a new program to get young lieutenants into graduate school in engineering. And so I was sent to Wright-Patterson Air Force Base [Ohio], directly into graduate school at the Air Force Institute of Technology [Ohio], and earned my master of science there in a couple of years.

I then went to Kelly Air Force Base in Texas, where I was an aeronautical engineer working in flight tests on F-106 aircraft and doing a number of other engineering tasks. The war in Vietnam was starting up, and there was a definite need for pilots, and my medical qualification was still good, and so the Air Force relented and sent me out to pilot training. I went to Williams

Air Force Base in Arizona, and after graduation from pilot training, I elected to join my brother's squadron. I had a brother who was also a pilot, and so I became a member of his squadron. We were flying KC-135s in Michigan, and that included a number of trips overseas, two trips to Southeast Asia, to the Southeast Asian conflict, for three months each, and a couple of TDYs [Tour of Duties] to Europe. And I went to Alaska, which it was great flying experience and a lot of worldwide flying, which is very enjoyable.

Then the Air Force was looking for people to go get a Ph.D. in engineering, and I was more than interested in doing that, so I was sent to the University of Washington in Seattle [Washington] for a doctorate in engineering, aeronautical engineering. That was sponsored in part by the Air Force Academy, and so when I finished up my Ph.D. I joined the faculty of the Air Force Academy in Colorado Springs [Colorado] and taught there for four years, from 1974 to 1978.

While there, I learned that there was something called the Space Shuttle Program and they were recruiting astronauts and they could be six-foot-four, and so for the first time in the astronaut selection process, I was physically qualified, because I'd always been too tall. So with a relatively fresh Ph.D. and operational flying experience and the six-foot-one height, I applied for the program along with many thousands of others and got lucky and joined NASA in 1978.

ROSS-NAZZAL: What was your interest in the space program while you were attending college?

FABIAN: I was a freshman at Washington State University in October 1957, when Sputnik went up, and obviously we all know that changed the world and brought about a huge influx of interest and support for science and engineering study in the United States. I was already an engineering

student as a freshman, but a lot of things then became centered around this new field of astronautics. So I followed with great interest the early flights of the American space program, first the unmanned and then the manned flights.

These guys were my heroes, just like they were everybody else's. When they flew, it grabbed the national attention, and I think that was a wonderful thing to have happen at that time, that the nation needed that kind of a boost.

Then when the Apollo Program began, it turns out that one of the people that was selected into the Apollo Program as a scientist was at pilot training with me at Williams Air Force Base. He was a good deal older. He was Owen [K.] Garriott, who was exactly one class ahead of me. We had the same instructors.

In fact, Owen took my pilot-training slot. I had to wait an additional six months to go into pilot training because I was – I got a telephone call one afternoon, and they said, “We’ve got this astronaut named Garriott who’s taking your slot, so you’ll have to wait six months before you begin your pilot training.” So Owen and I have laughed about that over the years.

I was airborne in Southeast Asia when Apollo 11 launched and landed on the Moon. In fact, I listened to the landing on Voice of America over a long-range radio that we had on board our aircraft. That was an interesting place to be, over Laos and listening to something which is as world shaking as the first lunar landing.

For some reason we lost interest in the Apollo Program and the subsequent flights. It spiked a little bit with Apollo 13 and then kind of trailed off at the end. So I didn't hear much about the space program until it was announced that the Shuttle was coming along.

I had the opportunity while I was teaching at the Air Force Academy to meet several astronauts, people who had flown in Apollo, and that was a great thrill. Each one of them gave me some additional incentive, you know, to try for the program myself when I was eligible.

ROSS-NAZZAL: So you had been considering in the early seventies the possibility of perhaps becoming an astronaut?

FABIAN: I really had not, again because I was just too tall. I've always had the philosophy that you shouldn't try to be something you can't. I couldn't be an astronaut if I was six-foot-one, and that was above the height limit. It wasn't really so much my total height as it was my sitting height, butt to headtop. You know, that was the critical dimension that I couldn't pass.

So no, I really didn't want to be an astronaut until I found out that I could be, when I picked up a little pamphlet that said that NASA was going to select people for the Shuttle program, who could be six-four. That's when I decided I wanted to be an astronaut.

ROSS-NAZZAL: Why don't you tell us about the application and the interview process that you went through.

FABIAN: The application process was very involved, very long, an awful lot of paperwork. And there were certain incentives to put down everything that had happened to you in your background. All of your honors and your awards, of course, were of interest to NASA, because somehow they had to weed through thousands of applications and select a few people to interview.

If you were in the military – I think it's probably still that way today. If you were in the military, you first had to pass a military screening. The Air Force, the Army, the Navy only pass on to NASA the top percentage of their people who are applying. So getting through that was a great thrill to me. When I found out that I'd made the Air Force cut, I thought, well, if I never get picked up by NASA, at least there's some people in the Air Force who are aware of me and my background and so forth.

But I did go forward with the process and was subsequently lucky enough to be one of those people selected for an interview and came to Houston and went through that process. It was fun. There were about twenty-two people in my group, and I'm convinced that twenty-one of them would have been great astronauts. They really were fine people. But unfortunately, all of us couldn't get selected, and out of my group there were five or six who were selected, so I felt fortunate to know these people from the time that we were here together.

The process included a complete physical, a very, very complete physical, the best I've ever had, everything up to and including an encephalograph, to check your brain functions, and two psychiatrists to evaluate your psychiatric compatibility for the astronaut program, an interview with a board of very high-ranking Johnson Space Center officials and astronauts whose names you had read in the paper.

So it was all rather intimidating and awe-inspiring. But somehow, at the end of it, some people got lucky, and other people didn't, and I was one of the lucky ones.

ROSS-NAZZAL: Tell us about that phone call from George [W.S.] Abbey.

FABIAN: I was in bed that morning when we heard, my wife and I heard, an announcement that NASA had selected thirty-five astronauts and among this group there would be six women. And my wife said, "That's too many," [Laughs] which sounds funny today. But, of course, her concern was that, if there are six women selected, that's six slots that my husband isn't going to fill.

But I was at work and I was getting ready to go to class when the telephone rang. Mr. Abbey was on the other end, and he said, "John, this is George Abbey; I'm calling from the Johnson Space Center. I'm interested to know if you're still interested in becoming an astronaut."

I said, "Yes, I certainly am."

He said, "Well then, I'm pleased to tell you that your name is on this list."

So I had to have somebody else go teach my class, because I was psychologically not prepared to go lecture at that particular time. It was a great thrill, a real honor.

ROSS-NAZZAL: And your wife was thrilled also?

FABIAN: Of course. Yeah. Yeah. Then she thought six wasn't too many. [Laughter]

ROSS-NAZZAL: Tell us about the move down here and the reaction of the Astronaut Corps to these new astronaut candidates.

FABIAN: Yeah. I think we were greeted well and enthusiastically. We heard some bad stories about the way the MOL [Manned Orbiting Laboratory] guys were treated when they came in, as kind of a leper colony, and we weren't treated that way at all. I think we were treated very well.

Vance [D.] Brand was my sponsor, so to speak. He was my big brother in the Astronaut Corps, and I did some technical work with him, and he treated me very nicely, everybody did. I think they were glad to see us come. The Shuttle Program was just around the corner, we thought.

It turns out it wasn't quite just around the corner, but we thought it was, and there was a lot of work to be done, and there was a lot of legwork that needed to be accomplished. The Astronaut Corps was small in comparison to what it had been during Apollo, because a number of people had left. There were only a few Apollo veterans left in the astronaut office when we arrived.

And so I think they were glad to see us. They got some new hands and legs, and I think that they counted on us being somewhat motivated and somewhat capable. So it was a very pleasant thing.

I wasn't looking forward to coming to Houston. I don't like the city and don't like living here. I was born here, so I can say that without being accused of anything adverse. It's not a very pleasant place to live, but it was a great job, and I really loved it.

ROSS-NAZZAL: Tell us about the training that you underwent for a year as an AsCan [Astronaut Candidate].

FABIAN: It was flight training, of course, flying T-38s, which was a great thrill, a very enjoyable thing to do. It's a fine airplane. And a lot of classroom work, the very preliminary stages of simulation in part-task trainers and that sort of thing, a lot of lectures, hundreds of hours of lectures on various systems on the Space Shuttle and things like geology and oceanography and things that astronauts need to be aware of in order to do their job properly in space.

We were broken down into two teams. We had essentially a red team and a blue team. Rick [Frederick H.] Hauck and I were the senior astronauts in my class, and so Rick was kind of the leader of one team and I was kind of the leader of the other team. There were no responsibilities that went with that. [Laughs] It was just that somebody had to be the person that George Abbey called if there was a problem, and so Rick and I handled those tasks.

ROSS-NAZZAL: Was that something you stepped up to do, or was that something that George Abbey had asked you to do?

FABIAN: I don't remember, as a matter of fact. I really don't remember exactly how it happened, but we were the two oldest, and in our military ranks we were the senior military people in the class. And the civilians were mostly much younger, so I guess it was just natural that the two old fogies would be tasked with this. There were no rewards and very few responsibilities, so it really wasn't a big deal.

ROSS-NAZZAL: Your class called themselves the Thirty-Five New Guys.

FABIAN: Yes.

ROSS-NAZZAL: Do you recall how that phrase came about?

FABIAN: I don't remember exactly, but I know Judy [Judith A.] Resnik had something to do with it. Of course, it didn't really stand for thirty-five new guys, but that's close enough. That's close enough.

And we had this wonderful t-shirt with this logo with thirty-five astronauts crawling around in space all over the Space Shuttle. It was cleverly done, and I know that Judy was involved in it. I would guess probably Hoot [Robert L.] Gibson was involved in it, too. But it was kind of presented to me as a done deal; they said, "Look. Look what we've done," and it was well done.

ROSS-NAZZAL: Tell us about the camaraderie between this class.

FABIAN: We got to know the people that were in our group. See, we broke in two parts because the classroom didn't hold the thirty-five people, and so you got to know the people that were in your class much better, in reality, than you got to know the people that were in the other class, particularly in the first three or four months. But what we found out very quickly was that all of these people, whether they were the youngest in the group or the oldest in the group, they were all extraordinarily bright, extraordinarily capable, and very, very eager to succeed in what it was that they were doing. So we didn't have any dim bulbs in the group.

At the same time, I will tell you that in any group, doesn't matter how fine it is, there's always going to be a dim bulb, okay? But it appears that way only because it is a comparison with the others. This was an extraordinarily talented group of people that we were working with.

ROSS-NAZZAL: As you mentioned, Vance Brand was sort of your big brother.

FABIAN: Yes.

ROSS-NAZZAL: You did some on-the-job training with him. What were some of the tasks that you worked on while working under him?

FABIAN: The first one was to try to figure out a way to keep Skylab from falling back to the Earth, and we were working with some people from the Marshall Space [Flight] Center [Huntsville, Alabama]. They had a small robot space tug that they hoped they could dock with the orbiting station, the Skylab, and boost it up into a higher orbit so it wouldn't reenter the Earth's atmosphere, and potentially, then, be able to use it later and re-man it. But none of that worked, and so, of course, what happened is it came down and hit Australia.

So my first technical job was an utter failure. I can't claim responsibility for that failure, but nonetheless, it's there on the record.

That was the job that I did directly for Vance. Then I did some work on tile repair. Early on, we were concerned about, you know, with the Space Shuttle and tile and underbody and sensitivity during the reentry, and so we looked at some tile repair work.

But my biggest effort was on the robotic arm. I spent about five years working with the Canadians on the development of the robotic arm, and of course, that tied into the tile repair task as well.

ROSS-NAZZAL: Why don't we go ahead and talk, then, about the RMS [Remote Manipulator System] and your work there. When did you start working on that?

FABIAN: About three or four months into the program. I started working with Bill [William B.] Lenoir and Bo [Karol J.] Bobko, who were experienced people in the office. Neither had flown in space, but they had been there some time and knew the ropes and knew how NASA did business. So we learned how to do business from them.

Sally [K.] Ride and Norm [Norman E.] Thagard and I were the initial three people from our class that were assigned to work on the robotic arm, and so we formed this little team of about five people, although Bo kind of fell out of the—after we got up to speed, he went on to do other things, like rendezvous and proximity operations and some other tasks. But Bill Lenoir stayed with it for quite a while, kind of our group leader.

And we spent a lot of time in Canada. One of the things that we worked on early was the failure modes of the robotic arm and how to protect the Orbiter and the crew in the event one of these failure modes occurred. At the same time, we tried to figure out ways that we could continue on and do the job, do the mission at hand in the face of certain failures of the robotic arm.

So we did a lot of simulation in Canada. It was the best simulator we had. In fact, at the time, early on, it was the only simulator that we had. So we spent a lot of time in Toronto [Canada] working in the simulator, working through the nominal and off-nominal procedures.

And Sally actually wrote the procedures for the first flight of the Shuttle, which was on STS-2. It was an unloaded arm and very minimal usage of the arm on that flight, but she wrote those based upon the experience of having worked on that team.

ROSS-NAZZAL: Now, I understand that you helped develop and test the simulators and then the courses that were used for the RMS, is that correct?

FABIAN: That's true. Yes, that's true. You know, the manipulator is an intuitive thing. It really is quite easy to use, but it's also a little bit intimidating, because you've got this thing which is fifty feet long out there in the cargo bay, and if you're not careful, you could punch a hole in the wing or do something really stupid with it. So learning how to operate it and learning what constraints need to be applied to that operation was kind of a part of the job that we set out to do.

ROSS-NAZZAL: Who were some of the individuals that you worked with at Spar [Aerospace] in Canada?

FABIAN: Oh, I wish I could remember. By far the most important of those was a guy named Karl-[Heinrich] Doetsch who was the Canadian government representative on the arm. So he worked for what is now the Canadian Space Agency. It wasn't called that at the time. And he had overall managerial responsibility for the development of the arm. The first arm was

developed at Canadian expense, and then they subsequently sold arms to NASA to put on the follow-on Shuttles.

I mean, I remember first names more than I remember last names of the people at Spar Aerospace. ... We had a guy here at JSC who was the lead guy on it, and his name was [Milton] Windler.

ROSS-NAZZAL: ... Why don't you tell us about some of those trips to Canada. How often would you go there? How long would you stay?

FABIAN: I think I spent 400 nights in Toronto, so I was up there a lot. We would go up by T-38, which is a great way to travel, take off from Ellington Field [Houston, Texas] and land at Scott Air Force Base in Illinois or Wright-Patterson in Ohio, and then into Toronto International Airport [Toronto, Canada] and come taxiing in behind some 747 and park it and go to the hotel and then, the next day, off to the plant to work.

I used to try to change hotels about every 100 nights up there because it got kind of old, staying in the same motel. And by far, I spent the most time up there of the people that were working on it, because I was there in some very, very long simulations, trying to figure out the various workarounds. That was an area in which I was the lead person, and so I spent a great deal of time up there solo, without Sally or Norman.

Later, Judy Resnik joined the team, a great, great person to work with. Judy was really great. And Ron [Ronald E.] McNair was also a member of the Remote Manipulative Team. So we got to work with some really fine people out of our group. And we never did integrate in any of the people in the follow-on group. That happened kind of after I was gone and left. People

like Bonnie [J.] Dunbar came in and began to work on the operational use of the arm and training procedures and so forth.

ROSS-NAZZAL: What were your work days like up in Canada? How long would you work?

FABIAN: Some days were very long. Some days were seven o'clock in the morning until nine or ten at night, and we would take a break and go out and have dinner and then maybe go back to the plant. This wasn't common. Usually it was close to an eight-to-five job, or a nine-to-six job or whatever. But if you were in the middle of a long simulation, then you would work longer hours.

ROSS-NAZZAL: Could you walk us through one of those simulations that you might have participated in?

FABIAN: Yes. They were all task oriented. For example, you might have a simulation in which, when you're uncradling the robotic arm, you find that one of the joints is not working properly and it will drive electrically only as a result of a direct impulse to that joint. Working through the computer system, that joint won't move in a coordinated fashion with the other joints. And so what you have to do then is, in an almost real-time sense, you've got to figure out how you can move the whole arm and then correct that joint and then go back, change your mode, move the arm, correct that joint, and so on and so forth, to get the satellite out of the cargo bay and in the position to deploy it or, a much more difficult job, trying to figure out how to put a large satellite back into the cargo bay if it's one that you're trying to retrieve.

There was a lot of interest early on in military satellites. So people from The Aerospace Corporation out in California would come up and witness these simulations. They wanted to have a very high level of confidence that this arm, which they knew had dozens of failure modes, would be able to deploy or retrieve one of their jillion-dollar satellites.

ROSS-NAZZAL: What were some of the biggest challenges that you faced while working on this project?

FABIAN: It was usually trying to get the team oriented in such a way that they understood precisely what a problem was and what the options were in order to resolve that problem and then get a course of action laid out. And I say that because we had the NASA team from the Johnson Space Center, the Rockwell team from California, the Canadian contractor team, and the Canadian government team. Oftentimes we would have the Kennedy Space Center [Florida] people, because they were ultimately responsible for integrating the arm onto the Shuttle. And from time to time we would have this Air Force interest coming from The Aerospace Corporation, and trying to get all of those people to come to an agreement on what course of action was appropriate and then get it started—any big project, that's always your biggest problem. It's always a matter of getting a coordinated effort.

ROSS-NAZZAL: And the RMS proved to work quite well on STS-2?

FABIAN: Yes, it did. In fact, I think the RMS has worked wonders on all of the flights. It's really a great piece of equipment. We've never had one of those really dangerous runaway-arm type of malfunctions that we worried about, but of course those failure modes are still there.

And the Canadians have gone on to design an arm now for the International Space Station, so they have gotten a big return out of their early investment in developing these electromechanical systems.

ROSS-NAZZAL: Some of the other positions you held--you served as head of the Astronaut Operations Groups.

FABIAN: Yes.

ROSS-NAZZAL: Can you tell us about that?

FABIAN: Well, it included a number of things. It included training, and it included the flight data file that the crew carries all of their various checklists. And it included some assessment of upcoming payloads that we were going to fly on the Shuttle and any unique problems that were associated with those. It was an important job.

ROSS-NAZZAL: Who else worked on this project with you?

FABIAN: At various times different people. Judy and I, for example, laid out -- one of the things we did was to lay out the roles and responsibilities for the Mission Specialist, going to carry

three Mission Specialists up, what are their roles and responsibilities, generically, so you don't have to reinvent a training program every time you name a crew.

So we came up with a scheme in which MS [Mission Specialist] 1 has overall responsibility for payloads and experiments in orbit, and a Mission Specialist 2 has primary responsibility for flight engineering and helping the Pilot and Commander during ascent and entry and backup for payloads. And Mission Specialist 3 really had responsibilities for independent experiments and also an EVA [Extravehicular Activity] responsibility. So that's kind of the way we laid it out.

MS 3 would be typically the most junior and the lowest training requirement but heavy on EVA. MS 1 would have the largest overall responsibility and, in principle, ought to be the most experienced member of the astronaut Mission Specialist crew. And MS 2 had the most simulation time, spent an enormous amount of time in the simulator.

That's why we split it that way. We split it that way in order to recognize the fact that the flight engineering role was the dominant training requirement for one of the Mission Specialists, and therefore that person shouldn't be burdened with overall responsibility for the satellites.

ROSS-NAZZAL: Now, early on in the Space Shuttle Program, the flight manifest was rearranged many, many times. What impact did that have on your career?

FABIAN: Yes. I was fortunate in both of my flights that we flew with the cargo that we started out to fly with. I was supposed to fly a couple more flights, and the payloads on one of those kept jumping around all over the place. So it wasn't a huge impact for me, although on my second flight, we did go from PAMs [Payload Assist Modules] and the telecommunication

satellites to IUS [Inertial Upper Stage] and deep-space probes and back to PAMs a couple of times. It still was not a huge impact, but for some crews it was. And that was one of the things that the *Challenger* investigation pointed out was a problem with the program, was too many changes.

ROSS-NAZZAL: You mentioned the upper-stage launch systems, and you also served as the astronaut technical representative for those systems. Can you tell about your roles in relation?

FABIAN: Yes. Actually, that was mostly on military satellites. A lot of those things, of course, required specialized security clearances. So whoever was going to work those was probably going to be somebody that could be court-martialed and hung. [Laughter] So it was going to be somebody from the uniformed services that was going to do those.

So I got tagged with that title, and Paul [J.] Weitz and I did a lot of that work. And other people did, too, but I think Paul and I were the principal people in our era when we were trying to lay out the basic principles and requirements on a family of different military satellites that we can't really talk about.

ROSS-NAZZAL: No problem. An award that was written by Aaron Cohen credited you with taking the Centaur off the flight payload. Can you talk about that, your memories of that?

FABIAN: [Laughs] I didn't know that. I didn't know I'd been credited with it, although it's probably true.

I was on what would have been my third or fourth flight. We were going to carry up a Centaur upper stage and a deep-space probe. And so, of course, one of the things astronauts do is they start looking at the hardware and so on and so forth. So I went out to San Diego [California] and watched them working and came back and reported on what I saw.

I wasn't the first to raise concerns about the Centaur. Bill Lenoir had raised concerns about it, because it had a failure mode that, in the event of a return-to-Earth launch abort, if you couldn't vent the propellants overboard, the liquid hydrogen and liquid oxygen overboard, before you came back into the atmosphere for landing, the thing could blow up in the bay. John [W.] Young called it "Deathstar," so it had something of a reputation.

But one of the things that I noted when I was out at the contractor plant in California was that there were too many people in the clean room, far too many people working in the clean room. And I'd been told I couldn't go into the clean room right away in the morning because there was important work going on, they had to wait until some people came out. Then I would get gowned up and so forth and go in, and when I got there I was astounded at the number of people that were in the room.

So I counted them, and when I got back I reported what I had seen. There was an immediate denial, as you would expect. "Well, he must have miscounted. There couldn't possibly have been that many people there." Well, unfortunately for the contractor, they weren't thinking ahead. About two weeks later there was – and they were getting ready to ship the upper stage to Cape Kennedy [Florida], and so they wanted to recognize the completion of this task, and they took a picture of this satellite, and they took a picture in the clean room with the crew that was working on it. [Laughs] Guess what?

ROSS-NAZZAL: You had proof.

FABIAN: Guess what, we had proof.

There were several things with Centaur. There were several things, sloppiness more than anything else, sloppiness, not following prescribed procedures. A guy climbing on the tank with a wrench about this big [demonstrates] sticking out of his back pocket that's not tethered, and it fell against the tank and dented it.

Then another guy was trying to smooth out a burr in a weld. Instead of following the normal procedure, where you put a tool down in it, firmly attach it to the side of the stage and then put a drill in with a little tip to remove the burr but it's all very stationary, decided that wasn't really all necessary, I'll just hold the drill up there and go "brrp," and I'll take it right off, you know, a lot faster.

And guess what happened. The drill slipped and went "brrp" across the surface of the upper stage and made this scar right across it. And they didn't learn their lesson. They did that twice.

It would have flown. I'm convinced it would have flown if it hadn't been for *Challenger*. So I think crediting John Fabian is very nice of Aaron Cohen, but I think unfortunately it's the *Challenger* accident and the reevaluation of risk after the accident that is really responsible for removing it from the cargo manifest.

ROSS-NAZZAL: One of the other things we found out about you is that you helped organize the Payload Specialist Office.

FABIAN: I did.

ROSS-NAZZAL: Can you share with us the details of that organization?

FABIAN: After it became clear that I was only going to fly two flights, I told George that he needed to find somebody else to fill the two slots that I had been selected to fill. And his payback was to put me in charge of the Payload Specialist Office. It needed somebody at the time, and I was only going to be around for a couple of three months before I was reassigned to the Pentagon [Washington, D.C.], so I wasn't going to be around for a great deal of time. And it was something that needed to be done. It would not have been my first choice of things to go do, but at the same time, it did give me the opportunity to meet some really interesting and nice people who were over there at the time and are not with us anymore.

ROSS-NAZZAL: And where was the Payload Specialist Office placed on site?

FABIAN: Do you know where the large vacuum tank is, the old large vacuum chamber from the Apollo days, which is –

ROSS-NAZZAL: The SESL [Space Environment Simulation Laboratory]?

FABIAN: —kind of down there by the cafeteria? It was right there, right there in that building.

ROSS-NAZZAL: What were some of the challenges that you had to face while setting up this office?

FABIAN: Not many. Not many. It was like anything which is just getting started, there are startup issues associated with it, but we had a good basic staff that was assigned to the office. Trying to orient people that are coming into the Payload Specialist Program and making sure that they understood what it was that they were about to do and why they were going to do it was something that was important.

And it hadn't been done, really. We had already had several people in the Payload Specialist Program before that time, but we didn't have an office, so we didn't have anybody who was trying to coordinate their activities. Handling things like press and handling things like training load and so forth, the basic logistical support for these folks, was something that was needed. So that was something that George asked me to do.

ROSS-NAZZAL: I also understand you were a team member assigned to develop policies and requirements for life science experiments.

FABIAN: Yes. Again, one of my unflown missions was a life sciences mission. It was Spacelab Sciences Flight Number One, SLS-1.

At first there were three NASA career astronauts assigned to the crew, [Margaret] Rhea Seddon, Jim [P.] Bagian and I. And I was the designated chief in charge, because the other two were scientists, and they were medical doctors, and they were going to be in the back doing the medical experiments. But somebody, again, George felt needed to coordinate these activities and

training and also to make sure that decisions made early on, before the commander was named, didn't start off in the wrong direction. So that was kind of my role.

One of the things that we got involved in relatively early were monkeys. The monkeys that were planned to be flown on SLS-1 were also being flown on an earlier flight, and there were concerns about the safety of the cages and the fact that the monkeys, many of which had herpes, might be a hazard to the crew.

So we had a number of meetings with the life sciences community about the monkeys, and there was a great deal of assurance of two things. First, these monkeys had a type of herpes that humans couldn't catch. Later turned out not to be true. We found documentation of animal handlers who had contracted herpes from these monkeys.

The second issue had to do with the design of the cages that the monkeys would be kept in, and these were claimed to be totally recycling the air inside and no offshoot of any type of contaminants from inside. And when those cages flew their first time, it was on a flight with Bob [Robert F.] Overmyer, and there was monkey crap floating around all over the place. [Laughs]

And the result of all of that was that the NASA Administrator, Mr. [James C.] Fletcher at the time, told the head of NASA Life Sciences at [NASA] Headquarters [Washington, D.C.] that, "Your monkeys are never going to fly again with my astronauts." So he drew a line in the sand as a result of that.

ROSS-NAZZAL: Who were some of the people that you were working with? Were you working with Ames Research Center [Moffett Field, California], for instance, on that project?

FABIAN: Yes, because they had the cages. They were their cages and their design. And in spite of their best efforts, it did not contain the material that it should have contained.

ROSS-NAZZAL: Let's talk about some of the missions. Let's talk about STS-1. What were some of your requirements or duties for this flight?

FABIAN: Zero. I was desperately concerned about my career at NASA when STS-1 went off, because I was the only member of the Class of '78 that did not have a task. I had no responsibility to do anything on STS-1, and I interpreted that to mean bad things. I mean, when you're the only member of the group that is not working on a flight, when that flight launches and lands and you haven't done anything at all to support it and you're a member of the Astronaut Office, well, that's not a very good indicator.

Then I looked around at the other people who were not asked to do anything in support of the flight, and there were a couple of people from the olden days still in the Astronaut Office who were also not asked to participate, and their reputation within the Astronaut Office was not too great. So I figured that mine was right with them. [Laughs]

I didn't do anything on STS-1. I was still working on the robotic arm, and apparently that was the right thing, because in spite of all that, I got to fly first in my class. But that's not what I was thinking when STS-1 went off. I thought, I must be at the very bottom of the heap.

ROSS-NAZZAL: So where were you when STS-1 launched?

FABIAN: I was sitting in Building Four listening to it on the speaker system and watching the TV like the American public.

ROSS-NAZZAL: Any thoughts from that day or any thoughts about the landing?

FABIAN: It was beautiful. And I remember the landing. I remember thinking, how risky this is.

You know, the risk of launch is going to be there regardless of what vehicle you're launching. And the Shuttle has some unique problems. There's no question about that. But this is the first time.

We've never flown this thing back into the atmosphere. We don't have any end-to-end test on those tiles. The guidance system has only been simulated; it's never really flown a reentry. And this is really hairy stuff that's going on out there.

And, the feeling of elation when that thing came back in and looked good well before the landing—the landing I never worried about. These guys practice a thousand landings. But the heat of reentry, it was something that really, really was dangerous.

ROSS-NAZZAL: Can you tell us about the day that you found out you were going to be a member of STS-7?

FABIAN: I can't. I don't even remember it, except that I remember that I was told that I was going to be, and I asked who the other crew members were, and I was told that Bob [Robert L.] Crippen would be the commander and that I would find out who the other crew members were

later. And I did find out later, but I didn't know right off the bat that Sally was going to fly with me and that Rick Hauck was going to fly with me. I didn't know that immediately.

And I'm sure that the decision had been made, but maybe because they hadn't been told, I wasn't told. It wasn't a gathering. It wasn't, here's Crip and Rick and John and Sally getting an invitation to go over to Mr. Abbey's office and kind of looking at one another saying, "Could this possibly be?" No, it wasn't. I don't know why.

But that's my recollection, yes, very, very, very fuzzy. Maybe it was because it was such a huge day that I don't remember the details.

ROSS-NAZZAL: What was your reaction? Do you remember your reaction, especially since you thought, mmm, it's not good that I'm not working on STS-1?

FABIAN: Well, frankly, by the time STS-7 came along, I wasn't quite as concerned about my status in the office. I became Chief of Training in the interim, had to evaluate a couple of crews and report to upper management on how their training was going. And in one case I had to express some concern about the training, and that is a responsibility which is not given lightly and not taken lightly.

Also, by that time, some really important work had been done on the RMS, where I was the leader. Sally had moved on to become CapCom [Capsule Communicator] for STS-2, and so she kind of left the RMS at that time, and I became kind of the head of that program. So, by the time STS-7 crew selection came along, I wasn't in the same status that I had been on that day that STS-1 went up.

ROSS-NAZZAL: You mentioned you were Chief of Training and you evaluated crews. What sort of things did you evaluate the crews on?

FABIAN: How well they were doing in the simulator. And of course, it wasn't my evaluation per se. Their trainers would talk if they were approached by someone who was responsible for asking. And so, if you asked, "Well, what kinds of things is the crew having trouble with, what types of things seem to be most challenging for them," in most cases you're going to get off-nominal entry and things like that, which are extraordinarily difficult types of maneuvers. And occasionally you'll get something about coordination or timing or so forth.

But what you don't get typically is, they don't know how to use the COAS [Crewman Optical Alignment Sight], they can't identify the stars. They don't know how to find out where they are in space. They can't do anything without a checklist. They have to depend upon the checklist. Someone has to tell them what page to go to. You know, that's not good stuff to hear. That's not good stuff to hear.

ROSS-NAZZAL: How challenging was that job, being that you were from the '78 class and the people who were flying before you were members of the Astronaut Corps for a much longer time than you had been in the office?

FABIAN: It was one that you had to handle with great care, and you obviously didn't advertise. It was a job that you did quietly, it was a job that you reported on quietly, it was a job that ultimately the decision is someone else's, but someone was responsible for asking the right questions and providing some sort of a wrap-up.

ROSS-NAZZAL: What was your wife's reaction when she found out you were going to finally fly in space?

FABIAN: She was delighted. Yes, she was delighted. Donna worked at NASA. She started as a paraprofessional, para-engineer, and by the time I flew STS-7, she was working in the Mission Control Center in one of the back rooms. So, she was part of the team. She was part of working on the program. And yes, she was delighted to have me fly.

And I think she was also delighted with the people that I flew with. The STS-7 crew was a really great crew. Crippen was the epitome of the great astronaut, so it was a great pleasure to fly with him, and she knew that. She knew reputations as well as I did. So you like seeing your spouse fly with people of great reputation. [Laughs]

ROSS-NAZZAL: Can you tell us a little bit about the relationship between the crew members on this flight?

FABIAN: Uniformly good, except we did have a blip when Norm Thagard joined, and I guess that's to be expected. We trained as a crew of four, and then relatively late in the program, Norm came on, and we tried really hard to integrate Norm into the rest of the crew activities. Sally, for example, was lead on our electrophoresis experiment, doing some fluid work, trying to get some very pure substances out of this process. And I was the lead on doing the deployment and the retrieval using the remote manipulator system. But Sally was going to do essentially as much of that as I was.

But remember, Norm Thagard was the third member working with Bill Lenoir on the RMS, so he was no stranger to this system. So we worked hard to try to find a way to work Norm into that, and we ended up having him do one of the retrievals without it being written in the checklist that way.

ROSS-NAZZAL: That's nice.

FABIAN: Yes.

ROSS-NAZZAL: In 1982, NASA informed the public that Sally Ride was going to be the first American woman to fly in space. What sort of impact did that have on the crew and training?

FABIAN: Zero. That was a PR [Public Relations] concern, and I'm sure that it was an issue for Sally, but she didn't show it. I think she covered that extraordinarily well. But it had nothing to do with training, it had nothing to do with job performance, it only had to do with what the public was going to make of the fact that now we were going to fly a woman.

And it was an enormous deal. I mean, it was an enormous deal. It was long overdue, and yet when we were at the Cape [Canaveral, Florida], we had the largest turnout of press and the largest turnout of international dignitaries for that flight of any of the Space Shuttle flights. "Ride, Sally, Ride" was Number One on the *Hit Parade*. I mean, it was an enormous deal, and yet it never bothered Sally, and therefore, it never bothered the crew.

ROSS-NAZZAL: Well, tell us about the training that you participated in for this flight.

FABIAN: We spent a lot of time in the trainer, a lot of time in the simulator. The PAM for our paying customer, so—we put up two telecommunications satellites on the flight, one for Canada and one for Indonesia, and they paid about \$50 million apiece for the privilege of flying into space. Satellites cost about \$80 million apiece, so it's about \$130 million invested by the satellite owners. So it's a job you've got to know and do right.

And the simulations worked well. We had really good trainers, I mean really good trainers; they really were knowledgeable about this. It was not the first flight of those PAMs nor the first flight of telecommunications satellites, so people knew what was happening and when it was going to happen.

Since they were the paying customer, and since they were by far the most important thing that we did on the flight, they got the most of our attention. But the most fun was using the robot arm to put the German satellite, the SPAS-01 [Shuttle Pallet Satellite], out and then fly around it, practicing formation flying, and ultimately retrieval. Crippen flew one of those, the one in the morning, and Hauck flew the one in the afternoon. I did the retrieval and the deployment in the morning, and Sally did the one in the afternoon., so we split that, also. All of us needed a lot of simulation time doing the proximity operations that are associated with it.

EVA training was a deal. When we started out, we were going to do an EVA with Rick Hauck and John Fabian. I was going to be the lead on the EVA, and Rick was going to be the second, because Sally wouldn't fit the suit. So you have to have two EVA crew members, and they don't like using a Pilot to do that.

So when Norm Thagard came along, “Ahh, now, we’ve got some relief. We’ve got some relief.” So Rick became the support person helping us get into the suits, and Norm and I would have gone out if we’d an emergency that required that.

I think EVA training is the most fun and the most physically demanding of the training, but I think the proximity operations was the most difficult because it’s a matter of coordination. It’s never one person flying the vehicle. Launch and entry, whatever, it’s always more than one person flying the vehicle.

And here’s an opportunity for a Mission Specialist to fly with the Pilot, or the Commander, okay? And you’ve got to be their other set of eyes, and you’ve got to be their conscience, and you’ve got to make sure that the switches are in the right position, and all of these types of things. So that was a very enjoyable, very rewarding type of thing to do.

And working with Crip was a joy, because Crip was one of these guys that he never assumed that he knew the right answer. He never assumed that what he was doing was right. He was always looking for someone to say, “Yes, it’s good. Yes, it’s right. Whoops, don’t forget.” He’s always ready to do that. And, you know, here is a guy with enormous capabilities without a huge ego, just so much fun to work with him, just so much fun to work with him.

ROSS-NAZZAL: I understand that you and the crew went to the White House [Washington, D.C.] before you flew.

FABIAN: We did.

ROSS-NAZZAL: What are your memories of that visit?

FABIAN: We had lunch. We had lunch with Ronald [W.] Reagan in the White House, and it was just the five crew members and the President. When we left, he gave us a jar of jellybeans. It was very nice. He was very cordial. He seemed terrifically interested in the Shuttle Program and in the flight, and he paid essentially no attention to the fact that Sally was going to become this first woman to fly in space. He just assumed that everybody knew that. Let's don't make a big deal out of that. Let's sit down and have lunch and enjoy ourselves. And that's exactly what Sally would have preferred. You know, just right exactly on target.

Ronald Reagan is not my favorite former President, but he was a charming man. He was really a charming guy. And we got to go to a state dinner after the flight, and again, more of the same. The guy was a real charmer.

ROSS-NAZZAL: Why don't you take us [back] to that launch day and your memories of getting up and having breakfast, going out to the Space Shuttle.

FABIAN: This is the same story you've heard from everybody who's flown. I mean, I can't imagine that it's significantly different for anybody.

It's early in the morning. It's still dark outside, even though it's mid-June. "The Last Breakfast," they call it, is anything you want. You get to order it in advance, and you've got a big cake on the table with the crew patch designed into the top of the cake. And lots of people there. Lots of people from the Kennedy Space Center are there. You know, the bigwigs, the NASA Administrator typically is out there.

And then you break and go suit up. Now, in our day, we just wore jumpsuits. We would have called them party suits in Southeast Asia. It's just a set of coveralls with patches on them. And boots. Load up in the crew van and go out to the launch tower, and you go through these various stops along the way. At each place they're checking your ID [Identification], and less and less people can proceed beyond each one of those. When we went through the last one of those, Crippen said, "Well, we've just passed the last sane people on this facility, because we've got to be crazy to go do what we're doing." [Laughs]

So you get out to the launch tower, and it's bathed in lights. The Shuttle is gleaming out there, and it's filled with liquid hydrogen and liquid oxygen, and the vents are opening and closing, so you can hear this, "Whew, whew." It's a breathing machine out there, you know, like it's virtually alive.

On the launch gantry, the elevator's at the bottom with the doors open waiting for you. I've always thought they ought to put a sign in there that says, "Enter if you dare." So you go up 120 feet or so, and you look out to the horizon. While the Pilot and the Commander are getting strapped in, you've got a few minutes to kind of look around and take a last-minute nervous pee. And you can look off to the horizon and see—to the north, the south, and the west you see these lines of car lights coming to the launch, and you say these people are coming to see something pretty dramatic, and you're going to be up close and personal to it.

Once you get in the vehicle and get strapped down and the door's closed and latched and the technicians who are out there have run like hell, which is the right thing to do, you have just a little bit of time to think about all this, about what you're going to do and about why you're out there and about how you feel about doing it. And that's true until the launch gets down to about nine minutes.

When the launch gets down to about nine minutes, you're only set on one thing, and that is you really want to fly today. When that clock starts running at nine minutes, you really, really want to go today. First of all, you're really proud to be there. This is something you've trained hard to do. You want to go up into space. You want to see the Earth from space. You want to go up and do the work that you're trained to do and all of these good things. But there's also another reason, and that is you don't want to have to come out here and do it again tomorrow. It's really—it's an awesome thing.

But I never had the slightest regret on the launch pad. I disagree with the way that Mike [Richard M.] Mullane talks about the human factors, the human emotions on the launch pad. I never felt any of that. Was I aware of the risk? Absolutely. Would it equate to fear? No, I don't think so. I tell people I've been married to the same woman for forty-four years so I don't scare easily. But it's something that really does get your attention out there on the launch pad.

But at the same time, it's not a dreadful environment. It just is not a dreadful environment. You feel a lot of camaraderie with the people that are there, and you really have a great deal of trust in the people at the Kennedy Space Center to prepare that vehicle as safely as they can, and you're really proud that this is your time.

ROSS-NAZZAL: Where were you seated in the Space Shuttle during that first launch?

FABIAN: I was seated behind the Pilot. Sally and I were on the flight deck behind the Pilot and Commander. She sat right smack in the middle between the two, and then I sat to her right, behind Rick.

ROSS-NAZZAL: Do you recall any conversations you had while waiting for liftoff?

FABIAN: No, I don't. I don't. I do remember that, at the moment of liftoff, I could turn my head and look back out the overhead window and look down at the launch pad and see the fire that was down below us. I told Crippen about it later. He says, "Yeah, John, but why would you want to?"

No, there wasn't any chit-chat. It was all taken very professionally and very seriously out on the launch pad. We didn't have any jokes or gags or anything like that. I understand some crew do, and that's fine, but we just didn't. And that was true on both of my flights. We just didn't have that.

ROSS-NAZZAL: So you got up into space. What are your memories of deploying those two satellites?

FABIAN: Really important work, and we screwed it up a little bit. One of the things that we did when we got into space was to open up the cargo bay doors and secure the PAMs, getting them ready for exposure to the atmosphere, to the nonatmosphere of space. And we threw the heater switches out of sequence, which in the simulations that we did would not have meant anything.

But it turns out that those switches had been rewired. They'd been rewired to do a secondary function. It had nothing to do with the heaters. And it had been done at the direction, or request, of Bill Lenoir, who had flown the first PAM flight. And it never got picked up by the trainers. It never got picked up by anyone that were associated with preparing us to go fly that

there was something quite different about these switches and that if you throw them at the wrong time, then something unexpected is going to happen.

So what we had done was to have extracted a couple of pins that keep the satellites from rotating on their own. There's a rotating system that rotates the satellites, gyro-stabilizes them before you shoot them out, and these pins keep that rotation table fixed until you're ready to actually spin. Well, by doing these switches in the wrong sequence, we had pulled those pins.

The people on the ground could see it. We couldn't see it. We didn't know anything at all was wrong until the ground told us that we had inadvertently pulled the pins and that they were trying to find a work-around. And they did, they found a way to command from the ground to put the pins back in, fortunately.

But this one of those things, you know. This is a very complex machine, and in spite of everybody's best intention, sometimes some things slip through the cracks. We had been through this thing in the simulator dozens, if not hundreds, of times, doing it precisely the way that we did it in orbit without it ever coming to anyone's attention.

That one person could be on one side of the cockpit--and this is what happens--one person, I'm on the starboard side of the cockpit, Sally is on the port side of the cockpit, where the switches are, and I'm doing my job over here, and she's over here looking at those two switches and saying, "Well, it doesn't matter when I do this." But it did, but we didn't know it. She didn't know it. And it happened to us twice on that flight, that those switches were thrown inadvertently at the wrong time. So they had to reset those pins twice.

After the first satellite deployment, those pins go back in to keep that table from rotating, and Sally had pulled them again. [Laughs] So sometimes, sometimes. My fault, because I'm the guy with the checklist. My fault.

ROSS-NAZZAL: What are your memories of the release and then the recovery of the SPAS?

FABIAN: I thought it went perfectly. I thought it went beautifully. I found out only later that it didn't go perfectly. When we released it, some momentum was transferred from the internal mechanisms of the snare wires inside the arms canister to the satellites, such that the satellite rotated. It began a slow rotation.

And I didn't perceive it from the Shuttle. I didn't perceive that those rates had gone in. But we have some very sensitive gyros on the satellite itself that they could pick up the data later and see just exactly what had happened.

Of course, that was part of the reason for flying this thing. It was a test to see—it was the first time we'd released a satellite, and they changed the procedure thereafter. Now you release the tension on those snare wires before you open them, and by releasing the tension on those snare wires, then you don't have this transfer of momentum that goes to the satellite. So we learned something.

ROSS-NAZZAL: How well did the RMS work in flight for you?

FABIAN: Oh, just like a dream, just like in the simulator. When you're coming into very close proximity to the satellite and you're going to retrieve it—this thing's fifty feet long, and of course, it has some flexibility, and you can see it moving out there in a way that you're really not commanding. So you've got to integrate into your thought process the commands that you put in relative to what you're seeing out there on the end.

It's easy with a dynamic system to get into an unstable situation, where you're trying to input a correction and, in fact, you just end up overdoing it. But that's where the simulators came in handy, because we had seen that same type of thing, without quite the magnitude, in the simulations that we had done in Canada. The simulations that we did here didn't pick that up, but the one that we did in Canada did.

ROSS-NAZZAL: Were there any suggestions that you or Sally made when you came back from the flight, any sort of changes that you suggested?

FABIAN: Well, we suggested that they change the training on those switches on the PAMs. [Laughs] But not in terms of RMS, no. Somebody else came up with the solution to eliminate the tension on the snare wires before opening them, to stop the transfer of momentum. It wasn't our suggestion. Somebody else did that.

ROSS-NAZZAL: Actually, your mission was responsible for the agency's first full photo of the Orbiter in space.

FABIAN: Yes.

ROSS-NAZZAL: Can you tell us about taking that photo?

FABIAN: We worked hard on that. We really worked hard on that, and we got a lot of help. We worked out the position, the arm in the shape of a seven for the seventh flight. And we didn't tell

anybody about this, of course. We had this on kind of a back-of-our-hand type of procedure, what angles each joint had to be in order for it to look like that.

And then we had worked on the timing so that we could catch the Space Shuttle against that black sky with the horizon down below. That was the picture we most wanted. We most wanted the Shuttle against the black sky and the Earth's horizon down below.

Now, we got a lot of nice pictures, a lot of good pictures, against the cloud background and against the total black sky. Essentially, what we're doing is we're orienting this camera, which is on the SPAS. It had just a whole battery of cameras. It had a still camera. It had a TV camera. It had a motion picture camera. And so we're running these various cameras by remote as we fly the Shuttle around it so that we can get the Shuttle in various types of positions.

Yes, I was real proud of that. I was real proud of the work that Sally and I and Crip had done on getting that ready to go. Because it did. It gave you a really strong indication that, you know, this is a spaceship we're talking about here.

ROSS-NAZZAL: Did you participate in any of Norm Thagard's experiments?

FABIAN: I did.

ROSS-NAZZAL: Could you tell me about those?

FABIAN: He almost made me sick. [Laughter] He did a lot of different experiments. I laughed and told people that if you had one, Norm Thagard measured it, which was almost true. He was very thorough in his evaluations. And he had a bunch of things that would try to trick the eyes or

something. We would look in a canister, and inside, the canister would rotate, and it would have like a barber pole in there that would rotate one direction or rotate the other direction. He was looking for triggers, you know, what makes people sick in space. I don't think we know even today why people get space adaptation syndrome.

This particular experiment almost made me sick, and I wasn't sick on the flight. So I decided I wasn't going to do that one anymore.

ROSS-NAZZAL: What other experiments were you all doing on the flight?

FABIAN: We had a lot of experiments on the SPAS satellite itself. We had a series of multispectral cameras that were taking pictures. We got some really nice shots coming over Peru of the Andes, and they're looking for mineral deposits and things like that using the multispectral images.

We had a system to circulate air through pipes, but the air was dusty, and the object there was to try to figure out what are the dynamics of that in the absence of gravity. So it was really an Earthbound experiment done in space just to eliminate one variable from the unknowns, a lot of different experiments of that type. And of course, the most fun was taking pictures, looking out the window and taking pictures for oceanographers and geologists and so forth.

Sally did most of the middeck work on the flight, including the electrophoresis, and we had a little machine down there for making really small, really small, foam bubbles, and these are to load with medicines. I say a foam bubble, but it's digestible. And if they're just the right size and you fill them with medicines and the rate of decay of that little material that makes up

the bubble then affects, you know, when the dosage really hits the body. So that was kind of a fun thing to do.

ROSS-NAZZAL: Do you have a favorite photo from this mission?

FABIAN: No, I really don't. I like that one, of course, the one of the Shuttle taken above the horizon. But of the photos inside or the photos taken of the Earth, I really don't have a favorite.

There are really a lot of great pictures. There's one of the Horn of Africa which is terrific, and there's one of Madagascar that I use a lot when I'm talking to people about what we're doing to the planet, because it's such a gross representation of what human beings have done to this planet on that one island. So for a lot of different reasons I like different photos that we've taken.

We got some nice pictures of the Kilauea volcano [Hawaii], because it was erupting at that time. But it would take a vulcanologist to understand that, you know, you're looking at something. The average person looking at it, you'd have to point out where the volcano is.

ROSS-NAZZAL: Did you or the crew experience any sort of challenges during this mission?

FABIAN: We were hit on the windshield by a small fleck of paint, and it made a hole about the size of a lima bean halfway through the outer of two panes of glass. We found out after the flight that it was one thickness of paint the size of a pinhead that had hit us. And it hits you with such enormous velocity that the kinetic energy associated with that small fleck of paint is enough to blast out that kind of a crater.

So when you think about what a meteor would do hitting the Earth, here's an example of—you know. The results are so much larger than the event itself that it's staggering.

Now, Crippen decided not to tell the ground that we'd been hit, and it didn't come up until after the flight. And his rationale for that, I assume, was that there wasn't anything that the ground could do to help us. The event had already occurred. We were perfectly safe. They would worry a lot. And so he elected not to say anything.

I think after the flight he was—someone said something about that doing, but I think it was the right decision. I think that it clearly was something that was stable, and there wasn't anything at all that the ground could do. We took some photographs of it to make sure that it was documented and so forth.

ROSS-NAZZAL: You mentioned that by the time you flew on this mission your wife was working in one of the back rooms.

FABIAN: Yes.

ROSS-NAZZAL: Did you get a chance to speak with her at all while you were in flight?

FABIAN: No. No. No, I didn't. I enjoyed getting away for a few days. [Laughter]

ROSS-NAZZAL: If you had to look back and pick what one event or what experience was the highlight of that mission, what do you think that would be?

FABIAN: Well, it's hard to say anything other than landing. I mean, landing is such a great event. And of course, nothing else matters. Anything that was done right before, if the landing isn't done right, then nothing else really matters.

And I was not concerned about the landing, but I still think that it's—it's such a highlight. It's what the Pilot and the Commander spend 90 percent of their waking moments before flight worrying about the landing, and it's such a thrill to see it done and to see it done right and see it done well. And I know it means a great deal to them.

They do a thousand of these things, so it's going to work out all right, but there've been one or two landings that haven't been perfect, and so it's really nice to see a perfect landing.

ROSS-NAZZAL: What did you and your other crew members do during your free time while you were in space?

FABIAN: We didn't have as much free time as one would think, particularly this flight., because STS-7 was quite a busy flight. But we did have an opportunity to look out the window and watch the world go by, and all of our time wasn't taken up documenting something for scientists. So we were able to just enjoy the moment.

That was particularly true of the night passes. I remember Rick Hauck and I—the other three were seemingly asleep, and we were awake and looking out the window and watching as we came right down the string of islands that make up Indonesia, just an incredibly beautiful sight.

No one ever gets tired of looking out the windows. I talked to Valeri [V.] Polyakov, who flew for a year and half on one mission, and he said he also never got tired of looking out the

window, even after that much time in space. It's a great thing to do. I think you'd rather look out the window than talk or play games.

ROSS-NAZZAL: Did the crew take up that bag of jellybeans that you were given?

FABIAN: We did. We took up some, and we released them, and we took a photo or two of that, and we kind of bounced around in there eating jellybeans out of the air. I think it was Crip that took some of them.

I've still got my original jar of jellybeans. Over the twenty-odd years, they've kind of congealed into this. [Laughs] But the jar is unopened. It's never been opened. It's a virgin jar of jellybeans from the President.

ROSS-NAZZAL: Why don't you tell us about landing. You were scheduled to actually be the first flight to land at KSC [Kennedy Space Center]. You ended up landing at Edwards [Air Force Base, California]. What impact did that have on the crew?

FABIAN: I took a nap. We were all ready. We were all suited up and ready to come in when we got the wave-off, and it was just a one-orbit wave-off. Actually, it was a little less than an orbit because we landed west of where we would have. And so we had fifty minutes or sixty minutes, nothing to do, so we just kind of relaxed. And I went downstairs to the middeck and just floated and actually fell asleep down there.

Everything was just really quite relaxed. I will tell you a funny story, though, and that is—no, I won't. It's on tape. I'm better off not.

ROSS-NAZZAL: Well, are there any other interesting anecdotes that you can share on tape about the flight?

FABIAN: No. I will tell you that I flew twice in space, and this is by far my favorite of the two flights. It's not only because it was the first. It was because of the people that I flew with. Clearly, the vehicle is much more comfortable, much more fun, with five people in the front cockpit instead of seven in the front cockpit.

On my second flight, we did a lot of the same kinds of things that we did on the first flight, letting a satellite out and going out and getting it and putting PAMs up and so forth. So some of the uniqueness of the experience was gone on the second flight. But, you know, it was—this was just a joy, and I think at least 60 or 70 percent of that joy was working with this group of people.

ROSS-NAZZAL: Why don't you tell us about landing. You said that landing was so unique, but can you talk about it in detail?

FABIAN: I'm not a Shuttle Pilot, but I am a pilot, and I know one thing or two about kicking rudders or moving ailerons, and this is a very difficult machine to fly. I have had an opportunity to fly the simulator. It's not nearly as easy to fly as a big air transport like a Boeing 707 or 757 and certainly a lot more difficult to fly than a little NASA T-38.

You've got to stay on top of it all the time. You've got to be thinking well ahead of the vehicle. So this is not just a flying job for what we call the good stick, the guy who really knows

how to maneuver the airplane. This is a machine that is flown by people who are of great intellect as well as great skill.

But when you come back down and you finally roll out on final and you can see the runway in front of you, even though you've seen this in the simulator before — and those of us who weren't part of the landing crew only saw it a few times, a half a dozen maybe—it's still startling when you look out there and see how rapidly you descend down towards that runway. You're really coming down fast, about a twenty degree glide slope, and that's really noticeable.

But at the same time, I can't say enough about the guys who were flying the vehicle. Really good guys.

ROSS-NAZZAL: So tell us about the public relation tours that you took after the flight.

FABIAN: Rick and I went to Indonesia, had a grand time. We went to a meeting of the congress or parliament or whatever it's called in Indonesia, went to the president's house and visited with the president, talked to a lot of kids, school kids, here and there, went to their equivalent of the Fourth of July, a national independence holiday. Had a really nice time, treated very nicely.

I got to go back to my hometown and was treated like a hero, got the key to the city for what it's worth. We went to New York City [New York] and went to the mayor's house, Mayor [Edward I.] Koch, and met Floyd Patterson, the famous boxer. It was fun. It really was fun.

We all laugh about it, you know, "It's your turn in the barrel," and everybody has to go through this post flight, but it's one of the things that you do in return for the reward of flying in space. But it was really fun. I didn't do very many things that I thought were distasteful. There

were a few, frankly, and you can get that—if you’re not careful, you can get to feeling that you’re being utilized. In other ways, it was something like being wallpaper.

When we went to Washington--we went to Washington, and we went to the state dinner, and that was very nice. There was a lot of media attention to the fact that Sally was there, and Norm Thagard was knocked into the wall by a photographer, I mean, in trying to get to Sally, you know, trying to get to Sally. And they’re not courteous people. I mean, to be real honest with you, there’s something of the vulture that’s going on there, and there’s a story here, because Sally is here. Sally was married at the time to Steve [Steven A.] Hawley, and we went someplace, and Steve was with us. And we went through the door, and someone went like this, [demonstrates] “Stop. You can’t come here. This is for the astronauts.”

And Steve says, “We are the astronauts.” [Laughter] Really funny. Really funny.

ROSS-NAZZAL: You mentioned something that I wanted to ask you about. Was the rest of the crew sort of with Sally most of the time to help shield her from the members of the press or from so many of these people interested in her?

FABIAN: I don’t think Sally ever had to go out, except to do the hometowner type things, without some support. But the hometowner type things, you know, that’s not a big deal. But Sally in New York or Sally in Washington, D.C., she was a huge target. I mean, she really was a huge target.

I think we would really be concerned about it today. If we were going through that experience in today’s political and terrorist environment, I think we would have reason to really

be concerned about it. But fortunately, at the time all we had to worry about was Norm getting knocked into the wall. [Laughter]

ROSS-NAZZAL: Poor guy. We need to take a break for a second and change out our tape.

FABIAN: Okay. Fine.

[Tape change]

ROSS-NAZZAL: Okay. So let's talk about STS 51-G . Do you recall when you were told about this flight?

FABIAN: No, I really don't. It wasn't long after STS-7, maybe six months, but I don't have any recollection of a meeting or a call or anything else. It must have been not a big deal, been there, done that.

ROSS-NAZZAL: Well, tell us about training. Did it differ at all from your first mission?

FABIAN: It was very similar, except we did have this thing with the IUS coming in and the PAMs going out and then reverse and so forth. And that happened a couple of times. We were going to put a TDRS [Tracking and Data Relay] satellite up at one point on what was called an Inertial Upper Stage because the original name, Interim Upper Stage, indicated that maybe something was coming later, NASA-ese, I guess.

And the SPARTAN [Shuttle Pointed Autonomous Research Tool for Astronomy] satellite came along relatively late, but not so late that it was a hurdle to integrate it into the training. It was a much simpler satellite, from the crew's perspective, than the SPAS-01 because the SPAS-01, we could maneuver it. It had experiments on it that we could operate, had cameras on it that we could run.

The SPARTAN, which was a Navy satellite, we simply released it, let it go about its business, and then later went back and got it. Shannon [W. Lucid] did the release, and I did the capture.

We had three communications satellites. We had one for Mexico and one for AT&T and one for the Arab League. The first two of those, the ones for AT&T and Mexico, were identical to the ones that we had deployed before. The one for the Arab League was a French-built satellite, so it was substantially different in appearance as well as in operation from the other two. It didn't make any difference at all in terms of the operational sequence associated with the deployment, but it had to do with what happens later, when it gets to its operational orbit.

We didn't have a lot of secondary payloads like we had on the first. On the first one, we had a lot of canisters in the cargo bay, and we had a big materials processing experiment that was strapped into the cargo bay. We had electrophoresis going on on the middeck.

What we had instead of that was we had two Payload Specialists. We had a French astronaut, Patrick Baudry, and we had a Saudi Arabian, Prince Sultan Abdulaziz Al-Saud, both associated with that one satellite that was built in France and flown for the Arab League, of course. Patrick had trained with the Russians, and so he was very experienced in terms of space training. Sultan was an aviator. He was a pilot, and so he had some background to start with as well, but in terms of spaceflight, it was all brand new to him, all brand new.

Again, we had a good crew. We had Steve [Steven R.] Nagel as the MS 2; he was the flight engineer. J.O. [John O.] Creighton was making his first flight. He was the Pilot. Dan [Daniel C.] Brandenstein was making his second flight. He was the Commander. Shannon Lucid was making her first flight, and she was the MS 3. And we had a crew of seven living inside of a volume about the size of a minivan, and so we were good neighbors for a week.

There were certain things, because of the seven-person crew and because of having two Payload Specialists and having three nationalities represented, which made it substantially different in terms of operation and tone than the first flight, but most of those were positive. Most of those differences were positive, not all, but most of them were.

Training was very similar until we got right down near the end, when Patrick and Prince Sultan joined us. Then we would have mostly the long-duration sims [simulations] integrated in with the flight control center. And most of their work was associated with their own experiments. They were not integrated into any of the experiments or operations of the Shuttle.

In that day and age, Payload Specialists were pretty well segregated from the operations of the crew except as observers, and I think over time that's become relaxed a little bit. But early on in the program, there were certain concerns about that. People weren't really sure how these folks were going to react.

We put a lock on the door of the side hatch. It was installed when we got into orbit so that the door could not be opened from the inside and commit hari kari, kill the whole crew, that was not because of anybody we had on our flight but because of a concern about someone who had flown before 51-G. And just an indication, that NASA's very selective in the people that it picks. They're very careful about not just the selection process but also the training process and following up day to day to observe people.

And they're in training as a crew for a long period of time, so they learn to work together in that capacity. And when you add Payload Specialists to the crew, particularly late in the program, you're not 100 percent sure of what you're buying, or what you're selling, in those days. But nonetheless, we were fortunate to have Patrick and Sultan on board. And certainly, we had a wonderful post flight after that because of their presence there.

But I will tell you this, and it isn't a secret. The ARABSAT satellite that we flew for the Arab League, never passed a safety review. It failed every one of its safety reviews. The crew recommended that it not be flown, the Flight Controllers recommended that it not be flown, and the Safety Office recommended that it not be flown, but NASA management decided to fly it.

This is pre-*Challenger*, and this is just before my wife decided that I was only going to fly twice. This plus the situation with the upper stage on one of my subsequent flights, and her inside knowledge of what was going on, was the reason that I only flew twice.

I would say that I enjoyed my first flight a lot more than my second one. It would be hard to say that and not appreciate the people that I flew with. I do appreciate the people that I flew with, but it was a different environment.

This was an unhealthy environment within the agency. We were taking risks that we shouldn't have been taking. We were shoving people onto the crews late in the process so they were never fully integrated into the operation of the Shuttle. And there was a mentality that we were simply filling another 747 with people and having it take off from Chicago [Illinois] to Los Angeles [California], and this is not that kind of vehicle. But that's the way it was being treated at that time.

It was very disappointing to a lot of people, a lot of people at the agency, to see management decide to fly this satellite. But if they hadn't flown the satellite, you see, political

embarrassment, what are we going to do with the Saudi prince, what about the French astronaut, what's the French government going to have to say about us saying that we can't fly their satellite on the Shuttle, what will be the impact downstream of other commercial ventures that we want to do with the Shuttle? Well of course, after *Challenger*, the commercial all went away, and it was a dead-end street anyhow, but we didn't know it at the time.

So that was my general impression about flight number two, not as good a deal, an appreciation for the fact that NASA had its head up and locked with regard to safety issues, brushing aside the feeling of the Astronaut Office, which was supported by George Abbey, brushing aside the objections of the Flight Controllers, which was supported by Gene [Eugene F.] Kranz, and brushing aside the concerns of the Safety Office was an indication that we were living in an environment in which proper decision making was not prevalent.

ROSS-NAZZAL: Yes, that speaks volumes to that pre-*Challenger* environment that the Rogers Commission –

FABIAN: Yes. Yes, it really does.

ROSS-NAZZAL: —spoke so unhighly of.

FABIAN: Yes.

ROSS-NAZZAL: Let me go back and ask you a couple of questions about the flight and actually before the flight. What did NASA astronauts think about this policy of allowing Payload Specialists to fly?

FABIAN: Different people felt different ways. I had no objection to it. In fact, I was in favor of it. I wanted to see the Air Force Payload Specialists fly with their satellites. I had worked with those people and with their satellites, and I could see a real rationale for their being on board. I felt like the Shuttle was giving us the capability to expand the flight environment to non-career people and that we ought to take advantage of that, certainly on the Spacelab missions. That was one of the things that we could do very well and did. And so a lot of people looked at it different ways.

There were and will always be people who worry about what it meant in terms, or what it could mean, in terms of their own job security. That's a perspective that you no doubt have already heard, but I didn't feel that way. I felt that the—maybe that's why George put me over there. [Laughs]

ROSS-NAZZAL: Were you close with any of the Payload Specialists?

FABIAN: No, not particularly. Other than the two that I flew with, I wasn't particularly close to them.

ROSS-NAZZAL: You mentioned that you had a crew member from France and then one from Saudi Arabia. Did you participate in any sort of cultural training activities before the flight?

FABIAN: Yes. We were told not to tell any camel jokes when Sultan showed up, and the first thing he did when he walked through the door was to say, "I left my camel outside." [Laughs] So much for the public affairs part of the thing.

These just were not issues. They really were not issues. Patrick flew a little bit of French food and didn't eat the same diet that we ate. Sultan did. Patrick flew some small bottles of wine that were never opened, but the press worried about whether or not they had been. Patrick flew as a Frenchman and enjoyed it, I think.

Well, I ought to say something about the Americans on board. Certainly, I enjoyed flying with Dan, and he has remained a very good friend all of these years. And J.O. lives in Seattle, so I see him from time to time, the Pilot. Shannon is one of my longest, dearest friends. I just spent about an hour chatting with her. And Steve Nagel is still here. Dan is still in the area. So, you know, this is kind of a Houston-based crew, with three of the NASA crew members still here or working in the area.

But I want to tell you that I flew with two great American women, and most people know about Sally, but most people don't know, really, about Shannon, in spite of the fact that she set some remarkable accomplishments in space. Did you know she was born in a prisoner-of-war camp?

ROSS-NAZZAL: I think so, in China? That's correct?

FABIAN: Yes. Yes. Yes, in Shanghai. It's a remarkable story. It's a story of the human spirit, and I love to tell it. I tell it to kids all the time when I'm out on the stump, because kids don't

realize what opportunities really lie ahead of them. Some are very quick to worry about the disadvantages that they have in their own lives, or as they perceive in their own lives. And I think the Shannon Lucid story is just a great story about overcoming obstacles and blasting through ceilings and knocking down doors and never letting anything get in the way of doing the types of things that you believe are right. It's a great story. It really is a great story.

ROSS-NAZZAL: I'm glad to hear you say that. We're definitely interested in women's history, so maybe you can help us convince her to participate in the program.

FABIAN: I'll be happy to try.

ROSS-NAZZAL: Yes. That would be great.

How well did the other Payload Specialists integrate into the crew, coming in so late?

FABIAN: Well, like I say, they were kind of on their own. They had their own experiments, and Steve and I were kind of assigned to help them with their experiments, to make sure they had the kind of support that they needed.

Patrick was doing echocardiographs, and he did those on himself, and he did them on Sultan, and I think he did them on one or two of the NASA crew members, and frankly, I've forgotten whether he did one on me or not. But he was using a French instrument with a French protocol, and it was the principal thing that he was doing in flight, was to do these French medical experiments.

Sultan's principal role up there was as an observer. We were flying \$130 million worth of satellites for the Arab League. But he also had some experiments, and he was tasked to take pictures, particularly over Saudi Arabia, which of course would be very valuable when he got home. People would be very interested in seeing that.

But they didn't need a lot of support. They didn't need a lot of help. We had to worry a bit about making sure that they were fed and making sure that they knew how to use the toilet and making sure that they understood the safety precautions that were there and so forth. And, you know, habitability would—probably more than half of what our role and responsibility was with regard to the two. Other than that, it was to make sure they had film when they needed it in the cameras and help them for setup if they needed some setup for video or something of that type and to participate in their experiments to the degree that it was deemed necessary.

ROSS-NAZZAL: What do you think, if anything, was the beneficial aspect of flying with these two Payload Specialists?

FABIAN: The international aspect of it was, I think, really important. Our relationship with the French has never been great. After the flight, when we went to France, it was a real experience, a real experience for us and, I think, a real experience for the French.

They had had an astronaut fly with the Russians. They've had several fly with the Russians since, and they haven't had that much experience flying with the U.S. In fact, that's still the case today. Even though several have been part of Astronaut Corps, they've had just as much experience with the Russians, I think even today, as they have with us. And they've come

a long ways in terms of their capabilities, and their space and aviation equipment is pretty darn good. Boeing wishes it wasn't quite as good.

But I think it was important to fly. I think the international aspect of it was one dimension of the flight. It may have been the most important dimension of the flight, since the other things that we were doing, from our perspective, were kind of repeats.

ROSS-NAZZAL: Tell us about deploying those three satellites. Anything different from the first mission?

FABIAN: Well, we didn't do that stupid thing with the pins. [Laughs] We knew what the heater switches did, and so we didn't have that problem. We did one a day for the first three days on orbit, so the pace was easy. And Shannon and I had the lead on those deployments. And J.O. Creighton was flying the Orbiter, so he was pointing it in the right directions and so forth. Brandenstein was making sure that everybody was doing the right things. That's what a Commander is supposed to do. And Sultan was taking pictures for his satellite.

I mean, it was a fairly routine operation. It was really a quite routine operation. A PAM is really a very easy deployment. If everything is nominal and you don't start getting red lights, things just kind of take care of themselves. After they go out, we move out of the way, because their rocket engine fires forty-five minutes later and you don't want to be there, so we have to maneuver the Shuttle at that point. And J.O. did that, maneuvered the Shuttle out of the way so that we would be clear of the rocket blast.

ROSS-NAZZAL: Tell us about the deployment and then the retrieval of the SPARTAN, which I understand was particularly difficult.

FABIAN: It was. The deployment was routine, at least it appeared to be. We didn't get any indication later that we had any large tip-off rates, anything like that, and when we left it, it was in the proper attitude. It was an X-ray astronomy satellite, X-ray astronomy telescope, and while we were gone, it took images of a black hole, which is kind of cool stuff. That's kind of sexy.

But when we came back in to retrieve it, it was out of attitude. It was supposed to be in an attitude which would be easy for us to just fly up to and grab, and it turned out that the grapple fixture, instead of being out of plane to the two vehicles so that we could just go in and get it, was on top. So we were faced with a problem of trying to figure out just exactly what to do.

One of the things that we could have done would be to fly an out-of-plane maneuver, which we hadn't practiced. And then the final grappling would be just like we had seen in the simulator. But again, we hadn't practiced the out-of-plane maneuver.

Dan's a very capable pilot, and I'm sure that he could have done that, but it turns out that perhaps an easier way would be to fly it in, fly the satellite in, much closer to the Shuttle, get it essentially down almost into the cargo bay and then reach over the top with the arm and grab it from the top, and that's what we elected to do. Of course, we told the ground what was going on, that it was out of attitude, and they worried, but there wasn't much they could—they couldn't put it in attitude, so they concurred with the plan, and that's what we executed.

See, it was an off-nominal grapple. It made me feel good about all the hours that I'd spent in the simulator, because here was something that we really hadn't planned to do, and

having a pretty detailed knowledge of what the capabilities of the arm were contributed to the successful retrieval.

ROSS-NAZZAL: Why don't you tell us about your PR trips to Saudi Arabia and then France.

FABIAN: Saudi Arabia was a great trip. We went to all the major places. We saw the big cities, and we saw all the oil refineries. We went to the Red Sea and looked down upon the Red Sea from up in the mountains. We stayed in palaces. We were treated like friends of the royal family throughout, really a great opportunity.

When we met with the ARAMCO people, the people who did all the oil exploration over there, I mentioned to the president of ARAMCO that my uncle had spent thirty-five years working in the oil fields of Saudi Arabia. And he says, "Oh, what was his name?"

I said, "His name was John Seip."

He looked at me, and he said, "He was my first boss." [Laughs]

So from that time on I was no longer John Fabian, astronaut. I was John Fabian, nephew of John Seip. He took me around to introduce me to all of the other ARAMCO people. "Look who I've found. I've found John Seip's nephew." [Laughs] So that was really fun.

We had a good time. We had a really nice time. This was a partying group of people, and Saudi Arabia is not a party town, although we went to the U.S. ambassador's house one evening, and he had an open bar, so we all partook of his consumables.

But it was an interesting trip. It really was. We got gifts, gifts, gifts. I mean, I must have come home with eight or ten leather briefcases, six or eight Swiss watches, a Turkish carpet, this

watch from the king with his signature on the face of it. It was goodies after goodies after goodies. And the women, the spouses, did just as well.

Now here's a Shannon story. Shannon decided she didn't want to go to Saudi Arabia. She had no love for the Saudis. She had no love for the Moslem religion. She particularly objected to Saudi treatment of young women and disfigurement and so forth, and she didn't want to be a part of the any of that. And of course, there was a lot of time and effort spent convincing her otherwise to absolutely no avail.

So we took off for Saudi Arabia. I think we flew to London and then first class on Saudi Air into Riyadh without Shannon. And when we landed, Sultan said, "But where's Shannon?"

"Shannon's not coming."

Well, the king called the President. The President called the NASA Administrator. The NASA Administrator called the Johnson Space Center Director, who called George Abbey, and Shannon was on the next 747. [Laughter] She spent just over twenty-four hours in Saudi Arabia and then got back on an airplane and went back, but she was there to shake the hand of the king.

ROSS-NAZZAL: That's some story.

FABIAN: Yes. Shannon is some person. I mean, pardon my expression, but it took balls for her to do that. And that's Shannon, that's Shannon.

Great trip, though. Great trip. We had a wonderful time. We all went to France without spouses. We went without spouses because the French couldn't make up their mind what they were going to do with the spouses, and the reason they couldn't make up their mind what they were going to do with the spouses is because Patrick Baudry was in the middle of a divorce, and

he had a Russian girlfriend who was the daughter of a KGB agent, no kidding. No kidding.

[Laughs]

So I was talking with NASA Public Affairs at Headquarters, and Dan kind of said, “Take care of all of this.” So I was talking with Public Affairs, and I said, “You people have absolutely got to tell us, are we going with spouses or are we going without spouses? Now, frankly, we can live either way, but what we can’t do is to not know what we’re going to do, because we’re supposed to leave,” and it was like five days, you know. It was down to the wire.

So finally NASA Public Affairs, apparently having heard from the French or just decided upon their own, I don’t know, said, “No spouses.” Well of course, we could live with that, but there were some bent out-of-shape spouses, because they didn’t get to go to Paris [France] and they didn’t get to go to Nice [France] and Marseilles [France] and these other places that we got to go to.

As you know, the astronauts get all the good deals, and the spouses put up with a lot, and that was not popular. It certainly was not popular in my house, I’ll tell you.

ROSS-NAZZAL: When I spoke with John Creighton, he said that’s still a sore subject between him and his wife. [Laughter]

FABIAN: So there you go.

ROSS-NAZZAL: Any other interesting anecdotes or anything else we should talk about about this flight?

FABIAN: Steve Nagel is an interesting case. You know Steve flew as a Mission Specialist on this flight. It was considered a slap in the face. Here's a guy who's a pilot, just as well qualified as J.O. Creighton, who's going to fly the right seat, just as well qualified but less experienced than Dan Brandenstein, but he wasn't a Navy officer. And there was the feeling in the program at that time, and you're going to read it in Mullane's book until you're tired of reading it, that there was a prejudice against the Air Force officers in favor of the Navy officers.

Well, if you look at who flew and when they flew, then maybe that was true. I don't know. It's outside my realm. But Steve was told that he was going to fly on this flight, not as a front-seater but as a back-seater.

Now, there are two ways of looking at that. One I've already talked about, it's a slap in the face. The other is, the Mission Specialists were flying at such a rapid rate. I was already up on my second flight. Other people had already been selected or were about to be selected for second flights. And there was a long line for the fifteen pilots to get their first flight on the Shuttle, because people like Crippen and Overmyer and all these others who had been in the program before, who were Pilots, stood in line, essentially, before those in my group.

Whereas, we were the NASA astronauts, you know. We were the guys there to fly the Shuttle. And so the other way of looking at that was that they were doing Steve a favor, better to give him a flight flying the middle seat as a Flight Engineer, which would mean that he was learning the procedures necessary to fly the ascent and the entry, rather than to keep him sitting on the ground.

I go with the second, and that's not that I excuse Mr. Abbey for being prejudiced against the Air Force. I just think it's much closer to the real reason, the real rationale.

ROSS-NAZZAL: You bring up an interesting question from my perspective. What sort of competition was there amongst the Thirty-Five New Guys for these coveted slots on these first flights that you would – you flew an STS-7 and 8 and so on?

FABIAN: You wouldn't know it at the time. Now, obviously it was. I didn't expect to be named STS-7. Although at that time I was no longer worried that I was at the bottom of the heap, I certainly didn't think that I would be among the first in my class to get a flight assignment.

I think when I had three flight assignments, when I had my second, third, and fourth assignments all lined up and there were people who hadn't had their first flight assignment, at that point – I mean, I was still getting ready to fly my second. Shannon hadn't flown yet, and here's Fabian sitting over here with three flight assignments. I think at that time, there probably was some. I would be foolish to think that that would go unnoticed, but no one ever said anything about – you know, other than, "Nice going," or, "Well done," or, "Congratulations." No one every said, "Who's ass are you kissing?" [Laughter] It almost had to have been a factor, I think, at that point. Crippen had two flights simultaneously, but I think I'm still the only person ever to have three simultaneously. As it turns out, I didn't do the last bit of it anyhow. [Laughs]

ROSS-NAZZAL: Well, you did mention 61-D with Seddon and Bagian. What was that flight supposed to fly?

FABIAN: It was supposed to fly on *Challenger* in January of 1986. It was supposed to fly right when *Challenger* flew and we lost it. But by the time I flew my second flight, it had been delayed, it had been delayed into the summer or early fall of 1986.

And the other flight that I was supposed to fly on was the *Galileo* flight, and that was supposed to come after the Spacelab Sciences flight. But by the time I left, the Spacelab Life Sciences had slipped yet further, and the *Galileo* flight would have occurred first.

ROSS-NAZZAL: Now, I read in the *Roundup* that you planned to leave NASA in the near future when you stepped down from your last flight, which was 61-G. What were you thinking about doing at that point? This was in the fall of '85.

FABIAN: Fifty-one-G.

ROSS-NAZZAL: I'm sorry, 61-G.

FABIAN: I didn't fly 61-G

ROSS-NAZZAL: No. This was a flight you had been assigned to but didn't wind up flying.

FABIAN: Oh, and I said what?

ROSS-NAZZAL: You had told Public Affairs that you planned on leaving NASA at some point and you were stepping down from the flight. Did you have any idea what you might be doing at that point?

FABIAN: I don't know about the source of that. I don't remember saying that. I don't remember saying that.

I was looking for a job. My wife told me that my marriage had a two-flight limit, and I believed her, and so I was in the process of looking for a job. But one thing for sure was I wasn't going to stay here. There was no way that I could bring myself to stay and work at the Space Center and not be an astronaut. I mean, that would send a lot of wrong signals to people. I know it's been done a lot of times since but not under the same kind of circumstance.

So I was looking for a job, and I was talking to major contractors, and I was talking with the Air Force, and I was talking with the University of Washington about a teaching job and so forth. I was literally looking for a job.

But the rationale for leaving was all the same. It wasn't that I was looking for a job or wanted to go do something else. I was going to go do something because I couldn't continue to do this.

ROSS-NAZZAL: And you ended up taking a job with the Air Force.

FABIAN: I did.

ROSS-NAZZAL: Can you tell us about that position?

FABIAN: Yes. I was the Director of Space at Headquarters Air Force Base under the Deputy Chief of Staff for Plans and Operations, so Air Force headquarters level planning and operations

for military satellites and launch systems and so forth was my responsibility. So in terms of policy and implementation and budgetary requirements and so forth, this was my job.

My client, for the most part, was U.S. Space Command and Air Force Space Command in Colorado Springs. General [Robert T.] Herres was Commander out there at the time. He was a four-star general. But I didn't work for him. I worked for a three-star general in the Pentagon, but he was my real client. When I defended the budget at the Pentagon, it was his budget. When I supported a policy at the Pentagon, it was his policy. When it turned out that I couldn't support his policy, I heard about it. [Laughs]

ROSS-NAZZAL: Where were you when the *Challenger* accident happened?

FABIAN: I was right here. I was taking my annual physical. I was in the Flight Medicine Clinic, and somebody came down and said, "Wasn't that a beautiful launch?" I mean, I knew the launch was going. And what had happened was Claudette – I don't know if you ever knew her, Claudette [A.] Gage. She was a Chief Nurse at that Flight Medicine Clinic. She had been there just long enough to see it go up, clear the tower, start its roll, and so forth, but she had work to do so she came down.

She said, "Oh that was a beautiful, beautiful launch." And about ten seconds later, someone came into the room and said, "John, you'd better come." So I went upstairs to the video and saw—of course, I knew immediately that it was an accident. I always considered Judy Resnik my best friend in the Astronaut Corps, of course she was on that, and I'd just been working with the Payload Specialist the month before. I'd gone to Washington, I'd reported in

for work, but my annual physical was due, and so I came back down here to do the physical, and I happened to be here at that time.

ROSS-NAZZAL: And how was it that you were appointed to the investigative staff?

FABIAN: I was there. I was in Washington. The President had already announced the people who were going to be members of the commission. Sally was one of those people, and of course, I knew and respected and had worked well with Sally in the past.

They were looking for experienced people to be on the staff of the commission, and I was asked to go over and talk with the Staff Director, who immediately put in a call to the Pentagon and had me assigned temporarily to work on the study.

ROSS-NAZZAL: And how long did you work on the study?

FABIAN: Until the middle of June of the same year, about five months.

ROSS-NAZZAL: And what were your duties as a member of the staff?

FABIAN: NASA's safety program, mission operations, pressures on the system, kind of the things that we've talked about. I wrote the chapter on the Silent Safety Program, which is a part of that, and, with Sally, wrote three of the other chapters.

ROSS-NAZZAL: Let's see. In 1987 you left work with the Air Force, and you went to work for ANSER [Analytic Services Inc.]

FABIAN: I did.

ROSS-NAZZAL: Can you tell us about that?

FABIAN: ANSER is a public service research institute. It's a non-profit, 501(c)(3), tax exempt research organization. It does work mostly for the federal government, in the past mostly for the Air Force and the Department of Defense but more recently for the Department of Homeland Security.

I went there as the Vice President for Space Systems. I had been there about a year and a half when I was asked if I would consider moving up to Executive Vice President, with the thought being I would become the CEO [Chief Executive Officer]. Much to the surprise of some of the other Vice Presidents, I said yes. [Laughs] And then I stayed on as CEO for seven years before retiring and moving west.

Good company, great people. It's a kind of company where you can get the valedictorian out of MIT [Massachusetts Institute of Technology, Cambridge, Massachusetts] or Caltech [California Institute of Technology, Pasadena, California] or Ohio State [University, Columbus, Ohio] or [University of] Michigan [Ann Arbor, Michigan]. I worked with them, young kids, teaching them, you know, what's going on with these huge projects. They work with you two years, three years, sometimes four or five, and then they go on to do other things but with a much better understanding of how the government works and how decisions are made in Washington

and so on and so forth. A good company, and I think a real challenging type of a role, because you're not the government so you don't get to make the decisions, but at the same time, a lot of the weight of those decisions rests with you.

ROSS-NAZZAL: And now you're retired and living back in Washington state?

FABIAN: Yes, yes, yes.

ROSS-NAZZAL: And do you have any contact with NASA, do any sort of contracting work?

FABIAN: I go to the Visitors Complex at the Kennedy Space Center three or four times a year, and I'm the Astronaut of the Day. They keep somebody there every day, including Christmas. Always an astronaut on duty, and so they pay my expenses to fly there and stay there, and they give me a stipend for being there which is more than generous. So yes, it's a neat thing to do.

ROSS-NAZZAL: What do people most frequently ask you down out at KSC?

FABIAN: "Were you scared when you launched?" One way or another they ask that question. "Have you seen any UFOs up there?" I love that. "How do you go to the bathroom in space?" Those are some of the favorite questions. "What do you have to do to be an astronaut?" That's one you get both more from parents than from kids.

ROSS-NAZZAL: Do you stay in contact with any of the members of your previous crews?

FABIAN: Not regularly, no. I hear from them from time to time, but we don't have any regular contact. Like Shannon, we just exchanged e-mail addresses. I always stop by her office and leave her a message if she's not there. [Whispering] She's seldom there.

ROSS-NAZZAL: She's probably pretty busy.

FABIAN: Yes. Yes. She's CapCom-ing right now as a matter of fact.

ROSS-NAZZAL: That's good to know.

I just have a couple of general questions for you, then I'm going to ask Sandra if she had any for you. If you had to look back over your time at JSC, what do you think would be your most challenging milestone?

FABIAN: Well, that's a good question. I don't think I've ever had it asked.

You know, I think that when you come into a group like that, a group that is so highly selective, you don't come into it with a lack of appreciation of your own talents and abilities, and you don't come into it with a lot of self-doubt about what it is that you can do or might be capable of doing. But those thoughts are challenged. They're challenged by the very nature of the people that you're now involved with. And somehow, through the process of working with these people and working within the system and so forth, you need to come to an appreciation that your original thoughts are probably right, you do have capabilities, and you do have things to contribute, and so forth.

But that's not an easy decision to make when you see the greatness of the people that are around you. I think that that adjustment hits everybody who comes into the Astronaut Corps, because no one who comes into the Astronaut Corps has ever been a slacker, you know?

ROSS-NAZZAL: What do you think was your most significant accomplishment while working in the Astronaut Office?

FABIAN: Oh, I think the RMS, the RMS. We really had an opportunity with the RMS to work on the human interface, to make it something which is straightforward and easy to use, intuitive in its application. That's now followed over into the Space Station, and potentially it will go on to other applications.

I think it's the most significant thing that I did in my time, and I think it's the thing I'm proudest of.

ROSS-NAZZAL: Sandra, do you have any questions?

JOHNSON: I just have one question. Since you mentioned you were close to Shannon Lucid, and you mentioned that Judy Resnik, you considered her one of your best friends while you were here, we've had other people that were in the military, or men that were in the military and then came into the Astronaut Corps, and working with women was somewhat new for them. Since you had been in the military and you were teaching at the Air Force Academy, I was just wondering if you'd had that opportunity to work with women on an equal basis at that time when

you were there at the Air Force Academy, or was being in the Astronaut Corps the first time that you had also been exposed to that?

FABIAN: First time.

JOHNSON: First time?

FABIAN: First time. Women came into the Air Force Academy while I was on the faculty, but we didn't have any women faculty members. Those had to come later. I mean, it's like bringing the first female pilot into the Astronaut Corps. First you've got to get them through test pilot school, and in order to get people on the Academy faculty, you've got to have people graduating in engineering. Aeronautical engineering was not a great field for women, so we didn't have a lot of women in any of the faculty positions at the Academy but certainly not in engineering. And I was a pilot in the days before women were able to do that.

Fred [Frederick D.] Gregory and I were officemates for the first three or four years that we were in Houston, so I didn't have one of the women astronauts in my office. So it was really all new to me.

And I didn't do it all right, either. That was a slightly different era. It was an era in which you would take the centerfold of *Playboy* magazine and post it up on the back of your office door, and that was thought to be totally acceptable as long as it was the back of the door instead of the front of the door. And people hadn't yet thought of the word harassment. We were all learning. We were all learning in those days.

ROSS-NAZZAL: That brings up just a couple of more questions.

FABIAN: Except that Judy would always come in and look. [Laughter]

ROSS-NAZZAL: You mentioned Judy Resnik a couple of times. I wonder if you want to tell us any anecdotes about Judy, being that she was probably your best friend in the Astronaut Corps?

FABIAN: Judy was an incredibly talented pilot. She could fly the T-38 as well as I could, and I loved flying with her. NASA wouldn't let her fly the front seat. She could only fly in the back. And officially, she couldn't land the airplane, either, and it's much harder to land it from the back. And I won't say that I let Judy land the airplane from the back, but I'll tell you that she was a very talented pilot.

And she also was, after a long day's work, someone who you could go out with in the evening and have a burger and get a couple of beers and a couple of big cigars. She was just really a wonderful human being.

I took her up to the Air Force Academy one time. When I first came down here, NASA had kind of worked an arrangement. They said, "John, if you want to go up there and, you know, guest lecture or do something like that once a month or so, feel free to do that, because we don't want to see you sever your ties and so forth." So I would take a T-38 and fly up to Colorado Springs and do a lecture or two and then get in the airplane and fly home that night, and it was a nice thing.

Well, I took Judy up there with me one time, and I introduced her to the class that I was going in to lecture. I said, "I'd like you to meet one of the lady astronauts. This is Judy Resnik."

She said, “Hell, I’m no lady.” The term lady was offensive, you know? To Judy, she was just one of the guys. [Laughter]

ROSS-NAZZAL: I just had one other question for you. Of the women that we’ve talked to from your class, they have insisted that NASA treated them equally. While I was reading Mike Mullane’s book, he suggests that a lot of the men were very sexist in the way that they looked at women. He thought that women shouldn’t be in this position in his book, initially, and his mind was changed over time. What was your perspective?

FABIAN: I don’t think Mike Mullane’s mind has ever changed. [Laughter]

I did not sense that. I really did not sense that. Were they different? Yes, they were different. Were they new? Yes, they were new. They were new and different to the office, to the organization, and to the community of equal and associates for most of the people in the class, but I never had the feeling that anybody looked down upon them, ever, in the program.

I think that every one of those women earned their medal into the program. I will not tell you that all of them served with the same level of distinction, okay? But they all earned their way in with the medal of their past achievements just like we did.

ROSS-NAZZAL: Is there anything you think we haven’t covered or anything that you’d like to talk about before we close up today?

FABIAN: I don’t want to tell you all my secrets. [Laughter]

ROSS-NAZZAL: All right. Well, thank you very much. It's been a pleasure.

FABIAN: Thank you. Thank you. Look at the clock. We beat the time.

ROSS-NAZZAL: Oh, perfect.

[End of interview]