

ORAL HISTORY TRANSCRIPT

RUSSELL L. SCHWEICKART
INTERVIEWED BY REBECCA WRIGHT
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WRIGHT: Today is October 19, 1999. This oral history is being conducted at the Johnson Space Center in Houston, Texas, with Russell L. Schweickart, who is known as Rusty to his friends and colleagues. Interviewer is Rebecca Wright, with the Johnson Space Center Oral History Project.

Thank you again for taking time to visit us today for this project.

SCHWEICKART: You're welcome.

WRIGHT: We'd like for you to start by telling us how your interest in flight and in space flight began.

SCHWEICKART: It's hard to say how it began. I can recall several incidents from when I was very young, which kind of illustrate and refresh my memory that my interest started very young, but I can't honestly say any precise thing started it.

I can remember when I was a kid, walking. I lived in the country, on a farm and my parents and I would walk on summer evenings around the local roads. I can remember one time I must have been five or something like that, I honestly don't remember, in that vicinity, and we were looking up at the moon, it was a full moon and fairly low in the sky, early evening, and I remember watching it go through the limbs of the trees.

My parents asked me about it or I said something about the moon, and that was the first time I recall, I think, having said, "I'd like to go there one day," or, "People will go there one day," or something like that. I can still remember my parents looked at me more than a little

askance and kind of chuckled and laughed, you know, humoring this little kid. That's my first clear memory of an intention or an interest in people going to the moon and the kind of not exactly ridicule, but patient humor from serious people that was given to me as a result of that interest.

WRIGHT: And as you grew up, your life led you to the Air Force.

SCHWEICKART: Yes. I was always interested in airplanes, and happened to live in New Jersey on the shore, probably twenty miles from Lakehurst Naval Air Station in New Jersey. This was, of course, in the early days of World War II, and there were lots and lots of airplanes flying around, dog-fighting in the sky all the time. There were blimps around. In fact, Lakehurst was, not just in my life, but in my father's life, he actually snuck onto the property at Lakehurst and watched the Hindenburg come in the day that it burned up. So it was interesting stuff.

In any case, the sky was always filled with airplanes. As a result, I used to identify all—"That's a [F6F] Hellcat. That's a—" I can't even remember. "An [TBM] Avenger," blah, blah, blah, you know.

And then there were a couple of other things. Of course, with World War II cranking up, there were the afternoon fifteen-minute serials on the radio, you know. This was before the days of TV. Usually around 4:00 or 4:15 or something like that, and every fifteen minutes you would crank through "Hopalong Harrigan and Tank Tinker" and "Terry and the Pirates" and "Captain Midnight" and "Tennessee Jed," you know, on and on and on. So I would regularly listen to these.

In reflection on that, my interest in flying airplanes, "Hop Harrigan and "Tank Tinker" were an Air Force pilot and his mechanic, if I remember right. And, of course, "Captain Midnight," you know. So there were those things and, of course, "Buck Rogers" and things of that kind I would see once in a while. All of those, I think, made something of an impression.

In addition, I was always interested from the time I can remember in science, and astronomy, in particular, was very interesting to me. Which came first, I don't know.

Then strangely influential in my life was an uncle who lived nearby, and I would basically see him every weekend, because he would come visit. We lived with my grandparents, and he was my aunt's husband. She was my grandparents' daughter. They would come by, and Uncle Gus would always—I mean, every week he would ask me the same question, you know, "What do you want to be when you grow up?" And any time there was an airplane in the sky, it was, "What's that?" So I would regularly point out every airplane in the sky to him and identify which one it was, and, of course, when he asked what did I want to be, one of the things I wanted to be was a fighter pilot. So all of those things were very strong influences.

WRIGHT: At what point did you move your life closer to that? Through high school?

SCHWEICKART: Well, yes, although high school is generally—you don't specialize in anything, but certainly my interest matured a bit as I went through high school. I can remember very vividly tracking in newspapers or the radio, magazines and things of that kind, *Popular Science*, *Popular Mechanics*, and things, I would track, after World War II, the progression of maximum altitude reached by the V-2s fired up out of White Sands [Proving Ground, New Mexico], and when they had the first photographs, you know, the first ones that you could barely see some curvature on the Earth, you know, and I'd sort of hold the magazine up sideways to see if I could see it. [Laughter]

But all of that then got me quite familiar with [Wernher] von Braun, with the V-2s, with the history of rocketry. And then probably one of the most seminal things in my life and, I suspect, a number of others, was *Collier's* magazine, which, of course, doesn't exist anymore, but Cornelius Ryan was the editor of *Collier's*, and for whatever reason had a strong interest in

the idea of space flight and put out a special issue of *Collier's* magazine where he gathered together not just Wernher von Braun, which he did, but also Heinz Haber, who was a medical guy, Willy Ley, Chesley Bonestell, the tremendous artist and illustrator. All of them had special sections in this issue of *Collier's* magazine, and I can remember having read through that till it was totally dog-eared.

Following that, there was a series of books which came out. I don't remember the publisher anymore. It may have been *Collier's*. They were sort of some of the first coffee table books in that sense. I don't remember the titles. *Across the Space Frontier* was one of them, but there were three books altogether. They went into fairly detailed technical and design questions and issues, as well as having dramatic Chesley Bonestell imaginative artwork. But those were all strong influences, and those all occurred throughout high school, and I think maybe the third of that series of books I just mentioned came out about the time that I was a freshman at MIT [Massachusetts Institute of Technology, Cambridge, Massachusetts], which was in 1952. So those were all influential things in shaping my early interest.

WRIGHT: How about Sputnik? How did that affect your life when you heard about the launch?

SCHWEICKART: Well, again, because I had been tracking the V-2 and everything else, I was very familiar, let me say, as a kid. Obviously I wasn't technically involved in it. But as a lay person at the time, I was very interested in and tracking the development of the Vanguard and the U.S. attempt at putting up the first satellite.

Obviously there was some disappointment with the Russians getting Sputnik up first, but it was clear that there was a race on and that we were having some troubles, and who was going to make it first. They made it first. Well, that, along with the first manned flight and all the rest of it, didn't mean a lot to me in terms of patriotism. What it really meant more than anything else was, hey, we're really going to go now. I mean, you know, here's competition. Here's some

real stimulus to keep things moving. So I was as happy that anybody went up there. I would have liked it to have been ours, but big deal. I was a lot more interested in the exploration and development of space capability, regardless. There was no question the U.S. was going to be a major part of it. We ended up starting out a little behind the curve, but that stimulated us a good bit.

WRIGHT: You mentioned, of course, going to MIT, where you pursued your interest there. Could you tell us about those days and what you were doing there that led you into your career with NASA?

SCHWEICKART: Well, again because of my interest in aeronautics, airplanes, and things of that kind, I mean, I really had two interests in a sense. I guess from the time I was seven, eight years old, something like that, I had a Chem Craft chemistry set. [Laughter] I guess every kid did. I had a little place in the second floor of one of the buildings on our farm that was my laboratory, and I'd mix things and smoke would come out, and occasionally I'd blow something up. So chemistry was also an interest, but it was an interest that was about as deep as a Chem Craft chem set takes you.

When I went to MIT, in my freshman year I enrolled in chemical engineering. By the second term at MIT, I decided that chemistry was not really for me, and I went to what was my second technical interest, which was aeronautics. Of course, that was really a much more deep interest. Chemistry was, after that, never any real interest whatsoever. So it was really in my second term at MIT that I went into aeronautical engineering, and that led me on.

Again because I wanted to be a pilot, I also joined the Air Force ROTC [Reserve Officer Training Corps] at MIT, and went all the way through MIT in ROTC, and ended up being commander of the corps, I guess, or whatever, by the time I was a senior. Of course, from there,

that led directly into my active Air Force, the beginning of my active Air Force duty as soon as I graduated from MIT in '56.

WRIGHT: And then you applied for the NASA astronaut corps. I understand that you were selected in the group of 1963.

SCHWEICKART: Yes. There's a lot of time between there. I went into the Air Force and worked my way through fighter pilot training and then active duty in the Philippines, flying [North American] F-100s [Super Sabres]. I spent four years, and then due to an administrative fluke, I ended up with a really crappy assignment when I came back from the Philippine Islands, which then gave me the best excuse in the world to get out of the Air Force. I wasn't interested in it as a career anyway. I wanted to get my advanced degrees. So having that bad assignment just made it perfect. I immediately started working my exit strategy from the Air Force the first time.

Went back to MIT in 1960, in the fall of '60, to enter graduate studies. It had then shifted at MIT from aeronautical engineering to the Department of Aeronautics and Astronautics. So they were beginning to move astronautics into and meld it with aeronautics, which was great for me. I also, because I needed the money and wanted to keep up my flying, I joined the Air National Guard in Massachusetts, so I was a weekend warrior. I would fly in the evenings during the week, I would fly on the weekends. Somehow I had enough time for my family, but I had three jobs keeping food on the table and everything else.

At that point I had three kids, but my wife was pregnant again, and the Berlin Wall went up, I guess it must have been somewhere around the summer of 1961. By the fall of 1961, [John F.] Kennedy, President Kennedy, had activated the reserves, the Air National Guard in particular, and our outfit, being from Massachusetts, and he was from Massachusetts, he had to

call up his own state. So our Guard unit was activated, and in the fall of 1961, I went back into active duty in the Air Force and deployed over to Europe.

Spent a year over there, saving the world, came back in '62 to pick up my MIT graduate work. During that time—and we'll talk about that—but during that time I had really made up my mind that that was, again, the era of [Project] Mercury and Alan [B.] Shepard [Jr.] and John [H.] Glenn [Jr.] as the first flyer, first orbiter. By the time I came back to MIT that fall of 1962, I had made up my mind I wanted to be an astronaut.

Then in 1963, early '63, in the spring, the applications were open for the third group of astronauts. That was what I was shooting for, and I then applied in the third selection.

WRIGHT: This was a different group of astronauts. Many of them before, or all of them before, had been test pilots, but yet they were asking—

SCHWEICKART: That was a big issue. We'll talk, I'm sure, about what made me decide I wanted to be an astronaut at that point. But let's go to that application. I mean, the big question for me when I came back off active duty and resumed my graduate studies was how was I going to qualify to be an astronaut. Because I had all of the academic credentials that I was going to need, and I was pretty aware of that. But the first two groups had a mandatory requirement of being test pilot, and the question was, how was I going to get to be a test pilot, because I assumed that that would continue.

That was a serious challenge, because as a civilian it's not easy to become a test pilot. It's not something you just can decide to do and easily accomplish. I was debating, do I have to go back in the Air Force in order to somehow pull this off and get into test pilot school, or how am I going to work this? And that was a bit of a quandary, but a number of us at MIT at that time were interested in this, and in particular another guy in the lab with me, a guy named Phil Chapman, and also [Edwin E.] Buzz Aldrin [Jr.], who was in the instrumentation lab at the time

and finishing up his graduate studies, was also interested. So the three of us were actually sort of tracking this and trying to find out what was going on in terms of prerequisites.

Just before the applications were actually announced, or the opening for applications was announced, we found out through the grapevine that the requirement for test pilot was going to be dropped, and all of a sudden that opened up the possibility now, not after I somehow managed to become a test pilot. So that was the thing that really opened the possibility to becoming a reality.

WRIGHT: What was the next step that you found, once you found that out? Were you able to then contact them or did they put an issuance out for people such with the credentials?

SCHWEICKART: Yes, it was really just an announcement that applications would be accepted. I can't remember whether I had to send away for certain forms or whether the information required was spelled out. I can't remember exactly the first step. But the prerequisites were listed, and I now met all of them, although I must admit—and this is not news to key people—but I sort of cheated slightly, in that one of the prerequisites in place of it, you had to be either a test pilot or have 1,000 hours of high-performance jet experience. Well, at the time that I actually filled out the application, I had about 995 hours or something like that, so I said 1,002 hours and sent it off and said goodbye to my wife and I went out to the airport and I flew seven more hours so that by the time they opened the letter, I was an honest person again. [Laughter]

WRIGHT: Glad to hear you redeemed yourself. [Laughter]

SCHWEICKART: That's right. So it was okay. It wasn't the postmark date; it was the day they opened it. [Laughter]

WRIGHT: And you were accepted.

SCHWEICKART: Of course, the selection process, you know, goes for months. I don't know, there were four or five different hurdles in it. Each time I would get the notice that I made that step in the selection, it was an amazing surprise. So that went through to the final step in the selection, which was really the interview processes here at JSC [Johnson Space Center] before, in fact, JSC existed. But here in Houston, let me put it that way, at what was then the Manned Space[craft] Center.

So after that, I think there were 26 of us or something that made it to that point, out of 740 or something who applied, and after that, it dropped down to 13, and I was one of those. So it was a great moment when I received the call from [Donald K.] Deke Slayton, you know, and asking if I was still interested in being an astronaut. I guess that was something—I don't remember the date exactly, but it was either early September—I think it was probably early September of '63, and I was in the quandary at that point, if I didn't make this, did I go on to get my doctorate or did I head off to try and be a test pilot. I basically decided until I heard from NASA, I wasn't going to decide. NASA decided for me by selecting me, and the answer was obviously, "Yes, Deke, I'm still interested."

WRIGHT: And then you came to Houston.

SCHWEICKART: Right. I was very interested in getting down here. You know, when something changes, get on with it. So I was really the first in the group to get down here. I started working in engineering. In fact, we were packing our house the day that JFK [President Kennedy] was assassinated. The moving van was there, and we didn't even have the television connected. The neighbors came running over and said that JFK had just been shot. All the way down, driving with the kids and some household goods down to Texas, and stopping all the way, every day it

was, you know, more about the assassination and Jack Ruby shooting Lee Harvey Oswald. I mean, all of that was just a blur of transition from Cambridge, Massachusetts, down to Houston, Texas.

WRIGHT: That was an interesting route that you had to take through, and then you landed here and your new life began.

SCHWEICKART: Right. Totally new life.

WRIGHT: You adjusted to a completely different culture and climate and became part of the—

SCHWEICKART: Well, it was probably a little more challenging for the rest of the family. Being in the Air Force, I had moved around a bit. Although my wife had, too, and the kids, of course, were coming along and they don't notice those things much anyway. [Laughter] But I was not unaccustomed to moving around at that point, so it was the next place to live. At that age, you go where the opportunity is, as opposed to this age, where I live where I want to live. [Laughter] Find out how to make a living.

WRIGHT: Well, the program was new and the adventures were new. Tell us about some of those days of training and how you learned all there was to learn at the time. Were you helping them to learn more about the space program as well?

SCHWEICKART: Well, given my MIT background and my flying background, in a lot of ways I was better prepared for the training than most of my classmates. A lot of them had as much or more flying experience as I did, but they didn't have the technical background. Some who had a lot of the technical background, like [R. Walter] Walt Cunningham, for example, was a little

more on the science side than the engineering side. Of course, most of the astronaut training is really engineering. It's systems work and mechanics. It's a lot of stuff associated with things like aerodynamics and astronautics, both of which, of course, were my profession. So I was probably, from an academic point of view, better suited to the program than almost anybody else in the group. Perhaps [David R.] Dave Scott, but maybe not.

In any event, the training was very interesting because it was not academic, it was real. I was going to be flying these things, so it's that much more interesting. On the other hand, an awful lot of it was very familiar to me, so it was not a strain in any way to go through the academic portion of the astronaut training. The other things, survival training and all that, I mean, that's all pretty much fun and games.

WRIGHT: And it took you to some different places.

SCHWEICKART: You eat things like iguanas, but other than eating iguanas and things, you know, that's fun. That's physical challenge and it's fun to do.

WRIGHT: And you took some trips, I think, all over the world as part of your training.

SCHWEICKART: Well, as we got more and more moving toward the Apollo Program, we took very seriously the geologic training. The big question, as you recall, in those days was, we're going to end up on the moon with all these craters, and what are they? Are they really impacts from meteorites or are they volcanoes, volcanic craters as a result of thermal activity internal to the moon, or a mix of them? Are we going to be able to tell the difference? So we spent a lot of time in field geology and visiting terrific places. I mean, the Pinacotis [phonetic] area in Mexico, up in Alaska, all over the Western part of the United States and Hawaii, volcano observatory in Hawaii, and traipsing all around the volcanoes there. Iceland.

So we had an excellent graduate-level field geology training course, and it was terrific. I mean, I love that kind of thing anyway, so to me it was like water to a duck. I loved it.

WRIGHT: Were you given specific roles and responsibilities regarding helping with scientific experiments or planning for these excursions?

SCHWEICKART: Once the basic academic sort of training is done, or at least at that time was done, which took about a year, pretty much classwork and some field stuff, then one in the astronaut office in those days would pick up special assignments, technical assignments, as well as sort of doing maintenance level on training and specialized things.

I at first picked up oversight of the Gemini scientific and medical experiments that were assigned to the Gemini Program, and that seemed a natural because of my background at MIT. It was a subject of interest to me anyway. The scientific experiments were, to me, an essential part of the program. I mean, we were not going into space only to just go into space, but to learn as much as we could not only about space, but about the Earth, about solar system. So, to me, the knowledge to be gained by going into space was the real goal. Getting into space was the necessary precursor in order to really accomplish that goal.

So I was quite interested in the scientific experiments. In fact, I was, in an academic way, interested in the medical experiments as well. So I oversaw both of those and the development of them for the Gemini Program, and that put me in an interesting position, because, as you know, there was a fair amount of tension between the astronauts and the doctors, because the astronauts were not just astronauts who would perform experiments, but they were the guinea pigs and the subjects that the doctors had to experiment with, the only guinea pigs that the doctors had at the time, almost the only guinea pigs. [Laughter]

Well, there were a lot of the astronauts who were not nearly as interested in the scientific results as I was, and they had been poked and probed before I had gotten there. As I caught up

with them and being poked and probed, I began to be a little more sympathetic to some of the resistance to what was going on with the medical experiments, and at the same time I was also sympathetic to the science. So I found myself trying to bridge between my group of astronauts and the group of doctors and scientists.

I did a better job bridging with the scientists than I did with the doctors, because the doctors were intrusive. From time to time they got pretty—they would basically be about as intrusive as somebody would let them be, and so I became sort of the front line between people especially like [Virgil I.] Gus Grissom and Al Shepard. In particular, Gus was really pretty short with the doctors. Wally [Walter M. Schirra, Jr.] as well, but Wally had a big enough mouth that he took care of himself. [Laughter] So I tried to bridge that gap and keep peace, at the same time get some things done as much as could be done.

WRIGHT: That had to be a challenging position for you to be almost in the middle.

SCHWEICKART: Yes, it was. Gus, at first—Gus and I came to really love each other and we really liked each other a great deal by the time we got done, which was when he got killed. But at first, Gus saw me as a scientist and as a fink. I mean, I was almost a doctor myself, as far as Gus was concerned. He misunderstood. If I said anything slightly ambiguous, Gus would always bias on the negative side. So Gus almost went out of his way to misunderstand me at first. As a result, there was a lot of early tension there.

Then later on, we were assigned to the same crew. I was assigned to his backup crew on the first Apollo mission, and we got to know each other a lot better. As I said, we came to really appreciate each other a great deal, even though we were two quite different personalities. But we, thank heaven, overcame that early problem.

But it was a tight situation early on, because, as I say, the doctors would basically go as far as until they got this nose rapped. And I can't blame them. Their interest was in getting as

much information as they could, but from time to time it spilled over into filling academic squares and being able to write a learned paper much more than it had to do with in fact learning essential medical information to further the development of space flight and humans in space.

When it started getting over on that side, I got pretty hard myself on the doctors, so I tried to make sure that what was being done had a very clear purpose in terms of space medical research and not just furthering somebody's academic credentials.

WRIGHT: Did this role continue until you were named to a mission?

SCHWEICKART: No. I think I actually—it was perhaps the end of the Gemini Program which did it. I don't remember the timing exactly. But I went from that role to overseeing the guidance and navigation systems for Apollo, in particular the onboard computers and the general G&N, guidance and navigation, development for Apollo.

That took me right back to MIT, who were responsible for the instrumentation lab, what became the Draper Lab at MIT, were the prime contractor, [Minneapolis-] Honeywell [Regulator Company] and AC Spark Plug [Division of General Motors Corp.] at that time in supporting roles, but led by MIT. So that put me right back in very familiar territory and right back into the middle of my academic work as well, engineering work. That was very, very interesting. Of course, through that I came to know much more closely a lot of the other people that eventually I worked very closely with, like [Charles C.] Pete Conrad [Jr.] and [James A.] Jim McDivitt and others. So that was a natural assignment again, and very interesting.

WRIGHT: Were you there when you learned that you were going to be part of the Apollo 9 crew?

SCHWEICKART: I think so, yes. I don't remember. Yes, I had to still be in that role. At some point—and again the timing is not vivid in my mind, but somewhere in that period, Pete Conrad shifted over and took over that responsibility of the guidance and navigation system. I think that was probably when I was—that must have been when I was named to a crew, the first Apollo crew. That was with Grissom, [Edward H.] White [II], and [Roger B.] Chaffee, and McDivitt and Scott and I were assigned to back them up. It may have been at that time that Pete took over. I stayed very closely in touch with it, but I remember Pete did take that responsibility up.

WRIGHT: Your role as the backup crew. How were you involved and what were some of your duties as being the first backup crew for the Apollo Program?

SCHWEICKART: Well, you know, being a backup crew is the same as being a prime crew until very close to the flight, until flight day. But, I mean, there's no difference between you for 95 percent of the training. It's only as you get right down before flight that it's pretty clear that the prime crew's going to fly, unless you can break somebody's leg late in the game. So you and the prime crew are doing the same thing.

When it comes to any final decision, if there's some disagreement, you know, you always end up deferring to the prime crew. But by and large, it's a consensus process. So I was a lunar module pilot, even though we didn't have the lunar module scheduled with the first flight, but, nevertheless, we had the lunar module pilot and Roger Chaffee and I were the prime—I was the backup, he was the prime, lunar module pilots. And again, in Apollo, unlike today, everyone had to be able to do everything because you never knew what was going to happen and everybody had to be able to fly the spacecraft, etc.

So while there was some differentiation particularly in the sort of day-to-day assignments, while you were preparing for the mission in terms of the training, the training was almost flat across the board, not quite, a little bias toward the commander doing the stick and

rudder stuff for the entries and that sort of thing, but everybody did them. So it was not quite level, but it was almost level. I would focus more on the electrical systems and communication systems, and Jim would focus more on the flying systems, and Dave would focus a little more on the telescope and sextant and the navigation systems and that sort of thing. But, again, we all did everything.

In terms of the day-to-day assignments, I hardly remember. I was probably in charge of certain checklists. Who knows.

WRIGHT: And did you feel at some point during this training, of course, with the fire that occurred, that the Apollo Program may be stopped, or did you have confidence that the program would be able to pick up and go again and you'd be able to fulfill your desire to be an astronaut?

SCHWEICKART: Oh, I never had any doubt after the fire that we would pick up and go. I mean, it was a little dicey in terms of what was the congressional reaction going to be, what was the public reaction going to be. But it was really how long was the turbulence going to last more than it was, was it going to somehow terminate the program.

I don't think anybody really thought that it would terminate the program, especially those of us in the program. I mean, with rare or no exception, all of us have had lost friends flying. I mean, I could probably count on two hands, but maybe not, the number of personal friends who had died in aircraft accidents, in flying accidents, and you don't stop flying. So for us that was quite natural. I mean, it's always regrettable and sometimes even inexcusable that people die. Nevertheless, they do. You're not playing Tiddlywinks and you know it.

So for us it was regrettable, but unfortunate. Nevertheless, it was acceptable that occasionally people will die doing this, and they'll die in the future. Accidents happen and you keep going. So that wasn't so much of a question, and I didn't have any doubt that I would fly.

It was just a matter of who long would it take to get things going. But that was a very traumatic time for the program and for a lot of individuals within the program, not to mention families.

Of course, by the time that accident happened now, by that time we were already rescheduled. I mean, it's impossible for us to talk about all of the different scheduling assignments, vehicle assignments. I mean, we had every spacecraft through the first five or six spacecraft, both the command and service module and lunar module. I mean, we went through every variation and combination. I don't think any crew ever had so many different assignments as our crew. By the time the accident happened to Roger and Gus and Ed, our crew was already over on the second mission at the time.

Once everything got straightened around again, we ended up being on the third mission, but that was after Frank Borman moved up on the second mission. You know, it goes on and on. I'm going to leave it to you to handle all that with your oral history of other people. [Laughter] But suffice to say that was a very turbulent time in which I went from backup crew on the first mission to prime crew on the third mission, which is where I ended up flying.

WRIGHT: Of course we all know that you ended up as being the first ever LM pilot. Tell us how that must have felt to be able to fulfill this goal and then get to fly spacecraft that had never been created yet, and now you were going to be part of the whole evolution.

SCHWEICKART: Well, frankly, with the exception of the first lunar landing, I could not and would not pick any other mission. I mean, the first flight of any vehicle is a test pilot's dream. To have the first flight of any airplane is a big thing for test pilots, for those who are watching this, who don't know. [Laughter] Which people might not.

So to be the first lunar module pilot was, to me, terrific. While I would have loved to have flown on Gemini, if you gave me the choice of flying earlier on Gemini or flying the first

lunar module, no question I'd have taken exactly the mission. I'd have bypassed Gemini, as I did, and gone right to the first LEM flight. That was great.

So that was sort of my spacecraft, and while Jim was still the commander and flew the left-hand side, you know, that was my baby. It was a great experience. I spent, of course, as you can imagine, tremendous number of hours up at Bethpage, Long Island, at the Grumman [Aircraft Engineering Corp.] plant, and got to know all the guys there, engineers and everybody, very well. It was a terrific team of people, and it was a very challenging vehicle for Grumman to design and develop.

There were some early mistakes made which they came to recognize and Jim and I helped point out to them, organizations problems. I mean, Grumman started out with the lunar module, with the team that designed it being the team that would test it, and that's a bad formulation. I mean, the logic was that, well, they know most about it, and therefore they can test it. But when you create something, you know, you're biased toward the develop that you made, that you came up with, and it's a bad idea.

So we helped urge Grumman to, in fact, separate and isolate those two teams of people, the design team from the testing and evaluation team. As a result, the first couple of vehicles down the line were pretty bad, and one of the big decisions that we were in the middle of in those days, notwithstanding the tremendous challenge of getting to the moon and back before the end of the decade, which was a very palpable thing, we made the tough decision, along with [Joseph F.] Joe Shea and everybody else who was involved in it, but we made that tough decision of essentially making LM 2 a hangar queen or a museum piece and shifting to LM 3, which was in much better shape.

I mean, Lunar Module 2 coming down the line was just bailing wire and Band-Aids. It was really a pincushion. We just realized that we'd just never get off the ground if we kept trying to put Band-Aids on that. "Let's scrap it and get on with LM 3 and make that the first actual space vehicle," which we did.

There were several technical decisions of that kind that are really tough calls. They cost money. They cost schedule. Both money and schedule were in short supply. I mean, as I said, that Kennedy goal articulated at Rice University back in [19]'62, I guess it was, to put a man on the moon and bring him back to Earth before the end of the decade, was very, very real. Boy, anything that cost a few weeks in the schedule or a few days was just tough. But we made a lot of touch decisions and ended up making the goal.

WRIGHT: Probably one of the tough decisions might have been where they had to switch the mission from Frank Borman's and move it up as Apollo 8, and then, of course, you became Apollo 9. Did that affect you and your crew in any way or were you still confident and able to do what you wanted to do?

SCHWEICKART: Well, it was a very good decision, you know. It was an excellent decision. We were really scheduled for the second mission, but again because of the LM 2 problems, we just kept running into problem after problem after problem in the testing and evaluating of the lunar module. Systems were just giving all kinds of problems, and integrating the systems was really havoc. So the LM kept moving to the right, and, you know, the calendar sits there and the deadline is there.

Frank and I don't even know who all was involved in it, but certainly Frank was a heavy player in that game. He just saw a great opportunity for him to get to be the first guy around the back side of the moon, and Frank was willing to sacrifice flying the lunar module in order to be one of the first people to get around the moon, and he saw some value in terms of proving the navigation and communications capabilities by doing that, as well as the deep space capability and the reentry at high speed into the Earth with the command module.

So Frank had enough material there to put together a good case, and in the end that was a very good decision. It simply relaxed the pressure a little bit on the Grumman team and on

ourselves in trying to really push to get LM 3 ready and off the ground. So that put another mission in the middle and moved us to the third flight, and we forgot all about a second flight and Earth orbit, thank heaven. [Laughter] Who needed that?

So I think it was great, and for us we could care less whether we moved from two to three. We kept the same mission. So it was good.

WRIGHT: And your crew was together for almost three years.

SCHWEICKART: Yes, we were together for a long time.

WRIGHT: Do you remember the first time that you and Jim McDivitt and Dave Scott had a chance to meet and talk about your mission?

SCHWEICKART: No. [Laughter] A non-memorable event.

WRIGHT: I guess that's the good point.

SCHWEICKART: Obviously the first time was when Al Shepard announced who the crews were, and there we were as the backup crew to the first mission. So that was when we became a crew, and obviously we talked about it as soon as the meeting was over. But aside from that, there was nothing in particular. We all knew each other.

WRIGHT: And of course you got to know each other very well over the next three years.
[Laughter]

SCHWEICKART: [Laughter] We got to know each other very well.

WRIGHT: You worked very closely with Jim McDivitt, and of course Dave Scott was working on his effort as well. How often did the three of you come back together to work on simulations? Was that the majority of the training or did you have—

SCHWEICKART: You mean after we were named as crew?

WRIGHT: Yes.

SCHWEICKART: All the time, every day. We had our office together. We moved into the same office. It was eight, ten, twelve hours a day. We would all do our own things, but I doubt, except for when somebody was on a trip on one coast or the other, something like that, if we were all in Houston, we talked every day.

WRIGHT: One of the decisions you made is the naming of your spacecraft. [Schweickart laughs.] Would you share with us the details on how that came about?

SCHWEICKART: Well, you know, you've got oral history from other people as well, but just to refresh a few memories in case they watch this one and not those, the naming of spacecraft was part and parcel of the program, and public relations and everything else, public image from the time the program started. Of course, on Mercury, everything got off on a big patriotic kick with *Friendship 7* and *Freedom 7* and everything 7, you know. And I guess Gus' spacecraft was the *Liberty Bell 7*, if I remember.

So when it came to the Gemini spacecraft, the same thing prevailed, and Gus, being the first up with Gemini III, named it the *Molly Brown*. And he named it the *Molly Brown* for somewhat obvious reasons, when he realized that the Liberty Bell sank, and, of course, the

Unsinkable Molly Brown, etc., etc., etc. It was cute, and everybody appreciated it, but there were probably some raised eyebrows, naming it the *Molly Brown*. Well, Gus was a fairly stubborn character, and so he insisted on it being named the *Molly Brown*, and that worked until, I guess, Gus ended up with an illicit sandwich in space on Gemini III, and after that, the edict came down from NASA headquarters that there would be no more names for spacecraft, that things would be Gemini and GT [Gemini-Titan]—what was T? I can't even remember what T was. But at any rate, everything after that was names and numbers. So it came Gemini IV, Gemini V, VI, and VII, Gemini 67 for the combined mission, etc., etc. And everything was numbers.

Well, here we are coming along with Apollo, and, of course, the first Apollo mission, forgetting the fire, etc., became Apollo 7 with Wally and Donn [F.] Eisele and Walt Cunningham, and then Apollo 8, of course, went out around the moon with Frank Borman, [James A.] Jim Lovell [Jr.], and [William A.] Bill Anders. And then came Apollo 9. Fine. So the logic was, well, we're Apollo 9. But now we've got two spacecraft, so when we're separated, what are we? And talking to each other, are we Apollo 9 Alpha and Apollo 9 Bravo, or whatever? And then when I go outside on EVA [extravehicular activity], I'm sort of a third spacecraft because now we're communicating over the radio with three different things. So what am I, you know? Or am I just Rusty or what am I?

So at any rate, at one point McDivitt and I—I don't think Dave was there. I can't remember. At any rate, it was at the Fireside, which was a place in Downey, California, where we used to eat dinner and have drinks once in a while. We were sitting at the bar at the Fireside and we had a little discussion about this, and we decided we're going to start calling each other names. So we became—and we figured we can't make it anything humorous. It's got to be something very obvious, bland, that nobody can complain about, you know. [Laughter] But we needed to have call signs so that there wasn't going to be any ambiguity, you know. Did

somebody mishear a call from the ground and get the wrong suffix and do something wrong? We wanted clear and distinct names.

So we decided, and especially at that time because you'd look at the command module on the factory floor and it had a thin blue coating on it over the heat shield, and it looked like a gumdrop. Well, how can you complain about gumdrops? So it became *Gumdrop*. Of course, when you look at that thing over my shoulder here, I mean, what else does it look like but a spider? So, *Gumdrop* and *Spider*, you know. Now, can anybody complain about *Gumdrop*? Well, we didn't ask anybody; we just started using it in the simulations, you know. As we got closer and closer to flight, Mission Control started using it. Then when I went outside, logical, right? Red Rover, because I had to cross over from one spacecraft to another. So, "Red Rover, Red Rover, come over," right? So it became Red Rover, *Gumdrop*, and *Spider*. We didn't ask anybody. We didn't tell anybody. We just started doing it, and it stuck. And from then on in Apollo, the names came back in. So that's the story of naming spacecraft. [Laughter]

WRIGHT: And a good one. You had trained and you had worked so closely together for so long, and the day the launch finally came. Then it was delayed because you had colds?

SCHWEICKART: Well, we really didn't, but I guess our throats were a little redder than normal, and there was some concern in the doctors that we might have developed colds. We didn't, so we flew a little later, but it put us on March 3rd instead of February 28th or whatever the original date was. And kept a lot of our friends and neighbors and families down at the Cape for an extended vacation to watch the launch. [Laughter]

WRIGHT: It all went fine and you were up, and your mission that you'd been long waiting for had finally arrived.

SCHWEICKART: Right. Big day finally came. Your main emotion, at least for me, was, "At last." You go through so many simulations and so much training, and you're sitting on top of that spacecraft so many times. It seems like it's just never going to happen, and especially in our case because we were a crew for so long, and, you know, with the fire and everything else, just on and on and on, it just seemed like we were never going to fly.

Then here it was, finally the day there is and you're going to fly. But by that time you're very used to it. What's new, of course, is, in the end, weightlessness, but instead of just the noise, now you're getting the vibration and that kind of thing. But, you know, during the countdown, people don't understand it, but you doze off during the countdown. You're laying there, got up early anyway, somebody's talking to somebody else, and you're just laying there with the soft "woosh" of the air and the suit coming over you. [Snores] [Laughter] So you doze off, you know, and people think you're crazy. "How can you sleep when you're about to be thrown into space?" You sleep.

But at any rate, it was basically an uneventful watch. In fact, it was uneventful.

WRIGHT: The best kind.

SCHWEICKART: Everything went perfectly normal, except for one thing. Except for one thing. That's right. Dave and I, I mean, we were all very aware of the possibility of having to get out of that spacecraft real fast on the pad before launch, in case something went wrong, any kind of a fire or an emergency. You know, you practice a lot, but your life could depend upon getting out that spacecraft hatch, which means you've got a lot of things to throw, switches and pump the handle and you've got a lot of things that you've got to do real fast if that happens.

So after Guenter Wendt tightened us in the spacecraft and tightened the shoulder harnesses and really strapped us in so that we could not even move—and first of all, you can't have your freedom of motion. With Dave sitting here and Jim next to him, Dave and I had to

make a choice. Was my left arm under his right arm, or was my left arm over his right arm? And from time to time we'd sort of switch because I had something to do or he had something to do. We couldn't get those three suits and those three bodies together in those seats side by side and still have full freedom of motion.

So as soon as the hatch got closed and locked and Guenter stopped looking through the window, Dave and I loosened up our shoulder harnesses a little bit. I mean, not a lot, but we loosened them a little so that we could move around a little more easily and also give us a little more flexibility in case we had to get out of there.

So during the launch, as I say, everything was perfectly normal, but at the end of the first stage, when the first stage cuts off, it cuts off very sharply. You go from almost 7 million pounds of thrust to zero in about a millisecond. Well, when the engines cut off like that and that compression on the launch vehicle suddenly stops, it expands. Of course, when it expands, the front end goes forward, and it threw Dave and I up toward—threw all three of us—up toward the instrument panel, but Dave and I had our shoulder harnesses loose, so we went like that right up, and our helmets stopped probably an inch from the instrument panel. I remember both of us sort of looked over at each other and went, "Whew. We'd better tell the next guys not to do that." [Laughter] McDivitt kind of looked over at us like, "What are you guys doing?" So that was about the only notable thing on the launch. Everything else was perfectly normal wild launch.

WRIGHT: Those uneventful ones were the best.

SCHWEICKART: Right. Then we had a little confusion after immediately in orbit. Jim and Dave traded places because Dave had more docking experience and would be responsible for the docking, and so Dave slipped over into the left-hand couch. When we separated from the lunar module and turned around to dock with the top of the lunar module, things were not right.

Valves had closed that were supposed to be open, and we noticed that because the spacecraft wasn't moving correctly. I said that we traded places. I can't remember. It may be that Jim stayed in the left seat. I can't remember which occurred.

But in any case, we noticed, as we were trying to dock with the top of the lunar module, that the spacecraft wasn't behaving properly, and then we noticed there were some fuel valves that were closed, propellant valves that were closed. That had happened apparently due to the shock of separating from the thing. But as soon as we recognized that and got them back open again, everything went fine. With, I think, one other exception, these were the only incidents in our whole mission that were off nominal.

WRIGHT: On the fourth day, you performed with Dave Scott a two-man EVA.

SCHWEICKART: Yes. Oh, yes. Well, there were some other nonmechanical things that went wrong, like me. [Laughter]

WRIGHT: Would you like to share with us what you're talking about?

SCHWEICKART: Sure. The first two days were really checking out the command and service module and, in particular, the docked combination with the lunar module. This was the first time that there had ever been two spacecraft docked together, maneuvering in space. There were obviously structural questions or, let me say, structural design characteristics to be demonstrated and proven in terms of the flexibility or the rigidity of the tunnel and docking latches and all sorts of stress and strain kinds of questions and dynamics as you start maneuvering. The command and service module, you know, what are the dynamics on the lunar module. So there were a lot of things, engineering tests that we were doing, both just

during coasting flight and also during short burns with the service module engine, the SPS [service propulsion system].

A lot of that was going on in the first two days. I was basically strapped into the right-hand couch and reading checklists and taking pictures and that sort of thing. The lunar module was not going to be activated until the third day. I knew while Frank Borman had been very uncooperative and had never gone through any medical tests, and even denied at first that he'd gotten sick in space on Apollo 8, it was well known in the astronaut corps that Frank had barfed more than once, but he essentially refused to take any tests and blamed it on Seconal and all kinds of stuff, which is pure B.S.

But as a result of that, we all became a little more heightened toward it. Although the Russians had had a fairly strong record that people would get sick in space, up until Apollo 8 we had actually not experienced it. Our spacecraft were smaller, we're much more restricted, and on Apollo 7 no one reported any problem. But on Apollo 8, Frank had gotten sick, but for all kinds of reasons which are Frank's, he wouldn't really come forward with it. He didn't do any tests afterward.

So we didn't know a lot about it, but I was fairly cautious because I would get sick on the zero-G airplane, our affectionately dubbed Vomit Comet, which I'm sure you've heard about before. After successive parabolas, it's a very sickening experience and a challenging one for motion disturbance. So I knew from that and from a few episodes of seasickness that I was susceptible to motion sickness. So my whole modus operandi, my prophylactic activity there, was to keep my head as still as possible and not to move around a lot. I figured, great. And it's well known that that's a way to avoid motion sickness if you're sensitive to it. Not having much to do physically on the first two days of the flight, of the mission, I had that option, so, great.

What we didn't know, partly because Frank wasn't willing to take any tests, was that what you do by doing that is simply delay adaptation. You don't adapt by doing nothing; you avoid sickness. And if you can come down and get out of the motion environment, that's fine,

but if you're going to adapt to that environment, then that's not a very smart thing to do, because what you're doing is delaying your adaptation process.

Well, of course, we didn't know that, so then on the third day of the mission, when it's time for me to go into action, that's really the first time when I'm moving around, and the first thing I've got to do is get into the space suit early in the morning. Getting into the space suit is a real contortionist challenge. So I got into the space suit, in which you have to double over. I mean, it's very interesting. I used to love to do it, and I could get into the suit as well as anybody or better than almost all people because I was also doing some of the early suit work.

So I was pretty good at getting in and out of the suit by myself, but it's still tough, and you're ducking down, you're moving around with your head a lot. You're in a confined space. So when I came up and sort of popped my head through the suit and stood up and started zipping up the suit, I was not feeling too well. This was early in the morning before getting ready to go into the lunar module. I sort of slowed down to try and take it easy, but once that process of malaise starts going, you know, it kind of has a natural dynamic. So suddenly I had to barf, and I'm grabbing for a bag, barfed in the bag, and, I mean, that's not a good feeling. But, of course, you feel better after you barf, like anytime you get motion sickness, you feel better after it, but you don't like to do it. Of course, that was sort of a warning shot. I mean, you know, ooh, we got a problem here? And that's my silent question and it's Dave's and Jim's as well.

So then I go over into the lunar module, and that's also a challenge, because now you're going from an environment that you're used to in the command module where that's up, now you go over into the lunar module. Well, in the lunar module, you're used to that being up. But now they're 180 degrees. So you're used to being up, and when you go over there, it's down. So you're having to change axes and do all kinds of stuff.

So when I went over there to activate the lunar module, I was moving very slowly and deliberately and using my eyes a lot, and trying to keep my head from moving, because I sure as

heck didn't want to get sick again. That worked out. After I got things turned on, then McDivitt came over and we started working together. We're slowly moving toward the afternoon activities, and at one point we're both busy. I mean, there's no slack time in space flight. I shouldn't that. That's a generality. Let me just say in those days it was no slack time. But at the same time you're sort of doing your piece of the checklist and the other guy's doing his piece.

I got down to the point where there was something we had to do together, and Jim was a little behind where I was in the checklist at that point, so for the first time, sort of mid afternoon, I've basically got nothing to do. So, great. I'm just going to relax. Well, as soon as I relaxed, all of a sudden—I was not feeling great, but I wasn't feeling bad, but as soon as there was nothing to do and your mind is not occupied, this is a very interesting thing. You can talk to doctors. It's a thing called a reticular formation, blah, blah, blah. I won't get technical. But when your mind is suddenly—priorities are gone, then what happens is that malaise gets the top priority in your brain.

Well, all of a sudden I had to barf again, so then twice, for the second time that day, I'm grabbing for a bag and I barf. Again, after it's over you feel better, but now I've barfed twice and, of course, we're all very aware of that. Even though I'm feeling better immediately after I barfed, I'm still not feeling great.

So we get everything done. There was nothing wrong with getting—it didn't delay us at all, but we got everything done, but we got back in the spacecraft and now the question is, you know, the next day I've got to go EVA, or scheduled to go EVA. Well, barfing in space is no fun. Barfing anywhere is no fun, but barfing in space is different. It's not terribly different if you're sitting here like you and I, because you barf into a bag and you kind of [motions]. Pardon me for being graphic. But when you're in a space suit, you don't have that option. You've got the helmet on, you're locked in the space suit, your hands are out at the end of these gloves. You can't pull them in to do something here.

So if you barf in weightlessness in a space suit, you die. I mean, it's that simple, because you can't get that sticky stuff away from your mouth. It doesn't go down into the suit; it just floats right there and you have no way of getting it away from your nose or your mouth so that you can breathe, and you are going to die. So being aware of that, although we'd never talk about it, but, I mean, it's an obvious thing, you know, and I'm not feeling that great, Jim decides—we're talking about it, but Jim decides, "Well, we'll cancel the actual EVA tomorrow. We'll go right up to the point of depressurizing the hatch."

I can still have the helmet on, do all the checkout on the portable life support system, the whole thing. "But when it comes time to actually depressurize the lunar module, we'll simulate depressurizing, assume that you've been outside, you've come back in, and we've just repressurized. Then we'll pick up all of the checklists and everything from there. So we'll get all the tests and checkout and all the procedures and make sure every—we'll get as much done as we possibly can, but we're not actually going to do the EVA."

We all agree. I mean, we decide this among us. Jim's memory of how it was decided may be better than mine, but between us we decide this. Well, then it's time to go to sleep and get ready for the next day, store everything. And again I'm still not feeling very well. Of course, now I've just been the cause of not doing the EVA, which means that the portable life support system really isn't checked out the way it was supposed to be checked out, so it's not really ready for the lunar surface missions, and are we going to run into some problems?

This is already March of 1969. That end of the decade, I mean, is coming right up. Am I going to get so sick that we have to—am I going to remain sick, or are we going to have to actually abort the mission and the whole rest of the mission, in fact? Are we not going to be able to do the rendezvous? Is this basically a wasted mission because Schweickart's barfing? I mean, that's all going through my mind as I'm trying to go to sleep that night. That's about the lowest point in my life, till today. [Laughter]

I mean, I've had a lot of low points, you know, as well as a lot of high points, but, I mean, that was probably the low point that you could experience. I mean, I had a real possibility in my mind at the time of being *the* cause of missing Kennedy's challenge of going to the moon and back by the end of the decade. So getting to sleep is never an easy task in space, but it was particularly difficult that night.

We decided, because we were also going to bed late, just because of busyness, that we would sleep for an extra—since I was not going to go EVA, we were not going to go EVA the next day, we'd just lop off an hour out of it and say, okay, let's sleep for an extra hour, at least get some rest. So we slept. The ground didn't wake us up until an hour later than we were supposed to get up for the normal mission.

Well, the next morning I felt a lot better, and we were going over in the lunar module and getting ready for doing what we decided to do, started getting everything ready and moving around and checking this out and that out and the other thing. And I'm feeling considerably better. So somewhere maybe an hour before we were scheduled for the EVA, at that point Jim looks at me and I'm looking at Jim, and we're obviously thinking the same thing. He says, "You know, you're looking a lot better today. How are you feeling?"

I said, "I'm feeling a lot better."

He said, "It looks like it." So we kind of looked at each other and said, "Well, let's just keep going and we'll see what happens."

So we go through probably another forty-five minutes, maybe half an hour before the scheduled EVA, fifteen, twenty minutes before it, and nothing's changing because we're doing everything as if I'm going out anyway. So somewhere down there, fifteen to thirty minutes or something like that in the records, we look at each other again and Jim says, "How are you feeling?"

I said, "I'm feeling real good."

He says, "You think you're okay?"

I said, "I think it's fine."

And he looked at me. We knew each other well enough, and he said, "Okay, let's do it."

"Right."

Jim calls the ground, says, "We're going out on EVA." Surprised them. [Laughter]

"Right." Off we go. And so from low to high. As you can imagine, that EVA was more than just a normal EVA. I mean, that was just in twelve hours going from as low as I've ever been to about as high as I've ever been.

WRIGHT: Is there any way that you can describe for us how you felt being actually truly out in space?

SCHWEICKART: Well, I mean, it sort of peripherally relates to what I've just been saying, but, I mean, the main thing during the EVA itself, first of all, we really had originally planned—I can't remember. It was about two hours, I think, for the EVA was originally planned, because I would get out—we got out at the same place, I think. I can't remember exactly. But at any rate, we ended up only being able to have about one daylight pass, forty-seven minutes outside, in order not to just have our late wake-up and everything else propagate into following days, you know, and really start screwing things up. So we just shortened the EVA to just a daylight pass. So it took it from almost an hour and a half or two hours down to forty-five, forty-seven minutes.

But there was no question we could get everything done, because there wasn't all that much that had to be done. We knew that the tasks could be done. So we retrieved the thermal samples. Dave and I were taking pictures of each other and things of that kind. Then the main task was to go up the front of the lunar module, this handrail, which is right there, left hand to right handed. That handrail goes up the front of the lunar module and then it goes back over the top, then up to the command module.

The main task in the EVA was to traverse up that handrail and over to the command module to the open hatch there where Dave Scott was taking movies of me doing that. The question was, was the combination of the suit and arm strength and the hand rail good enough to maintain your body position so that you wouldn't sort of flop around if you had to make that traverse externally and run the risk of damaging the spacecraft or puncturing the suit on that antenna that's up there, and things of that kind.

So it was a mechanical task, and Dave was supposed to take movies of it so that we would document the stability of being able to do this. Well, I got up to about here on the hand rail. I mean, literally I just took my feet out of the golden slippers down here and started up the hand rail, and I got three feet up the hand rail and Dave said, "Oop, the camera jammed."

And so I stopped, and Jim said, "What's going on?"

And Dave said, "Well, the movie camera just jammed. Let me see if I can unjam it."

Well, we all knew enough about that camera to know what Dave had to go through, so Jim said, "Okay, Dave, you got five minutes. Rusty, don't go anywhere. Just stay right there." [Laughter] "Yes, sir."

So I stayed right there, except what I did was I just let go with my right hand, which was on top, and I just spun myself around with my left hand. I mean, what I knew immediately was I don't have anything to do for five minutes. Well, you know, I could have gone through, in my mind, the checklist or, you know, I knew that that was my chance to just say, "Hey, this is my opportunity to really appreciate, to really be here in space, just where I am."

So I just swung around while Dave was messing around with the camera, which he never did get fixed. I just spun around and I looked at the Earth, and I just said, "My job right now is to just be a human being, just be a person." And I just stopped being an astronaut. There I was, a human being in space, saying, "Absorb this. Just soak this up. Just let it all come in." No defenses, just ultimately vulnerability. And I just became a human being in space, looking at this beautiful planet. The sun was over my shoulder. Basically the full Earth, the lunar

module's over here now, you know, so I'm just looking out at the Earth. That was really the high point.

The transition from the night before to that probably had a pretty dramatic effect. It was subconscious. It certainly wasn't a conscious effect. But all of a sudden, you know, all of these questions, it's like, how did I get here? Look where I am. How did I get here? I wasn't looking for answers. I wasn't even looking for questions. I was just looking to absorb it. But, you know, my mind started—these questions just started coming in, you know. It wasn't that obvious question of how did I get here. Yes, Saturn V brought me here. Right? I mean, that's not the answer. It wasn't even NASA, you know.

Again, I'm not answering this at the time, but even without trying to think of it, you know, it's immediately obvious, you know, I'm here—this is a history thing. This is because humankind has gotten to this point where we develop these systems which enable us to live in environments which otherwise are unavailable to us. This is not just the American taxpayer; this is the history of humanity. This is everybody on the planet, and I'm just a representative. I mean, I'm here because of all of history, because of all those people down there, because of science and technology and our animal tendencies to marry ourselves with machines, to extend our capability and survivability, all of that. I mean, it was this huge philosophical big hit.

Of course, right behind it, what do I mean when I say "Who am I? How did I get here? What does 'I' mean? I'm not here; we're here." I'm a farm kid from New Jersey. Any decision, millions of decisions which you make in your life, you know, put your hand here, take it up, scratch your nose, anything that you did for years ahead, that you did different, you wouldn't be there. I mean, there are just a million things that happen, any one of which you wouldn't be there. I'm here because I'm lucky. I mean, I'm just fortunate. Yeah, I work, all the things, but, you know, you don't get there because you want to be there only. You're there—it's just fortune. I was born at the right time, went to the right school, by chance. I mean, all those things.

So that five minutes was a very special five minutes. I didn't talk about it until years after the flight. I mean, some of the guys here, we talk about this now, you'd think I invented it or something. [Laughter] But it's just one of those things that was very private. But that five minutes was a very, very special time because that took me from—I'd always been interested in philosophy. I always realized academically the implications of space exploration and going into space, but it didn't become a part of me.

It didn't really get personalized until that five-minute experience. That enabled me to really see for the first time the implications of what going into space really means. History had a turning point. It wasn't me on Apollo 9. That's not what I'm saying. But this moment in history, the initial days of space exploration, there is before when we're confined to the planet, and all evolution, everything about us, is planet-bound, gravity-driven, gravity-constrained, and after the space program when we're off to other planets, we're off to other worlds, different atmospheres, different gravity, weightlessness, people, kids being born in weightlessness. Who knows what is coming? But that is a change in history, and we're fortunate enough to live at that moment.

While I didn't articulate it at all at that time, it took years of sort of letting that ferment and bubble before I could articulate it, but that happened because of that five minutes. And maybe because I barfed the day before. Who knows. [Laughter] I guess it's the blessings of barf.

WRIGHT: It's all connected, right?

SCHWEICKART: You can't separate these things. [Laughter]

WRIGHT: Eventually you went back into the spacecraft, and, of course, the next day was the day that—

SCHWEICKART: Rendezvous, yes. Right. And that was a big moment in the flight and from the outside seemed to be hairy, I mean, really daring, but for us it was another day at the shop. I mean, we'd practiced that, we'd simulated that rendezvous and docking and separating and doing all those maneuvers and everything else. The fact that we were away from our heat shield, you know, 100 miles, I mean, it didn't mean much to us. It was there, we could talk about it, we mentioned it in press conferences and things like that, but, you know, in terms of something conscious in your mind, it was just part of—it was getting on the freeway and going five miles and taking the exit to Genoa Road or something, you know.

I mean, it isn't that you pooh-pooh it, it's just that you bought into that years ago. You've trained, you've worked, you've developed all the procedures, you've tested the systems, you've helped build the systems, you've designed the procedures. You know, there it is and it worked just that way.

In fact, the most impressive thing during the rendezvous was we're coming back in to rendezvous with Dave, you know, and in the simulator it's like a one-arm paper hanger. You're doing this and procedures and everything's going and you're working your little buns off, and in space, on the flight, we're sort of, "Well, I don't have to do that for the next five minutes." You're sort of standing there, and Jim and I are looking at each other. It's like, "Why do we have so much time?" Well, the reason we have so much time is because in all the simulations, the guys out there on the console, on the control console, are throwing errors at you, they're throwing failures, this gyro fails or that fails or the radar is acting up, all kinds of stuff. Nothing's going wrong, you know, so you've got all this time. It was beautiful. It was great.

We had a number of surprises. In the lunar module you have the two engines, the descent engine down at the bottom, and then the ascent engine that was buried right in the middle of it, at the bottom of the ascent stage. But all you had to do was reach around behind you, and you could lay your hand on the top of that engine bell. It had a cam over it, but there's

that rocket engine is literally sitting right there. You just reach around and there it is. So Jim and I, when we lit off the—when we knew we were going to be lighting off the ascent engine to test that during the rendezvous, we figured we're not going to be able to hear each other. So if anything is going wrong, we worked out a whole bunch of hand signals that would allow us to communicate in case something went wrong during that ascent-engine burn.

So we count down, three, two, one, ignition, light off the ascent engine, and there's no noise, no noise at all. Jim and I are, "What's going on?" You know. And, no, nothing's wrong. We had to look at the instrument to see that the acceleration was up, so we knew the engine was working, but it didn't make any noise at all. So that was a great pleasant surprise that there wasn't any acoustic coupling there. It shut off and just kept going. But, you know, pleasant surprises like that.

The only thing that really was different was when we first undocked, and there the probe pushes the two vehicles apart. Dave had to throw a switch in the command module to extend and release the lunar module. As Dave did a hundred times in the simulator, he reached up and hit the switch and let it go, and the probe extended. Sure enough, we start moving away, and all of a sudden there's this "Bonk!" I didn't know what it was. I said, "What's that?" And Jim is looking out the top window, and he saw that we stopped. He said, "We stopped." So we're looking at each other and said, "It extended, but it didn't release us. It held us. The little latch has kept us connected." Jim and I are thinking, "Well, maybe we should tell Dave to retract and then we'll talk to the ground and see what they recommend."

About that time, Dave, in his own mind, says, "Well, the latches didn't release. Maybe I'll hit the switch again." So he reaches up and hits the switch, and while Jim and I are trying to figure out what's going on, the switches release and we go drifting off the front of the command module. So Jim and I look at each other and figure, "Well, thanks, Dave." [Laughter] We would have appreciated some engineering input on that one, but now we're off, so we'll find out when we get back whether we did any damage. [Laughter]

Of course, it didn't do any damage. Everything was fine. It turned out that that was an error in the simulator. That's one of the few things we found where the simulator was different. You could just hit the switch and let it go and the whole thing would happen. It turned out, you had to hit the switch and hold it until it actually got past the latches and then release it. But those are the little things, you know, that you learn.

WRIGHT: That was one of the reasons it was important to do your mission.

SCHWEICKART: At any rate, other than that, everything, the whole mission went perfectly nominal. We had very few problems. We learned a lot. But we didn't find any real problems to speak of, which is great.

WRIGHT: And it proved a success and, of course, led the way to lunar landing. Your crew, of course, stayed together for a little while after you landed. You had some responsibilities as a crew, doing public appearances. Then you moved on to another task with NASA. Where did it go? Where did you move on to?

SCHWEICKART: You know, the logic would have been for me to rotate from Apollo 9 primary crew to backup on Apollo 12, three missions later. That would have been the normal rotation, but when I came back from flight, part of the question in my mind, even though after the third day, after that one day when I barfed twice, everything was fine after that, there was a question, well, would it be fine on the next mission? Again, aside from Frank Borman, who never would take any tests or anything, I was still at that point the only American astronaut who had ever barfed in space. So the question in my mind is not do other people suffer from this, too, but if I fly again, am I going to risk a lunar landing? Do I risk not only having somehow to abort a mission to the moon because I'm sick, but do I risk physically my crewmates, etc.?

So I really didn't know the answer to that, and I, frankly, wasn't confident one way or the other. I figured part of my job at that point was to help NASA to learn as much as possible about motion sickness. So I did the opposite of Frank; I became motion sickness guinea pig. I took every test. I went over to Pensacola [Florida], which was where spinning rooms are and all kinds of stuff, and worked with Dr. Esgraybil [phonetic] and other people. I mean, I became the guinea pig, the poking, the pincushion that people stuffed their pins in and their probes in and whatnot. For probably, I don't know, I don't remember anymore, six months, something like that, I became, aside from public appearances and things of that kind, my main job was learning as much as we could learn about motion sickness.

And I hate to tell you, and the doctors will probably disagree with me because they always think they learn something, but, frankly, we didn't learn that much and we don't know that much about it today, to be honest with you. Now we accept it, because so many more people have gotten sick. Almost 50 percent of the people who go into space get sick. Well, at that time I was one of about fifteen or sixteen, something like that, at that time, so we didn't know that. Now we don't think that much of it. I clearly would have adapted. Knowing what we know about it, I would have adapted and I wouldn't have risked. But by that time, you know, the Apollo 12 backup crew had been selected, so I missed out on that rotation.

Then Al Shepard, for whatever reason, instead of putting me back on Apollo, put me on to Skylab. Well, I, frankly, would have preferred landing on the moon, but, you know, I wasn't one of Al's boys, and Al had his own agenda of who went where and whatnot. So I cycled into Skylab at the time. And I could hardly complain, because I'm the one who basically called the shot that I really didn't want to be assigned to a flight until we knew more about motion sickness.

So I sort of took myself out of the rotation in order for us to learn as much as we could, but that was never appreciated. I mean, motion sickness is something that weenies suffer. Wimps suffer motion sickness, not real men. I mean, there was that macho aspect of it that was

present in those days, much less the case now, but in those days, that was a component of it. This is "Right Stuff" days, you know.

So since I'm the one that did that, you know, I just got reassigned when I decided I was ready to fly. I got reassigned to Skylab and went on to back up Pete Conrad on the first Skylab mission. We can talk more about that, but I'm going to let you lead this.

WRIGHT: Well, we're getting close to having to close our session today, so we will take up with Skylab and we will do it when you've got more time to provide us details.

SCHWEICKART: Okay.

WRIGHT: But looking back on your time with the Apollo Program, is there a time that you would specify as possibly your most challenging time or a time that you feel that you contributed to the space program that nobody else could have done?

SCHWEICKART: Well, you know, that's a tough question to ask anybody with an ego of any kind. I mean, I may not have a big one, but I've got one.

WRIGHT: Well, each mission had its own successes, and, of course—

SCHWEICKART: For me personally, there's certainly no question what the highlight was in terms of my personal reward. That was the EVA on Apollo 9, again partly because of the sequence of circumstances, etc.

In terms of my contribution to the program, I don't know. I like to think that I did a little bit of bridging between the science objectives and still at the same time respecting and supporting the operational objectives, and brought those two a little closer together. I mean,

there was a real schism in those early days, and because of my background, my education, and the rest of it, I naturally sat across those two and I had great respect for both sides, and tried to bring people together. To some extent I was able to do that, but I don't think that there's no great credit, because, frankly, aside from people on the inside, I don't think there was much recognition that that existed.

There's certainly no one decision I made or thing that I did. In something like Apollo, and people have heard it, the press has heard it time and time and time again, every crew says it when they come back from flight, you know, that this has really been a team effort, that it takes everybody to make this thing work. The astronauts may end up being the personification of it and they may get the glory. We don't necessarily even want it. You kind of have to learn to live with it, and some people do well with that and some don't. Some make a lifetime of it. [Laughter] And some try to ignore it.

But it is a team effort, and, you know, I can hardly point to a decision that I made by myself or that anybody else made by himself—"him" in those days. You live so close together, everybody's living the experience and you're working on this huge thing together, so all of these things are a team decision, and even though you end up with strong positions on something, you're almost never alone. You end up getting people on your side. So there's great debate about all the decisions that had to be made in those days, and it was a tremendous engineering and financial and every kind of a challenge. And we did it. So it's a great thing to have lived through and contributed to, but I'd be hard pressed to say I did that.

WRIGHT: Well, all of your personal sacrifices and your courage may have become one day in the shop to you, but as we review history, we see that there was a lot of courageous moves and a lot of personal sacrifices to accomplish. We've enjoyed hearing those today, and we look forward to visiting with you again.

SCHWEICKART: Okay.

WRIGHT: So we can pick up with your—

SCHWEICKART: There's lots more to come.

WRIGHT: —next part of your career with NASA.

SCHWEICKART: Sorry I'm so long-winded. [Laughter]

WRIGHT: No, we've enjoyed every moment of it and look forward to the next session. So, thank you.

SCHWEICKART: You're welcome.

[End of Interview]