NASA JOHNSON SPACE CENTER ORAL HISTORY PROJECT
ORAL HISTORY TRANSCRIPT

EDWARD G. GIBSON
INTERVIEWED BY CAROL BUTLER
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BUTLER: Today is December 1, 2000. This oral history with Dr. Ed Gibson is being conducted for the Johnson Space Center Oral History Project at the JSC studio in Houston, Texas. Carol Butler is the interviewer.

Thank you very much for joining us today.

GIBSON: Thank you, Carol.

BUTLER: To begin with, if maybe you could tell us a little bit about your background and how you became interested in science and first went into engineering and then became interested in physics and—

GIBSON: Sure. I started out being president of my first-grade class two years in a row. I was not a good student. They kept me around, not because they liked me. So the one thing that I did enjoy was science and astronomy. I used to draw pictures of the solar system and so forth. That was the only thing when I was young that I ever did was academic at all.

When I got into high school, I improved my performance a little bit, but still was oriented all toward science and math, to some degree, even, though I finally learned I had to study. I barely got into college. University of Rochester [New York] accepted me. Cornell [University, Ithaca, New York] did not. Four years later, Cornell was willing to give me a

fellowship to come back for graduate studies. I thought that was interesting. University of Rochester really, which is where I grew up scientifically, and they presented great opportunity for me, and I'm forever in debt to those people that they first took me in, and then the quality of the education that I got there.

I got into engineering because my father ran a marking devices company. He made rubber stamps, steel dies, and stencils, and those kinds of things, and he wanted me to go into business with him. He thought that if I'd learned the engineering side, I could always get the business side later. So for lack of any real course direction in my life, I went into engineering. Once I got into it, I found I really like the basic science more. I like physics, and then I combined that interest in physics with my interest in astronomy, got interested in rocketry and space travel.

I had always hoped to go into the Air Force and fly jet airplanes, but I once had a disease called osteomyelitis and that was a disqualification at that time for being a pilot. So I thought, well, if I can't fly them, maybe I can go build them. So much to my father's regret, I did not go into his business, and I went off to graduate school at Caltech [California Institute of Technology, Pasadena, California] with a National Science Foundation fellowship. Had I to do over again, I probably would have gone straight into physics, because I really loved it, and to this day it's a real passion. But to really be good at it, you've really got to get that sound background in physics and mathematics to make some real headway in it.

So then I went through Caltech, a big struggle to do that. My wife helped me out quite a bit and she worked. She got a Ph.T., a Put Husband Through, and after five years I got a Ph.D. Never would have anticipated that, because your self-image changes over time. I was the youngest of three, and the two older ones were A students, and I was the dunce. So

it was tough to get that self-image to change, and it was only after five years of struggling and all of a sudden realizing that if you work hard enough at anything, you can do well at it. Maybe opera singing perhaps not, but most things.

BUTLER: Well, even opera singing, it takes a talent to be able to work hard, and you obviously had that talent in the science side of things.

GIBSON: Yes, I was lucky. The gray cells worked in that area. They didn't work in the language area very well. I like to say English is my second language and I don't have a first.

BUTLER: Well, your first maybe is physics.

GIBSON: Yes, maybe so.

BUTLER: And I'm sure that even though at the time your father may have regretted that you didn't go into his business, I'm sure he ended up later on being happy with—

GIBSON: Yes, he was. He was. He was rather proud when it was all said and done. So I felt perhaps I came back around and brought a little cheer into his life as a result of getting into the space program.

BUTLER: It certainly would be something for a father to be proud of in his son.

GIBSON: Yes. Yes, he was always supportive of me in everything I did.

BUTLER: That's good.

GIBSON: That was good.

BUTLER: It helps a lot.

GIBSON: It does. It really does. It makes all the difference in the world. If you have a wife and parents that support you, then that's all the difference in the world.

BUTLER: You said you had been interested in astronomy and in the solar system. Had you followed much of what was going on in the space program while you were studying and in school?

GIBSON: Yes, I was a graduate student at the time that the Mercury and Gemini Programs were going, and I had followed them. Like everybody else, I would stay up and watch the launches late at night, never thinking I'd have a chance to be involved in them. But I could see where it was headed and just was fascinated by it. So when the opportunity came along for me after I got out of graduate school, I was working at Newport Beach, California, with Aeronatronic [phonetic]. Setting up breakfast one morning, my wife was reading the *Los Angeles Times* and read an article about NASA looking for scientists who wanted to fly in space, fly aircraft and fly in space. I thought she was making it up, but then it went on and

on and I knew she couldn't make it up quite that fast. It sounded too official. So, yes, it was. They were really looking for scientist astronauts, the first group.

I thought long and hard about it and, eight o'clock that morning, applied. So I had no qualms whatsoever. That was something I wanted to do. It offered a great opportunity to fly airplanes, which is something I always wanted to do, and be on edge of a real forefront in science and technology, which is space travel, and then just space travel itself, which is inherently fascinating. I knew it was going to be extremely challenging, and I think after getting out of graduate school—going through Caltech was really a challenge—and after that you look around and you say, "What's the next step?" What can you do now that is really going to get your motor running and make you work? And I looked at the space program and say, "By God, it's big, it's vast, and it's going to be demanding." And so I said, "From a personal standpoint I just need that type of challenge," and so it was great to get into from that standpoint.

BUTLER: Absolutely. And it sounds like your wife was behind you then, if she was the one pointing out the article to you.

GIBSON: She was, all the way. Yes, my wife Julie was my girlfriend since, well, since she was in freshman year and I was a senior in high school.

BUTLER: Oh, that's wonderful.

GIBSON: So she's been with me for a little over forty years now.

BUTLER: That's wonderful.

GIBSON: I tell her we're still in a trial period.

BUTLER: Well, hopefully that trial period is working out pretty well.

GIBSON: Yes, it's working fine.

BUTLER: It certainly sounds like it is.

You mentioned going to Caltech being a challenge and that getting into the space program would be a challenge, but you did say that in between you worked. You mentioned Aeronatronics and you also worked for Philco Corporation for a while, if that's correct, or maybe they were connected.

GIBSON: Yes, Philco Corporation and Aeronatronics were one and the same. It was Aeronatronic Division of the Ford-Philco Corporation. It was a year in which I was doing research in Newport Beach, California. My wife and I wanted to stay in California, and also I liked the person who was running that laboratory, and it was consistent with my background, which was in plasma physics, the study of high-temperature gases. What was different about it was that it was no longer so theoretical as what I had in graduate school. It was more applied physics, which I found interesting, but at the same time not interesting. I was kind of sitting on the fence, depending upon the type of project.

BUTLER: And so it was just the right time and place for that new challenge with the space program.

GIBSON: That's right. Exactly.

BUTLER: When you did apply, tell us about what that process was like, your application process, your interview, and what some of the steps along the way were, and what you thought about the whole thing.

GIBSON: I was really debating whether I should apply, because I knew the odds were so extreme in terms of getting in and also of my background with osteomyelitis. I thought, "They'll blow me off immediately." But, I thought, "Well, what have I got to lose?" So I just went ahead and I got the paperwork and applied, and it went back and forth a couple of times. To me, it was just paperwork. Then they had said that anybody who comes down to Johnson [Space Center, JSC] for an interview would get a ride in a T-38. So I said, "Hey, the paperwork is worth it. I'll do whatever paperwork I have to just to get a ride in a T-38."

So I continued on with the paperwork and going through several doctors and the doctors sending things back and forth. There were some questions obviously about the osteomyelitis. And they finally agreed that since it had been dormant for so many years, it probably was going to stay dormant and was a thing of the past and not a factor at all, which was a real change, because it was, for example, the kind of thing that kept Mickey Mantle out

of the service because he had it at one time. Other people have had similar problems with it and not been as lucky as I have been.

So I kept on sending the paperwork back and forth and then came down to Johnson for an interview. Actually, it was a physical. They took us over to Brooks Air Force Base [San Antonio, Texas] and shook us and heated us and cooled us and vibrated us and then sent us to the shrink to see what they could learn. There were sixteen of us, and they selected six of us. I just felt lucky to get into that group, and I enjoyed the airplane ride, of course.

But I was really surprised when they called me and said that I'd gotten in. You never think of yourself on a national scale. You're always used to working on a local scale, whether it'd be a university, a town, or whatever. And to be involved then in a national program like that and to have that opportunity, which very few people did, it was kind of daunting at that time.

BUTLER: I can imagine that.

GIBSON: Yes.

BUTLER: That wouldn't be something that everyone would think of. You're right.

GIBSON: Yes, I was actually a 28-year-old kid. I'd spent almost my life going through school, so I hadn't had a chance to get out in the world and grow up in any way. So I was just really a kid thrown right in the middle of that. It was the glory days of the Mercury, the Original Seven, and then the next group, the Gemini Program was still on. And all of a

sudden to be brought in with that group, I felt like an imposter. It was one day you're just a kid sitting in the corner and the next day all of a sudden you are one, and you say, "Now what do I do?" And people treat you like you know everything about the space program, and you don't. So it takes a while to make that adjustment. That was probably a little challenge at the beginning.

BUTLER: Well, you had been looking for a new challenge.

GIBSON: Well, I found it, yes.

BUTLER: It might have been a little different than what you thought it was.

At any point during the process of applying and the various testing and shaking and heating and cooling and everything they'd put you through, did any of those make you stop and think, "Gee, do I really want to be doing this?" or did you just keep—

GIBSON: No, that stuff was relatively easy. It wasn't like we were trying out to be a Navy SEAL or anything. I had been in athletics most of my life, swimming, so I was used to thinking and working in confined spaces and a number of things that they put us through just to see how you would mentally respond, and I felt very comfortable in all those things just because of my background was that and also I was highly motivated to do it. So I thought, "Jeez, is this all they're going to have us do?" I expected a lot more, actually.

BUTLER: And had they told you during the process that if you were selected, you would then go through flight training?

GIBSON: Yes. Yes, at the very beginning that was part of the process of acceptance. They tell you what was in store for you. At one time we thought we were going to have a good shot at landing on the Moon. Well, actually one of us did, [Harrison H.] Jack Schmitt, who was with me, did get in that way and finally landed on Apollo 17. But, no, we all knew we had to go through flight training. There were six of us who got in. One left immediately and then there was five. Two, Joe [Joseph P.] Kerwin and [F. Curtis] Curt Michel, already had pilot training, so they didn't have to go, and then Owen [K.] Garriott, Jack Schmitt, and I went off to Williams Air Force Base [Arizona] for a year of training.

I loved it, other than, again, the military service is a bureaucratic process, and so they didn't know how to treat us. One day we'd be out there as subairmen picking up cigarette butts, and the next day we'd be out there meeting dignitaries coming through. But we just looked like anybody else, had standard Air Force uniforms on, and went through the classes like everybody else.

When you got in the airplane, the airplane doesn't lie. If you're off a hundred feet in the altitude, you know, there's no way to talk your way out of that one. So, you know, you got to perform, and in that sense it was really enjoyable.

BUTLER: Was it the flight training itself and getting in the airplane that—you said the airplane's not going to lie—was that how you had expected it might be and of a level of difficulty that you expected?

GIBSON: Yes, I was a little surprised there at the very beginning that there is a learning curve and it's rather steep at the beginning and when you first get in to just soloing an airplane, which I had actually done before that, but with, of course, an instructor hiding behind the barn, I had soloed out in San Clemente [California]. But then when you got into the light airplanes and flying it the way the Air Force wants it and then finally T-37, a 6,000-pound dog whistle, this little two-seater trainer, and then finally the T-38, each one is a real challenge, and there are certain phases of it which are also challenges. When you first start out, you think, "Jeez, I'm never going to get this." It's like rubbing your head and patting your stomach and touching your tongue with the back of your nose while you're shining your shoes with the back of your cuff, and it's trying to do all those things simultaneously, and it takes a while before you get to where it becomes second nature, and then you feel comfortable doing it. But at the beginning it takes a while, and you realize this is not a handout.

BUTLER: Did the three of you that were there from NASA, from the astronaut program, did you begin hitting it off right away? Did you communicate a lot with each other?

GIBSON: Oh, yes, yes. Yes, we did. We got along very well. Owen Garriott and I were in the same class. We're different backgrounds and different nature of people, but we were in something together and when you're in that environment, you work together, and I got to really like and appreciate Owen. It worked well. Jack Schmitt was over in another squadron, so we didn't see very much of him, but we got along obviously very well when we did. We

all tried to be geologists, though; that was the hoax we were trying to pass off on NASA. But Jack didn't; he was a really geologist. But I was in physics, so I was trying to look like a geologist so I could get to the Moon, too, and so was Owen, but as we talk later on, you'll see that that wasn't really required.

BUTLER: When you returned from the flight training, which had gone successfully, and you did quite well in the program and came back to NASA, then you began your NASA training more specific for the space program. If you could tell us about what that process was like? Now you actually worked with even another group of astronauts that had come in at the same time, is that correct?

GIBSON: Yes.

BUTLER: If you could tell us about what some of that training—

GIBSON: Yes, the integration of us back into Houston. Well, we thought naively that Houston just couldn't wait to get us back there because we were so vital to the space program. So we showed up back here at Johnson Space Center, and it was, you know, "Hey, boy, bring the stool over here." We were not regarded as really instrumental to what was going on; that's an understatement. I then realized that maybe they sent us off to flight school hoping we would quick flunk out or kill ourselves, or, anyway, not show up back here, because, quite frankly, the way it worked is we were rammed down NASA's throat by the National Academy of Sciences. They didn't want to do it.

So they said, "But if you're going to spend all this money on a lunar program, then you'd better put some people up who know something about the science of geology," and NASA really couldn't fight that argument. So they went out and selected people, and that's why we went off to flight training, I think, to become more like one of them or to wring us out a bit and make sure that the people who were going to get through were not afraid of being in that operational environment. So there was a lot of lack of acceptance, I would say, on the part of many people, primarily within the astro corps when we first got back here. It wasn't hostility; it was just that "You guys are scientists and, therefore, scientists are another form of life and not a test pilot, and this is a test pilot's world, so you'll stand aside, boy, while I do my work." That changed, obviously. That's changed quite a bit, and not everybody had that attitude.

There were some people, Jim [James A.] McDivitt and others, who just were extremely open and friendly and cooperative and helped the integration process. Deke [Donald K.] Slayton, much to his credit, even though he was a hard-boiled test pilot, he was motivated purely by what was good for the space program. He didn't have ego or any of these "which club should I represent here?" None of that was part of his thinking. His makeup was strictly, "What's good for the space program?" If we could do something constructive on the Moon or in space, then all for it. If we didn't perform, then you're out. But it was all straight by the book, and I admired and liked Deke. Probably to this day I think if I could pattern myself after the way he acted, I'd be doing well.

BUTLER: That's good to hear. He obviously had a very vital role in the program, and so it's good that he was able to put that perspective on things.

GIBSON: Yes, he did play a very vital role. Unfortunately, he never got to fly until Apollo-Soyuz [Test Project, ASTP], which was too bad, because he could have contributed quite a bit in Mercury and all the way through.

BUTLER: He certainly had his own unique contributions in a different way.

GIBSON: In a different way, he sure did. He was a good leader, though, in that sense.

BUTLER: Absolutely. It certainly seems like it from what we've heard. It must have been disappointing, though, to have some of that other resistance for all of you.

GIBSON: Yes, it was, but as I reflect back on it, there was nothing hostile in people's intent or anything. It was strictly a belief. These guys grew up in a test pilot world. We grew up in a science world. We both thought we had a lot to contribute. The test pilots were always there first, a natural extrapolation of test flight, so it was natural that that's the way it was. But it did take a while in order to break down those barriers, and it was just working alongside the guys and finally it happened.

BUTLER: Was there anything specifically, as you were going through the training initially, what were some of the areas that you first focused on? And as you began to realize that it would take working with them more closely and integrating yourself into the group, was there anything specifically that you would then work towards or work on?

GIBSON: Well, we all started out with general training; it's just background training. Then you ask, where do you go from here? How do you get yourself on a flight? So you had to look for a seat and say, what's the requirements? At that time we still had Apollo 20 was on, and 17 was not the end of it. So we all thought we had a shot at a lunar landing. So I tried to look like a geologist like everybody else and did a respectable job, but I was no better than maybe a bachelor of science in geology at the level I was, where Jack Schmitt was a Ph.D. and was practicing. So there was no question about that.

When it was decided that we were going to cut back and not have the last three flights, Jack Schmitt, who in people's minds was earmarked for one of those flights, they moved him back and put him on Apollo 17 and unfortunately had to bump Joe [H.] Engle to do it, which was tough. I felt sorry for Joe. I understood why it happened, and I thought it was the right thing to do, but it was tough on Joe.

BUTLER: It's certainly a tough decision to have to make.

GIBSON: Oh, sure. Yes.

BUTLER: But as many people have said, to have an Apollo and not send a geologist to the Moon when you had one employed would have been—

GIBSON: Sure. Well, that's what the space program is all about. What we'll get around to when we talk to Skylab is, either you're extending a frontier or breaking a frontier, pushing it

out, or you're making use in the science or technical way where you already have a turf you've already conquered. So if you're going to send people up to either be test pilots, to extend the boundaries, or once you've gotten that new scope established, now you'd go up and start utilizing it, just like settlers coming across our country. So you've got to have the best and you've got to focus on it, and when I look at what we're doing on [International] Space Station now and what we did on Skylab, it was all taking and applying and learning, using a new environment and doing it with expertise, and you need people who are very skilled in that work, in exploring that new environment and with a great deal of expertise. If you don't, that you've just got button-pushers and you're not fully utilizing what people have worked hard to achieve.

BUTLER: That's a good evaluation of the whole program. I like that. Helps put things in perspective for someone who doesn't necessarily grasp the whole—

After you had completed your initial training and the general training—you had mentioned classwork and so forth—and began then to get more involved in the specifics of the program, a lot of people had specific technical assignments in specific areas. So did you have a specific area like that yourself?

GIBSON: Well, initially I had to go kind of pick it out myself, and I saw the Apollo Extension System, it was called at the time, coming down the pike, and part of it was solar physics. Now, I didn't know much about the sun except that it was big, round, yellow, and hot, but I did know a lot about plasma physics, which is what the sun is all made out of. So I thought, "Well, maybe if I become the resident expert in solar physics, I'll stand a chance in getting on

board one of the seats when we finally fly on whatever Apollo Extension." I think it had another name in there. Then Apollo Applications, it was called, and then finally Skylab.

So I started reading up on solar physics and found I really enjoyed the subject, just because it was compatible with my background. It was just interesting. So what became a past-time then became part of my profession because I thought I could use it when I got out of NASA as well as help get me on board a flight and contribute when I was on that flight with some real expertise. So once I started working on Apollo Applications, it became natural to push in that direction.

BUTLER: You also at some point in this time began training, and this was probably before they had canceled the latter Apollo missions, you began helicopter training.

GIBSON: Oh, yes, that was when we were still all going to land on the Moon. So we all had some helicopter training, and, of course, my helicopter career came to a screeching halt one day. We all went through the Navy program at Pensacola [Florida] and got Navy helicopter certification. I enjoyed it. It was one of those things, again, where it takes a while to catch on, but once you do, you really enjoy it. It was a little Bell 47 helicopter. I really enjoyed flying it.

One Saturday morning I went off to fly and I wanted to practice what's called run-on landings work, because you skid. You come in at around 20, 30 miles per hour and slowly set it down on the skids and let it land. Unfortunately, Ellington Field [Houston, Texas] had some high grass and they had not mowed it, and I knew that there were some cement and

metal posts out there. And I thought, "I'd better not do that. That'd be dangerous to try to make the run-on landings when I can't see what's underneath the high grass."

So I went up north by the ship channel, and there was some, what I thought was some dry bed, and it looked dry from the surface. You're not allowed to land on areas outside of the main field anyway, so I shouldn't have been doing it, but it was common practice, and so I was up there.

I was making run-on landings, and everything was going great. I tested the center of the field and it was firm. Then I thought, "Well, I'll just go over on the side and make it." The surface was that bed was dried and cracked just like a regular lake bed would. Of course, that's not a lake bed up there, but, nonetheless, it appeared that way. So I went over to the side and made a run-on landing. Unfortunately, the things was crowned so that on the side it was lower, and relative to the water table, the water was this far below the surface, whereas over in the center it maybe had been a couple of feet below. So the center was firm; the other had just a small layer that looked firm, but when you put the skids on, the weight on the skids, it broke right through.

So I was making the beautiful aerodynamic, aerodynamically beautiful anyway, for a run-on landing, and put the weight on the skids, and the next thing I knew I was hanging in the straps looking at the mud, with the gasoline dripping over my shoulder and one destroyed helicopter all around me.

So it was good airmanship; it was just lousy geology. So that ended my helicopter career. I remember walking away from it. I turned the battery off and got out and started walking and was slogging through the mud. And I was thinking, "Well, the heat ought to

blow over in another two weeks, and in another four weeks, I can probably start looking for another job." I thought I had really cooked my goose.

But it turned out that other people had done similar things, only with not such dramatic results, that no one knew about. So perhaps I took a lot of heat for it, but they left me in the program, which I thought was good, and I appreciated that, because certainly if they wanted to get rid of me or another scientist, they had a very good reason to do it right there.

BUTLER: It was just a basic error and really no—

GIBSON: Well, I shouldn't have been landing out in areas which were unprepared or not approved. It was common practice, but I still shouldn't been doing it, so it was my screw-up. Good airmanship, though.

BUTLER: That's good.

GIBSON: It's the geology I was off.

BUTLER: So you should have gone back and talked to Jack Schmitt and have him give you a run-down on it.

Did you get a chance to ever go back up in a helicopter after that? They always talk about getting back on the horse after—

GIBSON: No, I have since never been able to go up and fly one. I've been in helicopters many times and someone let me take the controls, but I haven't been able to go up to fly helicopters since then, because after that they said, "Why are we spending all this money? These guys aren't going to the Moon, anyway." So a number of us who had been flying were taken off helicopter status, which I thought was unfortunate.

BUTLER: Unfortunate, but maybe it was just a—

GIBSON: Well, it was the right thing to do. I mean, I just precipitated a change that was already going to take place.

BUTLER: Around this time also you were serving on the support crew and as the capcom for Apollo 12. Is that correct? Was that the same time frame?

GIBSON: That's right. That's right.

BUTLER: What are the duties of a support crew member, and what did you even think of it when you got the assignment?

GIBSON: Well, I was glad. I was glad to do it. I knew [Lunar Module Pilot Alan L.] Al Bean reasonably well, and when he got to assigned to Apollo 12, I indicated, "Gee, I sure would like to be on the support crew." What the support crew does is just what the name implies. They're not trained to fly. You get a little simulator time, but it's the prime and the

back-up crews which get all the training and the back-up crew is if something happens to the prime, obviously then they fly. The support crew has all of the crew's interests at heart and understands from an operational side what needs to be done and then tries to integrate those concerns into the rest of the system.

So my role was to work with the lunar landing and all of the lunar traverses, the EVAs outside, when [Charles] Pete Conrad [Jr.] and Al Bean went outside. I helped put together all the procedures for what they would do, with a lot of scientific input, of course. But you had to integrate what they wanted scientifically with the actual operations and make it happen. So I helped design the procedures, all of the checklists. I think we might talk about the cuff checklists there.

Al Bean, God love him, he was one of these guys who wants to be so precise and know exactly what happens, what's required of him, so he wants to everything spelled out by a checklist before you can go. And if you could put numbers like Arthur Murray [dance instructor] on the Moon and with a procedure by each numbered step, he'd love it. But you don't know it that well. But, anyway. So I really tried to support him by getting all—we had checklists we were going to put everywhere—on the legs of the LM [lunar module], on the inside, and a whole host of places we were going to post things up so Al had checklists. And finally we said, "You know, this is getting overboard."

So a gentleman by the name of Bob Roberts, who was in flight crew support, and I said, "Why don't we find a way to write it on a list that they could put on the cuff?" And he went away and worked on it and came up with the idea of a little spiral-bound cuff checklist, and that worked real well. That just kind of grew. So that's how that whole thing got started, and obviously we had a little fun with it.

BUTLER: Yes, some interesting things included in those checklists.

GIBSON: Right. Yes. Yes, that got Pete's attention on the Moon.

BUTLER: Including some of these things and working so closely with the crew, and we talked a little bit before about some of the camaraderie just between everyone in the program, and Pete Conrad, of course, was quite a character, what was that dynamic like between you, the prime crew, and the back-up crew?

GIBSON: Surprisingly good. I found that once they realized that you were going to work as hard as they, and maybe harder, if you could demonstrate that, I mean, they worked pretty hard, and that you were on their side and were trying to make life better for them, and you were on their side of the table, once they realized that, then it was great. And that's the way it should be. They finally accepted us for being able to contribute and having the same interests at heart as they did, which is making the space program work. So that worked.

For me, it was a very gratifying period because I really got a chance to get first-hand into the space program, and to this day I realize that even though it was the second landing on the Moon, which we always teased Pete about, it was still a very unique time in history, and I was just in the right place at the right time and very lucky to be there.

BUTLER: It certainly was very unique. In fact, each mission, though it might not have been the first, accomplished so many new things. On Apollo 12 they had the precise landing, the

pinpoint landing, that hadn't been done before. And, of course, it must have been interesting for you, too. You then served as capcom, and I'm not sure what shift you were on, but they got hit by lightning during the launch.

GIBSON: Yes, I wasn't there. Jerry [Gerald P.] Carr had the launch. I was primarily on when they were out on the EVAs. So as soon as they started getting ready for the EVAs, then, because I had worked with them on developing all those procedures, I was the capcom. Some of those EVAs were five and a half, six, seven hours.

BUTLER: Did you stay in there for the whole shift?

GIBSON: Oh, yes, I got a chance to do that, and that was just fascinating. It was tough to believe, actually, when you were sitting there and you were talking to the guys you were normally used to talking to over in some other part of the building or somewhere out in the desert, and all of a sudden you realized that they're really up there on the Moon, and the communications there was better than they usually were in our training exercises. So it was tough to realize that these guys were really up there, other than the two-second delay, which made it difficult to talk.

BUTLER: Was there a point at all during the mission where you remember thinking that and reflecting on the fact that, "Jeez, these guys are up there doing it"?

GIBSON: Oh, yes. Yes, that went through my mind several times, because all of a sudden the training exercises we had gone through and the lunar traverses which we had practiced, this time, even though we had trained with a two-second delay in the communications, just knowing that they were still up there, it was real difficult. If I'd been on the flight, perhaps I wouldn't have had as much time to reflect. But since I was on the ground, you got a little more time to think about it than you would if you were actually on the scene.

BUTLER: Had there been points previous to this, during other missions that you might not have been directly involved with, perhaps Apollo 11, perhaps Apollo 8, even, where you thought about the impact of what this whole program was having on the world at all?

GIBSON: Yes. I think when you're in the midst of it, you don't step back and be too philosophical about it. But I remember when Apollo 11 landed, I was in mission control. I was not part of the support crew for Apollo 11, only for 12, but I was in the viewing room, and Wernher von Braun and Chris [Christopher C.] Kraft [Jr.] and [Robert R.] Gilruth were there, among others, and I looked at their face when they landed, and von Braun just had tears in his eyes. And here's a guy that I had grown up to admire from his contributions he had made to rocketry because I've studied it for some many years and read a lot of his writings and his philosophy and his technical approach to the space program. I really admired him. Then it hit me. I said, "This is really monumental, what has happened."

BUTLER: It's certainly a unique moment in human history, as you mentioned. As all of this was going on and you were working on the support crew for Apollo 12, you and the scientist

astronauts were still working yourselves into the program and integrating. As you said, with Jack Schmitt, even that decision to put him on a crew was debated and it came toward the end of the program. What did you all think when that happened, as he got the assignment?

GIBSON: Mixed feelings, which I've already expressed to some degree. I was glad to see Jack go. It was the right thing to do for the program. I was sorry that the timing was such that they announced that they were cut off the last three missions after they had named Jack to that crew. Then you really had a double hit on Joe. It's not like not getting named. It's like getting named and then getting yanked off, and that was hard for Joe, and I felt sorry for him because he was very competent pilot, extremely competent pilot. But it was the right thing to do.

What I regretted was that they cut off the last three missions. After we had developed this tremendous technology and then for just a very small additional effort to continue to reap the benefits, it just made no sense whatsoever. But that was the time. It was the sixties. There was a lot of anti-technology sentiment. We had the war going in Vietnam, and the U.S. in some eyes was looked upon as technologically superior, and using that technology for a war which was not popular. So technology itself took a black eye to some degree, and the height of the technology from a visibility standpoint was the space program. So we had an awful lot of people marching against the space program because we were spending money on the space program as opposed to other things, as though it was a choice, one or the other. The additional funds to carry on the space program, especially the lunar landings, was not that much. It was a poor technical, financial, and political decision at the time.

BUTLER: Would you ever have imagined that this many years would go by and we hadn't gone back yet?

GIBSON: No. No, I reflected when we were up in Skylab, I'd look back and think, you know, this is a pretty crude space station. We cobbled together some pieces of old Apollo hardware. I'm not trying to diminish it, but it really was a makeshift space station, and I said, "We know how to do this so much better. In five years we'll be back up here with a much better space station." Now here we are today, twenty-seven years later, we're just starting to build a space station again, at a much greater cost than in time than it should have been. And it's not that the technologists can't do it; it's the political decisions.

BUTLER: It certainly has had a large impact on the space program as a whole, the political decisions.

GIBSON: Well, yes, and, unfortunately, politicians via subcommittees love to get in and micromanage. As opposed to just giving a top-level requirement, we get the guys in who are frustrated engineers. You know, I've seen them get in and start trying to micromanage how you build a space station. Shouldn't be done, shouldn't be done. Should be top-level management. You select the goals you want and keep them constant. Get good people and give it the right financing, hold them to various milestones and then just get out of their way. And if you look at the way the program has evolved because of the federal bureaucracy, every one of those things has been violated. We've shifted goals. We have a tough time

retaining good people. We bring a lot in, but there's also an awful lot who leave who should not.

We have micromanagement of programs as opposed to just giving top-level requirements. And then when things don't go right, the outside world says, "Well, obviously we got to step in and fix things," which stirs the pot in the wrong direction again. So we've had a lot of difficulty since the Apollo era in getting things accomplished in a cost-effective and efficient way, and a lot of it is because there's too much political structure, too much help.

BUTLER: And certainly the space program, as you've mentioned, is so much in the public eye that even though it may only be the small percentage of the national budget that—

GIBSON: It's a political football.

BUTLER: It is.

GIBSON: Yes.

BUTLER: You've mentioned a little bit back to the Vietnam War and some of the unrest that was going on. How aware were all of you at NASA of what was going on in the rest of the country and the rest of the world? Did it impact your jobs much, or were you very focused on the program?

GIBSON: We were rather naive, I think, about the political impact of what was happening and how it would affect the space program, but I do remember thinking about some of the people who I had gone to flight school with and a lot of the people who my friends knew who were over in Vietnam and risking their lives every day and some of the not coming back. And then people were trying to glorify what was taking place in the space program, and I thought somehow this doesn't fit. It's not right, because here we were not getting shot at and really just enjoying life and being very lucky to be there, and we were getting praised for doing it, whereas the other guys were out there defending our country and taking the risk every day and some of them not coming back, and they got the derision of the nation heaped on them because all they were doing was standing behind their flag and doing what their commander-in-chief told them. I thought that was extremely unfair. I still do. It was a wrong thing to do. Our nation, we should’a been in or out. We never should have done that to our military.

BUTLER: Absolutely not, because, as you said, they were doing what they were told to do, what they were asked to do, and they were doing it to the best of their ability.

The space program at least did give something positive for the country to reflect on. I think even someone after Apollo 8 had sent back a telegram saying, "You saved 1968," that it was something good for people to be able to focus on.

GIBSON: It was, and the whole lunar landing was something that we did for all humanity. It was us taking a major step off our planet and landing on another body. Mentally, how we view ourselves now is changed. There's no way to ever go back.

BUTLER: Not at all.

Well, you had become involved in planning for Skylab and Apollo Applications, as you said, actually even had a couple of other names there at the beginning, and you mentioned some of the work that you began investigating solar physics and doing some of that on your own to build up for the Skylab Program now that Apollo was coming toward an end. At what point did you actually then—somewhere in here you wrote the book, *The Quiet Sun*. Was this before you actually were officially assigned to a Skylab mission, or was this during this phase when you were—

GIBSON: It was during the very early phase. Al [Alan C.] Holt, who was in flight crew support, and I decided that the guys didn't know anything about the sun or solar physics, and we were looking around at how to get people educated, at least enough so that they would know what they were doing. So he and I decided to write a solar physics guide, it was called, and it was strictly just top-level stuff. Some of the books that were out there really didn't address the way, the simple way, which guys needed to understand.

So we flipped a coin, almost. I said, "Al, what do you want to take, the active sun or the quiet sun?" There's two parts of the sun. There's the steady state, and the one that has all the transient and flares and explosions and all that. And obviously the latter's more interesting, so he chose that.

So I took what's called the quiet sun and wrote up on that. Al never pushed it along as far. He finally got something in a guide put out, but then I wrote *The Quiet Sun* and it was in a very preliminary state. It was really just a guide, like you would mimeograph off and hand out to people. It was not text book at all. But then I realized, "Hey, there's an awful lot

more that I can do with this," and because of my academic background I knew how to do it. And also I said, "Well, if there's going to be any question about me getting on board a flight, this will do it." Also I'd learned a lot in the process, so— [Tape interruption]

GIBSON: ... several reasons for doing this. So then I wrote it up as a textbook, which I was trying to get published through the [Massachusetts Institute of Technology] MIT Press, but since some government work had helped me, I couldn't publish it outside. So the Government Printing Office came in and they did an outstanding job. I was very surprised. I knew that they could, but I didn't know that they would. And they did an outstanding job of putting that together, and it turned out to be a very good textbook, and I've been surprised ever since then. People come up to me and tell me they've used it as a textbook in their training and thought it was very good. That's probably one of the more positive feedbacks I've ever gotten in my life about what I've done.

BUTLER: It's certainly something to be proud of, and it certainly did help you in securing your seat, or at least help you on the mission.

GIBSON: Well, I don't know. I could have written anything, and maybe because there were three scientists and three seats, it was that simple. Probably was. I didn't know it at the time.

BUTLER: Well, certainly your research in preparing for it gave you a lot, when you were working on your mission, a lot to build off of and run with in completing all of your experiments and procedures and such.

GIBSON: Right. It really helped me. At least I felt I was fully contributing then. I would have felt probably a little as though I had missed an opportunity if I had not really fully applied myself, because I knew I could, and taken advantage of the opportunity in space flight to really do good science. I figure that's why I was there. I'd gone through Caltech, and if I was going to do anything good, it had to be in that area.

BUTLER: As the Skylab Program was coming more fully up to speed and things were being formalized, what role, before you were assigned to a mission, did you have? Were you just continuing on, on work like this and on studying the solar physics? Were you involved then with the ATM [Apollo Telescope Mount] work early on?

GIBSON: Yes, I was involved in the ATM early on because of my background in solar physics, but then I got involved in the film retrieval from ATM, which was done by EVAs, space walks. So then I got into the space walk world, which was an awful lot of fun. I really enjoyed that, and then also got into the design of the laboratory, but only in a review basis for what other guys were doing. My specialty was the ATM. So the space walk activities and the procedures for running the equipment turned out to fall on me next, along with Owen Garriott, who did quite a bit of that, too.

BUTLER: You mentioned the EVAs and the film retrieval and you had come in during some of the Gemini work, and they obviously had a lot of problems with EVA. Did you build on a lot of their experiences?

GIBSON: Yes, yes, we did. They had learned about how to train, and that was when neutral buoyancy just came into vogue and they said, "This is the way to do it." Somewhat to the chagrin of Chris Kraft, our friend over there over there at Marshall Space Flight Center [Huntsville, Alabama], Wernher von Braun, had built a large water tank, and before anybody knew, he had a mock-up of Skylab in there in the water tank. The guys at Johnson, who were so focused on Apollo, all of a sudden realized that these guys had a one-up-manship on them, and that continued for quite a little while until we finally got this neutral buoyancy facility over here at Johnson.

But, anyway, we got a very good facility over there and put a good part of the Skylab mock-up in there and did a lot of development work and then training for Skylab. I spent a lot of time going back and forth in a T-38 and in and out of the water.

BUTLER: That must have been interesting and maybe not something you had thought about doing as an astronaut, is underwater—

GIBSON: No, it was very natural, because I had an athletic background and also the swimming. I was a lifeguard at one time. So it all seemed to fit. It just all fell together.

BUTLER: Well, that's good. Good connection there.

Was the Skylab design then pretty well in place as you were working on these, or were there any large changes that came across?

GIBSON: Oh, we had an awful lot of changes. We started out, we were going to have a wet workshop, it was called. The ATM initially was going to be flown just in place of the Apollo module on a command service module [CSM]. So it was going to be just independent. And then there were some other experiments which people wanted to fly and finally they said, "Why don't we get this thing all together and make a space station out of it." And so that's when the Apollo Extension System came along, and then finally Apollo Applications with the integrated vehicle.

It started out that we were going to have a wet workshop. In other words, we were going to launch and then use the upper stage for our space station, part of our space station. But it turned out that that was just too complex. We found it was much more cost-effective as well as operationally effective to just go design a thing the way you wanted it and put it on the ground and then launch it that way.

BUTLER: So you were involved then in that—

GIBSON: Oh, yes. Yes, all the way through that, yes. It was a natural evolution, and we look back on it now and we made an awful lot of decisions that really influenced how things came out, but they all seemed like natural steps at the time.

BUTLER: You mentioned the Apollo Telescope Mount and that it was actually originally planned to be launched with the command module and to do just some activities on orbit then.

GIBSON: Yes.

BUTLER: For a short time frame, and that's how actually it guided some of the layouts of the control panels and boards and such. Was there much modification to the ATM once it was decided to go with this fuller-scale workshop?

GIBSON: Yes, I think the instruments were laid out differently. They had more weight and more structure that they could work with. The panel was changed somewhat, but it was undergoing a natural evolution anyway. We had a little more space in which to fit it.

Initially the layout of that panel which you controlled it with—that requires a little explanation. With eight different instruments up there, and they all had many different controls and displays that you would see pictures of the sun and being able to take pictures in either a very narrow slice of the sun or the total sun and various X-rays, you always had choices of space, where to take the picture, where it pointed, the wavelength, and then how long you exposed it, and how rapidly. So there were an awful lot of decisions to be made, and that was reflecting the complexity of the control panel. So we found ways to make that as simple as we possibly could and as logical as we possible could, but it took a little doing. So that in itself was a major study, but it worked out well.

BUTLER: Certainly seems to have. How did the idea for the ATM come about in the first place?

GIBSON: Let's see. Gordon [A.] Newkirk [Jr.] at the High Altitude Observatory and Dick [Richard L.] Tousey at the Naval Research Laboratories were the leaders, I believe, behind this, and someone at the—yes, Leo Goldberg, at the Harvard College Observatory, they all had instruments which they wanted to put up and to use this ability to get above the Earth's atmosphere. And fortunately they said there was an awful of advantages to using a man operating that equipment as opposed to doing it unmanned. One, of course, was because most of their instruments were designed for film, and there's no way to get the film back unless you have a man there. But they also saw that the intelligence of a man could get better pictures than trying to do it all automated. Fortunately, that worked out well.

So those were those instruments which NASA had selected to fly, but they didn't have a vehicle yet. So there was a series of instruments looking for a home, and that's when the Apollo Extension System came along, where they would just fly it on the top of Apollo in place of the lunar module. Actually, the descent stage they were going to operate it out of the ascent stage, but that, of course, went by the wayside when we decided to build a full-fledged space station.

BUTLER: Well, that certainly ended up good, because it was able to continue so many long-term then observations.

GIBSON: Yes, much longer. We made observations over much longer periods than we had originally planned. Twenty-eight, fifty-six, and then eighty-four days, with some observations in between. So maybe we got really a rich harvest of data.

BUTLER: So they were able to do some automated observations, then, when you weren't there? Is that what you mean by in between?

GIBSON: Yes.

BUTLER: Oh, good.

GIBSON: Yes. Some. Not much, but some.

BUTLER: That's certainly good for a continuity—

As Skylab was being finalized, as its design was being finalized, the ATM was coming along, and the other experiments began to be worked into the program, Earth observations and medical and many of the others, how did planning for that all come together? I think your crewmates have mentioned the Joint Operating Procedures that were eventually developed to make it all work.

GIBSON: Yes, we did the Joint Operating Procedures or job programs for the solar telescopes. That was something we designed because it got rather complex on how to operate all these instruments simultaneously. We said, let's pick out maybe a dozen or so types of observations that you're going to make, whether it's backing off and looking at the total sun and understanding the atmosphere around the sun, or whether you're looking at a flare or whatever it be, and then put some programs together that shows you exactly you're going to operate each piece of equipment. And then on one little sheet of paper—well, it

wasn't little, it was eleven-by-seventeen, show a good sequence of the instruments, one right next to the other in a time frame, what mode they would be operating in, how you would do it. So on a single sheet of paper, you could say, "Well, we're going to the flare program." You immediately pull that out and you'd know exactly what you were doing. So those were the Joint Observations Programs that you referred to.

Integrating all of that into the operations of the total space station, that took a little more doing. We were usually solar-pointed, except when we were doing Earth observations, and there we had what was called the Z-local-vertical, where we'd point the axis on which the Earth observations equipment was mounted at the Earth and kept it pointed at the Earth that we went over. So it was always pointing at the nadir, so it would rotate slowly as you went around the Earth, and the control moment gyros that controlled this system could only do that for a certain period of time. So we could make one, two passes or so at the most, plus one of our control moment gyros was broken by the time we got there, so it put a little restraint on it.

BUTLER: But things were able to progress pretty well.

GIBSON: Yes, they did, but one thing, and I still get into the whole crux of the space program and how we do science, it was really obvious there in the different approaches that we had to these different—there were the medical observations, which if you were a trained physician, you could really make in addition to all of the data which was taken, you could make good observations, and Joe Kerwin did that when he went up. The rest of us were kind of, you know, we'd been in emergency rooms and so forth, but we didn't know that much about

medicine, not to the depth that Joe did. But he was able to make on-the-spot observations, which was good, in addition to just taking the data.

The Earth observations equipment was designed to be operated just by pushing buttons. You'd get the instructions up from the ground and you'd go to Z-local-vertical, and you'd just start pushing the buttons on command. We had a tough time convincing them that if we saw three-quarters cloud cover, maybe we shouldn't be taking the data, and they didn't want to let us have that judgment. On the other hand, we had hand-held photography, which, of course, was limited because it was photographic camera, but which we got some very good observations of the Earth and documented it for oceanographers, geologists, demographers, and other scientists in other sciences where we had a lot of people working with us, telling what they wanted, and training us before we went. So there with a little hand-held camera we got a lot of good judgment there on how we took the data. The real sophisticated instrumentation we operated like an automaton. It didn't make sense.

Then the other, the solar physics experiments really was the best of all of them. We had high-quality instruments and we had the ability to operate from a baseline where we knew exactly what we were doing and it was specified ahead of time, but then we could deviate from that, depending upon the intelligence of the observer and what he saw. So that's the optimal way to do good science in flight. So much of it, though, turned out to be push-button that you'd lose a lot. You'd get good data, but you'd lose a lot of opportunity in doing that.

BUTLER: In your opinion and experience, why did this evolve that way?

GIBSON: Oh, I think it's a stereotype thinking that people have. People who came over from the Landsat program or from other Earth observations programs have always operated that way and didn't see the value of having someone make an observation in flight. Also, the time in which we could go Z-local-vertical was so limited that they said, "We don't want some guy up there playing around with our instruments. We know exactly what we want to look at."

Later when I was at the Aerospace Corporation, I wrote up something that said, "Why don't we make a manned Earth observatory and run it the same way we did the solar observatory," and that never went too far, but it was, and I still think is, a very credible idea.

BUTLER: You think it's something that they'll be able to incorporate in with the Space Station at all?

GIBSON: Well, you're going to always be able to take hand-held photography, but you need good instruments up there to do it with, as I was suggesting, infrared, ultraviolet, being able to look at selected wavelengths, and process the data differently than you'd normally do with just a hand-held camera. So that's going to require some dedicated instruments, and that's going to have change a few minds, I think, before that happens, unfortunately, but I think when you look down and you see the diversity of things that you can from orbit—you can spot ocean currents, cold-water upwelling, and some of the more obvious things, hurricanes, and fault zones, and so forth—often you can get a lot of specialized data that you wouldn't otherwise if you were just pointing straight down and shooting by the clock.

BUTLER: Yes, Earth observations would certainly seem like a natural, very important application of space operations.

GIBSON: Yes, you'd think so, and so far most of it's been hand-held photography, other than, of course, the unmanned stuff, which is all valuable and they've done a great job there, but there are some very specialized things that do happen on the face of the Earth that you're going to miss if you don't have someone there to see it, detect it, and figure out how to get data on it.

BUTLER: It will be interesting to see the evolution here now once we have more—

GIBSON: It'll happen in the long term. It'll happen. So eventually it will happen. Whether it takes ten years, fifty years, I don't know, but like all good ideas, you can't keep them down forever. It'll happen.

BUTLER: Hopefully before too long. Hopefully it won't take fifty years.

Looking at this and the solar observations, the Earth observations, the medical, and knowing to look for these things, being able to spot things with ocean currents or volcanoes going off and so forth, what sort of scientific training in these different areas did you all receive as a crew that was either generalized or then more specific?

GIBSON: For that we initially started out, when we were all going to try to pass ourselves off as geologists, we got a lot of geology training, which was useful for our Earth observations

later on. And then our crew in particular, although the first crew in Skylab, Pete Conrad and Joe Kerwin and Paul [J.] Weitz, really just had their hands full pulling and making the space station work, pulling it together, doing the EVAs, and fixing it. Al Bean and his crew, Owen Garriott, Jack [R.] Lousma, did a lot more Earth observations, and that gave us the idea that we ought to really take advantage of this long opportunity that we were going to be up there.

So we asked to have a program established, and they responded very well here at JSC to do that and bringing a number of leading people who were geologists, oceanographers, atmospheric scientists, you name it. We had many, many different lectures from them, and then site identification of areas they wanted us to take and make observations on while we were up there. And then we had a lot of targets of opportunity that would come up from their standpoint. They'd send up from the ground and say, "If you have time, get over to the window with a camera." But what they did most was to make us aware of all the things you can really see when you're up there.

When we first get up there, you see the outline and you say, "Gee, I guess I'm over Africa because it looks like the outline of Africa." After a while you can just go out and look at a little patch of land and say, "There's the red wind-swept deserts. I must be over now North Africa," or, "There's an ocean current, and I can tell by its color and the way it's meandering, it's the Falkland current right off the coast of South America," or you could see cold-water upwelling where clouds are no longer generated and they're quenched so you see a little round circle where there's clouds all around but nothing there, and you say, "That's where the cold water's coming up. I bet the fishing is good down there."

You can see these things by eye, and you get to know the Earth like the back of your hand. There's a very enjoyable part, but it's also scientific and a very important part, because

once you're up there for a long period of time, you really get to see one opportunity after another for taking data on phenomena that the scientists really want to learn more about.

BUTLER: There certainly was a lot learned about the Earth through the Skylab Program in particular, because you were able to do these types of observations and to spend this time looking down at the Earth.

GIBSON: Unfortunately, even though we were up there for 84 days, we were kept pretty busy, so we didn't have a great deal of time to look out the window as much as we liked.

BUTLER: I'm sure that's something that would never grow old.

GIBSON: No, it really doesn't. I've often thought if there was some way I could get people to experience what we experienced, it would be to have their eyes in orbit and being able to see that view. If you're down here and you take a picture of a rose garden, it's not quite the same as being there, and the same is true of observing Earth.

BUTLER: Yes, there's no way to recreate that experience unless you—

GIBSON: Not really. Some of these IMAX films come close, but it's still not quite the same.

BUTLER: It's still that awareness. Well, for one thing, you can still feel the gravity while you're watching the IMAX.

GIBSON: That's right, yes. You're not floating by a window.

BUTLER: Well, maybe some day more people will be able to—

GIBSON: Oh, yes. It will.

BUTLER: As you were going along and training for Skylab, at what point were you officially assigned to the crew?

GIBSON: Gee, I'm trying to think. I think it was about as year and a half or so before the flight. I'm not positive. About a year and a half before. We all knew we were pretty much lined up because of the way the work was shaping, and there were three of us who were working on the program: Owen Garriott and Joe Kerwin and myself. There were three missions, and it was logical to spread the three of us across them. We just didn't know which was going to go where. Does Joe Kerwin get the mission where the person's up there the longest because that's where you learn the most about medical aspects of long-duration space flight? So maybe Joe was going to go on the last flight? Or do you put him on the first one where he's going to be up there for four weeks and there might be problems encountered that you ought to have someone there to understand what they are? And that's ultimately what they did do. And then Owen was more senior to me, or there was some other reason for Owen going second, and I went third. There was a time there where I thought, well, maybe I got the short straw because Skylab might not hold together for that long. But then when it

did hold together that long and we ended up going from 56 to 84 days, I came out and really got the good deal. Again, the right place at the right time.

BUTLER: That's good. [Tape interruption]

We were just talking about you getting your Skylab assignment and talking some how you, Joe Kerwin, and Owen Garriott were eventually divided up and how it worked out pretty well for you, getting the long mission. When you got your crew assignment, yours was the first rookie crew to go up since the Gemini Program. Did you think anything about that at the time?

GIBSON: No, I didn't. To tell you the truth, I think I probably realized it, but it didn't make much impact on me. Jerry was a pilot and he was the commander. Bill [William R.] Pogue was a pilot who used to fly with the [U.S. Air Force] Thunderbirds, extremely competent guy who'd never get sick on the ground, and so I had all the confidence in the world in those two guys, and off we went. Look at every flight that went up in Mercury. Every one of those guys was a rookie when they went up. I never paid much attention to it. The world seemed to make much more out of it, especially when we came back, than I ever did. Didn't worry about it at all.

BUTLER: By then training procedures had been well developed and you had time to become well prepared for the mission.

GIBSON: Yes, we were flying the Apollo system, and, of course, that had gone through a lot of trials and tribulations, and the training was well established for it. So by the time they got around to training us, they really knew how to do it and they had good simulations. So we really received probably the best training that anyone ever could, because it had evolved quite far by the time they got to us.

BUTLER: What did your training and simulations for your specific mission involve? Obviously you had trained for launch and landing that were very similar to what had gone on for the other Apollo missions. But then on-orbit would, of course, be very different.

GIBSON: Well, there were various types of training. One was an integrated training where you would work with what was happening in the orbital workshop, with what was happening on the LM, and what was going on in the command module, and that was primarily in the periods of the first couple days where you got up there and you had to set up shop and start operating and it required you to be back and forth between all these different facilities.

Then once we were up there, of course, then you'd be focusing on a given area. So we had part-task trainers, the ATM part-task trainer, the one for the Earth Resources Experiment Package [EREP], and the medical experiments were all part-task trainers. So most of our training there was done that way.

What we found we lacked when we finally got there and now that we've reflected back on it, we lacked the integrated training with the mission control. And usually they do that as much to train mission control as anything else, but mission control's been through it with two flights already. So when we came along, they just said, "Well, here's the set of

procedures. We'll do it." But it didn't allow us to get the interaction with the mission control, which later on it can cause a problem.

BUTLER: Hopefully that's a lesson learned that maybe can be applied for the Space Station Program.

GIBSON: I hope so. That's one thing they do need to learn, keep in mind for the Space Station. Even though everybody on the ground has done it, it doesn't mean the crew and the ground are in sync on how they're going to run the flight.

BUTLER: Did you have much interaction with any of the principal investigators for the scientific experiments as you were doing those?

GIBSON: Oh, yes. I had an awful lot of interaction in the early days in the development of the instruments, or at least the crew interface with the instruments and the procedures. We'd talk with them daily. For the Earth Resources Experiment Package we'd talk with the principal investigators daily as well as for the hand-held photography.

I think for all of them, yes, we tried to make sure that even though NASA tried to get each one of them to write everything down and have it all laid out neatly so that they would be then the middle man and we wouldn't have to talk to the investigator, it never worked that way and it didn't make sense to work that way. It was great that they wrote everything down and had the procedures figured out, but we talked to those people right up to the end, as it should be. Even when we were up there, that was a little bit of breakthrough, too. We

finally got the chance to talk with some of the principal investigators on the ATM—Apollo Telescope Mount, or the solar physics experiments, while we were up there, and that worked well. We should have had more of it.

BUTLER: It's certainly a vital connection since they did know those experiments so well.

GIBSON: Oh, yes. Yes, and that's what we should be getting down to in the Space Station ultimately, is where the people in flight are an extension of the people on the ground, not necessarily an extension in a robotic sense, but make sure you communicate with them, and then as you see things in flight, you use your own intelligence to get the data as you knew if the investigator was there that he would want.

BUTLER: As the program came along and you continued your training for your mission and, of course, the first Skylab crew was going to have more simulator time as they were on the shorter time frame. Once the workshop launched, of course, there was problems with the launch, the thermal shield and micrometeoroid shield coming off the solar array and the other array jamming and they had to come up with a fix for everything. At what point did you hear about what had happened, and what were your thoughts?

GIBSON: I went down to the Cape to watch the launch and so it was not more than three or four minutes into the launch that I heard about what happened. And since I had been working a lot of the space walk procedures for the film telescope retrieval, the film retrieval, it was natural to go then down to Marshall and start developing procedures for the repair of

the station. So I spent an awful lot of time with some other people down there over a period of ten days developing these procedures to fix the space station. I did a little capcomming as a result of that, when Pete and Joe were out there trying to cut the strap that the one solar panel was held down by.

BUTLER: Oh, good. It must have been nice to be able to make that contribution than just having to sit and wait to see what was going to happen.

GIBSON: Oh, yes, sure. I mean, everybody was focused on that. That had to work, or nothing else followed. So you dropped everything you were doing and lent a hand where you could.

BUTLER: Probably all of your work, too, both with training for this EVA and having to be put together at the last minute, but your other work planning for the EVAs on the Telescope Mount, it must have been nice then knowing that you would get a chance to have that experience.

GIBSON: Never knew it at the time. When we had the problem with Skylab, I didn't know whether, first of all, the first mission was going to be launched, and then, secondly, whether it would be successful. Once that worked, then I started thinking, well, maybe I will get a shot. And then the second crew went up and started having troubles with one of the control moment gyros. And it was finally decided, okay, let's go ahead, we can now try to make it 84 days. So by that time we had a lot of confidence that the station had stabilized and

whether or not the control moment gyro problem and the rate gyros had a little bit of a problem and a few other technical problems, but they were fixable. The station had stabilized, and we thought we could stay up there for that long.

The difficulty with staying up that long was, we had only had enough food for 56 days, and we had too many experiments to take up in the command module. It was already overloaded. So we volunteered, or agreed to, that every third day we would eat nothing but food bars, and that was probably one of the most supreme sacrifices anyone has ever made for the space station or the space program, was to eat food bars every third day. We had four of these little guys, and your breakfast consisted of four or five crunches and that's breakfast. Now you can go on. I still have a tough time looking at a food bar in face now.

BUTLER: I can understand that.

GIBSON: But they worked, and we stayed. It had all the minerals and calories and so forth that you needed. So it worked well, and I'm being a little facetious about it, but it worked. It's not an ideal way to make it work, but it did work.

BUTLER: And I guess for the chance that you had then to be able to have such a unique mission, it balanced out in the end.

GIBSON: It balanced out, yes. We were running out of other expendables, so we couldn't have stayed up there much longer.

BUTLER: There also was in the lead-up to knowing whether you were even going to, first, be able to go and then to be able as stay as long, during the second mission they had some problems on the command module and even debated at one point sending up a rescue on that. From some of my research I found that it was actually going to be members from your back-up crew that would fly that rescue if that had needed to happen.

GIBSON: That's right, yes. Yes, the people who were the back-up crews for each of us were, if we weren't going to fly, they would have flown on the flight, but they also were going to fly the rescue mission. So they were training for that rescue mission at all times for each of the three flights. If we had a problem, for example, and they had to rescue us, they would have used the command and service module that later was used for the Apollo-Soyuz. So it was always for the rescue mission you would use the next vehicle coming up. It turned out that they didn't need to do that. I didn't pay much attention to it at the time. We were so busy in training. It's one of those things you get a briefing on at the end of the day for five minutes and then get on with your work of training for what you've planned to be your mission.

BUTLER: That's certainly an interesting, well, basically a new concept for the program as a whole, being able to go up and rescue someone. None of the earlier programs would that really have been possible.

GIBSON: That's correct. And, you know, ultimately we'll need it. Well, you look at what happened on *Mir* when they rammed it and Mike [C. Michael] Foale and company were up

there in a situation that could have required a rescue. Fortunately it did not, but it will happen, and maybe something will happen to Space Station. You don't know. So now they're looking at and have the capability of a crew return vehicle.

BUTLER: Certainly is, especially when you're talking on these long time scales, a very vital part.

GIBSON: In the long term eventually something will happen. Murphy [Murphy's Law] tells you it will.

BUTLER: Absolutely, and we're all human after all, so anything's possible.

Building up to your launch and your mission, the time frame shortly before the launches, you were gearing up and things were really going to go now. All of these details had been worked. But then things started happening for your vehicle actually on the booster, collapsed tanks and cracked fins. Did you still have these questions going in your mind?

GIBSON: I had so much confidence in these people. George [M.] Low and the engineering staff, they would periodically give us briefings, and these guys were so on top of the details and knew exactly what they were doing. I knew that obviously Murphy is alive and as we've seen since then, that we've had only one launch problem, but those things do happen, and in the back of your mind, you know that's a possibility, but you think it's remote. Same as driving down a two-way street at 60 or 70 miles an hour, you know your left front tire could

blow at any time and you might hit an oncoming car. The odds are that mostly likely it won't happen, but it could happen.

I tended to think that same way. It's something that could happen, but the odds are very low. I think anybody'd be crazy if they thought the odds were high that they would go. I mean, that's the nature of the program, is you do all you can to reduce the odds. A few times, people, you really admire them for when you can't reduce the odds, the first lunar landing, for example, or Apollo 8, or Al [Alan B.] Shepard [Jr.] on the first Mercury, I mean, those kinds of things, those really required stepping up to the plate and not knowing what the chances were. But by the time they got around to us, I had a lot of confidence that we were not going to have that kind of a problem.

BUTLER: The Saturn certainly had an excellent service record. In fact, no launch failures on the Saturn.

GIBSON: Yes, it worked pretty well. So we were glad to be going on a real tried and true vehicle like that.

BUTLER: As time came for your launch, if you could walk us through some of those final moments and then what the launch was like for you.

GIBSON: Okay. I remember the cracked fins. We were really eager to go and not too happy with that five-day delay that was required for the cracked fins. So we started making some comments about calling the vehicle "Old Humpty Dumpty." We were just kind of kidding,

and then somehow that got out in the press, and, of course, those guys who were working around the clock all day and all night, it didn't sit too well with some of them, but to most of their credit, they didn't say anything, at least not until launch. When we got about 20 minutes before launch, we got this message from them, "Good luck and God speed from all the king's horses and all the king's men." It was a neat little comment.

We were eager to go and didn't like that delay. The launch itself, I remember walking across the—I was the last one in the vehicle because I had the center seat in the command module. So while they were putting those guys in, I had a chance to just stand outside and look at the vehicle. At that time it was being fueled, and it was creaking and groaning because of the cold, the shrinking of the metal and also the weight. It started to come alive. The electrical side of it was working, unlike what we had seen before where it was just a passive hunk of metal. Now it seemed like it had a life of its own. It was a very exciting time. You got a look at the vehicle when it was dark out and had the lights on it and just be a very short distance from it and reflect on what was actually going on. Most of the time you're busy. You're moving all the time. You don't have time to reflect. But I had around 20 minutes there where I could just sit back and watch that. To this day I really just felt lucky.

BUTLER: That's certainly a very unique experience.

GIBSON: Yes, it really was.

The launch. Okay. What's a launch like? You know, all the time we had practiced that thing, we had taken the elevator to the top floor and gotten out, walked across the gantry

and gone into the spacecraft, which was like just walking down a hall and going into a room. And you do this day after day. You begin to think that what you're in is just another building. And then finally you do all that on launch day, and you're laying there, and you're going through the launch count like you always do, and then all of a sudden the bottom floor of the building explodes. Intellectually you know what's going on, but those images flash through your mind. You think, "Oh my God, this building I'm in is shaking and rumbling." It's like being in an earthquake where the world underneath you is no longer stable. But we all knew, of course, what was going on.

I should go back a little bit and talk about why I think how when you become a pilot in high-performance aircraft like we did, at that moment I was fully operational, fully functional during that launch, and I think a lot of credit goes back to flying high-performance airplanes. I made a lot of light of how I love to fly T-38 and it was a lot of fun and so forth, but I also thought it was a very useful thing, and I'm sorry to see that most of the scientists don't get that anymore. But it was a psychological preparation for getting the confidence in yourself and the machinery that in an environment like that you can be fully functional at that time. I knew if I had not flown high-performance airplanes and gotten a couple of thousand hours in doing that, I would not have been anywhere near as capable at that time as I was. And that's not because of me; it's just a natural learning progression that you get as you fly airplanes.

Nonetheless, we took off, and the first stage is rather rough, especially around Mach-1, 30,000 feet, around one minute. You get an awful lot of turbulence and a lot of shaking. I would equate it to being a fly glued to a paint shaker. There's something massive there that you're sitting in that's really giving an extreme turbulence. Then once you break through the

atmosphere, you get above the atmosphere, even though you're still accelerating, the atmospheric pressure or density drops off so you don't get that turbulence.

At staging, John [W.] Young has called it "the great train wreck." It's like where you all of a sudden get thrown out. You go from four Gs to one and a half and then back to around one G or so when you light on the second stage. And all that happens real quick, so you really get shook around again. We had a lot of observations that we could make and procedures we had to follow if something went wrong, so we were glued to the gauges watching everything to make sure it was all going well. But at the same time all this physical dynamics are going on around you.

The second stage was a beautiful ride. It was just a long elevator ride. As you burned out fuel, you just got a higher acceleration as the mass of the vehicle went down. So you went from weighing around your normal gravity up to four times your normal gravity, four, four and a half, and eight and a half minutes later after the launch, the engines cut off and all of a sudden in this allegedly clean spacecraft, all this dirt and dust and particles, a little paper clip, and the stuff floats up around you. People had done their best down there at the Cape to keep it clean, but you just can't keep everything out. But all that is soon dissipated or taken out by the airflow in the cabin. It all happened real quick.

You look out the window and there's the curved horizon, and you think, hey, this is the best simulation we've ever had. And then you look back for just a short while, do a few things with the checklist and make a few system changes, look back out, and there's the boot of Italy going by. And you think, "Man, we're really hauling the mail." It was a great experience. To physically finally experience what you had dreamed about for so long, it was great.

BUTLER: It must have been wonderful.

GIBSON: Yes, it really was.

BUTLER: Coming up on Skylab, as you were coming up to it, your first sight of it—actually what was your first sight of it?

GIBSON: I was sitting in the center couch, so I didn't get to see too much of it. I was doing a lot of hand-held calculations for the rendezvous in case the computer system went down, using range and range rate. This was an old HP [Hewlett-Packard] calculator, long before they had the ones with all the programs in them. So I was doing a lot of hand calculations, so it wasn't until we got pretty close in that I finally looked out, pushed the commander aside a little, looked out and saw it. I still marveled that we were able to get there. We'd done it in simulations and all that, and it's like flying in weather where you take off and you're completely in the weather and then finally when you land, the last two hundred feet you break out and there's a runway, and you've done it all by instruments, and you're amazed that you're there. The same is true with going up to Skylab. You go through all these procedures. Finally you look out the window and, yes, we are there.

We looked it over pretty carefully, although we didn't do a fly-around. We did a fly-around after we left, but not before, and it looked pretty good to us. It was a good oasis in the sky there.

BUTLER: When you first came on board Skylab, what were your first impressions? In fact, I think the previous crew had left some surprises for you.

GIBSON: Yes, the previous crew had left three dummies in various positions on Skylab, and we kind of laughed about it and thought it was kind of funny. When you opened up the orbital workshop, it was like going into a dark cave, just because it was all dark.

It hadn't been lived in for a little while, and we had to go in there and get the lighting and get all that up. So we saw those things and we were really busy trying to get going, and we said, "We don't have time to take them down now." And it was kind of eerie, because you'd see things going over your shoulder. It's like a mannequin next door to you. Your mind tells you it's a person, so it was kind of eerie for a little while, but we liked the joke.

BUTLER: That's good. Again, that shows some of that spirit between everyone in the corps.

GIBSON: Yes. Yes, it was good. I was glad they did that.

BUTLER: Coming up on Skylab, Bill Pogue became ill, actually, which surprised a lot of people because he had been one of the ones, I think you called him "Old Iron Ears."

GIBSON: "Iron Ears," yes. You could never make him sick on the ground. You'd put him in a rotating chair and he'd never get sick. He used to fly for the Thunderbirds, so you figure if there's anybody going to get sick, it'd be Jerry or I, not Bill, which showed that we didn't really understand the problem.

BUTLER: I think that's something probably they're even still working on to some extent.

GIBSON: They are. They've gotten some better medications now, but they still don't fully understand the problem.

BUTLER: And as he became ill, that may have been the beginning of some of the misunderstanding, I guess, between you and—.

GIBSON: Yes, let me explain that. I know where we're going here. We called it "the big barf cover-up." What happened, where it originated was about three or four days before flight, maybe a week before flight, where some of the medical community came to us and said, "Before you lift off, we want you to take some of this medicine." It was either scopolamine, dexadrine, or it was an upper and a downer, or promethazine ephedrine. And we all had personal preferences, and we were planning to take them once we got there in flight to try to make sure we didn't get sick. But we never thought of taking them before we lifted off because it made me dizzy, and I would never want to drive a car while I had that stuff in me. I could walk, but I didn't want to drive a car or ride a bike.

Then they came along and said, "Well, in a prophylactic sense, we want you to take it before you go." And we thought, well, here's these three rookies going up and being asked to take this stuff that if we had an abort and had to have our full wits about us when we landed, we could be incapacitated to a degree. And when we needed our faculties most, they

wouldn't be at 100 percent. They could not demonstrate that it made sense for us to take it. They didn't know whether it was to prevent sickness, and, of course, it didn't.

So at that point we said there's two parts of this medical community. One is the political side, which is being forced to do something because of the politics, and the politics were that they were already casting their eye toward the [Space] Shuttle, and Congress was saying, "Jeez, if these guys are up there for only five days and they get sick, the Shuttle is going to be a week or two weeks. If they're going to spend their full time sick, then maybe we don't need a Shuttle, and you ought to re-think the whole thing." And NASA said, "No, don't worry. We can solve the problem."

Well, I had a lot of confidence we could solve the problem, as obviously the Shuttle came out well, but we were the brunt of that one. It was where the rational physicians who we worked with every day had one opinion, and the politicians had another opinion, and that got forced on us. And we said, "Ah-oh. There's a decision-making process here which we no longer trust." And to this day I still claim that was something that shouldn't have happened.

Nonetheless, so we launched and Bill got sick. We were eager to get this mission going, and my thinking was, "Jeez, why don't we just put it in a bag. We'll make sure we keep it for the mineral balance experiments, but let's just get on with the flight, because the guys down there because of the politics and all that, let's not stir the hornet's nest. We'll just press on and do the mission and tell them when we get back."

Well, we had the Nixon problem: the tape recorder was running. So, of course, the ground found out that we had had the big barf cover-up going on. I mean, think about it. What advantage did we have in doing that? Did they think we were going to come back and

sell it? There was no advantage to doing that whatsoever other than to get this mission rolling, and we just wanted to get on with the mission.

But then that caused a big problem, and I guess we had made a few comments along the way, like, "Probably a lot of management are just as happy if we just press on with the mission." Well, of course, then that put the heat on them. So then Al Shepard got on-line and it was his decision to chew our fannies out. So we're up there getting chewed on by Al Shepard, and that was a hell of a way to start a flight. That's where the miscommunication started, because all of a sudden it put the ground on one side of the table and us on the other.

Then we got behind. Bill Pogue was trying to—he was working around half efficiency, and the poor guy was struggling, and then he'd make a mistake, and then he'd feel worse about it, and then he'd struggle some more. We all were, of course, just getting used to that environment, trying to find things, and where they were. The record-keeping degraded as Skylab went on, so by the time we got there, it was the knowledge of where things were, were not as well as they were in the first couple of flights. We were just getting adapted to the whole environment, and so we got behind, and the more we got behind, the more detailed messages came up to make us—they were trying to help us, obviously, but it wasn't perceived that way. And there was no open communication. You couldn't just call them up and say, "Hey, guys, let's talk this out," because everything had to be open and for the world. And we thought, okay, we'll work through it. And it didn't work. It just got worse as we got further behind.

It turned out when you look at the total mission, that what was accomplished per unit day, we were just as good as the previous crews, and toward the end there we were surpassing the rate at which the previous crews had worked. So it was that we weren't

getting things done, it was just that our perception was that the previous crews, especially Al Bean, had gotten so far ahead of the ground, the ground said—and this is perception only—the ground had said, "We're never going to let the crews get ahead of us again. We're going to make sure we're ahead of them." So we'd get teleprinted messages. One day one was 60 feet long, and we had to cut it up and had to hand it out, all the procedures for the various things. So it was micromanagement to the nth degree.

It's very disheartening to be in a situation where you can never catch up; it's only a question of how far are you behind. We were not used to working that way and we didn't plan on it being that way. And then the level of micromanagement, especially in running the experiments, was difficult because it never gave you any time to really use your intelligence in how you took data. It was just push the buttons as fast as you can and move on to the next.

So it was a very abrupt change from what we had pictured. That's why I said had we had more time to work with the ground before we went and developed some rapport with the ground controllers, it might have been a different situation, but the fact that Bill threw up and then our dumb response to it was what set it all off. It was dumb. We should have just said, "Hey, guys, your pills didn't work. They're just wafting across the command module now along with the Bill's tomatoes." It didn't work. That's probably the most regrettable thing I have about that whole flight, is that we were not smart enough to handle it properly because it caused everybody a lot of problems, mostly us.

BUTLER: Unfortunately, in a sense, your crew was—"guinea pig" is not the right word, but I'm not sure what is—in that the first crew with Pete Conrad that came up, they had to do repairs to the station, and they were up there for a shorter time frame and it was a first

mission. So everybody was new at it, the crew, the ground controllers. And then on the second mission, the ground control had had a chance to broken in, to learn how the flow was going, and they were able to grow with Al Bean's second crew. Then people didn't really even realize the need that you were going to have to get used to the environment before you could get up to speed.

GIBSON: Yes, the ground was way ahead of us at that point. As you say, the second crew and the ground grew together in how to run a space station, and Pete and his guys did a great job, but there was repair work mostly at the beginning. And did a great job, and so by the time we got there, we were set up for it. There's no difference between Jerry Carr and Bill Pogue and I in our ability to operate than any of the other guys. It was a situation and we should have recognized it. But you couldn't communicate with the ground because everything had to be on an open-voice channel. We already felt on the other side of the table, so we didn't want to get into an argument with these guys on an open channel, or what would be perceived as an argument. But a lot of it, we just had to come out and say, "Hey, guys, this isn't working. Here's how it ought to work. Let's get your thoughts on it," and you couldn't do any of that.

It wasn't until we finally got far into the mission, we said, "The hell with it. We're just going to do it." And then once the air was cleared and we figured out what was bugging each one of us, then we could move on. But I still think NASA ought to allow private communications between the ground and the crew, and if the press wants to know what it is, tell them to go pound sand. I mean, it shouldn't be. For the efficiency of running that space station, you need private communications.

BUTLER: Well, you have to be able to talk—there's almost a language that you would have between the ground crew and the mission control where you could say things in a certain way where the two of you would be able to understand, whereas it wouldn't necessarily make sense to somebody from—and not just the technical language, but more of that connection—

GIBSON: Oh, sure. But that comes with working with the ground, and that's where we didn't have many simulations and really working with the crew, with all of the flight controllers and the flight directors, the capcoms. We'd work with them to some degree on very specific parts of the mission, but mostly launch and reentry. But in terms of the day-to-day activity on the station, everybody considered that was so benign, we didn't simulate it very much, and that was the aspect where we really didn't simulate enough and it showed.

BUTLER: Certainly a very big lesson learned here for application for any long-duration missions now, especially for Space Station.

GIBSON: Yes. Treat people like humans. The level of micromanagement is not what the people live with down here. I defy anybody to set a checklist out that is, say, 10 feet long, that tells you how you're going to operate that day by, in some cases, right down to the second, certainly down to the five-minute block, and then go run your day that way. You can do it that way for a launch and a reentry, and it makes sense to do it that way. Everything's got to be choreographed. But not how you operate on a day-to-day basis onboard a space station.

And I think that's a lesson they're going to have to learn all over again. They operated that way to a degree on Spacelab, and it's going to be quite a little while before they learn that lesson all over again. The people who were there don't remember anything about Skylab, weren't there and got burned. So they're picking up where Spacelab has left off. Maybe when you're putting a space station together, it's all right, but we were just starting operating as a laboratory, you can't operate that way. It's not efficient, anyway. You can, but it's an awful way to do it.

BUTLER: You're talking such long duration, months on end, years, even.

GIBSON: You need to establish those things that have to done by ephemerous-related or time-related, because at the point you are over the ground or some other time-related and let that form a backbone, but then you put a shopping list together of all the other things that need doing, maybe with some prioritization, and let the person there use his own best judgment how he gets it done and when he gets it done. And you can bet that they're going to charge full bore and get some satisfactions out of it, as opposed to always trying to figure out how far they are behind the time line.

BUTLER: Got to take advantage of having the person there and having that human element. Robots can do that regimen and schedule.

GIBSON: Yes, I think you really need that. The only way you convince people is give them a schedule down here on the ground and make them operate that way for a couple of days. See how effective you are.

BUTLER: I know it'd be hard for me.

GIBSON: I don't care how well it's thought out. The real world just doesn't operate that way.

BUTLER: As you mentioned, you did have a chance to talk with mission control eventually, and even it was everyone hearing it, you were able to work it out, and you'd come to a really good understanding, from what the reports say.

GIBSON: God love Jerry. He was trying to be a good commander and he was watching out for us, because he could see that we were really getting worn down to a little nubby trying to work as late as we could and getting up early and just trying to make the whole thing work. So he said, "Look. This is not the way. We need Sundays off." So all of a sudden it was "We're going on strike," and that somehow got out in the press. So I still hear about it today. Because Jerry asked for Sundays off. I was going to work Sundays anyway, because I always did. I always worked every day. Every minute I was up there, I was doing something.

But then also we had one other occasion where—have you read *A House in Space* by [Henry S. F.] Cooper? It was part of this, and this strike came out of this where they said we just ignored the ground. What happened was that the ground got to be a little obnoxious at

times, just continually asking for one thing after another. And every time we'd come up on a ground station, we'd start working, you'd have to drop whatever you were doing and go on over and talk to them. We said, "Well, let's make it only so that one person has got to do that. We'll take turns. The rest of the guys, you turn off your radios and just one person does it."

Well, we screwed up again. We ended up in a situation where all of our radios were off. We didn't have it right who was doing what. So there was about an orbit went by and finally we said, "We haven't heard anything from the ground, have we." So then we turned the radio back on. Of course, they'd been calling us all that time, and they attributed it that it was something deliberate. At least the press did, anyway. That furthered this myth that's gotten going, which I keep hearing about, of a strike in space and all that. Even the Harvard Business School has a case study called "The Strike in Space." No one's ever talked to us about any of that.

BUTLER: Really?

GIBSON: Yes, people just dreamed it up out of—taken a few facts and then looked at newspaper reports, which were, as you know, rather creative at the time—it made good headlines—and written up. And so they've never gotten a true picture of it. And Cooper, who wrote the book, never talked to us.

BUTLER: Well, that's very unfortunate.

GIBSON: Yes, I thought it was unprofessional. The guy should have at least talked to us. He could write what he wants, but he ought to have at least heard what the two sides were. He took Channel B tapes, which is our debriefings of what went on, and then inferred from that what was going on. Well, as you can see, you hit a nerve.

BUTLER: Sure. Well, it has, as you said, persisted through the years.

GIBSON: Yes, it has. Granted, we screwed up on a few occasions, but it was a total misunderstanding of what was really going on in how to operate a space station. And I just hope out of some those experiences that the current space station is going to be able to benefit. My belief is that it's a whole new world of people and lessons learned. I think the one lesson you learn from history is that no one pays attention to the lessons learned. So I'm afraid we're going to learn that one all over again.

BUTLER: Well, we'll hope that with a project like ours, maybe there'll be a chance to have some of the those lessons learned, somebody listen to them and apply them, hopefully, because it certainly is very valuable to know and to build off of your experience so no one else has to. And that'll just make things more efficient in the long run and run better.

But you did get everything running well, and you did get communications going well with the ground, and by the end of the mission, as you said, you accomplished a great deal of science and got everything done that had been intended. Tell us about some of the things that you were doing there. We've talked a little bit about the [Apollo] Telescope Mount. Was there a typical day for you once you got through this period of trying to—

GIBSON: Yes, a typical day would consist of getting up, doing some measurements for medical, a little housekeeping, maybe, setting up the food or other things, going to the teleprinter and getting the messages, weighing yourself every morning on this little scale which would vibrate and from the frequency of the vibration you'd know what your mass was. So everybody weighed themselves every morning.

We had a lot of medical experiments, so about everything we did, we were biological laboratories. So everything that went into us, they measured six minerals in the content and kept it plus or minus 10 percent every day so that we would have a nice even inflow of minerals. Then we pooled the urine and vacuum-dried the feces and all that was brought back, pooled the urine for twenty-four hours and then brought back a small sample of it, frozen for each 24-hour period. We called them "urine-cicles." They got some really good data from that.

So they learned we were in balance with everything except calcium. We had a very slow, steady calcium loss, and that was also reflected in the decrease in bone density. So it's just like a bed-rest patient, you take the stress off the bone, you tend to lose the calcium. And every time I come down here for a physical, they talk about my condition as being postmenopausal. [Laughter]

BUTLER: Well, that's interesting.

GIBSON: Kind of interesting. Obviously it's not quite the same, but you do tend to lose calcium. The balance is not there because you take the stress off the bones. Different reason

than you lose calcium for other reasons down here, but a bed-rest patient is the exact same thing. You've heard of people getting out of bed after half a year to a year, or depending upon the person, even shorter than that, and breaking a hip when they put weight on it. Same thing. As a matter of fact, at the National Institutes of Health, Dr. Weiden [phonetic], who is studying that phenomenon also, got so interested in space flight because of the analogy, he was the one who did the mineral balance experiment.

BUTLER: It certainly has a lot of implications for future exploration of the solar system as well as for here on Earth.

GIBSON: Sure. Oh, yes, very much so. We're going to Mars. Do you want a rotating space station so you have gravity, so you can make sure that you have healthy bones, not only when you get to Mars, but also when you come back? Yes, there's a lot to be learned there.

BUTLER: So you would participate in these experiments every day then?

GIBSON: Every day you do the getting ready and then you have four types of experiments going. Either it was the ATM—we each took a couple of passes, orbits. I usually got more than the others. Then there was the medical experiments we all had to do, either be a subject or an operator. Earth Resources Experiment Package, when we went to Z-local-vertical, so we had to study the Earth. Or then there was a whole host of corollary experiments, medical.

The high school experiments, too, those were interesting. High school students proposed things to do, like what happens to a spider in flight, or in zero gravity. It took a

little while, but eventually it built a web, but it was pretty confused there at the beginning. Fish, what do they do? So we had a little container of fish. Actually, the second flight was the one that did the most for that. They swim around in little circles, like an aviator's outside loops, because they don't have gravity. Yes, there was a whole host of little things like that that were interesting, and other corollary experiments.

Then there was the hand-held photography. Aside from the ATM, that's what I enjoyed the most. The Earth is so fascinating. There's something different coming over the horizon all the time, and the more you look at it, the more you see.

BUTLER: When you did have free time, did you spend a lot of time looking out—

GIBSON: Oh, yes. Looking out the window, yes. Yes, we all did.

BUTLER: It certainly was only something you were going to be able to do for so long.

GIBSON: That's right, unfortunately. At the same time, we did have a little time to just think about that aspect of we were going to do it for so long. And it seemed like a very natural place to be, to be up orbiting Earth. Now, maybe you can't picture it, but after you've worked for it for such a long period and you finally do it and you're up there for a couple of months, you being to think of it as a very natural phase. It's like going camping, where the first couple of days takes a little getting used to, and after a couple of weeks you feel at home, and after maybe a month or so, it's just another phase of your life. And that's what it was for us.

You think eventually you're going to have hundreds of people up here doing the same thing, thousands. So we were just glad to be one of the first.

BUTLER: A testament to the human adaptability, I guess.

GIBSON: Sure.

BUTLER: You certainly were very fortunate to have that opportunity.

GIBSON: Oh, yes, very much so.

BUTLER: During the mission, you also had a chance to go out on EVA.

GIBSON: Oh, yes, the great outdoors. Loved it.

BUTLER: That must have truly been a unique experience.

GIBSON: Yes, it was for three different reasons. One is, we had a lot to do on the EVAs. There were space walks and it went off well.

Another was, since we were having it especially early on, like Thanksgiving Day I think we had one, because we were having these problems of getting things done, it was a real satisfaction to go outside and to perform the EVA and get it done ahead of schedule, except in one instance, and come back in and feel totally tired and drained, to know you had

done it well. And no one can take that away from you. You know, all the other things that were going on, it was matter of spin as opposed to anything else, but that they couldn't take away. And that was very satisfying.

There was one EVA we went out, I think it was the first one where Bill Pogue and I were out and we had to repair an S-193 antenna. It was an Earth Resources Package. It had an antenna that was supposed to swivel, and it was no longer swiveling, so we had to go take a part outside and run some electrical diagnostics on it to figure out where it was wrong and then, depending upon what we found, how we'd fix it. We eventually got it to where we could at least get it to swivel on one axis but not two.

But in doing that, to take that thing apart, turned out to be not like it was on the ground, where you said, well, what you do is you take the insulation off, get a screwdriver, and you just go bum, bing, bing, bing, take the screws out, and there you are. Well, it turned the real flight article was not quite the same as the training one, so the screws were here, but there was a lip over it, so that what you had to do was to come in and undo it using a screwdriver from the side. I don't know if you've ever tried to undo a screw from the side with bulky gloves on and with someone holding your feet while you're thrashing around. And that took a little doing.

Bill didn't think it was going to be possible, but we figured, let's keep pressing on it. So we took turns on it, and finally I got it and got that thing off. But came back in and had blue fingernails, just from doing the scrunching down all the time. To this day, I don't think most people on the ground understood what was really going on, how difficult that thing was. But it was satisfying that we made it work.

The other part about a space walk that's fun is it really gives you the perception of height. It's like going up into a tall building where you look out the window and you think it's interesting that you see all the little people down there. But now if we open the window and take you out to the end of long springboard where we get this steel-fisted Arnold Schwarzenegger who's going to grab you by your ankles and hold your head down, and you're at the height as you were inside, but somehow it feels a bit different. On a space walk you get that same feeling, just a little bit more of it.

Think a light over the Earth, very serene, five miles a second, and in your mind, you know from the laws of Sir Issac Newton that you're up there to stay, but when you look straight down at Earth and you don't feel anything around you one way or the other on either side of you and it's just you and the Earth 270 miles below, this little voice comes out of nowhere and says, "Maybe this Newton guy is just a little bit wrong." Intellectually you know what's going on, but your gut's telling you something entirely different. Aside from the view, I guess you'd just call it a thrill. I mean, to be up above Earth and be falling toward Earth, which you are, but you're not part of a space station, you're not part of anything. It's just you and the ground. It's a great sight and it really gets your heart going.

BUTLER: Oh, I bet. Again, one of those things that you truly have to experience to be able to understand, I'm sure.

GIBSON: Yes. I've tried to give you that analogy, but that's the best analogy I could give you.

BUTLER: That's a very good analogy, a very good analogy. I can imagine being held out, and I guess it is that sense of not being enclosed anymore.

GIBSON: You're not enclosed. You're not part of anything any longer. In an airplane you feel part of; you're inside the airplane. But you were hanging from the bottom of the airplane you might feel different about that height.

BUTLER: Sure. I guess it's more natural being inside and enclosed and you know that support's there.

GIBSON: You get that feeling also, I've since gone skydiving with my sons, and you get that feeling when you step out the door sometimes. That first step is a long way down.

BUTLER: Sometimes it's hard for you to make your body make that first step.

GIBSON: That's right. You get that same feeling with an EVA when you move away from the spacecraft. That's why really I think Bruce McCandless [II] and all those guys who have flown the MMU [Manned Maneuvering Unit], that must have been a great experience. I don't know to this day whether they felt that, with this thing on their back, it felt as though they were driving a little sports car out there or whether they felt like we did, just you and the ground.

BUTLER: It's probably pretty similar, I would imagine, since there was nothing enclosing—

GIBSON: I think it'd have to be. Yes, it's just getting away to where you don't feel part of the structure around you.

BUTLER: And even from Bruce McCandless being able to see that structure off in the distance looking back toward the Shuttle and truly recognizing that—

GIBSON: You know, we were talking about that feeling. He didn't realize that when we were up there how stable that space station was and how much of it felt like a home in the sky until we finally left it and got into the command module. And as soon as we undocked from the command module, all of a sudden we're in this little sporty vehicle that we really maneuver, and I thought, "Hey, we're flying again." And all this time, of course, we'd been flying. It was spaceflight all the time, but all of a sudden we're in this little sports car. It's like going out to your car, out of your house and going into your garage and getting into a sports car and you get back on the road again. Well, that's what we felt when we left it. And I thought, "Gee, that's great." That space station felt so stable. It felt so much like a home in the sky that we felt completely at home there, very comfortable.

BUTLER: That's good. That's really good. Hopefully that perception will continue for [International] Space Station, and that'll help—

GIBSON: Oh, I'm sure it will and even much more so because this thing is so large and massive. I'm sure people will have that feeling. I'm sure they did with *Mir*, too.

BUTLER: Yes, that's so big you could not see somebody for the whole day, from what we've heard. Very different experience.

GIBSON: Yes. Well, actually they lost me for one morning.

BUTLER: Oh, really?

GIBSON: Yes, I mean, the Skylab had several different compartments, and I was in the orbital workshop and I was trying to find some of the old procedures that the previous crew had used for something. So I was behind the freezers where they had put all that data. Jerry and Bill were looking for me, and they just glanced in the orbital workshop and didn't see me. They looked out and said, "Hey, the command module's still here. He hasn't left. So where is he? The door's not open." So I finally meandered up and they said, "Where have you been?" So, it could happen.

BUTLER: That's pretty good. That's certainly not something you would expect, to lose a fellow crew member.

GIBSON: Yes, it was a pretty large area, volume, that we had in there.

BUTLER: And you were able to enjoy that volume to some extent with being able to do various acrobatic-type—

GIBSON: Yes, that was enjoyable.

BUTLER: Looking back over your mission, was there any one point that was your—well, I guess, looking out at the Earth, was that your favorite part of everything that went into it?

GIBSON: Yes, when I look back on it, there are several things. One is this totally integrated enjoyment of looking back at the Earth and realizing that you're just on the forefront of something which is going to grow and become much larger in the future. Another was the space walks, for what we accomplished as well as just working in that environment. And the last was some of the good science that was done and being able to use your human ingenuity, not to be a button-pusher, but to exert some human judgment into how you did the experiments and then improve the quality of what was brought back. So all those things, those were real satisfying.

BUTLER: Certainly something to be proud of and to be glad to be a part of.

GIBSON: Yes, just glad to be a part of it. I today just realize how lucky I was to be in the right spot at the right time.

BUTLER: As your mission came to a close, this was one of the first missions since early on with some of the early Gemini missions that hadn't been covered extensively by the media. In fact, they didn't even cover the return. Did you have any thoughts on that?

GIBSON: You know, at the time it happened I didn't realize that it was. People make a big deal of that, being an exception. It wasn't until I was back for a couple of months, I don't think, that I really thought about it very much. And then when I did, I thought, well, in a way that's good, because what we're trying to do is to get space to be more commonplace and to get space operations to be more accepted because they are done repetitively, over and over again. You know, people can't be sitting on the edge of their chair all the time. So it's only natural that that would happen. And I thought, well, maybe we've reached in the space program where we've become more mature and it's only natural, so accept it. And that's the way it is.

What I later reflected on was that people had lost interest in space, to the degree that they had before. It doesn't have to be a fever-pitch interest, but the level of support had dropped off and that was reflected in all the problems we had post-Apollo and finally getting the Shuttle approved and funded and up and then finally getting a space station going. All of it was just like pulling out hen's teeth. It's just much more difficult than it should have been, much more costly than it should have been.

BUTLER: What's a way that can keep, in your opinion, keep the public interest and keep that through the Shuttle as it's going mission after mission? People tend to take it for granted, almost, but there should still be that interest and excitement. Is there a—

GIBSON: Well, there are two things. One, of course, is practical applications, and that's always a tough sell, but I think when we get a space station up there and get it fully

operational and can take people who are really specialists in their given fields and creative people who can be put in that environment and allowed to think and experiment creatively, do an experiment for what the word "experiment" really means and not just pre-canned, then we're going to learn an awful lot, and we'll have coming out of that new scientific discoveries, technology, and, in some cases, basic science.

Then the other is, all people have to do is go out and look at the stars and say, hey, we've just made the first micro step out our front door, and it's all there and it's becoming more within reach all the time because of improvements and technology.

You know, one of the real competitors that we have is Hollywood. They do such a great job with *Star Trek* and other movies, that it's very difficult for the real world to measure up against that, and that's why we were so glad to see *Apollo 13*, the movie, come out. Ron Howard, [Tom] Hanks, and those folks did such a great job. They showed how much drama there really is in the real world.

But we have a tough time, because if we're not out there with a tricorder and beaming people around, then it's all mundane. But it does open people's eyes up to what lays in our future, not those specifics, of course, but we've just barely put our toe out the front door, and we're going to be looked upon, I'm sure, in five hundred years to a thousand years hence, as the caveman era. We think we're pretty advanced, but compared to where we're going, we're just neophytes. People need to get that perspective and see where we're going and say, "Let's move ahead as fast as we can, because it sure is interesting to explore and to learn new things."

BUTLER: Exploration's almost a part of human—well, it's been a part of human history and hopefully it will continue to be.

GIBSON: Well, it is. You go out and you go around the next bend, you've got to see what's there. You go over the next mountain, you've got to see what's there. You go across the ocean, and finally into the air, and now into space, and you realize, look out how many stars are out there. Terence Dickinson wrote a book, excellent book, called *The Universe and Beyond*, and in there he cites from a probability standpoint a number of star systems that have planets out there, numbers like all the grains of sand on the beaches of the whole world. So, you know, to think it in those numbers, you say, "We're not unique." There's other forms of life out there, and it's only a question of time and distance, and eventually we will find other life or they will find us. I'm not UFO'er or anything, but the odds are so overwhelming. And let's get on with it and let's not spend much of our gross national product on it, but let's get serious about it. Let's get on with it.

BUTLER: It's an infinite universe. There's so much possibility out there.

GIBSON: Yes, it really is, and we got the stepping stones called planets, and, you know, let's move on from there.

BUTLER: And we are on the way, slowly, but we are on the way.

GIBSON: We are. At least we're still moving.

BUTLER: Shortly after coming back from Skylab, you chose to move on from NASA, in fact, to be able to work some more of the information that you had been able to bring back.

GIBSON: That's right. There was not much happening when I came back. So I said, "Well, why don't I go work on some of the Skylab data for a while," which I did.

BUTLER: That must have been an interesting time period for you to have first been on the Skylab doing that work and then being able to come back and spend so much time at it.

GIBSON: It was. That was gratifying, to take it from one end to the other.

BUTLER: Not many astronauts even had that opportunity.

GIBSON: That's right. Right.

BUTLER: Before you came back to NASA, you worked with a group in Germany. Is that correct?

GIBSON: That's right. I worked with ENRO Raumfahrttechnik, which is a German aerospace company which was an integrator for Spacelab. What happened was that I'd learned of that opportunity through Joe [Joseph P.] Allen, who had worked there many years previous, and I talked to Chris Kraft and said, "You know, I sure wish Space Station were going to get

going," and he said, "It's right around the corner. As soon as the wedge from the Shuttle spending opens up, more funding, when the Shuttle drops off in terms of funding requirements, all this money will open up and we can get on with the Space Station."

That's really what I wanted to hear because I really wanted to fly on the Space Station. I was willing to dedicate the rest of my professional career to it. So I talked to him about going over to Europe for a year, and he said, "Sure. We need someone over there to work with the Europeans to try to integrate them into the manned program, and anybody who can help us with that, that's great. We're not doing much with the station right now."

So it was agreed that after I went over to Europe for a year, I'd come back to Johnson, which I did. But unfortunately, when I came back, even though the Shuttle was interesting, the station funding had dropped to zero, or close to zero. It was just a study. It was during the [James E.] Carter administration. Other selections that were made, we had people there who did not pick the ball up and go with it.

I started calculating out my age and adding eight years to it, because that's how long it would take, I thought, to get a space station up. And when that came out over fifty, I said, "Well, heck, you know, my chances are I'll never fly on Space Station." And even now, obviously, it would have been doubtful if I had stayed in the program I'd ever fly on Space Station. So I said, "Well, I have to make a career decision. Flying in the back of the orbiter would be interesting, but it's not worth spending another eight years just waiting for it and giving up an opportunity to have another career in something else."

So, much to my regret, I didn't really want to leave the program, but I just didn't see where there was that next mountain in the program to go climb. So I did leave. I reflect back on it, and I think maybe if I had stayed in, I could have done the space walk for the Hubble

Space Telescope repair with Story Musgrave. That probably would have been something that had I known ahead of time, that it would have been worthwhile sticking it out, but you didn't know that. The Hubble—didn't even know what problems that Hubble was going to have, and what was perceived was, you'd go up with seven other people in the back of the orbiter and push a few buttons and come back down in a week. Compared to Skylab, that was not much. So I'm sorry to put it in that context, but in a relative sense that's the way I viewed it. I wanted to go help build a Space Station and then fly it, and when that was no longer a possibility, I said, "I'd better move on," so I did.

BUTLER: Before you did move on, you worked as chief of the scientist astronauts there at NASA.

GIBSON: Yes. Actually, I was in charge of the new candidates that came in, all of them across the board.

BUTLER: What was that like in comparison to your days when you had been going through the training initially?

GIBSON: Oh, I think it was good because I was sensitive to what we had experienced, especially as scientists coming in, and I knew anybody coming in the program is somewhat intimidated when they come in the front door, and yet they're all real fast burners and really capable people. So your job is to make them feel comfortable and get them going doing something productive, because if you don't, if you give them just busy work, they'll see

through that in a second. So make them feel comfortable and give them something worthwhile to do and make sure that their training is efficient. And that was satisfying. I enjoyed doing that because I know how we were viewed when we came in and what happened to us, and I said these guys shouldn't see the same thing.

BUTLER: Certainly the views on scientists and on science in general for the space program have changed since the beginning as the goals and as the program has grown. Science now has a much higher emphasis in the program than it did before.

GIBSON: Oh, yes, now you regard the breakdown of the classes—what, 46 or so, where 40% are pilots, 60% are mission specialists of one kind or another. People do realize that the objective of this whole thing is to accomplish things in orbit, many of them scientific, and you ought to have the right people up there. We have still yet to learn the lesson of how to make it most productive, though. But that'll come with time. That will come.

BUTLER: Hopefully now we will have lots of time to almost experiment with that.

GIBSON: Well, we saw the natural progression in Skylab. Gene [Eugene F.] Kranz, much to his credit, said toward the end of our flight, "Just give them a couple of days off. Let them do whatever they want." And it was great. I took a Sunday off and I worked the ATM figuring out what I needed to do and then coordinated with the guys on the ground and went off and did it, and it was one of the most satisfying experiences up there, because it was no

longer just trying to work to see how close you could get to where you were supposed to be and not be behind, but you really get ahead of it. It was enjoyable.

BUTLER: You got to flex your mind as well as just trying to keep up with things.

GIBSON: Right.

BUTLER: Well, when you did move on from NASA on that last stage as Shuttle was coming into view and since, unfortunately, the station was more than a few years down the road ultimately, what did you move on to next?

GIBSON: I went to TRW, which is technically a very high-powered place, in California, worked on all their energy projects. At that time, if you recall, we had the energy crunch on. So I figured, okay, that's one of the larger challenges that our nation has right now, is alternate energy. So I did that for quite a few years and then the price of oil came back down, and, unfortunately, a lot of emphasis came off those things. But it was enjoyable while I did it.

BUTLER: And at some point along the road you got interested in writing science fiction.

GIBSON: Oh, yes. Well, see, I had written that textbook and I knew how hard it was, because every fact had to be right and it had to be explained exactly. And I thought, gee, wouldn't it great some day to just sit down and you don't have to worry about facts or anything, just sit

down and let it flow. By God, you ought to be able to rip a novel off in week, two weeks, no problem. And so I thought I'd give it a try, and I found that it isn't quite the way it works. But, nonetheless, it was really an enjoyable experience. It was a very creative experience, and I was always looking for something creative to do, and that was my outlet, because I'd find some of the things that I was doing, whether it was at TRW or others, where a lot of it was bureaucratic, unfortunately, even though you're working on the end result is very noble and very worthwhile, but the process for getting, many times creativity is left out of the picture. So I needed an outlet, and so I'd do that, and it was enjoyable.

BUTLER: And I'm sure you were at least able to put some of your experiences with the space program into play.

GIBSON: Yes, I did in the first novel, called *Reach*. I thought it was a good way to explain to people what it's really like to fly and do in a way which—no one wants to hear the Ed Gibson story.

BUTLER: Well, we do.

GIBSON: Well, yes, but I mean seriously. Maybe the Al Shepard story or the John [H.] Glenn [Jr.] story, but, you know, by the time we came along, people didn't even know who we were. But I still was interested in trying to get across to people what it was like to fly, so I put a lot of that in there.

BUTLER: Certainly a unique avenue to move into, and another new challenge for you, as you said.

GIBSON: Yes, yes, that's right. Another. If the hill's not there, you've got to create your own.

BUTLER: Always good to have those hills and those challenges. Looking back over your whole career with the space program in particular, what do you consider was your biggest challenge?

GIBSON: Probably the biggest challenge was that huge step up that I faced when we first got into the program, was to become technically competent, learn all you had to about spacecraft and how to make it fly, the public relations, working alongside people who you regarded as legends at the very beginning. It was one heck of a challenge.

I mean, you're down here and you look at where you've got to be is up here, and that's a pretty high step to climb, and you were just scrambling every day trying to figure out if you were ever going to get there and how to do it. So that was probably the biggest challenge. I mean, you had to balance all these things, the technical side, the public relations side, the human interaction side, and still try to keep some semblance of a family together. Fortunately, my wife did a great job there. So I think without having a supporting wife, I couldn't have done that.

BUTLER: How did your family take all of your activities in the space program and adapt to them?

GIBSON: Well, the kids nowadays, they look back and now they realize what we were doing. But at the time they just thought every dad flies. You know, when they're in elementary school, we had so many kids around us, around them, who had fathers who were in the program. I know when I was up for 84 days, my wife was at at least a hundred parties, so she had a great time while I was gone.

It was great group that was created, of the first four or five groups there, of people who were in the program. We got together socially, not in a compulsive sense, but when we did, we really enjoyed them. All the kids knew each other and that was a certain little community there that you just don't run into again. Most of the environments you live in, people are aloof, and that was not true here. Everything was young, vibrant, make it happen, we're all in this together, and we worked hard and we partied hard, and it was a good time.

BUTLER: There certainly were, as you mentioned, a lot of unique individuals and people, everyone working together to make it all happen, but were there people that stand out for you even now that made a large impact on you or, in your opinion, on the space program that you'd like to mention?

GIBSON: Yes, I already mentioned one, was Deke Slayton. Again, I was really intimidated by him when I first met him. He was a tough cigar-chomping test pilot and you could tell he was a no-nonsense guy. At the same time, when you got underneath him, you find out he was purely motivated to make the program work. And if you were on his side of the table and trying to make it work, he'd support you to the hilt. And so, yes, I think Deke—I think

that characteristic is something that people should emulate. You can certainly do a lot for other people.

Another guy whom I really admired in his quiet capacity was Story Musgrave. He got in the group after me. Even though he was not a test pilot, he was probably the best pilot I've ever flown with in terms of an instrument pilot. There's a few others, I think Fred [W.] Haise I've flown with, who was very good. But Story, it was like when you were in the back seat watching him fly instruments, even in rough weather, it was just like the machine, it was run by computer. He was such a good pilot. He did almost everything that well. He was a very meticulous guy.

He started out by leaving high school and joining the Marine Corps and finally he ended up with, I don't know how many thousands of degrees he's got. I mean, he's got degrees in computer science and he was a physician and surgeon and degrees in computer technology, business administration, you name it. But he's kind of a unique guy. You don't run into many Story Musgraves throughout your life, which was the interesting part of being in that program, because a lot of these guys were all unique and hard-charging in their own way. Those two stand out.

BUTLER: Those two are good examples of the unique people you worked with. We talked about what you would consider your biggest challenge. Do you have anything that you would feel is your most significant accomplishment?

GIBSON: You know, I've said many times that if it wasn't me, it would have someone else who would have gone through and done the whole thing. So I'd have to say what did I bring

to it that was unique? I think it was that I had this background from Caltech and had a real good understanding of physics in some areas and then applied it in solar physics. Then I also had an athletic background, so I was able to work all these things in together and apply it to the astronaut program.

I think that's an accomplishment, being able to bring all those things together and perform at a certain level of excellence that someone else may not have because they didn't have the same background or the same inherent wiring in their brain structure, whatever it is. But I thought perhaps that was something that I was unique in and was able to contribute in that one area. So, you know, I was in the right place at the right time. If they'd asked to be an opera singer, it would have been all over.

BUTLER: Well, you certainly did have all the right stuff, in a sense, to make it all happen and to make quite a unique contribution, and we certainly appreciate you sharing that with us today.

GIBSON: My pleasure.

BUTLER: Is there anything that you can think of that we didn't touch on, that you'd like to mention?

GIBSON: No, other than that, as I said many times, I was just glad to be in that spot, because since then you realize when you're not in such a privileged spot, how difficult it is sometimes to make an impact the way you'd like to. There you just had everything going for you. The

wind was at your back all the way. It was a great opportunity. And then you get a lot of people, my wife in particular, who supported me.

BUTLER: Well, I thank you for the opportunity of letting me talk to you today. It's been a pleasure for me.

GIBSON: Thank you.

[End of Interview]