

ORAL HISTORY 2 TRANSCRIPT

RICHARD F. GORDON, JR.
INTERVIEWED BY CATHERINE HARWOOD
HOUSTON, TEXAS – 16 JUNE 1999

HARWOOD: Okay. It's June 16th, 1999. We're at the Johnson Space Center in Houston, Texas. I'm Catherine Harwood, and we're interviewing astronaut Dick Gordon. I want to first thank you very much for agreeing to do this interview and to share your stories. I kind of want to start at the beginning of you becoming an astronaut—really before—and talk about the selection process and how—I take it that your good friend Pete [Charles C.] Conrad [Jr.] encouraged you to apply? Or—take us back and walk us through that process.

GORDON: No, I was trying to take his place. Actually, it all started really back with the Mercury selection in '59. I was a test pilot at Patuxent River, Maryland, Test Pilot School. Or it's center—I was through school—and I was not part of the group for the Mercury selection. And then when they decided to have the second selection in '62, I was part of that selection process—as was—same with Pete, and we were both in the same squadron. So, we were in that routine and group of people. He was selected. I wasn't. And I had some very strong emotions about that, you know.

That's a sign. You're not selected. This, that, and the other thing. So, I was bitterly disappointed about that and almost resigned from the Navy at that time and went into something else. Chose not to. Calmed down after a little bit of time and then deployed with the squadron as a—to the Far East on the *Ranger* in '62 and '63; and then was assigned to

post-graduate school in Monterey, California, in mid '63. And there was this third selection process going on; and I was selected that time in October of 1963.

HARWOOD: And you mention your bitter disappointment. Was it—from what I've read, though, you weren't one of these guys who grew up dreaming of being an astronaut or even a pilot really. It was something you—

GORDON: No, of course not. And probably most of the guys didn't at—you know, in the early days. When I was growing up, "astronaut" wasn't even in our vocabulary. Nor was "cosmonaut." Nobody even thought about that. Ironically, when I graduated from college in 1951, the Korean War was going on and I was—had a military service obligation. Decided to go in the Navy and learn how to fly, which I did in Pensacola. Took my—went to Pensacola, Florida, in that Fall of 1951. And ironically enough, at the time I was going through preflight school I hadn't even met an airplane yet! This—some gentleman came by and was going to give a presentation in the auditorium. And they marched little cadets over there; and this guy was talking about space and hotels and orbiting objects and this sort of thing. And we all thought he was a little bit off his rocker; a little bit kooky. His name was Wernher von Braun. Yeah. Funny how that—what goes around comes around.

HARWOOD: Did you—I assume that you got to know him.

GORDON: Oh, eventually, sure.

HARWOOD: Yeah.

GORDON: It was during the program, when I was here. But I never had any inkling that this was going to be a career. I fell in love with airplanes, and—after I met him, and chose to make that my career as opposed to going back to school and getting advanced degrees. So, that's how that all came about.

HARWOOD: Was your bitter disappointment the first time when you weren't selected in that second group more of the competitive nature of—I mean it was just you hated to lose?

GORDON: I think so. I—knowing most of the guys. Knowing the people that were involved in the Mercury Program. It was one of disappointment. I think when you're in those kinds of processes, you evaluate yourself in looking around at who the other individuals are. And you know, there are test pilots and there are test pilots. And that sort of thing. And you place your skill. You try to figure out where you are within that group; and if you devalue yourself, then you're not doing yourself a very big favor.

HARWOOD: So, you were selected in '63.

GORDON: Yes. October of '63.

HARWOOD: Now because I don't know—okay. So, you were selected basically, you know, a month before Kennedy's assassination, right? But you were selected and you were aware

of—obviously you weren't at his speech that he had given at Rice University declaring, "We're going to go to the Moon."

GORDON: No. As a matter of fact, I believe Gene [Eugene A.] Cernan and I were in post-graduate school together. We flew to Houston after the selection. We were looking for real estate, where we were going to move our families. It was at that time, I may have been the very day that President Kennedy was killed. What? November 22nd?

HARWOOD: Right.

GORDON: I have to go back and look at my flight log to make sure that it was that time. But it was right at that time that we were flying here to Houston to buy some real estate.

HARWOOD: Even though you weren't an astronaut at the time that he made the speech, though, saying "We're going to go to the Moon," was it something that you remember following in the news? Did you have a reaction to it of this challenge?

GORDON: Yes. I thought there was another crazy guy like Wernher von Braun that—Alan [B.] Shepard [Jr.] flew in May 5th, 1961. Twenty days later, we hadn't even been in orbit yet, and here's a young, vigorous President challenging the American people to go to the Moon before the decade was over! You know, how do you do that? We hadn't even been in orbit! We didn't know if men could survive for that length of time. We had a pretty good idea that

we would, but there were those in the medical profession that kept throwing up straw men. We had to prove that we could do that.

HARWOOD: Did you, when you were selected, did you realize, like, “I think I might be one of the people to help us go to the Moon?” I mean, was that what you thought was the goal?

GORDON: Oh, I—well, yeah. Obviously that was it. At that time, they had not started the Gemini Program. Mercury was just winding down. And that was the whole purpose. That was why we were selected to participate in that program.

HARWOOD: Now others have talked about the climate at the time, which it’s very hard for us to imagine now just what that Cold War environment was like and the fear and the—I’m sure you find it hard to believe that we’re now friends and teamed up with Russia. I’m sure you never thought you’d see us working with them in space.

GORDON: Well, no, I think probably not at that time, because it was a Cold War and it was a race. In the ’50s, at the heights of the Cold War, when Hungary and those things were going on—the Suez Canal—I was on the *Coral Sea*, an aircraft carrier in the Mediterranean, observing a lot of those happening and it was in fact a war. Philosophically, politically, economically, any other way you want to claim it. And this is one of the difficult aspects of today, is trying to relate that atmosphere that existed in those days. People don’t even believe it.

HARWOOD: But did you feel like you were a warrior in a war, even as an astronaut? That you were fighting a war to get to the Moon?

GORDON: In a sense, sure. We were—the space race was real. We were in a race to go to the Moon. We wanted to be better than the Communist country, the Soviet Union at that time. And one of the ways that we could show we were a better society was to challenge them and do the things that we did. You bet!

HARWOOD: Now when you were first became an astronaut, I understand that you were on before even Gemini, you were on this Apollo design group. And helping design the spacecraft, I take it: command module and—

GORDON: Yes. And the lunar module.

HARWOOD: —and the lunar module. What? From an astronaut's perspective?

GORDON: We—when we first came, we had ground school-type activity. We were in lectures and learning the phraseology and the business of space, I guess you might say. And then after a short period of time, when the second group had actually been assigned to flights in Gemini, we picked up the things that they were doing. And what they were doing, what that was, that we then took a particular portion of the program—boosters, communications, whatever. I had cockpit controls and displays. So, I had a overall view of things that were going on and what we needed to control particular systems in the vehicle. If we had to—we

had the right information and the right switches where we could do that. That was my task, and it was an interim between first becoming acclimated to the community of space and before we became assigned to a flight crew.

HARWOOD: And as part of that, my understanding is from what I read of the—your previous interview, that there were kind of three stages that you have your Preliminary Design Review, Critical Design Review, and then it would get manufactured. Take us through each of those steps and what was critical about each step, and what was your involvement in them.

GORDON: Well, it was working directly with the contractor; you know, working directly with the systems engineers here at NASA. Each system had an engineer or a group of engineers assigned to it. And they—NASA would work very, very closely with the contractor to design those particular systems. And then the Preliminary Design Review was just a paper kind of thing that had mockups and this type of thing. But you reviewed the process that was occurring at that time, whether it was a—the design was being manufactured—was going to be manufactured in the manner in which it was designed. And then the next step, of course, was the Critical Design Review where you actually had hardware to look at, and actually had the way the spacecraft was going to be built. And the next step beyond that was actually working with the actual spacecraft itself, going through altitude chamber tests, all the tests with the individual systems, and then the integrated systems test. Then the real vehicle itself.

HARWOOD: Can you remember any specific inputs or suggestions that you made things? And be real specific. I mean, you don't have to give me all of them. Just remember one that might stand out of something that you think you played a role in helping change. Maybe something that you looked at it as— in the design review.

GORDON: Well—I think there are probably several things. Moving the secondary attitude reference system from the right-hand side to the commander side, so he had two reference systems that he could refer to. But he was the only one with any controls. It wasn't like a pilot/copilot type thing, even though there was some sense that maybe that was the way it was going to be. Gemini was very much like that. But, the command module and—more than the lunar module evolved that the person in the right-hand seat wasn't really a copilot. So, all the controls took a—even for the booster in the spacecraft were on the left-hand seat where the commander sat. So, let's give him all the tools that he needed.

More specifically, ironically enough, we had two separate designs for the command module. One was called Block I and one was called Block II. Early on in the design review of the Block I, one of the things that we complained very bitterly about was the hatch. It was very difficult to open. It was dogged down from the inside. Took a long time to get it open. And it was not like Gemini hatch, which opened outward very rapidly and very, very quickly. So, that was one of the complaints we had.

Ironically enough, Gus [Virgil I. Grissom] was involved with that original design and when they had the fire, Apollo 1 at the Cape [Cape Canveral, Florida], that was one of those things that—one of the problems that they couldn't get out of the spacecraft in time. So, the Block II reversed that situation and designed a hatch that was opening outward. It could be

done in a few seconds and very, very rapidly. So, that was a—one of the basic inputs that we made. And it was, as it turned out, it was a tragic event that caused that change to be made; but it was made for the better.

HARWOOD: Did you find that folks listened to the astronauts' input and didn't just treat you like monkeys along for the ride? Or—

GORDON: Oh, there was some of that probably. I think we had a—we were in a very unique position where we had an audience. And I think there was probably some attitudes that were portrayed, that people listened to what we had to say, and I think there was some resentment regarding that. A lot of it depends on personalities. You can rub people the wrong way sometime, but you can be effective in your own personality to get things done without ruffling a lot of feathers. So—but there was some animosity about the input that we were able to make above and beyond what maybe an engineer might be able to do.

HARWOOD: Well, and you mentioned the personalities. You know, I've heard you and Pete Conrad kind of described as, you know, "the cockiest." I mean like a badge of honor, you know, that you wore this proudly, of being—what do you think that they—the historians mean when they write that?

GORDON: I don't know. But I'd probably plead guilty to it. Self-confidence, I think is what it really probably portrayed. It—we were better than anybody else? Sure we were!

HARWOOD: And you weren't afraid to say it?

GORDON: Well, we didn't say it. We didn't have to say it.

HARWOOD: You mentioned with the hatch design being something that obviously during the fire played a role, do you remember where you were when you got news of the fire and what your reaction was? If you could—

GORDON: Yes, I do. I was at the White House. Several of us had been invited by President [Lyndon B.] Johnson to be there and participate in the signing of the [United Nations Outer] Space Treaty with the Soviet Union. And I think Jim [James A.] Lovell, [L.] Gordon Cooper, possibly Neil [A.] Armstrong—I'm not quite sure; I don't remember precisely that—and I was invited back because Neil and I had gotten to know President Johnson simply because he had sent us on a South American goodwill tour after my flight in—on Gemini XI. So, we were known to him on a personal—as was other people, I don't mean to say that other people weren't. But that probably led to my being there; and we were in the White House, at a reception after the signing of the Space Treaty when the word came in that there had been an accident at the Cape.

HARWOOD: Did you know right away that it was a fatal accident?

GORDON: I think we did. I believe that we did. I think I recall leaving there, and I think we got—made some calls when we got back and found out that it was. When somebody

comes in and says, “There’s been a tragedy at the Cape” or an accident, yeah, I think you kind of possibly suspect the worst. But we may not have known immediately. We found out very shortly thereafter. It was a very long evening.

HARWOOD: Did you think, “This is going to end the program.” “This is—we’ll recover.” What did you think right—?

GORDON: We didn’t give that too much thought on a personal basis. In our business, we lose friends all the time. Aviation—military aviation—is a risky business, and you go in those things with your eyes wide open. You know that there are risks involved. You lose a lot of friends along the way. My first four years in the Fleet, with two deployments in the Mediterranean we lost ten pilots in a squadron of 17. So, those are things—are acceptable. Or they go with the territory, you might say.

So, those events you accept and you press on. And I don’t think any of us thought that the program was going to end at that time. We were still in a very significant race with the Soviet Union. And the Administrator at that time was James [E.] Webb, who did a tremendous job of carrying the ball along the way and making sure that the program would continue.

HARWOOD: Did you see a change in the way the advice of astronauts was received by contractors and even NASA after the fire as opposed to before?

GORDON: No, not really.

HARWOOD: No?

GORDON: I think our inputs were the same. I—and I don't mean to imply that everything we said was correct and everybody did what we wanted to do. Probably a lot of cases, they didn't or couldn't for a lot of reasons. One of them would be schedule. Cost. All of those things would have to be evaluated. And NASA had set up a very strict Change Control Board that made those evaluations, and a lot of our ideas were probably rejected. But no, I think most of the guys conducted themselves in a manner in which the suggestions they made were taken at face value.

HARWOOD: Now I guess your work on the Apollo command module and lunar module was kind of interrupted by your assignment to a crew, which I guess your first assignment was a backup on Gemini VIII, right?

GORDON: That's correct.

HARWOOD: And so, that interrupted—

GORDON: The best thing that ever happened to me.

HARWOOD: So, you know, you're training for that mission. What was the training like? I mean, what was your first reaction to going from this other job that you had to this active training? You've got a crewmate, etc.?

GORDON: Well, first of all, your goal is to be assigned to a flight crew. Once you weren't going to fly, the first step was to get assigned to a crew, a backup crew or whatever the case may be. So, I was actually elated to do that. Very pleased that I'd be working with Pete again as we were both the backup crew on Gemini VIII, backing up Neil Armstrong and Dave [David R.] Scott. It was my first involvement with the actual hardware, the Gemini vehicle and the things that we needed to train on to get ready for flight.

HARWOOD: When you in terms of Gemini VIII, when they had the problem during flight and the spacecraft, you know, started this uncontrolled spin, you—I take it you were in Mission Control.

GORDON: Yes, I was.

HARWOOD: What was your reaction to that? I mean, what role did you play?

GORDON: Well, it was very little because most of it was done outside of any information that NASA had. I think the first thing we probably heard was they got into trouble. But Neil activated and Dave activated the reentry control system without knowledge of Houston. They did that on their own to control the spacecraft. Once they did that, they were coming

home. There wasn't any question. There wasn't any argument about it. It was part of the Mission Rules that once the reentry control system was activated, the mission was essentially over.

HARWOOD: Do you remember the climate in Mission Control? I mean, was it fear? Was it—

GORDON: No, I—there was a lot of the things went on without Mission Control's knowledge because they were out of radio contact. And we heard—we knew that they had a problem. And the next thing we kind of discovered that they had to activate the reentry control system to recover.

HARWOOD: So, you didn't really know what they were going through until they came back and told—

GORDON: Yes, that's correct.

HARWOOD: Do you think—I mean, you know, when you read it—

GORDON: At least I should say that's my recollection.

HARWOOD: Right. It sounds like a harrowing experience for them. I mean, in that—

GORDON: Probably was. The roll rates were becoming very, very excessive.

HARWOOD: And from what I've read, it could cause blackout. And the fact—do you think the fact that Neil Armstrong was able to handle that emergency, I mean, just your opinion, played any role in him winding up being on Apollo 11?

GORDON: None whatsoever. That whole decision was arbitrary.

HARWOOD: Yeah.

GORDON: It was not a conscious decision that they were, in fact, going to be the first crew. That was the way the way the dice were rolled, and the crew assignments were made. And Deke [Donald K. Slayton] had a system where you essentially rotated every three flights. And that's the way the cookie crumbled.

HARWOOD: And when you say "rotated," you mean you were the backup crew and then three flights later—

GORDON: The prime, backup, prime if you stayed on that crew. And in my case, that's exactly the way it happened. Backup on [Gemini] VIII, prime on Gemini XI, backup on Apollo 9, prime on [Apollo] 12. Backup on Apollo 15.

HARWOOD: Okay.

GORDON: We had no Apollo 18.

HARWOOD: We're going to get to that. I'm saving that. I know you have some feelings about that. So, you go to prime. You go from backup on VIII to being prime on XI. And you're training for this EVA [extravehicular activity], and people had already had problems with EVA. Take—you know, forget about what happened on your EVA because we're going to talk about that. But I don't want you to have that perspective. I don't want you to think about the problems when you talk about the training. And what was your training like in terms of factoring in previous astronauts' experience, and, you know, how did you prepare?

GORDON: Number one: I don't think we did a very good job of previous astronaut experiences with EVA. I didn't learn about some of their problem until well after books were written—

HARWOOD: Really?

GORDON: —to be perfectly frank about it. And I guess there's probably a logical reason for that. We didn't have enough time really to assimilate the information or we didn't grasp the significance of the information that was being brought back. Now, remember: we were on 2-month launch centers. It was almost like just passing each other to and from the pad. And there wasn't a great deal of opportunity to assimilate the information from

previous flights. So, I don't think we did a very good job of transmitting to each other the things that were happening. And in the training for XI, I certainly didn't anticipate any problems with the EVA. As a matter of fact, the training we did was basically in a zero-g airplane.

HARWOOD: You don't remember any discussion about handholds, footholds, any—

GORDON: Nope. We didn't have any.

HARWOOD: Right.

GORDON: If there had been discussions about that, we would have probably thought about it and said, "Hey, maybe we should supply some of these things." As a matter of fact, it wasn't until I read Gene Cernan's book that I realized the problems he had handling an umbilical and free-floating outside the vehicle. I was totally aware of the problems he had of his face plate fogging over and everything in the night side pass when he was in fact back in the adapter section. And I didn't realize Mike [Michael Collins] had all the difficulties he had on Gemini X, when he was free-floating over to the Agena spacecraft from VIII to get an emulsion package off of it. I didn't realize at the time, if I knew it, it didn't—I mean, it didn't sink in.

HARWOOD: And it didn't lead to changes in your training as a result of things.

GORDON: No. No, it sure didn't.

HARWOOD: Hmm. Very interesting. There wasn't any even discussion about, like, tethering yourself to, like, tie you down a little bit more to the spacecraft? Nothing like that.

GORDON: No. No. If we had tethers and had handrails and handholds, the task would've been easier. Except I had a problem with my EVA before I ever got out of the spacecraft.

HARWOOD: I take it that when you and Pete Conrad were training for Gemini XI, you spent a lot of time at the Cape and Cocoa Beach [Florida]. I just want you to kind of give us a sense of what that was like, I mean, in terms of the extracurricular activities and the—just what that area was like in terms of being at this place where everyone has this purpose of—you know, it's basically a place created with this one space goal. And it kind of, you know, has this reputation; it's like a wild, wild west town or something.

GORDON: Well, I was going to say it was a frontier town, wasn't it?

HARWOOD: Like, in a way, it was.

GORDON: In a way, yes, it was. It was a concentration. It was a very, very—two attitudes. It was a very tense environment, because of the work and the pressures of work. And it was a relaxing place to be as well.

HARWOOD: Was it a party town?

GORDON: Yeah, you might say that if you wanted to. There was parties you could participate in. We made a lot of friends at the Cape, and we still have a lot of friends there that we still communicate. They'd have us to their homes and they'd throw parties. We were normal human beings, and we played hard and worked hard.

HARWOOD: Was there this sense of just what it was that you guys were going to do? I mean, at the time you are really putting your lives on the line in a way. I mean, you know, you look at the early rocket launches and, you know, primarily before Mercury and—

GORDON: You mean, when things were blowing up?

HARWOOD: Yes! I mean, was there that sense of, you know, "Wow! These guys are, you know, really something special." Or—

GORDON: I don't think we felt that way. You know, I mentioned before that that was a risk of our occupation. We were involved in those kind of things. And we had so much confidence in ourselves and each other and the people that were involved in the program that, you know, we wouldn't have gone if we thought we weren't going to come back. I mean, that's idiocy! And I think, those—what people thought outside the program, I have no idea really what they thought about. But yeah, we were in a very unique position in those kind of terms.

HARWOOD: The—your first launch, you know, just describe what it was like to finally, like, launch.

GORDON: Well, we had made several attempts to launch in Gemini XI. I think it may have been the third one, and our backup crew—Neil Armstrong and Bill [William A.] Anders—said this was our last chance. They were going to go next! And I think we were on, this was the third attempt that we had a launch on XI. I guess the real reality of those things, you've been trained for so long and so well that you're really anxious to go. I mean, you know, "Let's get the show on the road!"

And in reality, when the show does hit the road it's a lot easier than the training cycle, as far as those missions are. So, it's kind of a release that you're finally going to get to go. The adrenaline's flowing. Sure you're excited. It's a great adventure, one that you've not experienced before. Other people have and they try to relate that to you a little bit, so you have a sense of what's going to happen. But it's all brand new!

HARWOOD: What was it like to have that experience of being the first one to try to dock with the Agena after just one orbit?

GORDON: That was very interesting. It was a lot of—there was a lot of controversy about M=1, which meant the first orbit. It was designed basically because we knew, in the Apollo Program, we were going to have to dock in a very rapid manner because of the lifetime of the ascent stage. I forget what the exact numbers were, but I recall something like nine hours.

And it takes two hours to orbit the Moon; so with some cushion there, it tells you that you should rendezvous as rapidly as you possibly can in a feasible manner. The early rendezvous in Gemini were very slow, very methodical, very, very, staged. Fuel conscious. All of those things. And we had to learn. I mean, it was just a learning experience to go through that.

The M=1 was exciting. We made one burn after—a short time after we got into orbit, which was a TPI [terminal phase initiation] combining all of the other previous burns that were made in rendezvous. We caught up to the Agena by the time we got to Hawaii. We had docked with it by the time we got to the West Coast. And we came over Cape Kennedy after one orbit, docked to the Agena rocket.

HARWOOD: And then I take it that you undocked and docked a few times. And that Pete even let you have a try at it, which—were you expecting to get a try? I'm not clear whether it was planned that you'd get to really fly.

GORDON: If he hadn't let me do that, I'd have thrown him out of the spacecraft!

HARWOOD: So, you knew he was going to let you. Or was it on that mission manifest?

GORDON: I don't even recall whether it was or wasn't. But I—in reflection, I fully anticipated I was going to get to do that. And I think—well, I practiced it. So, it must've been somewhere along in there—

HARWOOD: Okay.

GORDON: —but I—he did several dockings, and I did a couple. More than one for sure. And just my first sense of flying a vehicle.

HARWOOD: Did you find that the experience of docking—I mean, obviously docking with the Agena, as you said, it was kind of a pathfinder for Apollo, for docking the command module with the LM [lunar module]. But did you find when you actually did that as a command module pilot in Apollo that there was a sense of familiarity? I mean, did it really help train you for what was to come?

GORDON: Oh sure. I think it gives you a sense that there's no perturbation. It's very smooth. It's very easily controlled. You make small inputs. It's a very precise maneuver. Not difficult at all. And I think you have those sense and—well, you align the vehicles, even though they were different way to do that; we had a docking target in Apollo. We didn't have that in Gemini, and we had docked with the Agena barely in a visual reference. But you get the nose of the Gemini about that far away [gestures] from the Agena and you can stop and just sit there and look at it. There's no wind or no perturbations; nothing's moving the spacecraft around. When it moves, you made it move.

HARWOOD: So, you're docked with this and you're doing your experiments. And then it comes time for your spacewalk. Walk us through the—you know, the spacewalk experience and when you started realizing you were having trouble and what it was like. What that—what do we mean by trouble?

GORDON: That's a good question. I'm not sure I really sensed the trouble until well into it. We were so anxious to get into that particular aspect of it and were so well trained and prepared to do it, actually, we got ourselves in trouble by pressurizing and being in a pressurized suit inside the vehicle about an orbit or so before we were taught—before the timeline said we would proceed with it. So, we were sitting in the vehicle with pressurized suits, a pressurized Gemini, and waiting to—in a particular portion of the checklist, just sitting there waiting to proceed.

Once we started to do that, the last thing I had to do, and I was in a pressurized suit, was take that gold visor and attach it to the helmet and—which was the outer visor outside of the Gemini helmet itself. And I couldn't get the bloody thing on! I had looked at that in training and looked at the flight article, and fit-checked it to my helmet, and I just simply couldn't hardly get my arms up because of the pressurized suit to position that correctly. And I—it got messed up. I think I got one side in and couldn't get the other side in. And I was getting frustrated because of that, and it was very difficult. I was becoming exhausted right before even depressurized the vehicle. Even got to the point where I tried to lean over and put my head in front of Pete to let him put the bloody thing on, and finally we got it on. I finally, just from exertion alone, got the gold visor on. And then we were ready to proceed.

And once the hatch popped open, I kind of floated out almost immediately with the rest of the debris that goes from a spacecraft when you first depressurize it and then proceeded to carry out the timeline for the EVA itself: proceeded to the nose of the Gemini vehicle and attached the tether to the docking bar. I floated—I tried to direct myself and push off from the hatch and float out towards the nose of the Gemini, which is only, what? 8

ft away or something like that. And floated—actually went above the docking bar. And Pete pulled me back to the spacecraft, and I directed myself one more time and aimed a little bit lower this time, and was able to grab the docking bar. And in the zero-g airplane, I'd always been able to wedge myself between the docking cone on the Agena and the nose of the Gemini itself. And you may have seen that picture. It was—the picture was actually the way I had trained to keep myself in position while I was using my hands to do the task.

Well, using large muscles in the legs to hold myself in position, I became oxygen deprived. Respiration rate went very high. Heart rate went very high as well. And I was just to the point virtually of exhaustion when I went out there. And I've described the task later on as, "Somebody wants to know how it felt. Just tie your shoelace with one hand." And that's the kind of effort. Because I needed both hands to put the tether on. When I let go of the docking bar to do that sort of thing, my hands became free and all of a sudden I was floating away and had to grab the docking bar again.

So, I got behind the power curve on that. And that essentially ended the EVA. I had other tasks to do and other things that—I'm kind of glad we never really got to them, because we weren't prepared as it was to use maneuvering devices, backpacks, and float around free in space and that. If any of us had done that—Dave Scott on Gemini VIII, Gene Cernan on Gemini IX—we probably would have had a lot of problems.

HARWOOD: Just because of the exhaustion?

GORDON: No. Because we weren't ready for that kind of activity.

HARWOOD: You didn't have the foot restraints and the handholds.

GORDON: Not only the foot restraints. But we weren't—you know, it wasn't until Bruce McCandless finally went in the Shuttle Program, many, many years later, that we were successful in doing that.

HARWOOD: Do you—did you know—

GORDON: I think we might've been in serious trouble if we had have gotten the backpacks on.

HARWOOD: Really. But it—just the equipment wouldn't have worked?

GORDON: No, it probably worked. It would just—the manner in which zero-g and the laws of physics operate in space just as they do everywhere else in the universe. I think we could've had some real problems.

HARWOOD: Now— [Recorder turned off.]

HARWOOD: Okay. We were talking about the spacewalk and how we got into, to put it mildly, trouble. I'm curious. I mean, I've read and I'm sure you know, since you're such good friends with Pete Conrad, that he has said that it was the scariest experience he ever had. And I mean, you know, we're going to talk about Apollo 12 later. You all had a scare

on Apollo 12. So, for him to say that his concern for you and your condition during that spacewalk was the scariest thing. And you know Pete. I don't think you all scare easily. And I mean, what do you think about that?

GORDON: I hadn't thought about it really. I've heard him make that comment; I heard that comment being made. And I think he knew the extremis, the situation that I was in, because he could hear the frustration, the voice, the breathing. If you go back and listen to those tapes, it scares me just to hear them! And I don't know. I appreciate his concern. I think his concern if something happened to any of us on an EVA, if we had died or expired, we were an object in—we were a satellite in space, because he was coming back without us.

HARWOOD: He was going to have to cut you loose.

GORDON: Absolutely. And we knew that going in. It was accepted, and I think he was—he probably was starting to have that concern. But once I got back to the hatch and stood there and rested a while—I just wanted to stop and catch my breath, which I did—I wanted to continue the EVA. But smarter people prevailed, and we ended the EVA right about that time.

HARWOOD: Well, who made the decision? In—

GORDON: The ground.

HARWOOD: The ground made the decision. I mean, you agreed with it? Do—you and Pete didn't argue?

GORDON: I was not in any position to argue about it.

HARWOOD: Was the EVA only, what? about half an hour long or—

GORDON: It was 45 minutes. Something. I forget what.

HARWOOD: How long did it seem to you? Longer?

GORDON: 10 minutes.

HARWOOD: Really? So, it seemed—

GORDON: Yeah. It went very fast. It went very fast.

HARWOOD: Was it frustrating to you? I mean, do you remember what—I mean, you've said you're somebody who—

GORDON: It was at the time. It was frustrating because it was a failure and we don't like those things, even though our failures are our best teachers. And I think, you know, we learn more from failures and taking risks and saying, "Okay, you're going to fail if you take risks."

And we learn from those. We learn how to overcome them. If we were successful all the time, we haven't learned very much because it implies that we already knew how to do it.

HARWOOD: Well, and really if you had found a way to make that work, you know, like wedging yourself in things that aren't even designed to be footholds, in a way you could've just perpetuated what you admit was a pretty dangerous situation.

GORDON: Could have been, yes. And you're right. If we had taken a step back and provided the tools, which we do today, and we later learned how to do it, and actually that failure in XI and the failures from IX and X and XI or the difficulties, let me put it that way, I don't want to say "I can fail," but I don't want to say anybody else failed. But if we had taken those experiences and learned from them, we'd have gone into the water facility sooner.

It was after Gemini XI that Bob [Dr. Robert R.] Gilruth came up with, you know, "We're not getting the picture on this EVA. Timelines and everything else." So, he came up with the idea of utilizing the WIF [Water Immersion Facility] to practice those timelines. And if you don't swim against the water because of its viscosity you can replicate pretty well the feeling of zero g. It's not precise, but it's the closest thing we have on Earth that can give us that experience. So, after XI they started doing that.

HARWOOD: Did you, you know, spacewalk—I mean, the watching from the ground. You know, we had that image of, you know, that Ed [Edward H.] White [II] image; and it just—you think, "Oh, to be in his position!" You know. "To be out there. To be this human

satellite, and have the chance to look around and—” Did you miss out on that? I mean, did you have any sense of awe?

GORDON: Oh I had a chance—oh no. I looked around. I had a chance to do that. It would’ve been great just to be on a short tether and float around out there with nothing to do. But, you know, you try to utilize these environments to do work. And I look at those pictures, too, and I say, “Man, I wish I had that opportunity to do that!”

HARWOOD: Yeah.

GORDON: But, you know, you do what you’re supposed to do.

HARWOOD: Did you have, though, any sense of enjoyment? Or did you—

GORDON: Oh sure. Once you open that hatch and you have this great panorama of the Earth, you’re outside the vehicle. You’re looking through your faceplate, instead of a little small window in Gemini, and you have a totally different perspective. You have a real panorama out there in front of you. And it’s—the word today I guess would be “awesome.”

HARWOOD: You had your second EVA, which I take it was, you know, going to be positioned at getting the spacecraft into these positions to do this gravity gradient experiment and to simulate gravity. I mean, what was the goal of that?

GORDON: That was later on. That's where—

HARWOOD: Oh, I don't mean during your EVA. That was—you all were just doing that.

GORDON: Yeah, well. The second EVA was a real pleasure actually.

HARWOOD: Well, you were just taking, quote, "pictures."

GORDON: UV [ultraviolet] pictures of what they call "empty space" or "black voids." Trying to figure out if they're black holes or stars there. And Karl Henize, actually, who later became an astronaut, was the principal investigator on that experiment. And this was a very relaxing EVA. We finally sorted out our problem, and we were just being tethered very closely to the spacecraft, standing in the hatch. Immediate—

HARWOOD: So, you just opened the hatch and stand—

GORDON: Stand in the seat.

HARWOOD: You stand in a seat—

GORDON: Uh-hmm.

HARWOOD: —and just, what? point—how much of you is out of the hatch?

GORDON: Oh, from the waist up. From the thighs up maybe.

HARWOOD: And I've read that you fell asleep. Is that a true story?

GORDON: True story.

HARWOOD: How do you fall asleep during a—

GORDON: Well, you get comfortable and you get that warm, fuzzy feeling, and you fall asleep. The activities of that experiment, the UV had to be done, ultraviolet experiments, the camera had to be done at nighttime during darkness. So, we were setting up and I was trying to tell Pete where to point the spacecraft. His window was bad. And so, we were trying to coordinate where we'd point the spacecraft so the camera, which was fixed in a bracket outside the spacecraft, would be pointed in the right direction. And when the night side pass was over, we had nothing to do.

So, I was leaning up on the spacecraft, kind of put my head down on the vehicle, and I got warm and comfortable, dozed off. And surprisingly enough, when we came across the Cape and somebody started to talk to us we both went "Hunh?" He had fallen asleep inside at the same time I'd fallen asleep hanging outside the spacecraft.

HARWOOD: That's amazing. So, your second EVA—uneventful. You achieved the—

GORDON: Yes. And Bob Gilruth came back and asked a question later, if it was an acclimation problem that was the first EVA. It may very well have been. At the time, I didn't think so; but if I'd have had the opportunity to start fresh again—without the problem with the helmet, without getting behind the power curve—we might've had a little more success with the EVA and been able to accomplish a little more. But I don't think it, in reality, it made a great deal of difference. There would've been an acclimation by doing the stand-up EVA first and then doing the rest of it, attaching the tether so we—the follow-on experiment could be made. But that's the way it was.

HARWOOD: Well, then you had this experiment to do after the EVAs were over, this gravity gradient experiment. And I guess it was like kind of rotating them around the center of mass and—

GORDON: The purpose of those—Catherine, you're probably right in using those terms. The purpose of that experiment was to see if we couldn't stationkeep with another vehicle without using any fuel. So, Dr. Gilruth, one—there were two methods that were to be looked at for that kind of activity. One was a gravity gradient experiment, which we were attempting to do. And that's simply: if you take the center of the Earth and draw a radius vector, that's the gradient in which you're trying to align the vehicles.

So, here we had an Agena and a Gemini spacecraft, and we were trying to align with this—with one of the radius vectors, stabilize it, and let the system go in orbit. And what it would do, it would stay in that radius vector, we'd stay in that same orientation all the way around the Earth. Well, to get started to do that is a matter of time and where you are and

which radius vector you're looking at. Because as you orbit the Earth, it moves with you. That radius vector keeps right—moving right with you. So, we had to align that certain attitude and get there at a certain time.

Well, we had trouble with the tether, extending it, between the Agena and the Gemini. We would get near the end of it, and it'd start doing like a skip rope kind of activities. So, we'd kind of slack off and calm down; and it took several attempts to finally get to the end, to stretch the tether out all the way. By the time we got there, we had missed the time and the attitude we needed to be at for the gravity gradient experiment. So, that was gone.

Went to—time is—my impression of space is that time is the most important factor in it. It's elusive. And if you don't do it on time, with time, the experiment is gone forever. So, that one was gone. So, the next—the backup to that experiment, another way to stationkeep is to rotate the system. And this is what we—this is what we started to do with the vehicle. We started the whole system rotating.

HARWOOD: I'll let you get a drink of water. What was that like, to—I mean, did you have the sense that you were actually creating artificial gravity?

GORDON: We knew it. There was no question about it. We rotated very slowly at first; and then Dr. Gilruth wanted us to increase the rate of rotation, which we did for the second orbit. But we knew we could feel the gravity. It was very, very low. But you could feel it. You could sense it. And you could observe it.

HARWOOD: How?

GORDON: Put a pencil in front of you and let go of it.

HARWOOD: And it would—

GORDON: Instead of staying right there, it would float right back to us. So, you knew right then and there that you were creating artificial gravity.

HARWOOD: Now were these experiments that you were doing to learn something for the future? I mean, give us a sense of what it was that you think that these things were designed to do. And, you know, they still do tether experiments with the Space Shuttle.

GORDON: I know. And that's basically what that whole thing is all about. They do tether experiments with the Orbiter—with the Shuttle—and that's the basis for doing these things is to learn. But we haven't been successful with the tether yet! But it'll work. And it's—Space Station will probably involve itself with some of those things.

HARWOOD: Did you—when you came back and if there was any kind of debriefing, do you have a sense of what it was that was learned from the experiments that you were all were able to do? Even if it's just, "This didn't work for this reason" or "This worked, but here's how we can make it work better." I mean, did you get a sense—was there a follow up to let you know that, you know, sitting there today, "Here's what they learned from what we did."

GORDON: Oh, there were reports written about the experiments and the things we did. Whether or not we paid any attention to them or whether I paid any attention to them was probably lost in moving beyond Gemini and moving right into Apollo.

HARWOOD: Well, let's talk about Apollo. That's a good segue. I guess you're training first as a backup on Apollo 9 and your crewmates are Pete Conrad and C. C. [Clifton C.] Williams [Jr.]. How soon after you're named to this crew does C. C. Williams die in a plane crash?

GORDON: Very soon. I don't recall the exact dates about that, but it was very, very shortly after we were assigned as a crew. I don't recall the opportunity to work together for any length of time. Pete may have done more with C. C., because he, C. C., was a lunar module pilot, than I may have at the time as a command module pilot. But I don't remember any training that we conducted as a crew. Now we may have. I just don't recall.

HARWOOD: So then, was there any thought of just you moving over to lunar module pilot? Or, I mean, you know, when—

GORDON: No.

HARWOOD: I don't know that you all get to pick what positions you have. But how do you wind up the command module—

GORDON: No, we don't get to pick what positions we want!

HARWOOD: So, Deke Slayton tells you, “You’re on this crew as command module pilot.”

GORDON: You got it. You’re absolutely right. And what his rationale at that time was that two people are going to go down to the Moon; there was going to be one person left in the command module. His criteria at that time, till we gained more experienced, was that person that was left behind in the command module by himself must have flown in space.

HARWOOD: Okay.

GORDON: That was the ground rules at the time. So, there was no ifs, ands, or buts about it. I was the command module pilot and that was it. The same occurred with Apollo 9, 10, 11, 12. All those command module pilots had previous flight experience.

HARWOOD: But after that, that wasn’t necessarily a requirement.

GORDON: That’s correct. As a matter of fact, on 13 we showed, I guess, that it was not as difficult as anticipated! That rookies could do it!

HARWOOD: They got to really prove that. You’re training and then C. C. Williams is killed, and then this substitute comes in, Alan [L.] Bean; and what was your first—you know, I don’t know if there was—you know, you knew Pete so well. How well did you know Alan Bean? And what was your first impression? And—

GORDON: Not—I did not know Al that well. We were at Patuxent River Test Center at the same time. I was in Class 18. Pete was in Class 20. I don't recall which class Alan was in, but Pete was Alan's instructor at Test Pilot School before they got into one of the Divisions. I did not know him. We were together in the second selection, so I got to know Al a little bit at that time. But, hey look, he was a naval aviator. He was acceptable!

HARWOOD: Not one of those Air Force guys.

GORDON: I didn't say that. You did.

HARWOOD: I know. So, you're on a backup to Apollo 9 and there's this decision made, you know. George Low has this brilliant idea to send Apollo 8 to the Moon. And the person that you're backing up has this opportunity to fly that flight, Jim it was—

GORDON: McDivitt.

HARWOOD: —McDivitt. And passes it up.

GORDON: Is that a true story?

HARWOOD: Well, I've read it now enough times that he was actually offered it and passed it up to stay with the lunar module.

GORDON: I've never got Jim to admit that.

HARWOOD: Really. Well, it's—

GORDON: In fact, I've heard—

HARWOOD: Andy Chaikin must've gotten him to admit it because he put it in his book.

GORDON: Well, he could have. I've heard that as well.

HARWOOD: Did you know at the time—like, did you know that he passed it up? Did you know that—I mean, when—I've read that you were a little bit angry about that took you—

GORDON: No. No, no. I didn't—I don't know that it was offered to him at the time. It could very well have been. But Jim's decision—I don't know what his decision was based on. I assumed that his decision was based on the fact that he had been training so long to fly the first lunar module flight that, even though it was late in flight, it should've been, I mean, flown long before we did it on Apollo 9, that he chose to stay with the flight of the lunar module and fly that on a Apollo 9 mission in Earth orbit. I believe that that was his motivation. Now other people may have different thoughts. The stories may be different. But as it turned out, we never knew 11 was going to be the first one to land on the Moon! If I

had known that 11 was going to be the first one on the Moon and McDivitt had the chance to fly 8, and we would've rotated to 11, there would've been hell to pay if he turned it down!

HARWOOD: So, you didn't know till later. But when you found out later, I mean, I get the sense from reading things that when you did find out later, there was almost—that you—there was this sense of, I don't want to put words in your mouth, but regret or—that you did convey some disappointment?

GORDON: I don't think so.

HARWOOD: Okay.

GORDON: That may be a rumor. Vicious rumor. But, no, I don't think so. I don't think at the time we knew it. In reflecting about it later, why, I've always kidded Jim about it, "If you'd have made a right decision, Apollo 12 would've been the crew for 11." But, no, I don't think at the time there was not that sense, because nobody knew who was going to be the first to land on the Moon. People that think that, that's foolishness.

HARWOOD: Did—you're in your training. I mean, 9 happens, and then you move over and now you're prime for 12. What—how do you start training for the real thing? I mean, what's different about being the backup crew? And how does it start, where you guys know you're really going?

GORDON: The difference is, I guess, the launches. The way you fly the spacecraft. The command module and lunar module are the same whether you're in Earth orbit or whether you're going to go to the Moon. So, all that training just follows right along. The only thing different in operating spacecraft is the actual landing on the lunar surface itself. So, it—we had enough information from *Ranger* and *Surveyor* and mapping and photographs of the lunar surface itself that we could accurately simulate those operations in lunar vicinity—near lunar vicinity—to the point we could even simulate the landing well, and utilizing features on the lunar surface to give us a roadmap to where we were going and what to do. The LLTV [Lunar Lander Training Vehicle] is a training device. It gave us that learning ability, with how the lunar module was going to react in 1/6g. So, all of these things, you take pieces of it and you just add them all together.

HARWOOD: Now, were you training for Apollo 12. Like, does that start, like, before Apollo 11 goes to the Moon? I mean, is that an active thing or—

GORDON: Oh yes.

HARWOOD: They overlap?

GORDON: They do. And the overlap really occurs in training. The flight that's up to bat gets the facilities at the Cape. I mean, they're prime. Their primary objective is to get as much training as they possibly can. But they essentially move to the Cape, and they had all the simulators at the Cape. We had, as a next flight at that time all the simulators and the

facilities here at JSC. Once they've got out of the Cape and got out of the way, then you just moved right in behind them. And then the simulators at the Cape become your primary training joys.

HARWOOD: So, you're training. What kind of input, I mean, that—did you have into training in terms of saying, "This is working well," "That's not working well," and then actually helping plan the mission. I mean, did you have any input on experiments?

GORDON: Oh yes. Very much so. Because you're—if you can't perform the timeline the way it's being portrayed to you or given to you, then you have to make changes. And as you train, as you simulate things, you're modifying the flight plan as you go along. So, you're training, you take the flight plan, you try to accomplish those things that are listed there in the timeline which they're listed. And if you can't perform them, if there's some problem with it, then you modify the flight plan and make those changes that allow you to perform the mission.

HARWOOD: What about even any actual hardware changes. Does anything come to mind that was changed because of input during training?

GORDON: Can't recall any of that. There may've been some devices that would allow us to handle cameras or those kinds of things that we may've suggested. But that's an evolutionary process that it—the whole program follows along that line. And we had enough sense along—at that time and really it is to learn from the previous flights. As a matter of

fact, we were on two-month launch centers in Apollo until 11 landed, then we took a breather and extended for two more months.

So, it was four months between 11 and 12. So, it allowed us to—a little time to assimilate more things. And they kept adding experiments. The scientific community wanted us to accomplish, you know, probably more than we could. So, they added cameras and they had different lenses for different purposes and functions, and those modifications are made in an evolutionary sense.

HARWOOD: Was there a discussion of experiments that you would do while you were up in the command module orbiting?

GORDON: Yep.

HARWOOD: And what was your input to those?

GORDON: The one that I recall most vividly—and I had to go to George Low and then convince him of it—we had a set of four—we had a frame that went in the hatch window to photograph geological features on the lunar surface. There were slots for four Hasselblad cameras, a black-and-white, infrared, something else, and the experiment called for three cameras. And I went to him and I wanted a fourth camera in there, with true colors. The others were for experimental purposes, and I wanted to—I wanted a “gee whiz!” camera to be onboard. So, we—and George agreed, and we added the fourth camera.

And those pictures were taken without much concern for aim, just other than positioning the spacecraft properly and letting it go at—in an orbital rate. And the inner velometer was the one that took the pictures. So, that was one that I do vividly recall. We had a 500mm lens onboard that could not be handheld. We had to have a frame and utilize it as—so, there were a lot of little, tiny modifications that we had in that sense.

HARWOOD: Was the sense that, “Why do you need a color camera? What color’s on the Moon?” Or—

GORDON: It changes with Sun angle. And I just thought it would be kind of a nice thing to have along as opposed to the normal scientific aspects of it.

HARWOOD: Let—you finished your Apollo 12 training and you know you’re really going to go. Take us through the countdown. I mean, I assume you knew you were going to go, even though the weather was just horrible! I mean, did you I mean, what’s it like to go out there? You know, we see the images of, you know, here’s these three guys and you’re walking. You know, you’re carrying your little packs, and you’re walking up—high up on this platform. I mean, what is that like on launch day to—

GORDON: Fun.

HARWOOD: Fun?

GORDON: Exciting. Sure. I got to sit outside while those two guys were getting strapped in. I got to stand up there and look at the weather and look at the coast of Florida and watch the black clouds come in and say, “Hey, this is real. That beast below us, that Saturn V, is a living, breathing object. It’s venting vapors and ice is falling off of it. And it’s a creature that’s just about to come alive.”

HARWOOD: The weather was bad. Did you think you were really going to go that day?

GORDON: I wasn’t sure; I was not sure. We didn’t want a delay, because a delay would’ve meant that we had another month of agony.

HARWOOD: Why a month?

GORDON: The lunar cycles.

HARWOOD: Okay.

GORDON: That 28-day cycle exists, and your landing site is fixed and chosen. And as the Sun angle changes 13 degrees a day, we had to land at a very low Sun angle to provide shadow for depth perception. So, if we missed a launch time, you had another month to wait so that the Moon came around to the same position as before.

HARWOOD: Well, as they're loading you guys in, you know, we did talk with Guenter Wendt and he has all these stories about, you know, the antics and shenanigans out at the pad. Do you recall any from your—

GORDON: Oh, he always had something. It's to relieve the tension a little bit, you know. Have a few yucks and laugh and take away the tension that may or may not exist in the situation. But he was great to work with. He's become a very good friend of all the crews; and he was great to be around.

HARWOOD: You felt safe in his care?

GORDON: Oh I don't know if that's—that may be a misnomer. I'm not sure you're ever safe with Guenter! Because he always had some practical joke to play.

HARWOOD: I guess President [Richard M.] Nixon was also at your launch.

GORDON: Yes.

HARWOOD: First time a President was at a launch.

GORDON: He got wet.

HARWOOD: Yes. You know, some have speculated, like, maybe you just launched because he was there and they didn't want to disappoint the President. Do you—

GORDON: I don't think so.

HARWOOD: You don't buy that?

GORDON: Nope.

HARWOOD: They do launch. And describe—before we get to the lightning that struck your spacecraft—

GORDON: Well, we were concerned that they weren't going. We wanted to go. And we were concerned because of the weather that it was going to be a delay and a hold, and we would not get to go. But we were probably not part of that decision-making process, with the exception that we probably conveyed that we were ready. And if they chose to go, go ahead and launch us. We never anticipated what was going to happen 36 seconds after liftoff.

HARWOOD: Well, I've read—just to go back before liftoff just a minute. I've read that, like, a minute before liftoff that you and Pete Conrad and Alan Bean actually grasped hands and—describe that moment when you're that close to launch and you know—I mean, what was that gesture to convey really? The sense that you guys were going on this grand adventure? Or—and did that really happen? I mean, I've read that you all grasped hands—

GORDON: I think we probably did, wishing each other well. Good luck. Do a good job. Don't mess anything up that I've got to correct! You know, it's just kind of camaraderie that existed in that crew. It was just a gesture of wellbeing and bon voyage!

HARWOOD: And then what is liftoff like? I mean, it's not the Shuttle. It's—I mean what is it like to ride a Saturn V?

GORDON: It's slow. Very slow. It shakes, rattles, and rolls, is actually what it does. Those engines gimbal and the four that gimbal on the Saturn V of the five engines, the four of them that move to position the spacecraft in the right attitude and point it in the right direction, you feel that all the way back up the stack, 320 ft away from them. It makes a lot of noise, and it's been described as a freight train going straight up. And I guess that's as apt a description as you can give. It's a Saturn V going straight up, is what it is. But there's a lot of dynamics involved with the liftoff. And it doesn't smooth out until further down the road.

HARWOOD: Well—and as you mentioned, 36 seconds into flight you're struck by lightning. Did you know it? Did any—I read that Pete Conrad saw the flash but was the only one who really saw the flash.

GORDON: The only one that had a window.

HARWOOD: Okay.

GORDON: The boost protective cover was still on, and that's the only available window until the launch escape tower is jettisoned. He said he saw that flash, and the rest of us saw, as well as he did, all the warning lights come on the instrument panels.

HARWOOD: Did you feel anything?

GORDON: No, I did not.

HARWOOD: Just see a bunch of—what was your thought when all those lights come on?

GORDON: Kind of startled. We never anticipated anything like that. It was not part of the training syllabus! Simulations didn't even come close to it. I always tell an anecdotal story about that. Whether it's true or not, it doesn't matter. It's my story, so I usually tell it. And—

You always get in a very competitive situation in training, like you want to be the first to discover how to solve a problem and you compete with each other, and you compete with the ground as well. Well, I was always all over the command module. That was my responsibility and my job, and I was always attempting to be the one that first came up with all the solutions. And I would not let Al—you know, I'd take care of everything. When those lights came on, I kind of looked up at the lights, I looked over at Al, and I looked back again, and I said, "Okay, Al. It's all yours!" And went back to take care of the attitude with

Pete. And whether that's true or not, I always tell it that way because that's the way I felt! Because I didn't know what the hell to do.

HARWOOD: And if you didn't know, that was saying something, right?

GORDON: I think so. And I was more concerned at the time that things were moving along, and I was more concerned because we also lost our attitude control system, our reference system. And I was more concerned that you—telling Pete or helping Pete with the attitude. We felt the booster was going in the right direction. We weren't tumbling. Nothing was happening.

And Al was over there, kind of looking at these things and very cautiously getting the fuel cells back on the line, because that's what happened. When the lightning struck, the reverse current relays worked and they just tripped all the fuel cells off the line. Fortunately, the batteries were still there. And later on, Al asked me why I didn't help him. I told him the truth. I said, "Al, I didn't help because I didn't know what the hell to do!"

The controls were on his side, and in his—and he got the fuel cells back on the line during the boost phase. Once we got in orbit, we only had one other task to perform, and that was realigning the reference system.

HARWOOD: The—I guess John Aaron on the ground made this call, which some people say was really heroic because you had even a lot of confused people on the ground who didn't know what to do. And he calmly made the call and knew that you needed to flip this obscure signal condition equipment, which—

GORDON: SCE.

HARWOOD: —which I take it some people didn't even know what it was? But did Pete Conrad know what SCE was?

GORDON: No. I claim that I did.

HARWOOD: Oh really.

GORDON: Yes.

HARWOOD: And so you all knew—you knew what this—

GORDON: That may have been a controversy. I had not had that experience with that before or John's experience before that happened. But the SCE had a primary and an auxiliary, a secondary position. I think the call was, "Switch SCE to AUX." Which was done right away.

HARWOOD: Okay.

GORDON: There's some confusion whether I did it or Al Bean did it, because it was right here in front of me. I can see it today.

HARWOOD: Do you remember if—

GORDON: But it doesn't matter. It got done.

HARWOOD: —do you remember the reaction when it worked? When that made a difference?

GORDON: Well, there wasn't much the ground could do, but it gave them the information they needed. They then were able to monitor systems once again.

HARWOOD: And realized you were still on the right trajectory and that, apparently, you were hit by lightning a second time at 52 seconds. Did you even know that at the time? I mean—

GORDON: Well, we did. Because the only thing that—I didn't know that we got hit. But the attitude reference system started to tumble, what we call "tumble." Normally it's very stationary and very stable and it shows you the attitude that you're in roll, pitch, and yaw. And it started doing this, just—and the GDC, the gyro display coupler, was right next to it. This was one of those changes that were made early in the program to take it from the copilot's side and put it back over on the commander's side so he'd have two reference systems. Well, it was working fine. It was doing what it was supposed to do while this other crazy thing was just flopping all over the place.

HARWOOD: The—I mean, I don't know. I'm curious when you learned of the—that there was even a debate on the ground about what to do. Okay, this has happened. Has it—

GORDON: Years later.

HARWOOD: Really? Has anything been damaged? And what I—

GORDON: It was years later.

HARWOOD: —what I—you didn't know till years later that there was even discussion about just bringing you home right away?

GORDON: No. We thought they might. We—but once we got into orbit and realigned the platform, there wasn't any doubt in our mind that we should go.

HARWOOD: Did you know that there—that part of the debate was, well, if what could have been damaged, which I guess was the pyrotechnic—

GORDON: The recovery system.

HARWOOD: —system on the parachutes, did you know that there was discussion. “Well, if they're going to crash into the ocean, they could do it now or they could go to the Moon,

have that experience, and then crash into the ocean and die.” I mean, did you know it was that blatant?

GORDON: No.

HARWOOD: No? And if that really had been—

GORDON: If it had, we’d have gone to the Moon.

HARWOOD: You would have—yeah. You liked the decision that was made.

GORDON: Absolutely. It was the right decision.

HARWOOD: Do you know—

GORDON: We weren’t conscious that that debate was going on at the time. Now that’s my recollection. Pete now may think differently, but I don’t think so. I—because we were concerned that they were going to bring us back home. Pure and simply. And we were afraid we were going to lose the mission. But once we found that we didn’t lose anything in the spacecraft, something very minor we did, but everything checked out and everything worked in the spacecraft that we were confident that we were going. We were concerned that there maybe had been some fear or caution in some of the decision makers that would counter that, but we thought we were going.

HARWOOD: Do you know of any procedures or equipment that was changed on later flights because of your all's experience of being hit by lightning?

GORDON: Yeah. "Don't be stupid enough to launch in a thunderstorm!"

HARWOOD: So, it was a procedure.

GORDON: That was a change that was made.

HARWOOD: Really. Well, you know what? They still have launched some unmanned rockets during thunderstorms.

GORDON: Yeah, and what happened to them? They end up on the beach.

HARWOOD: Yeah. In your training, and you may have addressed this but I want to be clear about it, had you practiced resetting the entire navigation platform in such a short period of time?

GORDON: Um-hmm.

HARWOOD: You had practiced that.

GORDON: Oh, there were two programs called P-51, which was an initial alignment, and P-52, which was a program in the computers that did the final alignment and adjusting it. Yes, we worked both of those programs. P-52 is easy because it already had a reference system to go to, and it would find the stars on its own.

HARWOOD: Was it Al Bean who was realigning that?

GORDON: No, I did that.

HARWOOD: Okay, you did that. Okay.

GORDON: I wouldn't let Al do anything in the command module.

HARWOOD: Talk about your relationship a little bit with Pete Conrad and Al Bean. I mean, I take it you and Pete Conrad go back to even have been roommates on an aircraft carrier. But talk about just the personal relationship that developed between the three of you.

GORDON: I'm not quite sure I know how to describe the relationship. It probably, over time, I guess these kind of relationships can develop. Pete and I could communicate without talking. We trusted each other. We thought alike. The same—we had—we reacted to the same stimuli the same. It was just—the thing that developed over the time we had complete trust in each other; and Al was brought along in that sense, too, over a period of time. But Pete and I had that going in.

And we brought Al—Pete knew Al, of course, because he was a student of his when Pete was an instructor. So, that relationship may have been started. At the time, as a matter of fact, Al got on our crew because Pete went to Deke after C. C. was killed and asked for him. But—and it worked out great, because we three became very, very close, very good friends, which we still are today.

HARWOOD: Do you think that—Deke—Okay. They need to switch us to a new tape.
[Recorder turned off.]

HARWOOD: We were talking about your friendship with Pete Conrad and Alan Bean, that you all spent so much time together in your training. And I'm curious whether you think Deke Slayton knew about that friendship and whether it played any role in—give me a sense of what you think played a role in Deke Slayton matching people up and how he assigned them.

GORDON: I really don't know. If anybody does, I've never heard the stories of what criteria he used, other than the fact that I've heard him say that in a group, you went through a selection process and you were selected to do these kinds of things. You were selected because you were qualified and you were professional. And he felt that because of those parameters that existed that we could work with anybody. And as it turned out, that's probably true. But we would put aside personal differences, professional jealousies, whatever those negative parameters might be and do the job. And I think he was right.

HARWOOD: Was it a mystery how he matched people up in some ways?

GORDON: I never knew how. I was just glad that we, the three of us, ended up the way we did. We were friends. If we weren't, we became very good friends. And we are to this day.

HARWOOD: You know, that friendship and that closeness that you talked about, obviously it plays a role when you're going through things like lightning striking your spacecraft. And as you said, you just innately know how to react and what each other would do. Let's pick back up after, you know, you're on your way to the Moon. What's the three-day trip to get there like? I mean, is it anticipation? Is there—

GORDON: Yes. A good word. That's precisely what it is. It's three days of not doing a great deal, but the mission is all still in front of you. You've got that lunar module sitting out there on your nose, and I'm looking at that nuclear canister sitting out there that's going to provide power to the ALSEP [Apollo Lunar Surface Experiment Package] packages and whatnot. And it's full of anticipation. The Earth's getting smaller, and the Moon's getting bigger. And there's not a lot of activities to do. You're checking out the spacecraft and the guys had a chance to get in the lunar module and check it all out before we got there. But it's a three-day period of the mission basically is all in front of you. And it's anticipation really.

HARWOOD: Are you going through a mental checklist of what it is you're going to have to do later that's so critical? I mean, are you—

GORDON: No.

HARWOOD: No.

Gordon: No. You live in the present. You follow the flight plan. And you flip the page to see what you're supposed to do next. And we have checklists for everything we did, even how to go to the bathroom there's a checklist!

HARWOOD: Really.

GORDON: Really.

HARWOOD: Some people have described that not being very fun. That particular—

GORDON: Well, we're human beings and we have to do those things. And there is a checklist to how to do it.

HARWOOD: That's amazing. Talk a little bit about the feeling of being the command module pilot, closing that hatch, and being the one who flips the switch to send your two good friends on the way to the Moon. I mean, what's that like?

GORDON: A release. If you knew those two guys, you'd be glad to get rid of them for 42 hours! I was all alone. It's envy maybe, a little bit. The name of the game as far as I

was concerned was to walk on the Moon. And at that time, I was relegated not to do that. And I had a job and a function to perform. And you—people, human beings have a great ability to rationalize their own importance I guess. And that's the kinds of things you do. And I was happy for them, that they were going to go get to do that. Al Bean has subsequently made a painting, it's called *The Fantasy*; and in his painting he says he could do whatever he wants to do with his paintings. And he's got one of all three of us standing on the lunar surface.

HARWOOD: Oh, how nice.

GORDON: I thought that's pretty neat.

HARWOOD: He's a great painter. Do you—I'm going to go ahead and ask you about that issue of not going to the Moon, since it might come up later. And then I'm going to backtrack a little bit. But since you brought it up: how do you ever get over that disappointment? Or is it disappointment?

GORDON: No, there wasn't. At the time, it wasn't a disappointment.

HARWOOD: Because you thought you would go.

GORDON: You had—within this three-flight rotation, I wanted to stay in Apollo and have the opportunity to go back again. Pete and Al chose, because they had walked on the

Moon, they'd go off and do different things. I still had 60 miles to go. And when I became the backup commander on 15, fully anticipating that I would rotate once again and be the commander on 18, well, we all know the story that 17 was the last one. At that time, we had—did not know that. If I had known at that time that I would not have the opportunity to fly again, I may have chosen what Al and Pete chose to do, to fly in Skylab. Because I wanted to fly again obviously. Well, you could tell: when there were no more flights, I left. But that's the way I looked at that on Apollo 12, that I would have the opportunity to go a second time.

HARWOOD: Did you—I've read that you teased Gene Cernan about stealing your crewmate was Harrison [H.] Schmitt, Jack—

GORDON: Oh, we still play that game.

HARWOOD: So, Jack Schmitt, the only geologist astronaut, you know, sometimes you read "the only scientist astronaut," I'm sure you don't like that when people say, "The only scientist in the—"

GORDON: It doesn't bother me. It doesn't bother me at all.

HARWOOD: You all became scientists, I take it. But the only geologist—

GORDON: Well, he was the only one with a Ph.D. at that time in geology. And—

HARWOOD: Were you aware of the politics in terms of the finagling to get him on that last-minute flight?

GORDON: Oh I—sure. Sure. When I discovered that 17 was going to be the last one, I wanted to keep the crew together obviously, because we had trained. And Gene and I have always had a lot of fun. After he crashed his helicopter, I knew he wasn't going to get to fly it. But I wanted to keep the crew together, and I had an audience with Deke and Al Shepard and told them that I thought the right decision was to keep the crew together and let us fly 17. It lasted maybe a minute or two. They politely listened to what I had to say and the three-flight rotation held. With the exception that Jack took Joe [H.] Engle's place.

HARWOOD: Do you know why, though, that there—I mean, you know, they bumped Joe Engle and let Jack Schmitt go. But do you, to this day, know why they wouldn't bump Gene Cernan—as you said, especially considering he had had a helicopter crash in Florida—and not give you the chance to fly?

GORDON: Well, he was the backup on 14. It was his turn to fly 17. And his book described—I think he in his book addresses that aspect of it very, very well in that particular section. And I only complained to Gene that he made one mistake. He said that we were equal at that time, and there was no way that we were equal!

HARWOOD: Because you had flown more.

GORDON: Aw, gee whiz. I was the backup commander on 15, in the lunar rover, the extended EVAs. Hell, give me a break!

HARWOOD: What was your reaction at the time? I mean at the time—you know, you have 30 years to look back and some of the bitterness might be gone. But at the time, you had to be pretty angry.

GORDON: No, not really angry. I respected what Al and Deke did. I felt sorry that Joe Engle had gotten bumped. I think in retrospect Gene even thinks today that the better decision may have been to keep the crew together. I don't know. But I was disappointed, certainly. But I don't think there was any anger there involved that, you know, or we're adults. And we accept decisions like that.

HARWOOD: Well, let's go back to Apollo 12 for a little bit. And you've sent them off to the Moon. And Pete's going to attempt this first pinpoint landing, because we all know that Neil's landing was, you know, it was—

GORDON: Somewhere.

HARWOOD: —it was somewhere. It was high drama, is what it was. And they didn't want to do that again. They wanted to perfect this technique of the pinpoint landing. Could you

see them land? Or did you see them after the fact? I mean, you've said it was partially your good eyesight. But you literally could tell where they landed at some point when—

GORDON: No, I didn't see them land at all. The way that came about is kind of unique in that we were very, very positive that we were going to do the right thing and be at the right place. And there was a reason for this pinpoint landing. If you look at the geological features later on in the Apollo Program, 13,000-ft mountains, Mount Hadley, rills, high plateaus, valleys, that that kind of accuracy must be attained to be able to land in those particular places. So, the *Surveyor 3* spacecraft that had been there almost two years ahead of our landing was our target.

And we were so confident that the procedures that had been generated to allow us to do that were going to work. And when I was able to track certain landmarks with a certain amount of precision and make our ephemeris—our orbital parameters—precisely known, and the fact that when I heard Pete call out that, you know, he had the *Surveyor 3* crater. We had a crater there in the form of a snowman that we called that they were going to land very, very close to where they intended to land. Well, the next pass as we came over, I could sort of see the *Surveyor 3* space—crater. Not the spacecraft at that time. But I could see the crater. I could see in the optics, in a section in the telescope, I could see the snowman, I could readily recognize the *Surveyor 3* crater.

And as I came over, there was this very bright spot—reflected light on the edge of that crater and a long shadow beyond it. The only thing that I could figure out that do that would be the lunar module. So, I said I had the lunar module. And it was that bright source of light and being in the approximate place that it was supposed to be, in this long shadow,

that I didn't recognize from anything else. And as I came over it, I looked down into the *Surveyor 3* crater at the same time, I saw this reflected spot of light in the shadow of the crater. I assumed that had to be the *Surveyor 3* spacecraft. I said so. Fortunately, I was correct!

HARWOOD: Was there this—

GORDON: If they hadn't been there and I'd have been wrong, it would've been an embarrassing situation.

HARWOOD: Was there this sense of excitement, to be the one to report the pinpoint landing was a success? That you could tell that visually when you spotted it.

GORDON: No, I don't think that I sensed that that was part of it. I just wanted to relay to the ground, before it ever got out, that we were successful in landing there. And the EVAs had been planned would be able to be carried out in a manner in which they were planned to do it.

HARWOOD: Now they're down on the Moon for 38 hours and you're up there. And you can hear this Mission Control relay of the audio, so you can hear what they're doing and hear—and I take it, sometimes you hear Pete Conrad humming. I guess he had this habit of humming while he worked?

GORDON: Only when he was scared.

HARWOOD: Really! Did you make that up?

GORDON: Yes, I sure did!

HARWOOD: Right, that'll go in the history book. "He was humming on the Moon because he was scared, according to Dick Gordon." So, okay, you were joking. But you're hearing them down there. What's going through your mind? I mean, what are you doing up there? You know, I know you had things to do. But I just mean from an emotional standpoint, when you're hearing them down there, what is the thought process that you have orbiting 60 miles up?

GORDON: Gee, I'm not sure I can recall that. I think that if I had a reaction to that other than being concerned about what I had to do, was the fact that we were going to have a very successful mission and things were going according to plan. You know, when he would say certain things with the ALSEP, and I heard the problem that Al was trying to get it out of the cask and this sort of thing, that I had a sense that their activities on the Moon were going to be successful and as planned. That was probably the only thing that I felt about it. You know, Pete emotes very well and you react to that. You get to know what he is thinking and doing at the time that those things are going on.

HARWOOD: Well, you also have the distinction, though, of being one of six men who get to be the only people, you know, who orbited the Moon alone. You know, that you're completely by yourself. And what's it like to be just completely alone in that vast void?

GORDON: Wonderful. You don't have to worry about anybody else. You don't have to communicate. You don't have to worry about pleasing anyone beside yourself. And there's a lot of things that you have to do and accomplish. And it's a moment of solitude. I look at it that we as fighter pilots, which most of us were, working in isolation in a lot of sense. I mean, we fly together and we do things like that. But we were alone. And I think that attitude, there may be a certain amount of comfort in isolation. But I enjoyed it.

Never—never bothered me a bit. As a matter of fact, probably never even thought about being out of communications with anybody on Earth. Because when the Sun shines on the Moon, which it does half of it all the time, there are features that you can look at and see that you hadn't seen before. You are busy doing those things. And not much time for reflection. I think you do most of the reflection later.

HARWOOD: Well, when you reflected later on thing—like the magnitude of the fact that this was really the first time that they set up a scientific station, because, you know, Neil and Buzz didn't do that, and Pete and Al set up this—the first scientific station really on another world. I mean, did you reflect on that later—the significance of what you all did?

GORDON: No, I think the significance of that, placing those experiments out there, I think, the real significance of it was those ALSEP packages were designed to last maybe a couple

of years. And the stack 27, the nuclear device that provided the energy, lasted many, many years longer than that. Finally NASA just had to shut them down. Couldn't afford, couldn't take the time, and the data that was coming back, although it may be new, was probably very repetitive. I'm sure there's data that ALSEP packages have sent back that have never been looked at. Been archived and never, ever been looked at!

HARWOOD: It's amazing it would have that long of a legacy, you're right, when it was planned for two years. There's some things about your all's mission that to me, and maybe it's being a woman, I don't know, say a little bit about the culture of the time. And I had read about, you know, the little checklists that, like, Pete Conrad had on his cuff; and it had little *Snoopy* cartoons and little miniature *Playboy* pinups that reminded him to describe "the protuberances of the Moon." And I'm really struck by how that just is such a sign that—such a thing then. And I mean, did you all have any sense of, "Boy, this is really a good old boys' club and what a fun thing." And that you could even do that. You know, political correctness has taken some of the fun out of things.

GORDON: I hate that word.

HARWOOD: Yeah.

GORDON: There is no such thing as political correctness. That's rubbish!

HARWOOD: Right.

GORDON: Keep that in. I think those things were done by the backup crew to have a little moment of levity, a little lightness in a tense situation, if you will, that got a little chuckle, a little reminder of, “Hey, life isn’t all that serious. Let’s have a little fun while we’re doing some of these things.” And I enjoyed it. The flight plan was full of it. We had *Snoopy* cartoons and everything; [Charles] Schultz did this, decorated our—the backup crew did all this. We never bothered with it. We were too busy doing other things, and they took the time to remind us of the “humanity” of the whole situation, if that’s a correct word.

HARWOOD: No, I mean, it is. And did it have that effect of saying, “Don’t take everything so seriously.”

GORDON: Well, it let you have a little chuckle every now and then. You know, that we’re doing something, you know, that’s serious, but there’s also a little time to lighten up and get a life.

HARWOOD: Now since you all—you were the second Moon landing mission, you know, you knew—you didn’t have, I take it that tension of, you know, “Will the LM really work and blast off?”

GORDON: Oh yes, you do.

HARWOOD: But you still have it.

GORDON: Oh yes, you do.

HARWOOD: So, what was it like when they're, you know, blasting off to—

GORDON: Every flight's a new ballgame. You can't go back and reuse Apollo 11's hardware. You know it worked, but you can't use it. You've got your own to deal with. But being second is a very unique position. Nobody remembers who was second. I tell that to Buzz [Edwin E. Aldrin, Jr.] all the time. But it's the truth. We were second in this, that, and the other thing. And—but that's okay. I mean, that goes with that territory as well. I kid Gene Cernan a lot about this. He's talking about being the last man on the Moon. I said, "Gene, you'll not always be the last man on the Moon, but Neil will always be the first man in the Moon."

HARWOOD: Let's hope we go back someday.

GORDON: We will.

HARWOOD: So, they're coming up to rendezvous with you. And what do you have to do to make that process happen, as the command module pilot? Walk us through the steps.

GORDON: It's a reverse process that they're going through. They're the active vehicle when they come up off of liftoff and rendezvous. There's all kinds of things that can happen.

The command module has the ability to rescue the lunar module—provided that they get into what we call a clear lunar orbit, which meant ten miles. If they could get into orbit at least ten miles above the surface, we had the capability to go down and get them and pick them up. So, what you're doing is, while they're the active vehicle in a rendezvous and doing their ranging and range rates and figuring out all the procedures for rendezvous, you're doing the same thing in reverse.

You're looking at them. You're tracking them. You're using the computer to calculate range and range rates and let the computer tell you what the thrust changes. The velocity changes at each particular step along the way, so—and it's just a reverse sign. If theirs is a plus, yours is a minus, and those kind of things. So, in absolute terms, you compare the numbers with each other. Of course, the ground has an input as well. And that's exactly what you're doing. You're watching them approach and trying to solve the same rendezvous equations that they are.

HARWOOD: And are they flying into you? Or are you capturing them?

GORDON: No, they're flying. They're coming up to my altitude and my velocity, and they're matching my orbit at 60 miles.

HARWOOD: And then when you do the actual capture—

GORDON: The docking itself?

HARWOOD: The docking itself, who's active for—I mean, who's grabbing who?

GORDON: The command module is. They come up and stationkeep at ten feet away or so. And there's a docking target on the lunar module. I don't know if we can find one around, but there is a cross, T-cross on the lunar module that the command module pilot, looking straight ahead out his window, aligns with and does—is the active participant in the docking itself.

HARWOOD: And then you grab them, first try. No problem.

GORDON: Yeah, the lug probe goes into a drogue and latches on. And that—when it latches on, you throw a switch and pull the lunar module right into the capture latches of the command module. You have what they call a hard dock.

HARWOOD: Was there—do you—could you feel that docking? You knew you had them?

GORDON: You could see it, and you could feel it. They're not as—it happens very, very slow. It's a slow maneuver, so you're going maybe—probably less than a tenth of a foot a second. But you can feel a slight—you go—but you can look out and see the vehicle the whole time, and kind of go—as soon as it docks.

HARWOOD: How long after that docking is it before you, you know, open up and let them in? And I've read that you didn't let them in right away because they were so dirty filthy.

GORDON: True story.

HARWOOD: So—but how long of a delay? How—

GORDON: I think it's right—virtually right away. Once the docking takes place, you pressurize the tunnel between the two vehicles, and then you equalize that pressure between the command module and the tunnel. And at the same time as equalizing between a LM, so that all three sections are virtually at the same pressure, take the hatch out of the command module, stow it, and check the docking latches. Make sure that all the latches are connected. Make an electrical connection. And clear out the probe and all that, because the tunnel is completely open, and then when they open their hatch to transfer the lunar materials and whatever they need to bring back in.

HARWOOD: So, you really wouldn't let them in right away?

GORDON: Nope. They were too dirty.

HARWOOD: Tell us that story.

GORDON: It's very simple. I had a clean command module, and I looked out in there and I couldn't even see them! There was a big, black cloud. I thought Joe BFSTPLK had been along for the ride. But I said, "You know, this—you guys are going to just get all that dust

and dirt inside the command module. You can't come in until you take off all your clothes and put them in these bags." And that's what they did.

HARWOOD: So, you made them strip naked?

GORDON: They were buck naked.

HARWOOD: Huh.

GORDON: The first space streakers.

HARWOOD: Did the—did any dust come in with them?

GORDON: A little, probably. It's—you know, in zero-g things tend to float around, and there's circulation with the air. But they actually bagged up their suits, put them in bags, and handed them over. And I stowed them in the command module, and I flew them back home.

HARWOOD: Well, now the big event's over. What's that ride home like where, you know, it's not anticipation anymore? It's—

GORDON: Different. Totally different than going out, you're right. Three days of not much activity coming back, except for the barbican maneuver. And there's certain navigational things to perform. But it's not much going on. And—

HARWOOD: Is it a letdown?

GORDON: Somewhat maybe. You still have a reentry to go through and everything. But it's a lack of activity. I had a sense of, "Well, gee, it's kind of boring." Except, my job was better than theirs because I had some things to do on the way home.

HARWOOD: Al Bean really slept the whole way back?

GORDON: I think he did. I never saw him on the way back. He was in his sleeping bag under the couch.

HARWOOD: He was just tired.

GORDON: Must've been. Must've been.

HARWOOD: The—what's reentry like? I mean, we don't hear much about that. The focus is always on the glory of going to the Moon—

GORDON: Oh yeah. We had an event that—on the way back in, just before reentry, when we had the Sun go behind the Earth and it gave us a very awesome view of what we call a solar eclipse by the Earth. And somebody said, "Well, isn't night that all the time?" And I said, "Well, yeah, it is." But this was a spectacular sight when the Sun went behind the Earth

and it—well, in reverse of a solar orbit by the Moon. But there was this flash of light and the atmosphere was totally illuminated for a crescent portion of the Earth, which we were able to obtain several photographs that. We actually ran out of the good Hasselblad film, so we used every remaining piece of film that we could find to capture that event. And we knew this was going to happen, so we anticipated that.

HARWOOD: What's it like to look back at the Earth from so far away? What do—

GORDON: Good question. It's quite, quite—it's something to really reflect on. I think when you look at—let me put it this way. We have been asked a lot what we discovered when we went to the Moon. I think universally, collectively I should say, we probably—the correct answer and we'd probably say that, "We discovered the Earth." And I think when you look at the Earth from a perspective of 240,000 miles away, we have a different perspective of the Earth. We have one, and, you know, you can change the scene with which you're looking back. But from 240,000 miles away, it's very beautiful.

It portrays this great amount of fragility. A very delicate planet sitting out there in the blackest—it's the blackest black you'll ever see! It's just devoid of any color whatsoever. And it's been described like a Christmas tree ornament hanging out there. You can't see how it's suspended or anything. It's—philosophically you could emote about it, I'm sure, for quite some time. But it is a startling picture to look at the Earth coming back from being around the Moon, as it comes back.

HARWOOD: Is it a life-changing event to have even done what you did?

GORDON: I don't think so. It may be for some people. But I think, by and large, I look at it this way. I came back with the same stuff I left with.

HARWOOD: Reentry. The process of going as—becoming this fireball, to crash through the Earth's atmosphere, and then say, "And then we'll just hit the ocean." What is that like? I mean, do you sense that you're a fireball? Do—

GORDON: Oh yeah. Very much so. There're various phases of flight that are dynamic, and there's a lot of it, even in Earth orbit, that's not dynamic. But the launches, the burns, the engine burns, changes in orbit, those are moments of dynamic activity that takes place. Certainly the reentry from lunar distances, at those velocities, is an extremely dynamic time. It's over in a very short period of time, some, what? eight, eight and a half minutes to reenter. But the interesting thing, when you start, you want to make sure you're at the right angle. And you're navigating all the way back to make sure that you intersect this horizon at a depressed angle of six and a half degrees. The consequences of being more than a half degree off in either direction are not very wholesome. Talk about structural failures and skipping back out. So, those decisions are made and you're very confident that the corrections have been made and—

HARWOOD: And are you making those? Or is Pete Conrad—

GORDON: The ground is actually doing the navigating and giving you attitude or velocity changes to perform midcourse corrections.

HARWOOD: And you're performing them?

GORDON: But they're keeping track all the way along. And if something perturbs your trajectory or you have to alter the landing point—say, there's a big storm or something down there; you have to modify that—then they will navigate for you and give you those corrections to apply in a velocity vector. But once you start intersecting the atmosphere, you're trading all this kinetic energy, this 25,000 mile an hour velocity, into heat that—into an ablative material that takes this kinetic energy and gets rid of it.

So, it's a slowing-down process; and it's very dynamic. It's very colorful. You know that things are happening very rapidly because you look back to where you've been. You can't see where you're going, but you can look back out the windows and see where you've been. And this corkscrew of green and reds and yellows and all this material burning off, you know something is happening.

HARWOOD: Does it—it doesn't—does the temperature rise at all inside?

GORDON: Some. We prepared the spacecraft before reentry by cold-soaking it. Maybe got it down to, oh, I don't know, maybe 60 degrees, something like that. And by the time we got on the lunar [?] surface, it may have soaked back through to 90 degrees, maybe. It's not uncomfortable at all. You don't notice it—thank God, you don't notice it—during

reentry!. But once that—once you get sub-circular, when you come back at 36,000 fps, that's higher than orbital velocity. So, the spacecraft is pulling into the atmosphere as it's coming in. And once you get sub-circular, which is something like 25, 26,000 fps, you know you're captured.

Now you start maneuvering the spacecraft to utilize the lift vector that it has to navigate to the precise landing point. So, now you're watching the computer roll the vehicle to either correct for cross-range or downrange errors so that you can land and you're sitting there monitoring it. It indicates—the computer will indicate the direction it's supposed to go and you'll watch the spacecraft perform that maneuver and go there.

HARWOOD: The, I know that you weren't aware of the concerns that the lightning may have damaged, you know, your landing parachutes. But now that you know that that was a concern, did you notice any extra cheer going up when they deployed and it was clear you were going to splash down safely? You don't remember any—

GORDON: As far as we were concerned, it was just a normal recovery from normal distances.

HARWOOD: Mission—you felt Mission Control reacted the same way they had when Neil and—

GORDON: I didn't know how they reacted.

HARWOOD: Yeah.

GORDON: I was told, you know, maybe later.

HARWOOD: Can you hear them at all when you're—or—

GORDON: I—no, I—they're pretty quiet at that time because you're talking to the helicopters, and—

HARWOOD: Okay.

GORDON: —the recovery forces that are around the vehicle. I'm sure when they saw the parachutes deploy properly, they were probably very relieved. I hope they were!

HARWOOD: You said that nobody remembers who's second. But—and we do tend to remember, you know, the tickertape parades that greeted Neil and Mike and Buzz. But what was the reception when you were finally finished all your reports and got out of quarantine? What was the reception?

GORDON: It was—hell, I don't know how to express it. They—we were here at the [Manned Spacecraft] Center [Houston, Texas]. It was, you know, they gathered around when we got out and were glad to see us out. And they had a little homecoming going on. But we were sent by President Nixon on a around-the-world tour that lasted about 42 days

with our wives and people from the State Department and from NASA. We visited something like 20 countries, starting with South America, went to Europe, Africa, Asia.

It was very—that was a tough job, doing all that sort of thing, because you were representing your country in that regard, meeting heads of States in all these places, dealing with heads of States and the Ambassador staff. It was an interesting time, which I'd never had the opportunity obviously to do that before.

HARWOOD: Well, I get that sense the—that, you know, 30 years later people may not remember who was second as much. But at the time, there was still a real sense of excitement surrounding Apollo.

GORDON: I think so. At that time, it—certainly the next flight, Apollo 13, had a little bit of excitement to it and then it probably started to fall off a little bit. You know, Americans are an interesting group of people. Once they've accomplished something, they tend to press on and go and do something else. James Michener addresses this very, very well in his book *Space* when he talks about the challenges that we have experienced during a Depression, during World War 2, the atomic bomb, the Cold War, that once we accomplish certain things, we tend to put it behind us and just go ahead and look into the future, see what else is out there.

HARWOOD: Well, you've accomplished this. But you still had this other goal of, as you say, going the last 60 miles. So, I would imagine fairly soon you're assigned as the backup crew to Apollo 15? And you start that training process?

GORDON: As soon as we got back from that world tour.

HARWOOD: Okay. So, you're in training. And Jack Schmitt is going to be your—

GORDON: Lunar module pilot.

HARWOOD: —lunar module pilot. And I've read that in the training with him, that at one point, and you—I want you to tell this story, and you've got that little grin on your face. But that a simulation guy decides he's going to, like, make your equipment fail so that Jack will have to fly and land on the Moon. And that—what did—tell the story as you remember it.

GORDON: Did Jack land?

HARWOOD: You tell the story!

GORDON: No, I didn't—I wasn't going to let them mess me up like that. So, I just traded places with Jack and landed from his side.

HARWOOD: You just pushed him out of the way?

GORDON: Oh, we just kind of said, “Jack, I want to trade places with you.” So, we just did that and then I flipped the bird at the simulation people as I left the building.

HARWOOD: You were angry.

GORDON: No, I wasn’t angry.

HARWOOD: Someone else tells the story that you got—

GORDON: I don’t get angry. I get even!

HARWOOD: How’d you get even? You landed it.

GORDON: Well—No, that’s kind of a—that’s what—I think Jack put the Sim people up to it, because it wasn’t a Sim back with Houston. It was just done locally at the Cape. And I think Jack Schmitt went to those guys and tried to set me up.

HARWOOD: He never confirmed that?

GORDON: But we—you know, they in the duplication of controls, with the exception of rate of descent switch, is almost either side can utilize the navigational equipment and perform those things.

HARWOOD: Now, in the summer of 1970, you're in training still as a backup to Apollo 15, correct? And you get the word that Apollo 18's been canceled. And that's what you're banking on as being the your chance to be prime.

GORDON: Somewhere along in that timeframe, yes. I don't recall the exact dates or the sequence of when I did learn that.

HARWOOD: Or do you even know where you were when you heard it?

GORDON: No. I have no idea.

HARWOOD: But you know your reaction.

GORDON: Yeah. I said, "How the hell am I going to get to fly 17?" That was my reaction.

HARWOOD: Was—you immediately thought, "I've got to angle for that last flight."

GORDON: No, I didn't try to angle. I said, "I want to fly 17!" They really—with Deke Slayton, there wasn't much angling going on that we made!

HARWOOD: Do—when Apollo 15 flew and you knew that prime crew—one of the things that came out of Apollo 15, and it's unfair that it's remembered for this, is the stamp affair. You know, and the fact that it was later determined that the guys took these stamps along

and, you know, “We’re going to make some money off selling these stamp covers that had been to the Moon.” Do you remember what your reaction was when that came out and that—

GORDON: I was long gone. I had left the Program.

HARWOOD: You had left because you were—

GORDON: I wasn’t here. I’d retired when that came out. I had no idea that that was going on. As a matter of fact, as I—Andy Chaikin tells me I’m mistaken about this, but Dave came to me some time later on, in fact, just before they were going to fly, and said that there were First Day covers in the safe at the crew quarters that they had signed but they’d left them in the safe. And he said, you know, “If anything happens to us during the flight, take these First Day covers”—I don’t know how many were there or anything—“take them and give them back to the families.” And I said, “Of course.” And I didn’t think anything more of it.

I thought those were the stamp—were the First Day covers that they had taken. Andy tells me that that’s incorrect. And I don’t know how he found out. But there were those in the safe that apparently that—there were others that they decided that morning I guess, or I don’t know when, but they were going to take them all on with the flight. And if they had declared those being onboard in their personal preference kits, nothing would have ever been said about it.

HARWOOD: But what about the sense of, you know, as one of the proud group of astronauts—I mean, I guess the sense at the time in the media was just shock that, you know, you all could do no wrong. You were America's golden boys. And the sense—do you remember having a personal reaction to the first time there was, like, negative publicity about, you know, some astronauts? I mean, did that make—

GORDON: I felt—probably felt sorry for the crew—Dave [David R. Scott], Jim [James B. Irwin], and Al [Alfred M. Worden]—in the fact that their flight was—probably is and will be probably remembered for that little caper and not the great success that they had. That was probably, arguably could have been the one of the best missions that were flown to the Moon in terms of scientific return.

They did a tremendous job with the first flight of the rover and the lunar stay, the three EVAs, the arena, the area that they went. And I just think it's a bloody damn shame that they did that to themselves. What their motivations were, I have no idea. It's obvious that they regret it. But that—Apollo 15 will, you brought it up, will be remembered that way and not the great accomplishments that that crew performed. [Recorder turned off.]

HARWOOD: Okay. So, you've been on the backup crew for Apollo 15. And you state you—during that process, you know that Apollo 18's been canceled and that you're not going to fly again. But I guess you stay active—an active astronaut—through Apollo 15, obviously. Because if there's any problem with somebody at the last minute, you could wind up flying. But then how quickly—how soon after that do you retire from NASA?

GORDON: Let's see. 15 flew in, what? July of '71. I believe that's correct. And then after 15 had flown their flight, I went back and assumed responsibility for the Office in terms of advanced projects and worked on that on an original design of the Orbiter for six months.

HARWOOD: And how long did you have your duties as Head of the Apollo Branch in the Astronaut Office?

GORDON: Until I retired.

HARWOOD: And Chief—Okay.

GORDON: From that—from the end of Apollo 15 for that next six-month period until I retired in January of '72.

HARWOOD: So, January of '72 you retired. And there was already work being done on the Orbiter and the Shuttle Program.

GORDON: Original designs.

HARWOOD: And what did you think of the Shuttle Program initially? What was your first reaction when you said, "We're going to build this space plane. And it's going to be able to land and take off and be reused again." What was your initial—

GORDON: Well, I thought that was the first logical first step to try and find a vehicle you can reuse. Everything we'd flown up until that time was space hardware and space junk, really. We dumped the boosters in the ocean or wherever they went. Everything that we flew could not be ever used again, except for displays in museums! So, I anticipated that that was a very interesting prospect. When we first started out, we were going to reuse the booster. We were going to fly them back and put somebody in them!

And we were going to fly the boosters back and land to be reused. The Orbiter itself was going to be reused. And the arguments that we had, or the discussions, I should say, because really that's what they were, was whether this Orbiter was going to have engines on it to begin with, before it first came—before its first flight. Whether or not it was going to have ejection seats. All of these things were being discussed and evaluated to the point that the boosters were even going to be manned and flown back. How would you like to have been that pilot? And so, these things were all in discussions in that six-month period. Those are the kinds of things that we looked at and tried to simulate different landing aspects. People were making tape for the simulators that would come back and land as a glider.

HARWOOD: What was your specific—I mean, do you remember specific involvements that you had in those early days of the Shuttle Program? Just in that short period of time?

GORDON: Mostly management meetings and discussions about how we were going to build it, how we were going to do it. Flying some of the early simulations, we found that we could've flown—

HARWOOD: You personally flew some early simulations of the Shuttle?

GORDON: Yes. We found out in those days that we could not fly the vehicle. It was unstable. The—that it had to be flown and controlled automatically by computers. That there was a certain—there's an aerodynamic quality that—in the spacecraft that you can actually simulate with airplanes by changing the center of gravity. It'll give you those same kinds of characteristics. But we learned those things in simulation. We tried to fly it all the way back. As pilots, we wanted to be in control of course; we always were, and proven wrong a lot of times that it's just beyond your capability. And this is what the thing—some of the things that we learned.

HARWOOD: Why, after just six months of doing that, why the decision to retire? Why not stick it out like John [W.] Young? And, you know—

GORDON: Well, I'm not John Young. John Young could stick it out. I had an opportunity to do something else. A good friend of mine here in Houston, John Meekham, owned the New Orleans Saints. And we met—well, I'd known John many, many years. As a matter of fact, raced his boats for him; and we became friends. And we met, I forget exactly when, along in the end—near the end of 1971 at a reception that President Nixon had for race car drivers. USAC and NASCAR and those. He had the people that were involved in that, we had become friends with as well, so the Apollo 12 crew we're lifetime members of USAC. And those people that knew that had invited us back to the White House for a reception for the race car drivers.

And at that time, John approached me and asked if I'd be interested in going to New Orleans and working for him over there with the football team. I didn't respond, obviously, right away but reflected upon it. I had 22 years of military service. I could retire from the Navy. I looked down the road to flights and there weren't anymore. The three Skylab flights were assigned. The ASTP [Apollo Soyuz Test Project] missions were all assigned. So, beyond that, and that was the 1975 timeframe, beyond that, there weren't anymore flights. And I was—I came here to fly. I had the opportunity to fly twice, and I saw no additional opportunities to fly. The good Lord only knew when Orbiter was going to fly, and it wasn't until 1981! And I decided that I needed to do something else.

HARWOOD: Still a Saints fan?

GORDON: I can follow them. I'm not sure what—if I'm a fan. Losing is agony.

HARWOOD: The—so, you had retired before Apollo 17. Or—

GORDON: Yes, I retired before 16.

HARWOOD: So, but you went back to watch Apollo 17? I've read that you were at the Kennedy—

GORDON: Yes. Yes.

HARWOOD: —Space Center. Correct. What were you feelings? Reflecting on—this was a flight you had fought hard, I mean, you had fought really hard to get onto that flight, and—

GORDON: All those—that emotion's gone and over with, you know. There's nothing—you can't go back and create anything. I just enjoyed being there and taking friends. Took the Meekhams as my guest to watch the launch. It was the first night launch of the Saturn V; and in spite of all the delays and waiting until about midnight for 17 to fly, it was just an—I enjoyed it. It was very spectacular to see. And any emotion that I had about 17, they were long gone.

HARWOOD: Was there the emotions, though, of just as an astronaut, you know, as a space explorer, was there emotion of knowing it was the last one? For anyone?

GORDON: I think there's a certain amount of regret. I wish they had continued the Program through 20, which they had originally intended to do. They had—but I can't argue with the decision. The decision was a good one, an appropriate one at the time. The risk-to-reward was going up. The risks were always there the same. The rewards were diminishing. The amount of scientific information and what we learned was minimal. I shouldn't say "minimal." But in a sense that it was repetitive and we weren't gaining much more. We would have if we'd have landed on the back side of the Moon; that would've been a totally different story.

But the Program ended. And probably appropriately so, because it allowed us then to look at Skylab. And that allowed us then to close the loop. The Cold War was over in 1975.

Lo and behold! we have a joint mission with the Soviet Union. Two cosmonauts and three astronauts; joint operations in orbit. Full circle.

HARWOOD: Did you follow that flight closely?

GORDON: Yes.

HARWOOD: Were you excited that Deke Slayton finally got to fly?

GORDON: Yes. If any—nobody deserves to fly in this business. But if anybody does, Deke Slayton was the one to have deserved to have flown.

HARWOOD: So, there—you know, there's not, like—because Deke controlled all your fates for so long, you could easily have developed either resentment toward him or what you seem to have developed, which is respect and friendship. I mean, I take it that no—

GORDON: I can't imagine anybody developing a resentment.

HARWOOD: I don't think anybody has, which is amazing considering he controlled your fates, really.

GORDON: But we—that was an accepted—He was the boss. And when it—you know, people—a lot of people don't understand this. When you're in the military, you go, "Aye, aye, sir." And you carry out your orders. That's the culture. Thank God, it's the culture!

HARWOOD: Were there—

GORDON: And I just feel that there—people felt that Deke was not—well, I shouldn't say that. He was not treated improperly. But this—the decision could've gone totally the other way about his flying on Mercury. It didn't, and he went through a lot of trouble and tribulations to get back on flight status, even though they probably would never have allowed him to fly alone. He was not about to, even though he was a Mercury astronaut, to be the commander of that [ASTP] flight. But Deke deserved to fly; and thank God, he had the opportunity to do so!

HARWOOD: The—you know, you mentioned that you followed the Apollo-Soyuz. Were you struck at the time at just how far the circle had come?

GORDON: I think so. I think so. Matter of fact, my command module pilot was a command module pilot on ASTP. Vance [D.] Brand was on my backup crew on 15, and it gave Vance an opportunity. I was glad to see that he had the opportunity to fly as well.

HARWOOD: Do you still follow the space program?

GORDON: Not to the detail, certainly, but yeah. I know what they're doing, and what they're not doing, and what's going on.

HARWOOD: What do you think they're not doing that they should be doing?

GORDON: Well, they're not doing the things they should be doing because they can't. The budget's not there. The leadership's not there. You know, beyond ISS, and I anticipate some problems along that one as well, but what's beyond the International Space Station? Who's out there challenging humankind to go further and return to the Moon? Or go to Mars?

All of these things should be happening. I—the disappointment I have, we haven't been back to the lunar surface since 1972. That's a disgrace! And we just don't—the culture is not the same as it was in the '60s. It just doesn't exist. It probably never will be replicated. And we're just going to have to go along at the pace that we're going along. And in some senses, I don't think to point fingers, but the politics and the economics of the situation have probably—and the will of the American people have probably dictated that we are where we are.

HARWOOD: When you compare the NASA of today with the NASA of your time, what stands out at you as the greatest contrast, greatest disappointments, greatest improvements? I mean, I don't know if you know enough about the NASA organization—

GORDON: Well, that's probably a true statement, Catherine. I probably don't know enough about the NASA of today to make that comparison. The NASA of today is not the

NASA of the '60s. The leadership is not the same. The risk takers are not there. Can you imagine going to the Moon today with one computer? I can't. And I don't think anybody here could look at it and think of it in that way.

We were one of two things. Either we were very good or we were very, very lucky in being able to accomplish those missions. But there was a Cold War. There were risk takers. There were people willing to take those risks, willing to make those management decisions and assume those responsibilities for their decisions. We don't have that today.

HARWOOD: Why do you think not? I mean, why—do you think made it possible then? Was it just the race with the Soviets?

GORDON: I think probably a great deal of it was the Cold War. It was the inspiration that young President John Kennedy gave. You know, he started—had rough times starting out behind, trying to find something to catch up. The Berlin Wall going up in his Presidency. The Cuban Crisis. This country needed a shot in the arm. Think about the 1960s. Vietnam. Riots. Campus unrest situations. Woodstock. I mean, this country was a bloody mess! And it was the one thing that gave it somewhat of a shot in the arm; and it was a totally different time and place in history.

HARWOOD: You all were the bright spot.

GORDON: Well, we hoped that we gave people something to look up to.

HARWOOD: Any stories that you think are worth telling that I didn't know to ask you about? Because I can't, you know, all the—

GORDON: I'm impressed with the research you've done. I think you've done pretty well. I probably said more than I should. But I don't care!

HARWOOD: Now, no, no. Any—let me just have you reflect on a couple of key figures from this: Chris Kraft, just your reflect—thoughts.

GORDON: His nickname was "the Teacher." And he was good.

HARWOOD: Yeah.

GORDON: He was one of those rare individuals. He and Bob Gilruth and Wernher von Braun; and those people came along at a very, very unique time in our history. And their contributions are very significant.

HARWOOD: Gene Kranz.

GORDON: Gung-ho. All the way. A tiger by the tail.

HARWOOD: What about some of the NASA Administrators of your time, like Jim Webb and—

GORDON: Jim, we respected. If it hadn't been for Jim Webb and his acumen in the political arena, this would never have been done. And in particular after the Apollo 1 fire.

Other leadership, I think a lot of respect I have for Dr. [George E.] Mueller, who if he had not made the decision for the all-up testing—don't test these things; save missiles; put them all together and go for it—saved us a tremendous amount of time with the Saturn V and its development.

There are other people of industry. Lee Evans in Grumman. McDonnell's for the Mercury and Gemini. The—Harrison Storms with North American and with the Apollo command and service module. All these people, and many, many more, just tremendous, great contributors to the—Bob Gilruth was one of my very favorites.

HARWOOD: Why? Just because of his leadership and his—

GORDON: His leadership. You bet. His vision. He and Wernher von Braun were visionaries in this game.

HARWOOD: How do you want to be remembered in terms of your NASA career?

GORDON: A contributor.

HARWOOD: Who would have liked to have gone the last 60 miles?

GORDON: Yes. Yes, indeed!

HARWOOD: All right. Well, thank you very much for sharing all your stories.

GORDON: Okay.

HARWOOD: We really appreciate it.

GORDON: Enjoyed it.

[End of Interview]