

Paul Thies:

In April 1972, he became the youngest person ever to walk on the Moon, a record he still holds to this day. Just three years prior, he served in a critical role as part of the Mission Control team for Apollo 11 and he was later a member of the backup crew for the ill-fated Apollo 13. But in the heyday of NASA's lunar explorations, he would eventually get his own shot at walking on the Moon. Hello, I'm your host, Paul Thies. As we close in on the 50th anniversary of the flight of Apollo 16, it was my privilege to sit down with General Charlie Duke, lunar module pilot for this historic flight, to reminisce about his three-day excursion to Earth's farthest shore.

Paul Thies:

Well, General Duke, thank you so much for joining me today. It's a real honor. I've been following the Apollo missions since I was a little boy. I think I even told you I had one of those Revell Saturn V model rockets. I don't know how many pieces that thing had, but I would just spend hours trying to put that together and dreaming about going to the Moon. So being able to speak with you today about your experience... I can't believe we're about to celebrate the 50th anniversary this year just in a few short months. But it's a real honor to sit down with you today.

General Duke:

Good. I'm glad to be with you, Paul.

Paul Thies:

Thank you, sir. As I was going back and looking at all the great history and the rich history of the Apollo missions... We go back to, obviously, Apollo 11. The milestone mission landing on the Moon. Prior to your own flight on Apollo 16, you served as the CAPCOM, or capsule communicator, for Apollo 11. Now, for the audience at home, the CAPCOM is the communications point of contact between the astronauts in space and Mission Control on Earth. Before the eagle landed, they had to deal with a navigational computer alarm and they ran low on fuel. Can you speak to your experience as the CAPCOM on Apollo 11 during what must have been some pretty tense moments?

General Duke:

Well, that's a perfect description. Very tense. As we started down, everything looked really, really good when we started our descent and then we had a communication problem. Mission rules were you couldn't lose communication for, let's say, 30 seconds. You would have to call an abort. So we had to reorient the spacecraft. Then our computer started acting up. Computer alarms. 1201, 1203. Fortunately, the guidance controller recognized those alarms with his support crews and the support in the back room. They hollered out almost immediately, "We're going at alarm flight." I was incredulous. I said, "Man." I mean, my tension level was just going up through the roof. I couldn't believe we were a go on those alarms. Later on, they explained what it was. Okay. So then that kept the tension alive because we keep having these alarms.

General Duke:

And then at 7000 feet above the Moon, the vehicle pitches down so the crew can see the landing site. We had them targeted into the boulder field, which was impossible to land on. Neil had to level off, I think, about 500 feet and he flew horizontally across the Moon until he found a suitable looking landing site. He had to pitch up to slow down and then come down. Well, that used all our reserve fuel and so

now we're minimum fuel. The propulsion engineer, our controller, said, "60 seconds flight," and I reported 60 seconds to the crew. That means they had 60 seconds to land or we were going to call an abort. So you can imagine the tension. Then he said, "30 seconds flight." So I said, "Eagle, 30 seconds." They were close, but they weren't on the ground. According to my watch, it was 13 seconds later. I heard Buzz Aldrin say, "Contact, engine stop." We knew they were on the Moon. I mean, the tension was out the roof, and it was like somebody punching a big balloon that was bursting with air and... All of it went. Let's say that's tension. The tension just went out the room. We were so excited.

General Duke:

So we didn't have to call that abort because of the skills of the crew and the fact that they'd already identified a landing spot and they were coming down. Actually, they had 4% fuel remaining if we had called an abort, but that 4% was designed to lift the lunar module back up in towards orbit and then they would abort stage, so it wasn't fuel for landing. I think Neil... 20 feet off the Moon, you're not going to abort. He had the final decision. 20 feet, 30 feet, off the Moon. You got 4%. He would've landed. Fortunately, we didn't have to violate a mission rule and the mission was success. But I'll tell you. The tension as CAPCOM in Apollo 11 was higher than the tension I experienced actually landing on the Moon.

Paul Thies:

Wow. On YouTube, and I'm sure there's all kinds of footage, but there's the interchange between you and Neil. You're talking about you've got a room full of guys in here about to turn blue, holding their breath. I can only imagine how tense that must have been.

General Duke:

Just one more short comment. In Mission Control, you're looking at a little screen about the size of my laptop and you don't get all that information. You don't get the visual cues that you get when you're actually doing it. They're landing and they're looking out the windows. They see the outside. They see all the instrument panels. They see the computer. Everything is there and so you continue to... You focus on your job, which for Neil, it was landing. For Buzz, it was talking him down at the right rate. Whereas in Mission Control, you're just sitting there looking at a little screen with partial information. It was a lot different... a lot less strenuous, let me say, actually doing it than it was sitting in Mission Control.

Paul Thies:

That's interesting. And that brings to me to my next question. Because, for Apollo 16, you were the pilot of the lunar module, that's right?

General Duke:

That's correct. But that doesn't mean I was controlling it. I was on the right side like a co-pilot in an airplane. The commander, John Young, was on the left side, and we had trained where he would actually fly manually at a certain stage down and land on the Moon. My job was to keep him onto trajectory, keep him on the rate of descent, and look out the right side to make sure he's not landing in a big crater that he couldn't see from his side. It was a team effort. I was running the systems. If we had an emergency, I would handle the emergency, he would focus on the landing. I had a set of controls like in an airplane, and if his controls went out, then I was trained to take over and actually make the landing. But we had good gear and no problems, so he continued on just as we had trained. We made a fantastic landing. He'd picked out a great spot so we were almost dead level when we shut the engine down.

Paul Thies:

It sounds like training paid off. I was going to ask you. How was it different in the field versus all the training you put in on Earth and how did the vehicle handle?

General Duke:

The simulator and training was what we call fixed base. It didn't move. You looked out the window and there was a TV camera. As you maneuvered the spacecraft, what you were really doing was turning the camera. As you looked at the surface, you could fly across the surface, but it was a TV camera moving across. But you are not moving. You're just looking out the window in this apparent movement.

Whereas in the actual flight, of course, the spacecraft is the one that's moving, not the Moon. You feel that and you feel when the jets fire. [inaudible 00:09:31] So you get a lot more visual cues. You get a more motion cues. It's certainly a lot more realistic than the simulator. You're tempted to look outside a lot because it's so exciting. Man, here we come, Moon. You really want to do a good job, but you really want to land, too. Both, in combination, end up to success.

Paul Thies:

We've got a couple of audience questions that I'll pepper in. This first one comes from Warren Marcus in the Philippines. He asks, "What were you thinking as you stepped onto the Moon?"

General Duke:

The step off onto the Moon was six hours... More than that. It was six hours behind schedule. More than that. So we were excited. "Let's get out. Let's get out." John got out. I'm supposed to wait 10 minutes, but I opened the door and I started getting out. The commander has the speech to make for the flight. Like Neil Armstrong. "That's small step for man." John had a little thing about Apollo 16, but my job was just to get out. When I got out, I was so excited. "Man, I'm on the Moon. I'm on the Moon. Man, look at that stone mountain over there. Look at the smoky mountains." I was just enthralled with the view that we had. Of the tremendous brightness of the Moon, and the rolling terrain, and the clear horizon of the lunar surface, and then the black... You look up and you see the blackness of space. Unfortunately, we couldn't see the Earth from where we landed because it was right overhead. You look up in your helmet and you're looking at the top of your helmet. So we rarely saw the Earth from the Moon because of where our landing spot was.

General Duke:

It's just an excitement. It was wonder, awe, thrilling excitement. All of those emotions that you can imagine. It was sort of like... In a much larger scale, it was like the first time I stood on the rim of the Grand Canyon. If you've ever done that, I mean, it's a show stopper almost. Well, the Moon was the same way. Even in spades. And so you never got tired of describing it, looking at it, touching it, driving over it. It was just one excitement after another. All that time, while you're experiencing that excitement, you're doing your job. You got to get to this spot and that spot. You got to checklist about all the experiments you're going to do when you get to that spot. And so you're absorbing this wonder and the beauty of it sort of subconsciously because your focus has to be on your procedures and to make sure you get everything done in the time allotted at station one or station two.

Paul Thies:

It sounds like... You trained for hundreds or even thousands of hours on various tasks and stuff and I'm sure that repetitious training over and over just drilled into you. Probably helped you be able to filter out some of that sensory overload that you must have been feeling. But you spent three days on the Moon. What was it like to spend the night on the Moon? I understand you didn't sleep very well the first night there.

General Duke:

Well, we were... Our flight plan originally had us landing on the Moon and then getting outside right away. Put on our backpack and go out for our first exploration. But due to the six hours delay, NASA decided they were going to cancel that first EVA and put it after the rest period. So that meant we took off our suits, we put up our hammocks, and we climbed into the hammock. Mine went this way across the spacecraft and John went from four half. I had the communications cap on. We called it the Snoopy cap. And so I was monitoring the radio in case Mission Control wanted to wake us up for a problem. They had told me that, four hours into our rest period, a master alarm would go off because of a problem with one of our reaction control systems.

General Duke:

So, I'm all keyed up and I'm laying there and waiting for this alarm to go off. When it did go off, I jumped almost out through the top of the roof. It was really loud. And so I handled the problem and I told Mission Control... I said, "I haven't had a bit of sleep. I'm going to take a sleeping pill." And so they agreed. I ended up probably three and a half, four hours of sleep that night. But then, after that, you're exhausted. Eight hours in a spacesuit on the Moon is hard work. And so we got out of our spacesuits after the first excursion. We refurbished everything, got ready for the next day, ate a meal, and then debriefed, and we went to sleep. Oh man, I was like sleeping like a baby the next two nights. We were so exhausted. So gravity, sleeping and gravity, 1/6 gravity, is really nice. It's not like you're 1 G. I weighed 150 pounds back then, so it's 25 pounds up on the Moon. So you get a little pillow and hammock and you just go to sleep.

Paul Thies:

So our next question touches on gravity. It comes to us courtesy of the squirrels class, year four, at Heritage Primary School in the United Kingdom. The kids in year four ask, "How did it feel to have less gravity than on Earth?"

General Duke:

Well, it was a good deal. Let me put it that way. When I put on my spacesuit, backpack, life support system, what it really was, and all the equipment, I weighed... Down here on earth, I weighed... I think it was 165 kilos or, in English terms, imperial terms, it was 363 pounds. Well, up there that turns into 60 pounds. And so you had this lightness as you ran across the Moon or you hopped across the Moon. But the suit is stiff and you couldn't bend at the waist. You could pull your arms up and you could do your hands and all of that stuff. It took a lot of work to move the spacesuit and ended up... In the undulating, lunar surface, you fell down a lot. You tripped over a rock or you stumbled, whatever. And then you had to... It was three pushes to get up. And so you were always working.

General Duke:

But we had trained some 1/6 gravity in the airplane and we knew what to expect. Of course, we were the fifth landing on the Moon and we listened to every word of debriefing. We asked the other crews

what to expect there. Especially Apollo 15 because they were the first one with the rover. We wanted to know all the idiosyncrasies of the rover and so spent a lot of time with them. Debriefing them just one on one. The light gravity was very advantageous. You could actually pick up the rover. It weighed like 80 pounds up on the Moon. So John could get on his side, I could get on my side, and we'd lift it up and turn it around if we needed to. We could pick up big rocks that were maybe 25 pounds down here, but up there only four pounds. And so it was a delight to me to work in 1/6 gravity.

Paul Thies:

Now, speaking of gravity, I read where you described the scariest moment of your life was a big jump you made on the lunar surface in honor of the 1972 Olympics. Now, for the people at home, picture yourself wearing a 300-pound spacesuit and attempting to set the Olympic high jump record on the Moon. What happened there? And what did NASA have to say about it?

General Duke:

So it was the end of our stay. We thought of this because it was an Olympic year in 1972 and we wanted to do something cute, if you will. Alan Shepard on Apollo 14 hit a golf ball. David Scott had the hammer and feather trick. Newtonian gravity experiment. And so we were going, well, let's do the Olympics. And so we decided a long jump and a high jump. So we're going to start with a high jump. But we were running behind and Mission Control was pushing us. So John, he began to bounce and I began to bounce. When I jumped, I straightened up and, when I did, my center of gravity went back and that pulled me over in a big Fosbury flop, if you will. I was out of control. That was the only time I had fear. Fear's not a bad emotion if you don't panic. And so I thought hit. Roll right. I rolled right and broke my fall on my right side, bounced onto my back, and my heart was pounding, but I'm still alive. I'm breathing. I can see out my visor. The pressure is normal on my spacesuit. John helped me up and I checked my remote control unit. Everything's normal. So I began to calm down.

General Duke:

Then I looked up and the TV camera was pointed right at me. They had seen this high jump that they didn't like at all. And so they got very upset and specific instructions. "No more Moon Olympics, guys. Get back inside." So we forego the broad jump. But if you look at the two of us bouncing up and down, John and I, we hold a record for the high jump record on the Moon. A dubious honor, let me put it that way. But later on, about five years ago, the Olympic committee and the president of the International Olympic Committee gave us a... It wasn't a gold medal, but it was an Olympic statue with the Olympic symbol on it and said, "To Apollo 16, who carried the spirit of the Olympics to the Moon."

Paul Thies:

Wow. Now, I have seen the video and I've got to say, I mean, you are one cool customer. Like your reaction. You didn't panic. You handled yourself very well, if I must say it was. There was no... I didn't see any trace of fear or anything. You just handled that. But, wow, that's amazing. Now, not only are you one of only 12 people who have walked on the Moon, you're also only one of six people who've driven the lunar rover. What was it like to drive on the Moon and how did the rover handle?

General Duke:

Well, let me correct that. I only incidentally drove the rover. We had trained. John would be the driver. He was the commander and I would be the navigator. We had a set of maps that would get us from point A, where we landed, to point B to point C. I would navigate us. And so as he drove, according to

my instructions, I would take pictures every 50 meters to give Mission Control a look at the terrain that we were driving over because the TV camera wouldn't work [inaudible 00:22:38] I incidentally drove... The handle was right between the seats. He was driving with his right arm. I was on the passenger side. I've got this camera and I'd take a picture. "Oh, look at that." I'd turn right and I'd hit his elbow and that would foul up his trajectory, if you will. And so that was sort of an incidental driving, but I never actually put my hand on the stick, if you will, and drove. I could because it was right between the two of us, but we followed our training and it was rightfully so. Anyway, each of us had a very critical role. I had to get us there and then he had to drive in such a way to follow my instructions.

Paul Thies:

Mm. So this next question comes from [Thera Kumaran 00:23:36] from the United Arab Emirates. And Thera asks, "How did you feel once you had landed on the Moon and returned back safely to Earth?"

General Duke:

Well, thank you for the question. I was just in the UAE late last year for their Dubai air show. It was a wonderful country. They treated us really well. Landing was certainly really exciting as we've already covered. When I got back at, I was very pleased with our accomplishments. We fulfilled everything on the lunar surface that we had trained for. We were very pleased with the amount of rocks... All of the things that we were to accomplish, we accomplished. And so it was a sense of pride and thankfulness that we made it back safely. It was just an exuberant feeling, if you will. We knew that we'd done it with the help of all of Mission Control, all of NASA, everybody that was involved. We were very thankful to be a part of this team that worked so hard.

General Duke:

There is a movie out now about Mission Control. Mission Control: The Unsung Heroes of Apollo. It's a very good film and it shows all about how Mission Control saved the day, if you will, on just about every Apollo flight, ours included. So it was exuberance. I'm back. I'm happy to be back, but I'm ready to go again. I did get put on the backup crew for Apollo 17, which was sort of a dead end job. They'd already canceled 18, 19 and 20. So I said, "John, you want to do this?" And John said, "Yeah, let's do this backup." I said, "Well, it's a dead end." He said, "You never know. They might break a leg and we get to go again." And that's true.

Paul Thies:

So I've got one more question. As a fellow Texan, I'm just curious about this. I understand that you had a country music mix tape made to accompany you to the Moon. I'm just curious what your favorite song from the country music mix tape was.

General Duke:

I did. I asked Bill Bailey, who was disc jockey in Pasadena, Texas. A friend of mine. I said, "Hey, Bill, put me some country music together." He said, "You got it." I got the tapes. NASA recorded them on their equipment. He said, "Don't listen until we got airborne." So I got airborne and I plugged one in. It was, "Hey, Charlie. This is Porter Wagoner and Dolly Parton and we hope you enjoy our 30-minute program. So here we go." And they started singing their songs that were popular back in the '70s. And so they'd done this 30 minute program just for us. And then the next one was Merle Haggard and his band and they'd done 30 minutes just for us. It recorded just for us. I can remember Okie from Muskogee and a couple others that Merle did. The next one was Buck Owens. He did a 30-minute program for us. And

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then the last 30 minutes was Chet Atkins and Jerry Reed. They sang and played and that was a 30 minute program just for us.

General Duke:

The whole crew, though everybody wasn't a country music fan, they really loved it. They were telling jokes and [inaudible 00:27:31] to all this. It was very, very, very, very special. My neighbor around the corner here in New Braunfels is Randy Rogers, who's a country music star this day. I took the tape over and he listened to it. He said, "Hey, this is great. Can I write a song about this?" So he and Robert Earle Keen wrote a song called Charlie Duke Took Country Music to the Moon. It's really cute. It's been out for about a year and a half now, so you don't hear it very much anymore, but it was really special. And the other two guys loved those tapes. We had a good time playing those over and over again.

Paul Thies:

Oh, that's that's awesome. Well, General Duke, I really thank you so much for the time you spent reminiscing about this historic trip and your experience, this once-in-a-lifetime, unbelievable experience, and your service to our country. I really just thank you so much for sitting down with me today.

General Duke:

Thank you, Paul. I appreciate it. Loved being with you.