

INTERVIEW WITH

Eileen Collins

BY DON COHEN

In 1999, Eileen Collins became the first woman to command a shuttle mission. She commanded *Discovery's* return-to-flight mission in 2005, after the *Columbia* accident. She retired from NASA this year. Commander Collins talked to Don Cohen about learning to be an astronaut and about what being an astronaut has taught her.

COHEN: Tell me a little about how you learn to be an astronaut.

COLLINS: There are two kinds of learning—formal and informal. The formal side is pretty easy. Astronauts go through a structured training program with a syllabus, classroom work, simulators, T-38 flying. There are clear objectives; you know what you need to know and you learn it. Informal learning is more difficult because you don't always know what you need to know.

COHEN: What's an example of important informal learning?

COLLINS: You need to learn the jobs people are doing. You need to learn people's names so you know who to call to help you if you need something done—who's in charge of what part of the organization and what engineer is working on what part of the project. Those things aren't in the curriculum or in a book. A leader or manager needs to get to know the people themselves: their families, their hobbies, the specific needs they have in their lives. I keep a notebook of who I meet and under what circumstances and jot down one or two things they said to me that I might need to know a year from now.





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COHEN: How did you learn that you needed to learn those things?

COLLINS: Experience. You make mistakes as you go along. I found myself saying, “I wish I had written down the name of the person running that program.” As an astronaut, I meet a huge number of people. After the *Columbia* accident, I asked my crew to travel to the various centers and factories around the country that work on the Space Shuttle program. We went to Michoud in New Orleans, where the external tank is made, to Rocketdyne in Southern California, to Thiokol in Utah. We met people and presented awards, including Snoopy awards [for outstanding performance that contributes to flight safety and mission success]. It’s important to meet people and learn what they do.

COHEN: And it’s important for people working on the program to meet you.

COLLINS: It’s hard for the astronauts to meet everybody because we have responsibilities in the office and families we need to see, so we try to spread out. Not every employee will meet every astronaut,

but we hope that every employee will meet some astronauts. Besides, it’s fun. When we meet the employees, we get motivated to strive harder because we can see how hard other people are working.

COHEN: Before you flew, you held several support positions at NASA. Did they help you prepare to fly?

COLLINS: I worked in three big jobs: shuttle engineering, astronaut and testing support at Kennedy Space Center, and CAPCOM [spacecraft communicator] in mission control. I was fortunate to see three very different parts of the organization and meet many people in engineering and operations—a huge benefit when I flew. Having worked in a variety of jobs increases your confidence as an astronaut because you know the people you’re dealing with when you’re up in space. When I was at Kennedy Space Center getting ready to launch on my mission, I felt more comfortable and more prepared because I had worked there. When I was in space, I was more comfortable and prepared because I had worked in mission control and understood what was going on there. And

because I had friends and contacts in the engineering directorate at Johnson Space Center, I was able to communicate with them better about how things operated on our mission.

COHEN: It's always easier to communicate with people if you've done the same job.

COLLINS: It allows you to be more frank and a better communicator because you know the things they need to hear and you know the technical language they speak.

COHEN: Are there things you did as a shuttle commander and insights from your astronaut experience that can help the Agency pursue its new mission successfully?

COLLINS: When I was commander of STS-114, the return-to-flight mission, I asked my crew to be creative, to think about everything that could go wrong during the mission that no one has thought about yet and bring it to the attention of the flight control team. We have a plan for what we want to do, but we also need to have a plan or a partial plan in place for what could go wrong. Many people never thought foam could hurt the outside of the shuttle. There are other things out there that we don't realize could hurt us. I asked my crew and the people I worked with to try to be creative and smart about those things.

COHEN: Other insights?

COLLINS: Astronauts have a unique perspective because we have touched so many different areas: crew systems,

engineering, operations, working at Kennedy Space Center and Johnson Space Center. And the fact that you have been there gives you unique insight into the kinds of things that can be done—how much work an astronaut can do on a day-to-day basis. You don't want to give the astronauts too much because they'll try to do everything on the schedule and will get overworked and tired. On the other hand, you want to optimize what you can get out of the mission.

COHEN: Those issues will be even more important as missions get longer.

COLLINS: You need to be realistic about how much work to expect from the astronauts who will be on the moon. You're better off underscheduling because things will inevitably break and need fixing and things seem to take longer when you get up there. When you're on Earth you do a lot subconsciously. You don't think about walking from one place to another, you just do it. In space, you have to think about how to get from point A to point B. Thinking about getting from one place to another keeps you from thinking about what you're going to do when you get there, so everything takes longer. That will be true for astronauts on the moon, with its one-sixth gravity.

COHEN: Do you have any particular advice for the first commander of the Crew Exploration Vehicle [CEV]?

COLLINS: That person won't need advice on the technical side of the job. On the people side, I would advise the CEV commander to be prepared for a lot of

media attention. We get little training in handling the media and publicity that goes with some of these missions. For example, John Young, the commander on STS-1, had a huge amount of media attention. So did my flight in 1999, when I was the first woman shuttle commander, and the flight last summer, because it was a "return-to-flight" mission. I would say, hire one person to handle the inflow of e-mail, letters, and unusual requests. The crew can't deal with those things; it's too distracting. But I think it's important for the Agency to respond because part of our charter is education. I gave the same advice to Barb Morgan, who was Christa McAuliffe's backup and will fly as the teacher in space next year. You need to focus on your job; you've got to have someone else take care of these other things you don't have time for.

COHEN: Does seeing the earth from space give you a new perspective on the world?

COLLINS: Yes, you do see the earth from a different perspective. It's so beautiful—blue and white, a water planet. My first thought after looking out the window was, "The earth is round!" Of course we all know that, but it was the first time I'd ever seen it with my own eyes. The auroras—the northern lights and southern lights—are beautiful from space. I had never seen them before because I had never been that far north or south. I sometimes think of the earth as a Christmas tree ornament because it's small in the big scheme of things and it's fragile. The surface of the earth has an extremely thin atmosphere on it. We live on a small and fragile planet.



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COHEN: Does that perspective stay with you when you're back on Earth?

COLLINS: Yes, and I want to learn more about the planet and ways we can preserve it for future generations. I do a lot of reading and studying about the earth. Also, I want to visit places I've seen from space: Australia, the Great Barrier Reef, those beautiful little islands in the Pacific. Looking down at Europe and the Middle East, you think of all the history that took place in those areas and you want to visit them.

COHEN: Although I'm sure it's not the same as being there, I think even seeing photos of the earth from space have changed the way people think about our planet.

COLLINS: Definitely. Most of the change in my perspective came from studying to be an astronaut. Maybe the last few percent of what I know about the earth comes from viewing it from space. The studying made more of a change in me, and that's something anyone can do if they have books and a computer and the desire to learn.

COHEN: What's your response to people who argue that we shouldn't spend our resources on further space exploration?

COLLINS: The space program is an investment. In the short period of time we've been sending people into space, life on Earth has benefited tremendously. We have better ways of observing and communicating, with telescopes and communications satellites in orbit. Someone said, and I agree, that when people look back at the twentieth century and early twenty-first century 500 years from now, they will see space exploration as our biggest contribution—the things we did to get off the planet to learn how to live in space stations and on the moon and Mars. We've gotten off the planet; we will move on to traveling faster so that some day people can travel outside the solar system.

COHEN: Before we end our conversation, is there anything else you'd like to say to our readers who work in the space program?

COLLINS: Yes. It's important for people to listen to one another. Listening is hard,

especially if you don't agree with what the person is saying. But you've got to listen and let people know that you heard them and have considered what they said. The leader cannot possibly make decisions in everybody's favor, but he or she needs to let people know that what they said was considered. Decisions have to be made and cannot be delayed unnecessarily because of disagreement. That's one of the things I did. I said, "I hear you. I listened to you. Now I've got to make a decision." ●