

**Paul Thies:** According to the 2020 US Census, the tiny farming community of Beaconsfield, Iowa boasts a population of just 15 people. The downtown area bustles with one commercial build 326.94(m) 3 TJETQ.000008869 0 595.2 841.8 reW\*nBTF1 15 T

and scientists, really embracing math and science and whatnot. Can you tell us a little bit about young Peggy Whitson? What inspired that dream to go to the stars and

"Hey, I could be Peggy Whitson. I can aspire to do that kind of stuff. Kudos to you. It's just fantastic.

**Peggy:** I like to tell folks that your path to your goal isn't always a straight line. Mine certainly wasn't. It took a lot of years to get there, but I think it's so important to learn from all the opportunities that you're given. Sometimes you might fail but it's something you can still learn from. I think that's a really important lesson for anybody no matter what you're trying to do.

**Paul:** No, fantastic. Let's talk a little bit about Axiom Space and unpack that a little bit for people who may or may not have seen Axiom Space. Besides the fact that you all make like really cool-looking spacesuits and a lot of great technology, can you tell us a little bit about, for the uninitiated, who is Axiom Space? What do they do? How are y'all leading in the commercial space industry? Can you tell us a little bit about that?

**Peggy:** Yeah, sure. Axiom Space actually won a contract with NASA to put a module, an Axiom Space module on the International Space Station. That's important because that allows us to start developing things, developing our program a little bit sooner. In addition to that, the last two missions, the Axiom 1 and Axiom 2 missions that went to the International Space Station, we don't have our module up there yet, but we went up there and we're testing out our procedures and processes, the interfaces with NASA and how to make commercial space work as we develop that station up there.

As you know, in 2030 or thereabouts, the International Space Station is going to be decommissioned. Before that happens, Axiom Station will separate from it. We'll already have had multiple years of experience and already have a very viable replacement, a commercial replacement for the International Space Station. For me, personally, I'm really excited about what the future of Axiom Station can provide in the sense that Axiom Station is going to try and develop commercial and biomanufacturing in space and other types of commercial activities in space. Because of my background as a scientist, I get really excited about the fact that we're actually going to commercialize the lack of gravity as a tool to make things that we can use either here on Earth or we can learn to expand our reach in space. It's very exciting for me to be a part of that.

**Paul:** Your career is heavily involved in NASA and in the government, and then now, of course, you're in the commercial side with Axiom Space. That trajectory we're also seeing, I think, really play out, at least in the American space industry where it used to be NASA had a complete monopoly on everything.

position to go into do research in orbit, or it could be governments who are doing it, or it could be investigations that want to be flown on the International Space Station, and we provide an access earlier than they might normally get. A lot of entities that never had access before, because they weren't part of the international partnership that was developed 23 years ago or more, and they weren't part of that initial phase, and Axiom space and Axiom Station allows that capability not only in the future on Axiom Station but now even with the research that we're doing.

For instance, I had two government-represented astronauts from the Kingdom of Saudi Arabia and they were doing a lot of scientific research for their country, as well as-- John Shoffner was there. He's a private astronaut from Tennessee. He was also doing research onboard the station. We were doing a number of national lab research investigations. I was really excited about the capability of doing research on colorectal cancers and breast cancers. We were looking at a new therapy or potential for a therapy to be developed. The researchers are extremely excited about the results.

Microgravity is a great model for growing these cancers because they grow more like they do in your human body. They can actually test therapies and drugs in space and test ways to detect and, hopefully, prevent these cancers from forming. It's a really powerful tool platform to test drugs that will inhibit cancers and potentially ways to predict or detect cancers even earlier which will help in the prevention.

**Paul:** Wow, that's really interesting. I was going to ask you about that, some of the life science type of experiments on a space station and what that will tell us. Let's unpack this a little bit. Your vision for the research that's done on Axiom Station. Obviously, you've got an interest in the life sciences, but what are some of the other kinds of areas where you see commercial or maybe other government entities like Saudi Arabia that are non-traditional space players who are now having an access point where they didn't before? What kinds of research, projects, what are some of the opportunities that you see that Axiom Station is going to open up for people?

**Peggy:** I think it'll open up research in all different kinds of areas, physical sciences. A lot of research onboard the International Space Station has been done in life sciences.

**Paul:** I've got to imagine the data pool that y'all generate too and then you couple it with something like artificial intelligence or whatnot, and then you can start doing some modeling. I just got to assume that there's complimentary technologies that will just exponentially allow you to just grow and learn even more and more. This is like a new platform for learning or getting data. We've had the space stations for a while, of course, but now it's like more people can be involved, more projects can be involved. It just seems like it really opens up the panorama of what we can learn.

**Peggy:** For sure.

**Paul:** Now, You've been an astronaut for quite some time. This might be an unfair question to go back to the greatest hits package here but can you share with us an interesting event or obstacle in space in your career and what you learned from it?

**Peggy:** Over the years there's just been lots of different events. I have always felt like NASA does an amazing job at solving problems. At one point during one of my missions, it was when I was the commander on Expedition 16, we were moving a solar array. They're 115 feet long that had been repackaged down into its blanket box. Then we moved it to another location on station. As we redeployed it, there'd been a problem getting it to collapse, and as we redeployed it, it tore.

The team on the ground and the team, I was with the Pam Melroy shuttle crew and my crew, and we had to come up with a fix. The ground team came up with some ideas and then we had to actually physically cut metal and shape things and add wire and tape and come up with a fix on orbit because you can't just go to Lowe's or Home Depot or buy something.

[laughter]

**Peggy:** We had to come up with the solution but it was just an amazing effort by the ground team and the team on orbit coming up with a fix to this problem. That, to me, demonstrates how important teamwork is and how important listening to everyone is. As it turns out, it was a very young engineer that came in with the idea about, "How about we just make like cuff lengths to span the tear and put it in these little integral holes on either side of the tear like putting sutures on it. It was a great idea and the one they made work. It's just really spectacular.

During this last mission for Axiom Space. One of the important things that I've become to realize, I've done a lot of training over the years, training crew members for long-duration missions and what's the best type of training. We've evolved the training at NASA over those years to optimize for long-duration crew members. Now working with Axiom, I've got short-duration crew members. It's interesting because now I'm taking folks back to train more like we did when we were training on shuttles [laughs] because it's a short mission. It's very defined. We have to get our specific objectives done in a very short period of time. Now we're evolving our training, Axiom Spaces training is taking what NASA can help us with but then evolving it and making it more focused on what our mission needs are. I'm thrilled to be able to help out and be a part of that.

**Paul:** Do you think with Space Station living, are you going to see the training windows lengthen where it's as we get more and more mature technologically with

life in space, and you read stories like Christina Koch was in space almost a full year and stuff like that, are you seeing like the training is changing to where we're really focusing more on getting people used to the idea of being up there longer? Like Axiom Station, I'm assuming, it's trying to get up there and get back down, like you said, it's not like just going down the street to Lowe's or whatever. It takes an effort to leave the earth's gravity. How would you think the training focus, I mean, are we working more towards trying to prepare people for longer-term life and space-type missions?

**Peggy:** Well, I think what Axiom is offering is that we're going to tailor our training flow to fit what the mission objectives are if it happens to be a short mission versus a