

AirSpace Season 1, Episode 2

The Right Stuff Right Now

Nick Partridge: [00:00:05] When did you know that you wouldn't be an astronaut?

Emily Martin: [00:00:07] It was sometime in the mid 2000s when I had, had the realization that I get carsick.

NP: [00:00:15] They call that the Garn scale of space sickness.

EM: [00:00:18] The Garn?

NP: [00:00:18] Yes one Garn is extremely space sick, named after Senator Jake Garn who famously suffered severe space sickness during his first flight.

EM: [00:00:28] What about you Matt? Are you still so like you're so raring to go.

Matt Shindell: [00:00:31] Oh yeah. You know I'm not 100 percent convinced that it's not going to happen for me. At some point there's going to be a call for historians to go to the Moon.

NP: [00:00:39] Matt run seven miles every morning in preparation for that day.

MS: [00:00:43] Mainly in my imagination. But, yes that's right.

[laughter]

NP: [00:00:46] Welcome to AirSpace a podcast from the Smithsonian's National Air and Space Museum. With support from PRX. This episode is about what it takes to be an astronaut. Maybe it was your dream, maybe it wasn't, maybe you haven't given up the ghost and you're hoping to be the first poet in orbit. What is the right stuff right now? That's coming up next.

NP: [00:01:09] Welcome to AirSpace a podcast from the Smithsonian's National Air and Space Museum. We are your hosts.

EM: [00:01:14] Hi.

NP: [00:01:15] Yes. All three of us.

EM: [00:01:17] I'm Emily Martin.

MS: [00:01:18] I'm Matt Shindell.

NP: [00:01:19] And I'm Nick Partridge. Today we're going to introduce you to a woman who had her space dreams figuratively flushed down the tubes and how she went on to make a lasting impression on one of the most impressive women in space history. We'll discuss the crazy tests that early space hopefuls went through with author and historian Margaret Weitekamp.

Margaret Weitekamp: [00:01:39] So one of the things that they did was essentially freeze their inner ear by putting ice water in their ears and your eyes shutter back and forth.

NP: [00:01:47] And we'll talk with one woman about what it felt like to actually get the call from Houston to take the most intimidating interview of her life.

NP: [00:02:00] So what it takes to be an astronaut if you're not currently training to be one you might be surprised to learn that the desired skills have changed quite a lot over the years. Definitely since this movie came out in 1983.

[Sound from the movie *The Right Stuff*]

NP: [00:02:19] Those were the gurgles of the aspiring astronauts of the Mercury 7. Let's call them astronaut class number 1, as played by actors in the classic 1983 movie *The Right Stuff*. In that scene they were turning blue in the face in order to demonstrate their impressive lung capacities. Today just like back then solid physical health is an important characteristic for aspiring astronauts. But other skills are considered too -- interpersonal skills professional and technical expertise. We work for the National Air and Space Museum and although we're probably not quite the same physical shape as astronauts like Al Shepard and John Glenn we are on the periphery of the industry.

MS: [00:03:01] Where space adjacent.

NP: [00:03:03] Space adjacent, I like that. Do you think this is as close as you're going to come? Are you ever going to fly in space?

MS: [00:03:08] My mom pretty much still thinks I'm going to be an astronaut in some way in some form. I don't know where she gets that.

NP: [00:03:16] I'm not sure I've given up the ghost yet either when I was very small my mom would take me out to a pier near our house and we could watch space shuttles. We live along the coast and we could see them going up from Cape Canaveral and I hope to honor those extraordinary measures, once NASA realizes they need a near-sighted speech writer in orbit.

EM: [00:03:31] With with space tourism becoming a thing they're going to need more and more people to go up and actually be able to talk about the experience from a tourism standpoint and I think work great candidates for that.

MS: [00:03:43] Yeah the Moon is going to need a curator at some point.

NP: [00:03:46] The real question is do they put suede elbow patches on spacesuits.

MS: [00:03:50] I hope so.

NP: [00:03:50] I hope so too. Lunar beta cloth Tweed.

MS: [00:03:54] Tweed!

EM: [00:03:54] Tweed? Tweed is where it's at? It's not corduroy anymore? When did that happen?

MS: [00:03:57] Space Tweed.

NP: [00:03:58] We were all encouraged to believe that we could be astronauts if we just set our minds to it. Encouragement is obviously an important step in seeing through any long term goal and that brings us to a remarkable woman from Austin Texas.

[music]

Linda Halpern: [00:04:16] My name is Linda Halpern. I was formerly a litigation lawyer.

NP: [00:04:21] Linda Halpern, she recently retired from the Texas attorney general's office where she was the assistant attorney general in charge of complex litigation. She was on one of the first coed classes through Princeton University. She went to Georgetown Law and then went to work for the Justice Department. She's humble but proud of her accomplishments and as a kid she took a broad view on her options about what to be when she grew up.

LH: [00:04:46] I was a big Yankees fan at the time. Baseball was big in our house when she was in elementary school. She was really into writing letters to famous people. Maybe she was looking for some inspiration or just thought getting mail back from celebrities was kind of neat.

LH: [00:04:58] I know that I received a letter from Mickey Mantle. I think he hurt his left leg sliding into third or something and I have a letter from him dated May 22nd 1962 basically thanking me for hoping that he gets well.

NP: [00:05:14] And there were more.

LH: [00:05:15] A letter from the vice president of the country club in our little small town. A letter from Hubert Humphrey. This letter from NASA.

NP: [00:05:24] Linda kept all the letters she received in return. In a folder that she still has today.

LH: [00:05:29] It was just a green nondescript folder. At some point I took the NASA letter out and stuck it in a cheap frame. It's I'm looking at it's cheap wood you could probably buy it at a five and dime for about three bucks.

NP: [00:05:50] That letter in the frame is dated March 13th 1962. It was less than a month after John Glenn became the first American to orbit the earth. Linda was eight years old at the time and the moment in history inspired her to write a special letter.

LH: [00:06:05] I wrote a letter evidently to President Kennedy saying that I wanted to be, I don't know if I said I wanted to be the first woman astronaut or that I wanted to be an astronaut, but apparently President Kennedy kicked the letter over to NASA. Who on March 13 1962 sent me a glorious tube letter.

NP: [00:06:25] That is Linda's way of saying.

LH: [00:06:26] As in your application has been flushed down the tubes. They basically did not think girls could go into space.

NP: [00:06:33] This is the letter Linda received back from NASA.

LH: [00:06:36] Dear Miss Halpern President Kennedy has asked this office to thank you for your recent letter. Your willingness to serve your country as a volunteer woman astronaut is commendable. However, while many women are employed in other capacities of the space program, some of them in extremely important scientific posts, we have no present plans to employ women on space flights because of the degree of scientific and flight training and the physical characteristics which are required. We appreciate your interest in and support of the nation's space program. Sincerely O. B. Lloyd Jr. Director, Office of Public Services and Information. That's it.

NP: [00:07:19] Not the most encouraging thing to send a precocious young American girl. But Linda wasn't crushed. Linda went on to become a very successful trial attorney, though she did hang onto that letter.

LH: [00:07:30] I thought it was amusing and I guess, I guess on some subconscious level I figured it might be interesting some day. If a woman finally got up and turned out to be right.

NP: [00:07:41] It took quite some time, but 20 years later NASA finally did send a woman into space.

[Sound of countdown and liftoff of STS-7]

NP: [00:08:03] Sally Ride was selected as an astronaut candidate in 1978. She was part of NASA's 8th class. NASA doesn't form new classes every year and each class varies in size according to the needs of the missions they'll be flying. In 1978 the group was 35 people, bigger than the others because NASA was ramping up their new space shuttle program. Five years later, in 1983, Sally Ride made history as the first American woman to fly in space.

LH: [00:08:31] I was certainly very pleased that NASA had finally seen fit to send a woman into space.

NP: [00:08:37] Around that time Linda looked at the letter NASA had sent her back in 1962. It was right there in that same cheap wooden frame. And so Linda, the prolific childhood letter writer grabbed a pen and addressed a new envelope. This time not to the President of the United States. She tucked in a copy of her so-called tube letter and mailed it to Dr. Sally Ride.

LH: [00:09:02] I wanted to share with her the original letter because I thought it would be something that she could have a good laugh about. I was pleased for her, I was pleased for us.

NP: [00:09:12] To Linda's delight she received a letter in return, hand written from Sally Ride it read.

LH: [00:09:20] Dear Miss Halpern, I liked my letter from NASA better than yours. Exclamation point. Sounds like it's time for you to reapply. No telling when we will need trial lawyers. Sincerely, Sally Ride.

NP: [00:09:32] Linda was touched.

LH: [00:09:33] Oh I loved it.

NP: [00:09:34] And tucked Sally Ride's letter carefully away.

LH: [00:09:36] I was tickled to death to hear back from her.

NP: [00:09:38] Maybe into that same old green folder. When Sally Ride died in 2012 her partner Tam O'Shaughnessy donated a significant collection of Ride's personal possessions and papers to the National Air and Space Museum. And among those papers, one handwritten letter sent by Ms. Linda Halpern. Last year I got in touch with Linda to let her know that the letter that she had passed on to Sally Ride was now part of the Smithsonian's collection. Linda had no idea that Sally had kept it all these years.

LH: [00:10:12] The best part of the phone call honestly, your charm notwithstanding, was finding

out that Sally Ride had held on to my letter and that it was in the, as you put it, small stack of papers that she had when she died. And that that to me was very meaningful because it means I made the right choice in sending my letter to her. I'm a little stunned that something that I did in second grade is part of your collection. But I think the significance is not that it was something that I did but that something that she kept. If that was some small contribution toward making her feel even better about her accomplishment then I'm thrilled.

NP: [00:10:54] The space program has thankfully changed in even more ways than just allowing women to fly more on that after the break.

[Sound of newsreel reporting Alan Shepard's flight, the first American in space]

NP: [00:11:31] All the major radio networks had a special report. Al Shepard had become the first American in space. From that date in 1961 to Sally Ride's Flight 22 years past, 22 years before NASA opened the doors of entry just a little bit wider. They expanded their astronaut classes from what had been an exclusive group of white, male, military trained test pilots. They started to include other people as well. Before we get into who made it into those astronaut classes, we should talk about the ways that the space program itself expanded. Matt, what were some of the big differences from the start of the space program to today?

MS: [00:12:10] So if you look at NASA's manned space program in the 1960s this was a program that had very specific goals that it wanted to achieve as quickly as possible, what you would call a crash program. Not that they were trying to crash any of their vehicles, but that they wanted to do this as quickly as possible and crash their barriers as quickly as possible.

NP: [00:12:30] As long as you were a white man from one of the service branches.

MS: [00:12:33] Sure. Yeah they weren't breaking any barriers in that respect but they were breaking technological barriers. And then if you look at the 1980s and the shuttle program this was supposed to be a long term more affordable more routine form of space travel where you were going to be going up and doing all kinds of things in space and delivering things into space. If you look at the space shuttle it's kind of like an 18 wheeler that's become a space ship.

EM: [00:12:59] I want to talk about the astronauts working towards the shuttle missions. Sally Ride's astronaut class was NASA's eighth astronaut class and this was also the first class to be on a shuttle mission. And the skill sets that these astronauts needed started to look much more diverse and much different than our original astronaut classes. I mean, the eighth astronaut class had African-Americans, women, Jewish Americans, as well as the first Asian American astronaut candidate.

NP: [00:13:28] So this is a great moment to introduce another expert someone to talk a little bit about how the skills and requirements changed.

EM: [00:13:35] Hey Margaret come on in and take a seat.

[Sound of Margaret sitting down]

NP: [00:13:37] Our colleague Margaret actually wrote the book on this.

MS: [00:13:40] Literally.

Margaret Weitekamp: [00:13:41] My name is Margaret Weitekamp. I'm a curator in the Space

History department here at the Smithsonian's National Air and Space Museum.

NP: [00:13:47] The book is called right stuff, wrong sex. Margaret, we know that changes to the astronaut program emerged in the 1970s. We talked about how the space program itself evolved. How exactly do those changes lead us to Sally Ride and why do we now have a tennis racket in the collection of the National Air and Space Museum?

MW: [00:14:05] Tennis played an important part in Sally Ride's selection because when they were looking for an astronaut corps for the space shuttle were they wanted to pick from a different kind of person than they had picked when they were looking mostly at military trained jet test pilots to be pilot astronauts. They wanted people who had academic degrees who could be the researchers in the space shuttle. And that meant that they needed to find a way to be able to vet both men and women. And at this point you really would not have found women with the military training that NASA found as such a convenient way to be able to test the quality of the people. So being someone who had played a competitive sport on her resume was seen as something that showed that she could take instruction, that she was coachable, that she could carry out physical instructions, and that she had some idea of how to work on a team.

MS: [00:15:01] Can you talk a little bit about the introduction of Title 9 legislation?

MW: [00:15:05] The 1970s and specifically the early 1970s were a critical time for change for women's opportunities in the professions, in education, and that led to these kinds of high level things such as being an astronaut. So notably in 1972 Title 9 was passed which was an addition to the Civil Rights Act of 1964. The Civil Rights Act covered employment and public accommodations. Title 9 brought it to educational institutions and specifically said that any educational institution, and that became high schools or colleges, that took federal funding couldn't discriminate on the basis of sex. That got women access in equality to law schools, to medical schools where there had traditionally been quotas or allocations for women students. But it also gave them access to athletic opportunities and most importantly athletic scholarships.

MS: [00:16:05] So at the time that the U.S. was first for the first humans it would try to send it into space there were actually some women who did you know take the qualifying tests and train a little bit to become astronauts. Who were who are those women?

MW: [00:16:19] That was a group of women who Randy Lovelace, the originator of the astronaut tests, actually invited on his own dime to come to his center. So if you've seen the movie *The Right Stuff*, Philip Kaufman, 1983.

[Sound from the movie *The Right Stuff*]

[00:16:34] And the search began are a new breed of men. Men who were fearless.

[00:16:41] You've heard about our project. Sounds dangerous. It's very dangerous. Count me in.

MW: [00:16:48] Great picture. Gives some depiction of what the Mercury astronauts went through. The doctor who designed those same tests was curious about whether women might actually be as physically qualified as the astronauts that they had actually picked.

EM: [00:17:02] Can you think of some tests that maybe we might balk at now with sort of the hindsight that we have where we'd be like really somebody is going to really test that?

MW: [00:17:10] They really worried about the vestibular orientation, how the inner ear would react

and how balance would be affected. So one of the things that they did was essentially freeze their inner ear by putting ice water and their ears watching their eyes nystagmus is what it's called.

EM: [00:17:27] It's like a brain freeze.

MW: [00:17:27] As your eyes you know shudder back and forth right before you basically pass out and waiting to see how long it would take before you could focus again. The nerve test that they were doing really required sticking a big needle in your arm and sending shock waves down and then seeing how fast the muscles and the nerves react and could come back to normal. There was a set of twins who went through the tests. Marlene and Jan Dietrich and one of the twins who had gone through first wrote to her sister and notably what she said is, you know, they're painful they're uncomfortable but they will never actually hurt you. The only piece of scholarship that was ever published out of the Lovelace women's tests was actually a conclusion that women were highly unreliable physiologically because their monthly cycles would mean that you could never line them up appropriately with the launch schedule.

MS: [00:18:24] So why was the US not ready for this?

MW: [00:18:27] The US on the one hand was more interested in the science and the technology of spaceflight and less in the achieving of the firsts. They were also losing at achieving the firsts which is one of the easy ways to then say well, we're not competing in that realm we're interested in something long term. When women were added to the shuttle program in the late 70s and began flying in the early 1980s it became a more sustained part of the program, although space is still really a boys club. To this date only about 60 women have ever flown in space.

NP: [00:19:05] Is that a little more than 10 percent?

MW: [00:19:07] It's just about 10 or 11 percent out of 500 or so space travelers.

EM: [00:19:11] Wow! That is a staggering statistic I guess you know in my head which is a slightly different generation, you know, my picture of what an astronaut class looks like looks very similar to what just came out for the most recent class which is so not representative of what these astronaut classes have been looking like historically. You know when you actually put it to numbers it's staggering.

NP: [00:19:33] So in a spacecraft there is a premium on space. There is a premium on weight to get into orbit. Women also require a lower caloric intake. Has there been discussion on whether those are significant advantages on a deep space mission for instance Mars?

MW: [00:19:53] The advantages physically that women have of being lighter being shorter require less food, less water, less oxygen, definitely translate into the launch vehicle, right. So for every additional pound the payload that you put on the top of a rocket you need to put a certain amount of fuel on that rocket to lift it and then you need to add fuel to lift that fuel off. So any pound that you can save at the top kind of cascades down through the vehicle. That's going to be true also for a long duration mission that if you can pack fewer supplies for a smaller, more compact, more efficient astronaut then that has potential. The issues that are coming up for real long duration space tend to be ones where they're concerned about radiation, they're concerned about psychological stability. And on those kinds of issues women's bodies and men's bodies don't differ that much.

NP: [00:20:50] Margaret Did you want to be an astronaut when you were growing up?

MW: [00:20:53] No. My brother wanted to be an astronaut when he was growing up and he sent a

letter off in the early 1980s applying to be the first kid on the space shuttle. [Laughter] and I remember we got a big fat packet of materials back from NASA that decorated his room for years. I was at Sally Ride's launch in 1983.

NP: [00:21:12] Really?

MW: [00:21:12] I was on a family vacation and we went to the Kennedy Space Center. My mother was asking would we be able to see it, could we be at the Kennedy Space Center? And the gentleman there explained to my family that came from the hills of Pennsylvania that Florida was flat. [Laughter] and if you were anywhere in the state you would be able to see the launch the next day. And so we watched it from the hood of our rental car every as we were listening to it on the radio and as the countdown got down every car pulled off the highway and everyone just sat on the hood of the car and stood outside and watched.

EM: [00:21:46] It's like the solar eclipse, except for like a way bigger deal, right? Like, I can't even, I, I've never been to a launch but like if I had to pick a historical launch I think that would definitely have been top of the list. That's a big deal.

MW: [00:21:57] Well my mother is convinced that, you know, from there a direct line to curator of the Air and Space Museum.

EM: [00:22:03] Obviously

[Music]

NP: [00:22:07] So once you think you have the right stuff, how do you actually apply to become an astronaut? One of the coolest things about working for the National Air and Space Museum is that all of our friends are astronauts.... Not really. Some of us at least have almost astronaut friends. Take it away, Emily.

EM: [00:22:23] So I want to introduce you guys to my friend Dr. Kate Craft.

Kate Craft: [00:22:26] Hi I'm Kate Craft. I'm a planetary scientist.

EM: [00:22:29] I would have loved to have had Kate here in the studio with us. But she's away doing astrobiological field work. She was able to talk to us via Skype.

KC: [00:22:37] I think it was so amazing to find life on another planet someday.

EM: [00:22:40] That's Kate from Antarctica. She's there doing fieldwork right now, which really just makes her that much cooler.

KC: [00:22:47] I've now landed on ice so that was really awesome.

EM: [00:22:50] Kate is not only excited about space but she's also a little bit of a nerd about airplanes.

KC: [00:22:55] I mean I was like a kid in a candy shop when we got to take the C-130 here. It was just so awesome. And I thought this was super cool- We had a female captain who pilot our plane and so I shook her hand afterwards.

EM: [00:23:07] Kate is someone I've known for a long time and we've even worked on a handful of

projects together. And Kate's enthusiasm for exploration and science shows itself in pretty much everything she does. She's had her sights set on becoming an astronaut since her earliest days.

KC: [00:23:21] As far back as I can remember I've been interested in space. I mean I wanted to be an astronaut my whole life.

EM: [00:23:26] Kate's lived an extremely active and busy life. And now that NASA is focused on longer duration missions Kate's lifestyle seems to have been a kind of long term training for the rigors of space travel.

KC: [00:23:36] I played soccer and I've done a few triathlons and cross-country skiing, ice climbing.

EM: [00:23:40] Combine all that with years and years of focused study and flight training, and one day Kate actually got online and filled out an astronaut job application.

KC: [00:23:50] Yeah I mean it's it is crazy you know you're applying to be an astronaut and to actually think you could be qualified. It's it's Yeah...

EM: [00:23:58] She used a website called USAJOBS.gov. And for those of you who don't work for the federal government, that is the Federal Government's employment site. That job application portal is the same place where people at the Forest Service apply for their jobs, and the USDA, the Office of Management and Budget, and even the National Air and Space Museum. But this was an application to be an astronaut.

KC: [00:24:19] It's a little surreal.

EM: [00:24:21] And then for the most not surreal part. Kate waited. Over the years Kate has actually applied three different times and has not made it, yet, all the way through to acceptance. The most recent astronaut class was actually narrowed down from 18,000 applications to just 50 who were invited for a final in person interview. It's a process that takes some time and so while Kate waited to hear news about her application she continued with her day job.

KC: [00:24:49] Yeah it was a little bit funny. I was actually coming back from Iceland. I had gotten to do some field work and I was in the airport and I was rushing to try to buy some last minute gifts for my family.

EM: [00:25:01] Been there, totally running late at airports all the time.

KC: [00:25:04] And I got a phone call and I was kind of screening my calls because you know with long distance being in Iceland and I looked down and I saw the area code 281 and I was like, what, I don't know I don't know anybody in 281, you know. And so I kind of started to put it back.

EM: [00:25:19] I probably would have done the same thing. I screen all my calls so if it's a number I don't know, I'm not picking it up.

KC: [00:25:24] And then it hit me. 281. That's a Houston area code! You know I tried to grab it out of my pocket again in time but, but I had missed the call. And so I was like well, I'll call them back tomorrow I'm sure it'll be fine. And so I was like so nervous and like you know the whole way back home and then I had to wait till the morning. And but yeah I called and they're like "oh okay, well, you know we would like to invite you down for interview" and I was like oh okay! [Laughter] I was so excited and, you know, just... wow.

EM: [00:25:59] Kate like every good interview candidate dove into practicing. She did a bunch of mock interviews with friends and reviewed her skills, experience, interpersonal strengths, and weaknesses and before she knew it it was time to fly down to Houston. When the day arrived she was guided into a, well, a nondescript conference room. Everything was pretty normal except.

KC: [00:26:19] You can't let yourself get too overwhelmed with the fact that you're just sitting in a room with a whole bunch of astronauts, these people that you've like, idolized your, you know, your whole life.

EM: [00:26:29] We were so excited to ask Kate all of the specifics. Even mundane interview questions take on so much weight when you're applying to be an astronaut! Where do you see yourself in five years? But like other high profile positions the details of the interview aren't something Kate can discuss. Suffice it to say she left feeling strong and optimistic. She went back home to her regular life which is still super exciting where she researches planetary science and how we might detect life elsewhere in the solar system. And she's stayed focused while she waited for NASA to make their final decisions. NASA selected their 22nd astronaut class. From a pool of 18,000 people they selected 12. My friend Kate Craft was not among them.

KC: [00:27:10] It's just such a long process it's not like you know, you start applying when you're young and get a chance every year, you know, or anything. It's just... yeah.

EM: [00:27:20] It's not clear when NASA might put together the next astronaut class but Kate is pretty sure she'll apply again and I'll be rooting for her.

KC: [00:27:27] Yes. I mean I will be throwing my hat in again. And we'll see what happens. I would love to go to the Moon. To step foot on the Moon. That would be incredible. But I know I would feel lucky as an astronaut to go up into space period. And do what they need me to do. That would be the most amazing thing.

[Music]

MS: [00:28:01] Kate Craft was up against some incredibly talented people in that selection process. As a baseline, NASA says it's still looking for candidates with degrees in engineering, bio science, physical science, computer science, or math.

NP: [00:28:15] Those are the baselines.

EM: [00:28:16] In addition to having a bachelor's degree in essentially a STEM field, you really need to have some kind of other professional experience. So a bunch of piloting hours, I think the number is about a thousand, or an advanced degree of some kind, maybe that's an M.D. maybe that's a Ph.D., and actually even being a classroom teacher, having years under your belt as being a K through 12 classroom teacher is a qualification.

MS: [00:28:41] And that's just what you need to apply. Remember you also have to meet NASA's very rigorous physical standards. Your eyesight has to be correctable to 20/20. And you also have to be in really good physical shape.

NP: [00:28:54] Good news for everyone around this table, you can wear glasses. There are three voices on this podcast and 12 eyes. [Laughter] Okay, so those are the qualifications of the 18,000 people who applied, but the 12 people who made it through, they range in age from 29 to 42 years of age. Just like some of the people in this room here today. They include an M.D., a Navy SEAL

and that's just one guy! [Laughter]

EM: [00:29:23] There's even a planetary scientist.

MS: [00:29:25] Cool.

NP: [00:29:26] How far do you guys think we are from sending artists into space to be artists?

MS: [00:29:31] That's a good question. I mean if you look at military history artists have gone along on, you know, in every war, there were artists in the trenches, there were artists flying in planes. It's not that far off to imagine that the first mission to Mars might also include an artist. I mean think about early voyages in ships exploring the tropics. They would always send illustrators that could help to capture you know what the biology that they were finding actually looked like.

EM: [00:30:00] You can imagine that commercial space flight is likely going to be banking on the ability to entice people into space as space tourists. And so I can envision artists of all kinds brought into space to try and help attract a certain group of tourists.

MS: [00:30:16] Right. And then the tourists themselves are astronauts, aren't they? I mean we don't draw the distinction between who's going into space in a professional way and who's going as a passenger.

NP: [00:30:25] Calling it now. First podcast live from the Moon. It's going to be us.

EM: [00:30:29] Oh, yes. let's do that. We could all have something to contribute.

MS: [00:30:32] We've got it.

EM: [00:30:33] We all have the right stuff.

[Music]

NP: [00:30:39] That's all for this episode of AirSpace, for the National Air and Space Museum, I'm Nick Partridge.

EM: [00:30:44] I'm Emily Martin.

MS: [00:30:45] And I'm Matt Shindell.

NP: [00:30:47] We'll be back in March with a brand new episode. Next time we'll explore the ins and outs of bailing out. [Sound of pilot ejecting from an airplane]

NP: [00:30:57] This episode of the AirSpace was produced by Jocelyn Frank. Our executive producer is Katie Moyer. This episode was supported by PRX and the Alfred P. Sloan Foundation, enhancing public understanding of science, technology, and economic performance. More information on Sloan at Sloan.org. Special thanks to John Barth and PRX. Additional thanks to Jason Orfanon, Linda Halpern, Kate Craft, Tarek Fouda and Margaret Weitekamp. You can subscribe to AirSpace wherever you get your podcasts, and, please tell a friend!