

AirSpace Season 1, Episode 19

Spirit in the Sky

Nick:

It's the most wonderful time to talk about Apollo 8.

Emily:

Yes it is.

Nick:

Yes. Welcome to AirSpace, we're your hosts. I'm Nick.

Matt:

I'm Matt.

Emily:

I'm Emily.

Nick:

For thousands of years people have looked up into the skies and seen what, planets, stars, reflections of the infinite.

Emily:

Some sought answers to big questions by looking up, but not nearly as many people have the opportunity to go there and look down.

Matt:

And this episode is about what happens when people do.

Nick:

When people talk about space travel, it's often in precise technical terms. After all, astronauts are pilots, scientists, and engineers, but they're also human beings with complex inner lives.

Emily:

In today's episode, we explore something really unquantifiable. What it feels like to leave the only home you've ever known, the Earth, and what it's like to look back on it.

Matt:

We'll hear from astronaut Nicole Stott.

Nicole Stott:

Meditation and I think prayer are really the closest things I've come to. The closest feeling I've had to what it was like to be immersed in that view out the window.

Nick:

And we'll tell the story of the very first time anyone saw Earth from the Moon, and why that view was so transformative for people back on Earth.

Emily:

That's coming up next on AirSpace from the Smithsonian's National Air and Space Museum with help from PRX.

Nick:

In 1968, exactly 50 years ago this month, NASA sent the first people to the Moon, ever, in history.

Speaker 5:

We have commit, we have lift off. Lift off at 7:51 AM, Eastern Standard Time.

Nick:

Apollo 8 Was a critical mission for NASA. It proved that we could send people to the Moon and bring them back safely, which was the whole point of the program, and it prompted Neil Armstrong to call it, The Spirit of Apollo. As we'll hear, many other people found spiritual dimensions to this particular flight.

Emily:

But first, it's important to understand three things about the context of the mission. Number one, it was the furthest we had ever sent humans into space.

Matt:

Ever.

Nick:

By a big margin.

Emily:

How big?

Nick:

500 times. Previous to that, I think the absolute altitude record was around 400 miles, and the Moon is 250,000 miles away. So, that's a really big leap.

Emily:

And number two, it was almost a very different mission.

Nick:

Yes. NASA had gotten word from the CIA that the Soviets were preparing to launch cosmonauts on their own circumlunar mission, which is to say a flight around the Moon.

Emily:

So to make Apollo 8 happen, it was all hands on deck, we've got to go over the Moon before the Soviets do.

Nick:

Yes, it was not originally supposed to go to the Moon. They changed the mission from Earth orbit to test out hardware to lunar orbit only four months before launch, which is not a lot of time in space terms.

Matt:

And the Russians really had been ahead in the Moon race.

Nick:

First human spaceflight, first spacewalk.

Emily:

Still the only one successfully landing stuff on Venus.

Matt:

But we should keep in mind that they had in fact beaten us to landing robotic landers on the Moon, to capturing robotic images of the far side of the Moon.

Nick:

But nobody had sent humans to the Moon, and Apollo 8 was, relatively speaking, a last minute mission to beat the Russians. It was a very risky gutsy thing to do.

Emily:

The third thing about the context of this mission is that this was something happening in 1968, and 1968 had been a really tough year for Americans.

Matt:

So thinking back to high school civics and history class, you remember the '60s as one of the most turbulent periods in 20th century America, and the late '60s, 1968 in particular, were really rough.

Speaker 5:

We start in Vietnam, with the Tet Offensive.

Speaker 6:

216 American troops were killed, and another 1300 wounded.

Speaker 7:

Good evening, Dr. Martin Luther King has been shot to death in Memphis, Tennessee.

Speaker 8:

Senator Kennedy has been shot. Is that possible?

Speaker 9:

No.

Speaker 10:

The demonstrators are determined to march on Convention Hall tonight in protest.

Matt:

By the end of 1968, Americans really could have used something good to latch onto, and they were about to get something really incredible.

Nick:

It was Christmas Eve, 1968, when humans entered orbit around the Moon for the first time.

Matt:

Also the first time that human eyes set eye on the far side of the Moon.

Nick:

Beyond orbiting the Moon, there were a couple of notable milestones. The astronauts broadcast live TV back from the space between Earth and the Moon and the Moon itself.

Speaker 11:

This is the Sea of Fertility and we're coming up on a large crater, the Delta rim variety.

Emily:

So I didn't realize that it was television. I thought it was radio this whole time.

Matt:

Yeah, and as they spoke, they were broadcasting images of the lunar surface that they were capturing through the window of the capsule.

Speaker 12:

How are you reading us, Houston?

Speaker 13:

Loud and clear Apollo 8. Then we have a picture that's good.

Nick:

And one of those broadcasts was particularly memorable. The Christmas Eve broadcast occurred in the evening of December 24th, 1968, in primetime, and many people saw it live. Before they launched, NASA had told Frank Borman that more people would be listening to this broadcast than had ever heard a single human voice, in all of history.

Emily:

I think a lot of people can list off the astronauts from Apollo 11, especially if they just saw First Man, but Apollo 8, those Apollo astronauts may not be quite as well known to everybody.

Matt:

Frank Borman was the commander of the mission, and the other two crew members were Bill Anders and Jim Lovell, who people will recognize as Tom Hanks from Apollo 13.

Nick:

NASA's only instructions to the crew were to do something appropriate with this historically unprecedented audience. Over the course of the mission, with all of the TV broadcasts, more than a billion people saw parts of the mission live, and this is part of what they heard.

Bill Anders:

The crew of Apollo 8 has a message that we would like to send to you. In the beginning, God created the Heaven and the Earth, and the Earth was without form and void, and darkness was upon the face of the deep, and the spirit of God moved upon the face of the waters, and God said, "Let there be light." And there was light.

Matt:

That was astronaut Bill Anders reading from the book of Genesis. The astronauts took turns reading the lines from the story of creation, and then Frank Borman ended with this.

Frank Borman:

And the gathering together of the waters to call this seas, and God saw that it was good. And from the crew of Apollo 8, we close with goodnight, good luck, a Merry Christmas, and God bless all of you, all of you on the good Earth.

Nick:

That was the appropriate thing that Frank Borman had to come up with.

Matt:

He went Old Testament.

Nick:

He went Old Testament.

Matt:

It's a nice choice in some ways because it's one of the oldest statements about the Earth in space. You can read it as a statement about the Earth and space, the Heavens and the Earth as separate entities, and being read in the middle of one of the most technologically sophisticated projects by some of the first people to see the Earth from that perspective.

Emily:

Right. And something else unprecedented emerged from that mission. A now famous photo allowed us to see our home and ourselves in an entirely new way.

Nick:

The Earthrise photo.

Emily:

This surface of the Moon kind of Moon horizon, where the edge of the Moon meets space. And then in the sky, is this gibbous Earth, right? It's not a full round disk of the Earth. It's like when you see the Moon and you're like, "Well, it's not really full yet."

Nick:

I try to never judge the Moon and the sky.

Matt:

Some nerd says, "That's waning gibbous."

Nick:

Right. So they came around the Moon and they saw Earth rising over the lunar horizon. Earthrise was the first time that people saw Earth from space as, this blue ball emits the inky black abyss. It made a tremendous impact on the public.

Matt:

And I should clarify, there was a previous black and white image that was very similar taken by a robotic spacecraft, the Lunar Orbiter.

Emily:

It's on his wall in his office.

Nick:

You would clarify that, would you?

Matt:

Well, you're correct when you say it's the first time they saw it as a blue thing, because it was definitely black and white in the robotic image.

Nick:

Fair enough. So, Earthrise appears on the cover of newspapers and magazines worldwide, it's credited with sparking a new level of environmental awareness. The idea that earth is a place and it's not infinite.

Matt:

You kind of have to associate it with the counterculture and living as a citizen of Earth.

Nick:

Seeing it all of a piece, and seeing it small like that was something that moved a lot of people, and I think the first Earth Day was celebrated not just a few years later.

Matt:

Yeah. The appearance of the image and its popularity intersected with the relatively new science of ecology that was starting to look at ecosystems and how they worked on a larger scale.

Emily:

Well, and I hadn't thought about it until we just started talking about it. I think I take for granted that I look at the full disc of a lot of planetary bodies on a daily basis. This was fundamentally the first time people saw the Earth from space as a globe. I mean, everybody had seen a globe of Earth sitting on their desk, everybody knew what the Earth looked like, they'd seen maps of it for sure but they had never seen it in this way before. And I am curious to think about what that would feel like.

Matt:

It's like if you think about the normal human experience, we look at the Earth all the time, but we only ever see the horizon or the skyline, and maybe occasionally we see it from up in an airplane, but we never see the entire Earth and everyone and everything all at once. And so that's a pretty major shift.

Nick:

You had to imagine that it was a real one-two punch experiencing Apollo 8, just watching it from the ground, from the news coverage, because you had the Christmas Eve broadcast which spoke to a lot of people and they thought, it's us out there. Those are human beings orbiting the Moon. We can't believe how isolated they are. And then a few days later, Earthrise hits the cover of everything on the newsstand and suddenly you realize, Oh, it's all of us. We're all isolated together on this spaceship Earth as was soon coined out in space.

Emily:

It's such a unifying experience among astronauts who get to see this in person from space that there's an actual term for it, it's called the overview effect, coined by author Frank White.

Frank White:

The thought came to me, anyone living in a space settlement and living on the Moon, would always have an overview. They would see things that we know, but we don't experience.

Nick:

Astronaut Nicole Stott can put the overview effect in personal terms. She's seen that view for herself.

Nicole Stott:

It was like this crystal clear, glowing, iridescent, translucent planet and you absolutely want to see more. I'd absolutely say that I experienced the overview effect and it helped me really think about how I could communicate what I had experienced.

I am Nicole Stott, I am an artist and a retired NASA astronaut, and a mom. Before joining the astronaut office or being selected into the astronaut office I guess, I just had this feeling that there

wouldn't be a lot of actively religious astronauts. And maybe it's because of this idea of science and religion, though I've never felt any kind of conflict between science and religion.

There's something about looking out the window at Earth that allows a lot of time for reflection on any number of things. The spiritual side of life existence, who we are, where we are, those kinds of things certainly come up and it's nice to have crew mates. They're with you, floating in front of the window that you could just ramble on about it with.

There's every aspect of it too, from the visual, what you're seeing, the sounds of the space station around you and your crew mates around you, the smells and the ability to float and fly while you're having this experience. There's certainly a very three-dimensional all encompassing sense to it.

On my first flight, that was I flew at the end of 2009, on the space shuttle Discovery up to the space station. And so I was riding in the mid deck or the lower deck of the space shuttle for launch, and there's no windows down there. So, once you get to space, you cannot get unstrapped fast enough to get up to the flight deck and find a window. So I did that, and when we launch we wore the big orange suits. You've probably seen them when crews are waddling out to the launch pad.

When I finally got unstrapped and floated up to the... Which by the way was super cool too. Just this idea of, "Oh, I'm getting out of my seat and I'm going to float up to the flight deck." That was awesome. I was still in the orange suit, I had taken my helmet off and gloves off, couldn't pop my head up there. And really at that point, there's a lot of work still going on. Getting configured to be on orbit and all of that. So, the guys were still strapped in and working, and I really just poked my head up over the top of them and held onto the back of their seats and looked through the windows.

I remember looking out the window, and I remember being overwhelmed by how impressively more beautiful it was than I even had imagined it to be.

I came home and it took me a little while to sum up the ideas in this really simple way. But when you look back at Earth from space, to me the lessons learned were really that, and it sounds super simple like kindergarten, but that we live on a planet and we're all earthlings, and the only border that matters is that thin blue line of atmosphere that blankets us all. To me there's a real significance in that. It is very simple, but there's a really profound meaning of significance in it. That we are perfectly placed in this universe, on a planet that allows us to survive. We haven't discovered any place else like that.

Nick:

In addition to being an astronaut, Nicole is also an artist. She's actually the first person to have ever painted something in space. And the experience of viewing earth from orbit, not only affected her in the moment, but continues to impact her work today.

Nicole Stott:

I was working for NASA for however many years with this mission. Whether it was what we were doing in space or we're helping other people prepare to go to space, or developing new spacecraft or getting them ready, there was always a mission associated with it. I think that what my goal now is, to try to find ways to share the experience. I'm trying through my artwork to share the experience a little bit differently.

We've formed the Space for Art Foundation, where we're really it's space themed art therapy programs. And we're working with kids all over the world, sharing that sense of interconnectivity with kids will be really beneficial for all of us.

I think about it now after coming home from space, and I try to think about what is the closest feeling I've had to what it was like to be immersed in that view out the window. Meditation and I think

prayer are really the closest things I've come to. Being at peace with yourself in prayer. Those are the places that are the closest I can come to what it felt like to just be immersed in looking out the window.

Nick:

We're going to take a short break. We'll be back in a minute.

We talked a lot about Apollo 8, and how their commemorations of reaching the Moon at Christmas time for the very first time involved a lot of things that were very meaningful for people on the ground, but astronauts celebrate holidays in space themselves. They're people, they're individuals, they bring their cultures, their beliefs with them when they go into space. And so, there've been a lot of holiday observances in space over the last 60 years.

Emily:

There's an enormous number of countries who have a presence in space. And so along with that, you would expect a lot of different holidays and faiths being represented in space.

Nick:

And it sometimes sparks interesting conversations on the ground, not just within NASA. When Malaysia's first astronaut went into space, went to the International Space Station, it was during Ramadan. He was there during Ramadan, and 150 Islamic scholars got together to decide how it should be done, how he should pray and observe all of the directives. How to face Mecca, how to ritually wash his hands for instance, and they actually produced a guidebook and it ended up being sort of a hierarchy. Try and face Mecca but if you can't face Earth, but if you can't just do your best, and I think he actually ended up tying his feet in place so that he didn't rotate in space so that he could face Earth the entire time.

Emily:

These traditions come with such an Earth centric view, right? Gravity is required for these things to happen, and you don't think about how being in zero G in space actually really affects a lot of these things. One of the ones that I was thinking about, partly because of this holiday season, the first menorah went up in 1985 and I was like, "Did they come up with a way to light it?" It sounds like it never got lit, but it at least went up in a-

Nick:

Symbolic?

Emily:

Totally. In a symbolic gesture. But I thought that was really interesting because lighting and flame is something that happens in a lot of religious holidays, ceremonies, and observing of different faiths, and I was curious if there was a workaround now. In 1985... I'm sure maybe there's something newer that they're doing, but I didn't come across that. So now I'm still really curious.

Nick:

It gets tricky observing all of the holidays and cultural traditions in space.

Emily:

New Year's Eve, calendar New Year's Eve, January 1st, right? They must celebrate it at like what? Every 90 minutes?

Matt:

You can celebrate at every time zone, right?

Nick:

Yeah, because you cross the International Date Line every single time you go around.

Speaker 17:

I'd like to wish everybody down on our beautiful planet Earth, a very happy new year.

Speaker 18:

To all the Earth dwellers, the Expedition 16 crew wishes you a very happy holiday season.

Speaker 19:

We've got some stockings. Butch got us each, each crew member a stocking.

Butch:

Hello everyone. Happy Thanksgiving. It's going to be a little bit different for us up here in space, but I'm going to try to make it as much like home as we can.

Speaker 21:

Happy Halloween to all of you. We hope you have some good trick or treat plans for this evening.

Speaker 22:

We left the porch light on for all the kids to come up for candy.

Matt:

I wonder what kind of candy they give out on the International Space Station. Do you think it's the house with the good candy or is it the gumdrop house.

Emily:

It depends on how you feel about Milky Way bars and Starbursts.

Nick:

Mars bars.

Matt:

It has to be space themed candy. Doesn't it?

Nick:

Definitely space themed candy. My fear would be that even though the ISS is the single most expensive object ever created, they probably aren't sending up full-sized Snickers bars.

Matt:

It's true. They're probably saving some weight with the fund size.

Nick:

Mm-hmm (affirmative). It's the shipping that gets you.

Emily:

It's always that shipping.

Nick:

Have there been Swiss astronauts? Do you think they have Toblerone?

Matt:

That would be nice. So, Emily, Nick, I have an important question that just occurred to me. It's related to what we're talking about. You know Mark Watney from the movie, The Martian.

Nick:

Yup.

Emily:

We've met a few times.

Nick:

We've talked about him a couple of times. Why did Mark Watney survive on Mars?

Emily:

Ketchup Vicodin, and potatoes.

Nick:

Potatoes?

Matt:

Potatoes. Why did they have potatoes?

Emily:

Because you can grow them in poop.

Nick:

Thanksgiving.

Matt:

It was for their Thanksgiving dinner.

Nick:

Yes.

Emily:

Really?

Nick:

Yeah. He's right!

Emily:

I thought it was just because-

Matt:

For once.

Nick:

He's right. No, I remember it was Thanksgiving. He got the Thanksgiving meal out.

Matt:

Yup.

Nick:

Yeah. No, that was a special one. You know that was first done on Apollo 8. They didn't tell them they were sending a special holiday meal, but they did. And it included little bottles of Brandy and Borman was so angry that they sent alcohol into orbit. So nobody drank it.

Emily:

But that was Christmas dinner, right?

Matt:

He didn't allow them to drink it?

Nick:

No.

Emily:

That was Christmas dinner not Thanksgiving dinner.

Nick:

Yeah.

Matt:
Christmas.

Emily:
But I still love that, that they got their Christmas dinner and they even got a little Brandy. So did they bring home their little bottles of Brandy souvenirs?

Matt:
They must have.

Nick:
I've been wondering from a museum perspective where those bottles of Brandy went for years.
That's it for this episode of AirSpace, we'll be back in two weeks with another seasonal treat.

Emily:
Sadly that's not Nick singing a rendition of Jingle Bells.

Nick:
Not caroling meteor showers. December is a really good month to check out the skies.

Emily:
Follow us on Instagram at AirSpace Podcast.

Nick:
AirSpace is produced by Katie Moyer, Jocelyn Frank and Lizzie Peabody. Mix by Tarek Fouda. Special thanks to Jason Orfanon, Genevieve Sponsler and John Barth

Matt:
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Nick:
Special AirSpace. Welcome to the newest Orfanon, Robin, who arrived here just a few days ago.
Welcome to the world.

As they were coming around the far side of the Moon for the last time, Jim Lovell says, "Houston, please be informed there is a Santa Claus." They were confirming that the rocket had fired and they were on their way back home.