

Brains On (APM) | Brains On! Curio: Quindar tones and talking in space 1QDE6EKR4F8461SSHZV5KMM538

SPEAKER 1: This is a *Curio* from *BrainsOn*, where we're serious about being curious.

SPEAKER 2: *Brains On* is supported, in part, by a grant from the National Science Foundation.

MOLLY BLOOM: You're listening to *Brains On* from American Public Media. And as you just heard, this is a *Brains On Curio*. What is a *Curio*? Well, since you asked, it's when we make a short little morsel of a podcast to keep hungry, curious minds fed between regular episodes.

And you are in luck. This is the very first *Curio*. After you listen to this one, you can say, you've heard them all. I'm going to hand over this *Curio* to producer Marc Sanchez and a bit of a mystery sound.

[MYSTERY SOUND]

MARC SANCHEZ: Thanks, Molly. This story is based on these two beeps you're hearing. From these two nearly identical tones, we are given communication-- space exploration and music. These beeps or tones have a unique name. They're called quindar tones. What do you think that is?

SPEAKER 3: An alarm clock or a ringtone.

SPEAKER 4: Maybe a microwave beeping.

SPEAKER 5: I think of cartoons.

SPEAKER 6: The tone from the hospital, when someone's in a coma or something?

SPEAKER 7: Oh, a heartbeat monitor maybe?

SPEAKER 8: It sounds like some machine working on something, like in those old movies, where the computers are like as big as a room and working out a calculation.

SPEAKER 3: I mean, it sounds dangerous, like something that would be number 127 on the periodic table.

SPEAKER 5: It sounds like where they would communicate back in the day-- Morse code.

SPEAKER 4: The first beep was like higher than the second one.

SPEAKER 6: Maybe when people test their microphone, like testing, like doing something that has to do with the radio. It does sound kind of like maybe like a space thing. I have no idea. I don't know.

SPEAKER 9: I heard that in that one-- what's it called? That movie *Hidden Figures*.

MARC SANCHEZ: Special thanks to the eighth graders from Mr. Hale's science class at Capitol Hill Middle School in St. Paul. Those were some brilliant guesses at what a quindar tone is. I talked to musicians, Michael Jorgensen and James Merle Thomas, about the quindar tones.

Michael plays keyboards in the band Wilco, and James is an art historian and teacher. But when these two get together, they make music under the name quindar. And you'll see in a second why the name makes sense because the two incorporate archival NASA recordings into their music. Here's Michael to start off the explanation of what a quindar tone is.

MICHAEL JORGENSEN: Well, quindar tone is the beep you would hear in the recordings of communications during early manned space flights, from Gemini through Skylab in the NASA program, and they serve as a checksum or a way to alert both mission control and astronauts that there is communication open between the astronauts way out in space and the people on Earth.

And it's like a one box on Earth goes, hey, are you there? And then, the box on the spacecraft receives that. It's like, yes, I'm here. Are you still there? And then this just goes back and forth.

JAMES MERLE THOMAS: The technology that they use for it is something called push to talk or PTT, and it's basically like a CB radio. It's like whenever you push down the button to talk, there's a beep at the beginning. And then when you're finished speaking, you let go of the button, and there's a beep that rings at the end.

MARC SANCHEZ: It's the same idea as a walkie talkie. You push the button when you want to talk, and you let it go when you're done. In the early days of space exploration, engineers at NASA realized they needed a way to alert astronauts when someone was about to say something.

Quindar tones did the trick, but there was another problem. Astronauts are constantly orbiting the Earth, so they're not always just over NASA Mission Control in Houston. And this is where it pays to be nice to people. Because NASA set up a group of transmitting stations all over the world.

That way, they could always be in contact with the astronauts. One of those transmitters was set up in Australia. It was named Honeysuckle.

SPEAKER 10: Honeysuckle, this is Houston contact. I know it's early, 48 to minus 45, but this is all a chance to check your net one because Hawaii is tied to it, and he's back up to the lab. Can you support a quick promoting check this time?

SPEAKER 11: Certainly, I can check it.

SPEAKER 10: Roger, I'll come at you right now. Count to five and back down again. Execute the contact with the test 1, 2, 3, 4.

MARC SANCHEZ: What you're hearing is a test of mission control, sending quindar da tones to the Honeysuckle transmitter.

SPEAKER 10: 1, 2, 3, 4, 5, 5, 4, 3, 2, 1. End the test.

MARC SANCHEZ: And it may seem like a small thing, but ensuring these lines of communication were in proper working order made for much smoother and safer space travel. Now, you might hear these and think, oh, that's pretty neat, but would it inspire you to write a song? Well, it would, if you were the band Quindar. Here's Michael Jorgensen again.

MICHAEL JORGENSEN: This sounds like somebody, like a drummer, counting off a song as if he were about to play a song if you were in a band. He was like, 1, 2, 3, 4.

SPEAKER 10: 1, 2, 3, 4.

[MUSIC PLAYING]

MARC SANCHEZ: We're listening to the beginning of the Quindar song, *Honeysuckle, This is Houston*. And you heard that archival tape, right there at the beginning, the same one we heard earlier. Here's Quindar's James Merle Thomas.

JAMES MERLE THOMAS: One of the things that was really interesting for us throughout was taking an audio sample that everyone knows very well. If you think about a really famous audio clip of someone like Neil Armstrong walking on the moon.

NEIL ARMSTRONG (ON RECORDING): I'm going to step off now. It's one small step for man, one giant leap for mankind.

JAMES MERLE THOMAS: That's a 10-second audio clip, but it's actually part of a three-hour communication between the astronauts and mission control. And quite honestly, a lot of really boring stuff happens in those three hours.

People talk about what they ate for lunch, how they're putting on their seat belts, everything else. And one of the things we were really interested in was thinking about that kind of routine everyday experience. What it's like to go to work in space?

MARC SANCHEZ: In the song, *Arabella and Anita*, James and Michael take this idea to the extreme. This song uses a snippet from a NASA press conference, but it's not of anybody talking.

[MUSIC PLAYING]

JAMES MERLE THOMAS: The original field recording for that is actually just the sound of a microphone. It's a mic check at the beginning of a press conference. And the most interesting sound to us from that entire press conference was the sound of someone just dragging the microphone across the desk.

MARC SANCHEZ: *Arabella and Anita* gets its name from two spiders that were launched into space in 1973. Judith Miles, an 11th grader from Lexington, Massachusetts, proposed an experiment to NASA. She wanted to know what the effects of weightlessness would be on spiders. Would they even be able to spin a web in space?

JAMES MERLE THOMAS: Imagine being a spider on a spaceship. And all of a sudden, everything you've ever known, all your thousands, hundreds of thousands of years of instinct are just now rendered meaningless. Because, now, you have to spin a web in zero gravity.

MARC SANCHEZ: Astronauts train for years to deal with the effects of microgravity, but these spiders never trained a second. And guess what? It only took Arabella and Anita two days to figure it out. They each spun webs in space.

And if you're ever at the National Air and Space Museum in Chantilly, Virginia, you can even see Anita's preserved body. You might not think that space exploration and art go hand-in-hand, but NASA has a long history of working with artists. In fact, during the Apollo missions, where the quindar were first used, Nassau asked different artists to take part.

Norman Rockwell created paintings. Robert Rauschenberg made collages out of discarded blueprints and scraps of paper, which, if you think about it, is similar to quindar finding art in the everyday. And later, Ray Bradberry wrote an ode to NASA. Annie Leibovitz photographed astronauts, and Patti LaBelle wrote a Grammy nominated song.

I think NASA learns from art, as much as the artists learn from the Space Agency. Skylab, the first US Space Station that housed astronauts for weeks at a time, this space home was meticulously designed by Raymond Loewy, the same guy who designed the Coke bottle.

And you can bet, whenever NASA has a new mission, there will be an artist's rendering of what it might look like to, say, fly over Jupiter or land on an asteroid. Quindar's album is called *Hip Mobility*. You can find it on streaming services and order a copy through the band's website, quindar.net.

And make sure you look for the band if they're playing in your town. Their live show has these cool space videos to go along with their archival recordings.

MOLLY BLOOM: That's it for this inaugural edition of the *Brains On Curio*. Your ideas and questions are the inspiration for each episode of *Brains On*. You can email those to hello@brainson.org anytime. We'll be back in your podcast feed next week. Thanks for listening.