**Transcript: Operation Confirmation Bias**

**Rebecca Lavoie: Hello**

**Sam Evans-Brown: Hello**

**Taylor Quimby: Hello.**

**Rebecca Lavoie: This is so exciting**

**Sam Evans-Brown: Is this exciting?**

**Rebecca Lavoie: It is for me, I’m the least outdoorsy person who works here, so for me it’s exciting.**

**Sam Evans-Brown: This is so very barely an Outside/In episode.**

**Rebecca Lavoie: Fabulous. My favorite kind.**

**Sam Evans-Brown: Can you introduce yourself?**

**Rebecca Lavoie: I’m Rebecca Lavoie I’m the digital director here at NHPR.**

**Sam Evans-Brown: You are also qualified because of your true crime…**

**Rebecca Lavoie: Oh yes, I’m also a true crime author and I host a true crime adjacent podcast, called ‘Crime Writers On.”**

**Sam Evans-Brown: That is probably going to be the skillset that’s most applicable to this story.**

**Rebecca Lavoie: ooo I can’t wait!**

**Sam Evans-Brown: And of course Taylor Quimby.**

**Taylor Quimby: Heeeey, what’s my utility in this story?**

**Rebecca Lavoie: Buffer?**

**Skepticism.**

**Sam Evans-Brown: Ok, are you ready for a story? [Sure. Yeah.]**

[Music]

**Sam Evans-Brown: This is a story you’ve probably heard.**

*CLIP FROM CABLE NEWS: If this was indeed an attack, how might it have been launched?*

**Sam Evans-Brown: So back a couple years ago — mid to late 2017 — we heard about this bizarre, mysterious thing happening in Cuba.**

*CLIP FROM CABLE NEWS: It is certainly a technologically feasible thing and it has been for the better part of a century to basically fire a sound that is outside of the range of human hearing…*

**Sam Evans-Brown: American diplomats who were working and living at the US embassy in Cuba were saying they had been attacked...**

*CLIP FROM CABLE NEWS: Ah, well, let’s look at the facts, I think that the facts are coming very clear that this was an attack. That this was a purposeful attack…*

**Sam Evans-Brown: ...but the way that they were describing these attacks… it was bizarre.**

*CLIP FROM CABLE NEWS: All of them reported direct exposure to an unusual sound, described as loud, high-frequency, very localized, and capable of following them through a room.*

**Sam Evans-Brown: So it was something to do with sonic waves… or something. some of these people were reporting hearing high pitched noises. Some of them felt something similar to “baffling” sound like when you put down one window in a car…**

**Taylor Quimby: Oh you mean that like wubwubwubwub?**

**Rebecca Lavoie: Yeah the one that makes you want to like throw yourself out of the car.**

**Sam Evans-Brown: They were saying they were hearing that just while in their homes, and while like doing their dishes. Some were saying that other people were in the room but those other people didn’t hear anything. Some were hearing it at home, others were hearing it at hotels. Some said that when they walked to exterior door and opened it the sound would stop dead. But after all these events, all experienced symptoms… not everyone had all of the same symptoms, but a similar constellation of symptoms.**

*Marco Rubio: Sharp ear pain, dull headaches, ringing in one ear, vertigo, visual focusing issues, disorientation, nausea and extreme fatigue.*

**Rebecca Lavoie: That was Marco Rubio. [laughs] I know that voice.**

**Sam Evans-Brown: We’ve got a bunch of senate hearing clips sprinkled throughout here. So diplomats and m were saying we’re being attacked. But the mechanism of the attack was… straight out of science fiction… as in: to most people it was totally inexplicable. In fact, eventually the Associated Press is leaked a recording of a sound and we’re told that this is the sound that the embassy staff have been hearing, and of course the next thing we know it’s all over cable news...**

*CLIP FROM CABLE NEWS: I can tell you the recording itself as played through your TV is not dangerous to listen to. I swear, I have listened to it like a thousand times. But, you ready? We’ve got the sound. Here it is. [high pitched sound]*

**Taylor Quimby: Oh god.**

**Rebecca Lavoie: It’s not good.**

**Taylor Quimby: That is unpleasant.**

**Rebecca Lavoie: I think it might actually be harmful to listen to it on TV.**

**Sam Evans-Brown: The release of this sound, does not end the speculation. In fact, that’s when things started getting really really frantic…**

*CLIP FROM CABLE NEWS: Exclusive new this morning from NBC news. Intelligence agencies investigating attacks on US diplomats in Cuba and China now strongly suspect that Russia is to blame.*

**Rebecca Lavoie: Yeaaah.**

**Taylor Quimby: Oooooh.**

**Sam Evans-Brown: This is where this story was the last time I had checked in with it. I had read about it, worried and anxious about this mystery weapon that was being directed against our diplomats. But then… this January, I saw this article in the New York Times.**

**Sam Evans-Brown: Can you read that headline for us?**

**Rebecca Lavoie: “The Sounds that Haunted US Diplomats in Cuba? Lovelorn Crickets, Scientists Say.”**

[laughter]

**Taylor Quimby: But wait, they’re not just crickets, they’re horny crickets?**

**Rebecca Lavoie: Lovelorn. Lovelorn.**

**Taylor Quimby: But wait, you made it sound like this isn’t really an Outside/In story, but it sounds like it’s um… sounds like it’s about crickets?**

**Sam Evans-Brown: Oh just you wait, Taylor Quimby, Just you wait.**

**Taylor Quimby: Crickets with lasers?**

[Outside/In theme music]

**Sam Evans-Brown: This is Outside/In, a show about the natural world and how we use it. I’m Sam Evans-Brown. Today I’m going to tell you a story that at first I thought was perfect for Outside/In, it had international intrigue, bad science journalism, crickets, Marco Rubio… but it wound up taking me places that frankly, I didn’t expect to go. These alleged attacks on the embassy in Cuba have led to a major shift in American diplomacy towards the Caribbean socialist state, but if you’ve just caught dribs and drabs of this story coming out in the mainstream press, you likely still have basically no idea what happened. This story forced me to ask a pretty tough question: how do journalists decide what we know… what *kinds* of information we trust?**

[Outside/In theme music fades]

**Sam Evans-Brown: Ok… We’re just going to run through the facts really quickly.**

**Taylor Quimby: Okay**

**Sam Evans-Brown: And all of this audio is from some senate hearings that were convened to get State Department officials on the record about this issue.**

**Rebecca Lavoie: Alright, and I dont’ get extra points for recognizing senators just by the sound of their voice?**

**Sam Evans-Brown: You do, we’re going to have to back-ID them somehow!**

**Rebecca Lavoie: Okay!**

**Sam Evans-Brown; Ok so it all began right after the 2016 election, but before the inauguration… the first incident was in November.**

[Music]

*Marco Rubio: And among the descriptions they complained of… high pitched beam of sound… incapacitating sound… baffling sensation… akin to driving with windows partially opened in a car… or just intense pressure in one ear.*

**Sam Evans-Brown: In January, embassy employees who have complained of these attacks start visiting doctors…**

*Marco Rubio: 16 of these were identified with symptoms and medically verifiable clinical findings of some combination similar to what you’d see in patients that quote have had a mild TBI or concussion unquote.*

**Sam Evans-Brown: … and through the spring the attacks continued. This is Todd Brown, he’s a state department guy.**

*Todd Brown: After further investigative attempts and expert analysis failed to identify a cause or perpetrator, the Federal Bureau of Investigations opened a case in early May.*

**Sam Evans-Brown: So, this FBI investigation starts, finds zero evidence of an attack. But the State Department says otherwise. Here’s Charles Rosenfarb, the State Department’s Medical Director**

*Charles Rosenfarb: In early july, my office convened a panel of academic experts to review the case histories and the test results gathered to date. Although the assembled group identified that some of the symptoms and findings could be caused by other things such as viral illnesses, previous head trauma, aging, and even stress, the consensus was that the patterns of injuries that had so far been noted were most likely related to trauma from a non-natural source.*

**Sam Evans-Brown: More confirmed victims start to trickle in through the end of the year and into to 2018, and eventually were 26 confirmed victims from the US embassy in Havana. In response, the embassy basically shuts down, the US pulls out. There’s like a skeleton crew down there running it right now. And then in the spring and summer of 2018, about a year ago, we started to hear from** [**Canadian diplomats**](https://www.nytimes.com/2019/02/07/world/canada/havana-syndrome-canada.html) **who said they were experiencing the same thing, and American** [**state department staff in China**](https://www.cnn.com/2018/05/23/asia/us-employee-china-sound-injury-intl/index.html) **who said they were experiencing it too.**

**Taylor Quimby: Spreading to the Canadians feels like a strange new development.**

**Sam Evans-Brown: So, I assume you’ve heard about this before. [I have, yeah yeah] So what did you know about it before we walked into the studio today.**

**Rebecca Lavoie: I assumed because I’ve never heard anything to tell me otherwise that we are still thinking there’s some sort of weird secret, laser, sonic weapon being tested or deployed against our diplomatic staff in other countries… probably by Russia. I mean, I never heard otherwise, what you’ve played is literally the last I’ve heard of this.**

**Taylor Quimby: See but that’s what makes me think that this turned out to be — as they say — a nothing burger, because right now our political environment is so clued into the idea of attacks and especially the idea of Russian attacks that if there was some more confirmation, if they had reached that next stage where anybody had said, this is for sure happening, this would blow up much bigger than it has been. Like it’s been so quiet —**

**Rebecca Lavoie: Oh it’s not — there’s so much going on! If this was still happening it would just be another blip on the news radar, what are you talking about?**

**Sam Evans-Brown: So as is unfolding, though, there’s a second narrative that’s starting to brew. The patients who were victims of these attacks were getting evaluated. First they were checked out in Miami, but eventually they wound up at UPENN. And the doctors evaluating those patients started talking to the press, and they said they were observing symptoms that looked like traumatic brain injuries.**

*Doug Fields: Now at that time, the only thing I’d heard is that our government had said that US embassy employees had been attacked, they recommended against travel to Cuba, they essentially shut down the embassy… the story sounded horrendous.*

**Sam Evans-Brown: So this is Doug Fields, R. Douglas Fields… he’s a neuroscience researcher and freelance science journalist.**

*Doug Fields: Subsequent reports put out that there was objective data showing damage to the white matter regions of the brain, and that’s an area of research that I also happen to have studied… traumatic brain injury and white matter. There’s no conceivable way in the literature for white matter to be damaged by sound.*

**Taylor Quimby: yeah, ok. What’s white matter?**

**Rebecca Lavoie: It’s the brain part of the brain.**

**Taylor Quimby: I thought that was grey matter.**

**Sam Evans-Brown: Grey matter is the neurons, white matter is the axons. White matter is the stuff that the neurons together.**

**Taylor Quimby: Okay.**

**Sam Evans-Brown: Here’s a scientists who’s saying, I’m hearing something that doesn’t make any sense. Doug Fields wrote in *Undark…* which is a publication that comes out of Massachusetts.**

**Rebecca Lavoie: Alright, I have it here: At the root of the Cuban Embassy Mystery… “Bad Science Journalism.’ oooooh! That hurts.**

[Music]

**Sam Evans-Brown: Right. So this gauntlet is thrown down basically saying that these reporters reporting on this thing aren’t checking with scientists. They’re not finding out if the story that you’re getting fed by the State Department makes any sense, what-so-ever. This is the story that I got interested in, and I started by talking to Doug. Who, I have to say, is soft spoken but he was very certain.**

*Doug Fields: Unless you believe in voodoo, sound doesn’t scramble your brain.*

**Sam Evans-Brown: Doug was pointing out that there were huge holes in this story: the mechanism for the attack is some sound that is loud enough to cause a TBI… but somehow other people in the room can’t able to hear it? Which is… weird…**

*Doug Fields: So everyone I asked, so what do you think of this attack? And they all looked at me like I was crazy. They’d say, well, it’s Science Fiction... never happened.*

**Sam Evans-Brown: But that was all based on the reporting about this in the popular press. The next thing that happens is they publish the results from the medical evaluation of the embassy staff in JAMA, the Journal of the American Medical Association, this great big science journal.**

**Taylor Quimby: Yeah that’s a top one.**

**Sam Evans-Brown: One of the biggies.**

**Rebecca Lavoie: One of the ones you’ve heard of.**

**Sam Evans-Brown: But, as a work of science, the results that were reported were kinda a mess.**

*Doug Fields: uh the results can’t support exclusively this diagnosis that they can be counted for by many other medical conditions, some of these tests have very high false positives they're affected by fatigue, and stress, and concentration, and these people are under stress… so the evidence provided in the paper is very weak.*

**Taylor Quimby: He’s saying… garbage in, garbage out, right?**

**Sam Evans-Brown: He’s saying that we can draw zero conclusions from the data released. So there was no baseline testing on any of the diplomats, and some of these symptoms — like headaches, or ringing in your ears or trouble sleeping — they’re super common… so how much of this was actually new in each patient. But also the patient-by-patient data wasn’t released because of privacy concerns, so all we got were these top-level numbers: 68% percent had sleep dysfunction, 81% had cognitive impairment — but which patients had each symptom, who knows? And in response to this journal article, the scientific community was just like… what even is this thing that you’ve put into one of our top journals?**

*Doug Fields: The scientific community at large deluged the publication with letters. Even when the article was published the editor of the journal published a cover letter accompanying it that said this article doesn’t really prove anything.*

**Taylor Quimby: That’s kinda weird!**

**Rebecca Lavoie: It is kinda weird!**

*Doug Fields: It’s a heterogeneous collection of symptoms. There are other explanations for these various medical conditions. There’s no convincing evidence that there’s an injury, versus disease or aging. There was no evidence that there was an attack.*

**Sam Evans-Brown: They’re basically saying that extraordinary claims require extraordinary evidence, and these clinical results just aren’t doing it. And then you partner that with the fact that the FBI opened and investigation and found no evidence of an attack.**

*Jeanne Shaheen: There’s an AP headline. A story from yesterday which you all may have seen.*

**Sam Evans-Brown: Do you recognize this senator?**

*Jeanne Shaheen: Which says that the FBI doubts a sonic attack, and I would just read briefly: the FBI report which hasn’t been released publicly is the clearest sign to date of the US ruling out the sonic weapon theory… the report says the FBI tested the hypothesis that air pressure waves via audible sound, infrasound or ultrasound could be used to clandestinely hurt Americans in Cuba, and found no evidence.*

**Rebecca Lavoie: That’s our very own Jeanne Shaheen!**

**Sam Evans-Brown: Jeanne Senator from New Hampshire.**

**Taylor Quimby: On a scientific level… I don’t know if we have time for this little caveat, here, but isn’t sound a wave, and therefore don’t we have methods of focusing it? The way we have for focusing lots of other waves?**

**Sam Evans-Brown: There are sound weapons — that have been used notably, to repel pirates in Somalia — however, what they do, as you say they focus it in one spot but they mostly just make things really loud in that one spot. So it doesn’t fit in what people are describing, because other people in the room didn’t hear it.**

**Taylor Quimby: So that’s why you’re saying infrasound or ultrasound, because those would be…**

**Sam Evans-Brown: ...outside of auditory range.**

**Taylor Quimby: So where we’re at now: the state department continues to to call this incident an attack, but all sorts of folks outside of the state department — especially independent scientists — are coming to a consensus, that nothing actually happened.**

**Sam Evans-Brown: Well, I wouldn’t say a consensus, it’s just getting much messier, right? And the coup de grace, is this crickets study, which came out in January and said that sound that the AP released and the state department said was recorded during these attacks is actually the Jamaican short-tailed cricket.**

*Doug Fields: And the Cuban scientists recognized it immediately as the local cricket, I mean they live with these crickets, they know what it sounds like. And I looked at it, yeah it’s a cricket. I could tell it was a cricket.*

**Sam Evans-Brown: So perhaps inevitably. You started to see headlines questioning the state departments story… saying that this was likely mass hysteria.**

*Simon Wessley: The word hysteria is a terrible word, but it’s just the word we’re stuck with, really. When we write we write about mass sociogenic illness but literally nobody has heard of that.*

**Sam Evans-Brown: This is Sir Simon Wessley. Mostly he works on Chronic Fatigue Syndrome. And we should just get this out of the way: hysteria is a super sexist term going all the way back to its inception, but the phenomenon that it’s describing is in fact quite real.**

*Simon Wessley: Well, at any one time, somewhere on the planet at the moment there will be episodes going on. There will be, they’re not uncommon at all. So, on a hot day, a marching band somewhere in places that have… and America seems particularly prone to these… someone will collapse in the heat and then others will start to feel faint and they’ll start collapsing and before you know where you are you’ll have two—three hundred people collapsed on the ground requiring medical attention.*

**Sam Evans-Brown: For anyone who hears this and is like… oh so they’re making it up. That is not what mass hysteria aka mass sociogenic illness is.**

*Simon Wessley: Whatever else is going on, people are not malingering, nor are they acting, even if they were Sir Laurence Olivier they wouldn’t be able to do that. People have to understand is people are actually experiencing symptoms, they are getting ill, but what’s happening is the symptoms they’re getting are the symptoms of anxiety, and as you know as essentially everybody knows now, how that works is you feel frightened, you start to pour out adrenaline, that causes you to have all these symptoms which actually makes you more frightened, and then if you wrongly attribute those symptoms to the poisoning, the pesticides or whatever the rumor is, it can escalate in seconds and take off, but the symptoms are very real, it’s just the explanation is the wrong explanation.*

[Music]

**Rebecca Lavoie: I can really relate to this. Every time I get motion sick, it’s because I remember, “oh my god sometimes I get motion sick and I’m in a lot of motion right now,” and then I start getting motion sick. I talk myself into it and the illness is real, I really don’t feel good but I literally was feeling fine before I remembered that that’s something that sometimes happens to me.**

**Sam Evans-Brown: Yeah, and this plays into the Canadians, the people in China, suddenly getting attacked. It plays into that narrative. Now, however, the State Department’s own panel of experts has rejected this explanation. They’ve argued that these are highly trained state department employees, and it’s even been reported that some of these people are actual honest-to-god spies… and know how to deal with stress and wouldn’t be susceptible to this type of anxiety. But Simon doesn’t buy that for a second.**

*Simon Wessley: The problem there is that you’ve got the world’s media breathing down on the poor old diplomats effected and this is going to be very bad for everybody. People then become the story, and it’s very difficult for them to get better when the allegation has been raised that this might be a mass hysteria, because they then go around thinking my god, they think I’m making this up, which I’ve just said, people don’t make it up, this is serious stuff, but they think that’s the fear that they have and the stigma that they feel, and the last thing that you do then is get better because in order to prove that you’re ill, you have to stay unwell and that’s really tragic and I think that’s what’s happening… will happen in this episode.*

**Sam Evans-Brown: So at the beginning of the whole debacle, you’ve got national security reporters who have sources in the State Department and the CIA or the NSA… or whatever — the spy agencies — who are reporting what they’re getting from these intelligence sources and the narrative is: Attacks by Russian Spies. And then a bit later… once the scientific community starts to weigh in, science reporters who are following scientific journals and have sources in that world start hearing something different about the publicly available evidence, which is pretty slim. And so a new brand of story starts to pop up: One that says we have no evidence supporting what the state department is telling us here… and there are other explanations which might be more plausible. And there’s one story in particular that really stakes this territory out, from *Vanity Fair*.**

**Rebecca Lavoie: “The Real Story Behind the Havana Embassy Mystery” by Jack Hitt. Wow. Funny! This is probably a conversation for another day — but even hearing the explanation of these are highly trained diplomatic officers, some of them are spies aka they’re in the CIA, NSA etc. etc… It’s actually is sort of the opposite of what is happening right now with the UFO revelations and the naval pilots who have pressured the military into accepting there are UFO sightings all the time. Because what used to happen is pilots would say: this is a highly trained pilot, if he says he saw a UFO he saw a UFO, and the government would say, “no no no… it’s the fog of flying.” But when you listen to the tapes these guys are not hysterical, They’re using their pilot voice… “we've got an object off the starboard wing…”**

**Taylor Quimby: Yeah… it’s floating.**

**Sam Evans-Brown: So we have this other type of journalism that’s popped up, and in fact… NPR even got in on this…**

**Rebecca Lavoie: Of course.**

*Audi Cornish: It was an extraordinary claim… in September 2017 the state department announced that more than 20 US diplomats in Cuba had been injured in deliberate health attacks…*

[Music]

**Sam Evans-Brown: And frankly… this was the reporting track that I was on… i was going to put together a story, where I talked to these dissenting scientists, like Doug Fields...**

*Doug Fields: There’s good science and there’s good journalism and there’s bad science and bad journalism.*

**Sam Evans-Brown: ...and there’s this other guy from Edinburgh who’s in all of these types of articles slagging the JAMA paper…**

*Sergio Della Sala clip from NPR: It’s surprising that a fantastic great journal like JAMA publishes such a poor report, it’s just astounding, it’s unbelievable...*

**Sam Evans-Brown: … and then there’s this guy in California, the one who identified the sound released as crickets...**

*Alex Stubbs Clip from NPR: The recording released by the AP is in fact a cricket, and it is a particular species of cricket*

**Sam Evans-Brown: … and I’d have like a fun quirky interview where we talk about how weird it is to parachute into the middle of a political imbroglio, Mr. Entomologist?**

**Rebecca Lavoie: Mr. Cricket Expert!**

**Sam Evans-Brown: And this will be really fun.**

*Alex Stubbs Clip from NPR: If you’re driving a diesel truck on the freeway you can hear these crickets with all the windows closed as you passed one.*

**Sam Evans-Brown: The crickets clip and the Edinburgh clips, by the way, are from the NPR story that was done by Jon Hamilton.**

**Sam Evans-Brown: But, that in fact, is not what happened. Instead, the deeper I got into this, the more confused I started to get. In fact, I started with Michael Hoffer.**

*Michael Hoffer: Yes my name is Michael Hoffer, I’m a professor of Otolaryngology, and Neurologic surgery at the University of Miami.*

**Sam Evans-Brown: Michael Hoffer is the first doctor who evaluated the embassy staff from Havana, right after the attacks. He’s down in Miami. And I thought I would get exactly what I’d expect. For starters, Michael Hoffer is a bit of an unreliable narrator... there was a big Pentagon report that questioned his methods when he was doing a study of traumatic brain injuries in Afghanistan. He was giving troops an antioxidant tablet for which he holds the patents… basically kind of using troops as his own little FDA study group.**

**Rebecca Lavoie: Mmm, cool.**

**Sam Evans-Brown: And similarly, when it came to releasing the results from the Cuban diplomats, he did it in his own journal. It’s an open-access journal, of which he is editor and chief, and he seemed really interested in the impact this would have on his own notoriety. They had this big press release when the results were released.**

*Michael Hoffer: It went amazingly well. There’s something called Altmetric. Now Altmetric is a new way… you sound young… it’s new wave way of figuring out how impactful a paper is. Our Altmetric score less than a month in is 424. Only 1% of papers ever reach over 400 in the lifetime of the paper, because remember this builds it becomes [fades down}*

**Taylor Quimby: Do we have to listen to this bullshit? Fucking alt-metric? Are you fucking serious?**

**Sam Evans-Brown: But his motivations aside, his finding was that everyone in the Cuban attacks — all 25 of the ones he evaluated anyway, had damage to something called the otolith. A little balance organ in your inner ear. And I’m thinking, okay, great, so all I need to do is do the science journalist thing and call around to some other experts in this field, who know about the tests that were used and can say, oh this test is unreliable, and it’s subjective and it’s bad science, and you might have failed it because you were stressed out and anxious. And that’s what I was expecting to do. So the first person I call Bridget Wallace, a balance doctor in Texas, who has published in the peer reviewed literature about this type of stuff.**

*Sam Evans-Brown: So when you read the Hoffer paper what was your thought? Was your thought like, “oh man, this is something this is really interesting” or was it like… well… yeah but?*

*Bridget Wallace: No I thought it was very interesting. Um… I think there’s more that we don’t know here than we do know, but these types of studies are promising.*

**Sam Evans-Brown: So, Bridgett looked at this and she said all of these people look like they had had some kind of concussion… and yes, their symptoms are kind of all over the place, but that’s not unusual for concussions.**

*Bridgett Wallace: There’s currently not one test that says… diagnostic test that says you’ve had a concussion. A concussion is based on characteristics of certain findings. So imaging like I said it’s normal. That’s one of the definitions of a concussion, but there are residual symptoms...*

**Sam Evans-Brown: So I’m like, huh.**

**Rebecca Lavoie: Plot twist.**

**Sam Evans-Brown: That didn’t go the way I expected…**

**Rebecca Lavoie: Wait are you doing actual journalism here where you like gather information and come to a new conclusion other than the one you hoped to get to?**

**Sam Evans-Brown: Well no I’m still, I’m still looking to confirm to confirm my story that I started out with…**

**Rebecca Lavoie: Oh I see, I see**

**Sam Evans-Brown: So no I’m like let me call someone else, let me call one of the people who actually wrote a letter to JAMA criticizing the initial paper about the Cuban group. So I called this guy Gerry Gianoli, who had actually written in saying that the conclusions to the PENN study were probably wrong. But again… he was like, no no. There’s something there.**

*Sam Evans-Brown: I guess one of the questions I have is. You’re also familiar with those tests and how reliable you consider them to be?*

*Gerry Gianoli: Oh certainly. Yeah, they’re very reliable. I mean, any of these tests, any test in medicine period is gonna have a certain amount of false positives and false negatives. These particular tests, if they’re abnormal, they have a very high specificity. But they’re not very sensitive. Meaning you could have pathology and the tests will come out normal, but if they’re abnormal you can just about go to the bank that there’s some problem.*

**Sam Evans-Brown: So… Gerry was like, I was just writing in to say that they hadn’t reported enough data or done all the tests necessary to fully rule out a bunch of other possible explanations, but it does seem like something happened to these people.**

**Rebecca Lavoie: So operation confirmation bias is not going well for you at this point.**

**Sam Evans-Brown: Operation confirmation bias is going really badly. And in fact, I got really really into this, right? And that little balance organ in your ear, the otolith.**

**Rebecca Lavoie: Otolith, yep.**

**Sam Evans-Brown: There’s actually a reflex attached to it where you can play a tone into your ear, the otolith will respond by triggering a nerve that sends a signal throughout your entire body and you can measure the response on that nerve, so this isn’t like a subjective test, it’s literally like hitting your knee with the reflex tester thing, and people had… literally 100 percent of these embassy people had damage to that otolith as measured by this test.**

**Rebecca Lavoie: Huh… fascinating**

**Sam Evans-Brown: So now, I’m scratching my head. What is going on here?**

**Rebecca Lavoie: What is going on here?**

**Sam Evans-Brown: So then I’m like, ok. I’m still on operation confirmation bias here.**

**Rebecca Lavoie: Trademark Rebecca.**

**Sam Evans-Brown: And here’s what I’m going to do. There was this huge delegation of Cuban scientists who came up to the United States presenting the results of a giant investigation they had done, and determined that there’s no evidence for any kind of attack. And in fact that investigation had come to the conclusion that in all likelihood it they were just hearing crickets… and it was a psychogenic illness… mass hysteria. And so I figured I’d call the lead investigator in that study, because ok I’ll get some scientist saying this is bunk… even if it's questionable because he’s Cuban and politics and whatever… but at least I’ll have that. Let me just play you the tape of what happened.**

[Phone Rings]

*Mitchell Valdez Sosa: Hello*

*Sam Evans-Brown: Hello,*

*Mitchell Valdez Sosa: Is this Sam?*

*Sam Evans-Brown: This is Sam. Is this Doctor Valdez Sosa?*

*Mitchell: Yup, it’s Mitchell Valdez Sosa. it’s Mitch, ok.*

*Sam Evans-Brown: I’m glad we could connect how are you doing?*

*Mitchell Valdez Sosa: Very well how are you doing?*

*Sam Evans-Brown: I’m great. So um… is this your cell phone is this a landline. I’m just curious it terms of the audio that I’ll be able to get.*

*Mitchell Valdez Sosa: This is a landline, yup.*

*Sam Evans-Brown: Ok, so that’s better than a cellphone. Um, did you happen to look at the video that I sent you about recording yourself?*

*Mitchell Valdez Sosa: I looked at it, but we don’t have the iPhones here.*

*Sam Evans-Brown: Ok*

*Mitchell Valdez Sosa: At least I don’t have an iPhone.*

*Sam Evans-Brown: Ok, so we’ll just stick with the landline then.*

[phone rings]

*Sam Evans-Brown: Oh, I’m hearing a phone ring.*

*Mitchell Valdez Sosa: Hello*

*Sam Evans-Brown: Hi. That was weird.*

*Mitchell Valdez Sosa: Is this Sam?*

*Sam Evans-Brown: Yeah this is Sam can you hear me?*

*Mitchell Valdez Sosa: Yup, it’s Mitchell Valdez. Yeah, it’s Mitch ok.*

[silence]

*Mitchell Valdez Sosa: Very well how are you doing?*

**Taylor Quimby: What? What is?**

**Sam Evans-Brown: Wait, wait.**

*Sam Evans-Brown: Mitch can you hear me still?*

*Mitchell Valdez Sosa: This is a landline, yup.*

**Taylor Quimby: It’s… what?**

**Sam Evans-Brown: It’s repeating the call back to me.**

**Taylor Quimby: But just his end!**

**Sam Evans-Brown: Just his end. And I just sit here quietly.**

*Mitchell Valdez Sosa: I looked at it, but we don’t have the iPhones here. At least I don’t have an iPhone.*

*Sam Evans-Brown: So it gets to the end.*

*Sam Evans-Brown: Hey Mitch can you still hear me, we just got to the end of… what I assume to be a recording of our…*

[phone rings]

*Sam Evans-Brown: Yeah and now we’re looping. Oooookay*

**Sam Evans-Brown: And it loops back to the beginning. And I hung up. And I called him back, and it went to some weird voicemail that didn’t have anything to do with him. And I called back again and it didn’t go through, and I called back again and it went to the voicemail again. And called back again it didn’t go through. And then eventually I called him on his cellphone, and we had a the entirely predictable interview that I thought we were going to have.**

**Rebecca Lavoie: So this is… this is the thing. I like to think of myself as a pragmatic person, but my mind goes immediately to conspiracies when I hear anything like this, right? Somebody was… there’s no way that to could have been captured and repeated back to you unless it had been recorded on his end…**

**Sam Evans-Brown: Absolutely.**

**Rebecca Lavoie: They were sending you that audio. Just technically as an audio production person we all know...**

**Sam Evans-Brown: yeah, but like literally I have no idea of what happened. This was my beginning of the trip down the rabbit hole…**

**Rebecca Lavoie: THIS IS THE BEGINNING?! You have me. Now I’m very excited.**

**Sam Evans-Brown: We’re going through the looking glass. After a break.**

[break]

**Sam Evans-Brown: So I set this story aside for a while. I was sort of thinking… this doesn’t seem to be an Outside/In story. We thought it was going to be about Crickets. And maybe a bit about behavioral science and what it means to be a human, and next thing I know, I’m wondering if the Cuban government is tapping my emails and following my every move. But it was in this period that I realized that I had been in a bit of an echo chamber. Because these were first billed as a sonic attack, and there are scientists who know things about sound and concussions and looked at this story, and they were like there is no way that that’s possible. And those scientists have been very loud and outspoken in saying that this was a bunch of garbage. And the journalists in their orbit — particularly, the journalists who are a bit like me and are… shall we say… inclined to show how we’re smarter than everybody else… had seized on this hey look how smart and skeptical I am narrative. That narrative is basically this: The Trump administration came in to power, they wanted to distance themselves from the Obama era policies on Cuba… and so when they had a few folks come forward at the American Embassy in Cuba and say they had experienced something a little weird, it was very convenient. So they told the entire embassy staff, hey these guys have been attacked, have any of you been attacked? And that kicked off this wave of psychogenic illness, which then spread to the Canadians and to China. But in this period… of having talked to some folks who hadn’t affirmed my story… something happened.**

*[60 minutes ticking sound effect]*

*TV Clip: In 2016 and 17 25 Americans including CIA agents who worked at the American Embassy in Cuba suffered serious brain injuries. Over many months we have been collecting evidence of what appears to be a hostile foreign governments plan to target Americans serving abroad, and their families. The story, will continue in a moment.*

**Taylor Quimby: I’m going to guess that that’s 60 minutes and not just a reporter with a very loud clock in the background?**

**Sam Evans-Brown: No, that was 60 minutes**

**Rebecca Lavoie: 100 percent that was 60 minutes.**

**Sam Evans-Brown: So 26 Cuban embassy workers have been told they were victims of a hostile attack… the Cuban embassy has been hollowed out… it’s a skeleton crew down there now. The Trump administration has pulled way, way back. Meanwhile 15 state department employees have also been med-evac’ed out of China, and one of them is Mark Lenzi. And for reasons we’ll get into, a little later he was interested in talking to the press.**

*Sam EB: check check check… Real quick can you just introduce yourself?*

*Mark Lenzi: sure, my name is Mark Lenzi, I’m originally from New Hampshire … [fades down]*

**Sam Evans-Brown: Mark Lenzi and I spoke on his own personal time, expressing his own personal views, not the State Department’s on the campus of the University of New Hampshire, which is a place he’s been getting a whole lot of help, actually from his former track coach and actually a UNH sports psychologist. When we talked he wearing these blue tinted sunglasses because he’s says he’s still very sensitive to bright light. He got an engineering degree at UNH, but then entered the peace corps…**

*Mark Lenzi: For two years I was an environmental engineer in Poland...*

**Sam Evans-Brown: Wound up working in Republican foreign policy circles**

*Mark Lenzi: … for him in the Republic of Georgia in 2003 when there was a revolution in that country that brought a pro-Western politician name* [*Mikheil Saakashvili*](https://en.wikipedia.org/wiki/Mikheil_Saakashvili) *into power...*

**Sam Evans-Brown: And before finally landing with the State Department he worked for John McCain’s presidential campaign.**

**[ambassador to Moldova]**

**But then once he got his job at state, despite all his experience in Russian speaking countries, he got sent off to China**

*Mark Lenzi: And like the military a lot of times, even having these languages as an engineer they’re like, yeah that’s nice, but a lot of times they’ll send me to a place like China and they did kind of because of my… let’s say certain counterintelligence things that I know how to do.*

[laughter]

**Rebecca Lavoie: He’s got a special set of skills.**

**Taylor Quimby: I was going to say, he’s Liam Neeson.**

*Sam Evans-Brown: So, so you said you were a national security engineer. What can you tell me about what do or did and what the job was like.*

*Mark Lenzi: Well, no my job — and I still do this — I’m a security engineering officer for the department of state. We ostensibly, there’s only about 195 of us. We have the top security clearances in the government, but uh, we go around and work out of different embassies and consulates in a — primarily in a counterintelligence mission. So it’s to prevent, let’s say foreign intelligence activities — technical activities — directed against US embassies and consulates.*

*Sam Evans-Brown: So for — as an example… I’ll just throw this out here… eavesdropping is something that you are perhaps working to counteract.*

*Mark Lenzi: That’s one of our, without getting into too many details, that’s one of our main focuses, yes.*

**Sam Evans-Brown: So he got to China in the summer of 2016 and a little more than a year later they started to experience headaches, memory loss, and sleep difficulties.**

*Mark Lenzi: My wife and I, we both thought, just like my neighbor — who was also affected and also diagnosed with acquired brain injury — we thought like her: this was just smog. My kids were getting a lot of bloody noses at night things like this that combined with my headaches combined with my memory loss, things that we ascribed, oh wait a minute, this is just, this is just from the Chinese smog. Because the headaches that I had, especially at first, going back to october/November of 2017, weren’t earth shattering headaches, they were usually easily solved with aspirin.*

**Sam Evans-Brown: But throughout the end of 2017, and getting into 2018 these symptoms started to get worse… Mark actually started to believe that he was getting early onset Alzheimer’s, which his grandfather had and he was terrified of. But then, occasionally, just a few times in the months of being in the apartment, they would hear things.**

*Mark Lenzi: So my wife spent a lot more time in that apartment than I did. One time — and it was only one time with her — she actually woke up in the middle of the night hearing these weird sounds that we heard, and it’s a sound like I’ve never heard before or that she’s ever heard before but the best way I can describe it is if you take a ball bearing, let’s say, about an inch in diameter ball bearing, and let’s say you’re over glass and you drop about… four feet up — you drop that ball bearing on the glass. The sound that that ball bearing would make as it’s progressively getting quicker as it’s still bouncing, but getting less to the ground. Then followed by, picture that ball bearing in a metal funnel of about 6 or 8 feet diameter, and the sound that ball-bearing would make going around that funnel progressively getting faster toward the bottom, that’s the sound that we heard, right.*

**Sam Evans-Brown: Very specific.**

**Taylor Quimby: Super specific.**

**Sam Evans-Brown: And this sound… just like in the accounts from Cuba… it didn’t really behave like a sound…**

*Mark Lenzi: Where she heard that sound, and where she thought she heard the sound, and where I thought I heard the sound too, was always over my son’s crib, it was always in one particular location over my son’s crib, in our bedroom, right?*

*Sam Evans-Brown: and was it the kind of thing where if you stood in one spot that’s where you could hear it, but if you moved you couldn’t hear it?*

*Mark Lenzi: Yes, yes. In the sense that only, in the — three or four times that I heard that sound, same with my wife — and we always heard them always over my son’s crib, always in that same room. I’ve asked, you know, my daughter if she heard the sound, she didn’t hear the sounds.*

[music]

**Taylor Quimby: It’s so different than the crickets. I mean, what he’s describing doesn’t sound like crickets.**

**Sam Evans-Brown: Certainly the sound was different… but that’s the other thing the sound that people described was really varied. So the recording that was released sounded like crickets, but people would describe it as like grinding sounds, they would describe it as like a high pitched squeal, and they would describe it as clicks. So all sorts of different… and some people said they didn’t hear anything. And so it could have just been that there was a cricket in the house, and someone felt something, and they were like: “oh that was because of that sound that I just heard because other people have talked about hearing sounds.**

**Taylor Quimby: I dunno.**

**Sam Evans-Brown: Mark says that he personally only ever experienced pain, like what was described by a lot of the employees in the Cuban Embassy, one time. It was right near the end. In the spring of 2018, Mark and his family were feeling progressively worse and worse. They were hearing things. I imagine they were freaking out, and they moved out of the apartment and into a hotel.**

*Mark Lenzi: My wife and I on about four or five different occasions came back to get things, you know toothbrush, underwear something like this. One time and only one time, out of those four or fives times where we came back, as soon as we opened the door, both my wife and I on the top of our heads, felt this amazing pressure — let’s say — at the top. Pain. It was painful. And we both looked at each other like do you feel that? Yeah I feel that, let’s— hoooold on. Well that’s weird. And then my wife said, “oh come on, we moved to the hotel because of these it must be, kind of, in our head, literally, it’s probably nothing let’s just get the stuff.” We were in that apartment for about 2 minutes felt it the whole time and at the end I said to her, we need to get the eff out of here. And we ran out of that apartment because for the whole 2 and a half minutes that we were collecting the toothbrushes whatever it was, that pressure, that feeling of pressure on top of our head did not go away. We went out of our apartment, got into a taxi to go back to the hotel, and there was nothing… it dissipated.*

[Music]

**Rebecca Lavoie: It’s like the Amityville Horror House, right? Get out of the house, get out of the house.**

**Sam Evans-Brown: In May of 2018 Mark’s neighbor was the first to get evacuated. And to this day, she is the only one that the State Department says has symptoms matching the workers at the American Embassy in Cuba. Everyone else, they say, is actually slightly different, even though according to Mark, who obviously has talked to his neighbor about this quite a lot, he says their symptoms are the same. Obviously, when news headlines started to hit that now State Department workers in China were having a similar experience, it was a big deal. China pledges to cooperate with an investigation, said they had nothing to do with it… all of that. Mark was also complaining of worsening symptoms, was evaluated in China and evacuated in June, just a few weeks after his neighbor. Back in the US, the State Department sent him for further tests and treatment at UPenn, by the same team of doctors that evaluated the embassy workers from Cuba, and according to medical records that he sent me, they found that he had cognitive impairments resulting from unknown environmental exposures in China. According to Mark, he was told by a physician at UPenn that his deficiencies were “eerily similar” to the cuban diplomats, and the doctors there asked him to enroll in a study group that consists of 15 employees from China, and the 26 from Cuba.**

**Taylor Quimby: So… so why is he talking to you. Like… seems like a little small fry… NHPR.**

**Sam Evans-Brown: I resent that.** [Laughter] **He’s just talking to anyone who will listen. Well, for starters Mark feels the State Department is trying to sweep this under the rug. So for example. An example of what he believes is going on here. He sent me two copies of the enrollment paperwork for that study that UPENN is doing. The first one says: “this study is sponsored by the US government.” And then Mark told me about a confrontation with a state department official who found out that UPenn was enrolling the victims from the embassy in China, and shortly after, he was sent new enrollment paperwork, that now said “this study is sponsored by the department of Neurosurgery at the University of Pennsylvania.”**

**Rebecca Lavoie: Hm, so there’s some gamesmanship going on here in some governmental office somewhere.**

**Sam Evans-Brown: Yeah they don’t like the look.**

**Taylor Quimby: Well it’s just that there’s some research they’re trying to do to understand this phenomenon, but the politics involved don’t want the Cuba scenario to be compared to the China scenario**

**Sam Evans-Brown I asked the state department for comment, and I got a phone call from several senior State Department officials who did not want to be named.**

**Rebecca Lavoie: One phone call from several people?**

**Sam Evans-Brown: Six people on the line.**

**Rebecca Lavoie: Woah.**

**Sam Evans-Brown: And they essentially told me that the investigation to both the China and Cuba incidents is ongoing and they’ve reached no conclusions as to what the causes were in either case, and that they have nothing to do with the UPenn study. But the other reason that Marks talking to me is that he says that because of the geopolitics here, and that State Department is trying to not endanger China, he says that he feels like he’s being treated badly.**

*Mark Lenzi: Again like I said on 60 minutes, you can kick around Cuba, right. Our trade relations are minimal, our diplomatic relations are such that it’s good in Florida — let’s say it plays to certain constituencies to play strong against that regime for quote unquote not cooperating enough. But with China that’s a completely different beast in the sense that the US mission to China —- the embassy in Beijing, the consulate in Guangzhou — these are some of the most important missions… literally the most important mission for the US in the world.*

**Sam Evans-Brown: According to him, they refused to evaluate his nanny, who is a Chinese national also was affected… and when he finally twisted some arms she was treated very dismissively. And furthermore, Mark was taking sick leave to attend his treatment and therapy, and wasn’t allowed to take administrative leave, which is available to folks who are injured in a hostile action... so the Cuba Cohort gets this…**

**Rebecca Lavoie: So are we any closer to knowing what happened, here?**

**Sam Evans-Brown: Well, the doctors at UPenn were quoted in the New York Times last year saying they believe the microwaves are the prime suspect… and that belief appears to have come from a researcher, Dr. Beatrice Golomb, Professor of Neuromedicine at UC San Diego. She introduced me to something called the microwave auditory effect, which in layman's terms here is the fact that your skull can act as a satellite dish, catching and focusing microwaves, and allow you to perceive certain frequencies and intensities.**

*Beatrice Golomb: The microwave auditory effect, even when it’s perceived to be loud, requires low ambient noise, and the diplomats in news reports say that these noises occurred almost exclusively at night. The noise source doesn’t seem to follow people around but it does for the microwave auditory effect and it did for diplomats. It’s produced in the head, or perceived to be either in the head or for many people slightly behind the head or just above the head. Normal noise seems to attenuate if you cover your ears, the microwave auditory effect does not and can even be intensified. Five diplomats reported covering their ears or head with no attenuation of the sound. And it was also reported that there was laser like localization of the sounds in space, which was said to defy known physics. Well, that defies the physics of sound, that is to say pressure waves, but it's completely consistent with the physics of electromagnetic radiation, and in fact lasers are electromagnetic radiation.*

**Sam Evans-Brown: She’s saying the microwaves are hitting your brain and causing your brain to react, it’s not going through your ears. You feel like you’re having a sound, but you’re not and this is a phenomenon we’ve known about since the 60s. And that is not the only evidence, Beatrice also looked at the symptoms reported in the JAMA paper, which again were kinda all over the place, but she compared them to individuals in a Japanese study who complain of health effects from microwave exposure.**

*Beatrice Golomb: Headaches in 81%, headaches in 81%. Cognitive problems 81%, cognitive problems 81%. Sleep problems 86%, sleep problems 76%. Dizzyness 67%, 64%. Irritability 67%, 56%. Tinnitus 57%, 63%. Anxiety 52%, 56%. So all of the symptoms that both of them asked about, were very, very similar in frequency, and there really is no other condition that has those sort of close parallels.*

**Sam Evans-Brown: Now… you can find people who are critical of this conclusion… there’s a Washington Post article that quotes three of them…** [**one is a former state department official**](https://kclpure.kcl.ac.uk/portal/en/persons/peter-zimmerman(6e80cf3e-6c36-4707-84fe-f50785479629)/publications.html) **who studies nuclear proliferation, one is a brain surgeon and the third I will say, does appear to be an** [**actual honest-to-god scientist**](https://www.seas.upenn.edu/~kfoster/kfoster.htm) **with expertise in microwaves. But here’s my point… We have not done scientific studies where we deliberately microwaved people at like medium intensity for months at a time… it’s not ethical... there’s no, randomized, double-blinded trials where that happens so there’s no rock solid evidence in the peer-reviewed literature that shows this perfect causality. So if what you’re looking to do is call 3 or 4 researchers and put together a news story, you can come up with 700-pretty-compelling-words that support whatever conclusion you want. Especially when we’re in an area of science that’s not getting a ton of attention… and if you’re dealing with a very public, very complicated geo-political brouhaha, where state actors are deliberately obscuring the information.**

**Rebecca Lavoie: Wow.**

**Taylor Quimby: You know, in epidemiology, there’s this pretty common phrase that a lot of people say and you might have heard it, which is “if you hear hoof beats, don’t assume it’s a zebra. And the idea here is, it’s sort of like… typically it’s the simple thing. Typically it’s the obvious thing, and if a bunch of people get sick, it’s probably not a brand new disease or something that’s never been studied.**

**Sam Evans-Brown: This is Occam’s Razor.**

**Taylor Quimby: Yeah, in epidemiology terms. And for the most part it is a good rule in that usually it’s true. And I think what doesn’t get said in that is that if it is a zebra… it’s really really really hard, to figure it out, because everybody is assuming it’s a horse.**

**Rebecca Lavoie: Right**

**Taylor Quimby: But the thing I’ll say to caution that is …**

**Sam Evans-Brown: Most of the time it's a horse.**

**Taylor Quimby: … most of the time it’s a horse. And often you just don’t have enough information to know. You know? Like we don’t actually have enough information to go that far? But that’s where your head wants to go.**

**Sam Evans-Brown: Or… if you’re a science journalist, your head wants to go to mass hysteria and crickets. And I found this over and over, people… so many people that I talked to, whatever it is they’re an expert in, that was the explanation that they gravitated towards?**

**Rebecca Lavoie: Right… operation confirmation bias.**

**Taylor Quimby: Is that what this is? Is this about you, realizing that you had a bias…**

[Outside in theme music]