

Transcript for Bill Nye | Radical Curiosity Saves the World (Episode 637)

Full show notes found here: <https://theartofcharm.com/637/>

BILL: It's Bill Nye here on The Art of Charm. I'm here with Art Harbinger and you're listening to the Harbinger of the future who's a harbinger of what's to come on The Art of Charm.

JORDAN: Welcome to The Art of Charm. I'm Jordan Harbinger and I'm here with producer Jason DeFillippo. Today we're talking with Bill Nye, science guy, the Anthony Bourdain of science, if you will. I met him at a party. We were washing dishes and this guy, I didn't know who he was, starts explaining how the soap works, which is so Bill Nye, somehow, right? Now he's pushing against the mountain of ignorance present in today's anti-science culture on his new show Bill Nye Saves the World.

The new show is part Bill Nye the Science Guy of our childhood -- but for adults -- part Mythbusters and part scientific Real Time with Bill Maher. Today on the show we'll discuss reinventing yourself, how Bill went from Boeing engineer to science guy, we'll explore the idea of looking at the world with radical curiosity and why that's important, and we'll understand why it's key to internalize our fears in order to move forward. This and a whole lot more, including some bowtie talk, here with Bill Nye the science guy here on The Art of Charm. Enjoy.

JORDAN: So we met first at Jon Levy's party.

BILL: The Influencers!

JORDAN: That's right. And we weren't allowed to say who we were and I thought, "This guy looks really familiar but I don't know where would I have met this person before? I have no idea." And then we were washing dishes because the whole thing is you cook dinner for everyone else. And we were doing that and we were washing dishes and you said, "You know how soap gets grease off of a pan? It's the hydrophilic and hydrophobic ends of the soap molecules," or something like that.

BILL: Yes. Yes.

JORDAN: And I went, "All right, now I know who you are." But before that it was just -- it burns, it grates at the end of your consciousness because you don't know who --

BILL: Grates at the end of your consciousness.

JORDAN: Yeah.

BILL: That's very troublesome.

JORDAN: Yeah it's a little dramatized, yeah. But that's the whole point is you're supposed to kind of figure out who the person is on your own or not care or something like that.

BILL: Because we're just so cool.

JORDAN: Yeah, we're all influencing. That's all we're doing at that dinner. Seven honorary doctoral degrees -- so does that mean I have to call you doctor, doctor, doctor, doctor, doctor, doctor Nye?

BILL: No, no. If I'm on the phone and somebody calls me doctor and we're in a hurry, I don't correct them. That's what it means.

JORDAN: Okay. Yeah, it's not worth your breath.

BILL: But if they want to write doctor on some documents, I have to correct them.

JORDAN: Because it's not a legal title or because it's just a little bit like, "Okay, I can't let that one fly."

BILL: Well, I mean, I don't have a PhD.

JORDAN: Actually a lot of people have brought that up lately. "Well you don't even have a PhD, why should I listen to you?"

BILL: Well, what do you want to know about heat transfer or fluid mechanics?

JORDAN: Only a doctor is qualified to tell me about that, apparently.

BILL: Or metallurgy or mechanical components. I mean who didn't love mechanical components? That's something you do in mechanical engineering school. There are a million plus fasteners on a typical airplane. You better count on them.

JORDAN: Yeah, I would hope that they're all in good shape. You're an advocate for science literacy, is that a fair statement?

BILL: That's a fair statement. That is my life's mission.

JORDAN: Yes. Doesn't require a PhD, mostly requires what? A lot of people are like, "Oh, why not just interview a real scientist?" and I thought, "Well, because I'm not looking for the latest in quantum whatever."

BILL: Which we love. We do love quantum mechanics, the double slit experiment remains a great mystery. I took a lot of physics and climate change is a great concern to me.

JORDAN: That was what your talk was about after the dinner.

BILL: Still concerned.

JORDAN: Yeah since then it hasn't really changed for the better, I don't think.

BILL: It's gotten worse for human kind, for sure.

JORDAN: Why do you think so many people are obsessed with kind of shooting the messenger. "Oh, he doesn't have a PhD, this is a fraud, he's not a real scientist." What's going on there?

BILL: Keep in mind, it is fascinating, I mean you're a podcaster -- it is fascinating the energy people have -- the haters have to hate.

Once in a while, I'll look at the comment section on almost any page -- wow, people have time to complain.

JORDAN: Oh, yeah.

BILL: But meanwhile, the climate is changing even if you hate me. There are 7.3 billion people in the world, going on 7.4 going on 9 billion people by 2050 and everybody wants to live the way we live in the developed world and this takes a lot of energy and right now our energy is mostly produced -- our electricity is mostly produced from burning stuff. Coal, and oil, and gas. We can't keep doing that anymore. Shoot the messenger if you like, we still can't keep doing it.

JORDAN: So you mean my anger towards the things you say is not positively affecting the climate?

BILL: No. It's weird.

JORDAN: Oh, jeez. I've got to change strategies, man.

BILL: I just think that the pendulum's going to swing back pretty quickly. And by that I mean people will realize that it's in nobody's best interest to deny science, to not accept the facts discovered through the process of science. Climate change being among them, also the efficacy of vaccinations -- you don't want people running around unvaccinated. And keep in mind out there, if you're out there and you're not vaccinated, the reason I want you to get vaccinated is really not that I care about you, it's me. Me, me, me. Because when you're unvaccinated you are an incubator for mutating viruses -- mutating bacteria. You just don't want that. You're going to introduce -- your body is going to introduce diseases into our herd, into our species that we can't fight with conventional antibiotics and the one that's emerging now -- if you like to worry about things --

JORDAN: I do, I love it.

BILL: -- about your lifestyle -- but gonorrhea is the one. It used to be penicillin just knocked it right out, but it has mutated because so many people have contracted it.

JORDAN: Jeez. If you don't really want to eat lunch you can Google that and find out exactly what that involves.

BILL: It's not good.

JORDAN: No.

BILL: It's not good.

JORDAN: It's not good. Even the former cure, when there was one, was not good and now there isn't one -- it's even worse.

BILL: But Penicillin was amazing, you know? It was a miracle drug, as they say. Now it's not effective against gonorrhea. Wow.

JORDAN: For me it's a nightmare scenario.

BILL: Yes.

JORDAN: I was in Australia and they'd recently just outlawed being anti-vax.

BILL: Probably required vaccinations.

JORDAN: It was something like that and there were a lot of protestors -- small number relative to the population, thankfully.

BILL: Vocal.

JORDAN: But vocal protestors. "You can't force me to do this. You shouldn't force me to do this. It's my choice. It's my choice for my kid."

BILL: Nope. Nope.

JORDAN: But it's not, right?

BILL: No.

JORDAN: It's public safety.

BILL: No, not your choice.

JORDAN: It's kind of like saying, "I can douse myself in gasoline. I'm the only one who's going to get hurt."

BILL: It depends where you're standing. In Australia there's probably plenty of room.

JORDAN: It's true.

BILL: Out west in Australia.

JORDAN: That's true.

BILL: But that's in a special case. If you are a vaccine denier, think what you're denying. You're denying the discoveries made by diligent scientists over the last three centuries. You're objectively wrong about it.

JORDAN: Few things can be said that are 100 percent chance that you're wrong about this.

BILL: That's right.

JORDAN: Yeah. So kind of enjoy that.

BILL: Oh, it's great. What a great feeling. But I think the anti-vaxxers are losing sway. They're not as effective as they were 10 years ago.

JORDAN: Well especially some of their chief spokespeople Jenny McCarthy and things like that are saying, "Oh, you know, I was wrong about that."

BILL: Yeah well, when I was on The View a couple years ago, Ms. McCarthy would not look me in the eye. She was anxious.

JORDAN: Really?

BILL: Well things change.

JORDAN: Yeah. You invented a hydraulic resonance suppression tube.

BILL: Well I didn't invent it.

JORDAN: You didn't?

BILL: I did the basic engineering on it. It's an old trick, is all. It's not a new invention.

JORDAN: Oh, okay. I thought, "Wow that's something that didn't exist before?"

BILL: No, no, no.

JORDAN: That's incredible.

BILL: No, it's something that didn't exist but the extra tubing on a 747 horizontal stabilizer system did not exist before but the trick I used was not extraordinary.

JORDAN: Oh, okay.

BILL: You make the pressure wave destructively interfere with itself. So there was a vibration in the yoke -- it's called the steering wheel of the 747. And most pilots, it didn't bother them. You know, there's a great many test pilots at Boeing. We made a tube that had the -- of a certain length to have the pressure wave cancel itself out to quiescent conditions. When you're putting in a big steering input, the vibration was overwhelmed. But anyway, this is a detail. But it's what you do when you're an engineer. You science to solve problems.

JORDAN: And then suddenly you shift to comedy and joke writing?
What's going on there?

BILL: Well the word sudden isn't maybe exactly right.

JORDAN: Maybe not accurate?

BILL: I started doing stand up comedy after I won the Steve Martin look alike contest in Seattle. I did not win the national one. First of all, I kind of like Steve Martin which --

JORDAN: Yeah, helps.

BILL: Well the other thing is he's from Nashville -- playing the banjo. Anyway, I started doing stand up comedy, I met these guys who were working on a comedy show called Almost Live. You'd meet them at open mic nights. I started writing jokes for that show and then I met Jim McKenna and Erin Gottlieb, these producers who wanted to do educational videos about science. They started their own production company and then it took us another four years to get anybody to believe it was really worth doing.

JORDAN: Did you know right away this is something that's going to take off?

BILL: Well the word right away -- I did one bit about liquid nitrogen because the household uses of nitrogen -- we all have liquid nitrogen around. You'd make celery that was limp turn rigid again, then you smash onions and it sounds like breaking glass
--

JORDAN: Oh, cool.

BILL: -- which is hilarious. But the payoff is chewing frozen marshmallows so steam comes out of your nose. That's hilarious. And so after that, as I was walking off the stage, at the NBC affiliate in Seattle, I went, "This is it man. I want to be the

next Mr. Wizard." That worked out but it took a long time. That was 1987 and we got funding to do the pilot of the show in 1992.

JORDAN: Twenty-five years to an overnight success --

BILL: Yeah.

JORDAN: -- something like that.

BILL: Yeah.

JORDAN: Well you're proof that you can reinvent yourself. A lot of people think they can't do that.

BILL: Well they're just wrong.

JORDAN: Objectively wrong.

BILL: No, whatever. You think I've reinvented myself?

JORDAN: Maybe, yeah.

BILL: Well here's what happened you guys. The first thing I wrote about climate change was in 1993 in a kids book called Bill Nye's Big Blast of Science. Nothing's been done about it since 1993. It's you guys out there denying climate change that have made me political. I didn't want to be. You started it man. If you weren't denying science, none of us would have this problem.

JORDAN: What advice would you have for somebody who wants to make that shift and says, "I'm an engineer, I can't do the things I want to do," or, "I'm so far away from the career that I really want, from what I'm doing now -- I've got to pay the bills somehow." Because just do it is really easy to say but harder, I think, for people to step into.

BILL: Well, I took the precaution of being single and young. I really did think in October 3rd, 1986, "If I don't do it now, I ain't never going to do it," using -- employing a double negative for

comedic effect. So, I took a chance. And I realized even at that time, if I went away from engineering for six months, I would lose my currency. I wouldn't be able to compete with other guys because computer software was taking over my branch of engineering really fast.

There's a thing that's very common now called finite element analysis where you have a mechanical part, a physical object, and you mathematically break it into rectangles -- into boxes -- and then each vertex, each corner of the box is mathematically tied to the next corner of the next box. And then if you have enough computer power, you can simulate the bending, flexing, stresses of this object. Well, that software was just coming on and the company Catia is still around. And if I went away from it for a year, I would be out of date. But, I figured if I didn't do it now, it wasn't going to happen.

JORDAN: Did you do all that by hand on graph paper before?

BILL: Don't mess with me. You know, you have a copy of formulas for stress and strain.

JORDAN: Of course, somewhere around here.

BILL: Yeah, yeah. So you used to have a text book, there would be mostly grad students who would solve a specific problem -- flat plates with a hole in the center. Square plates, rectangular plates, circular plates, curved beams, curved beams of square cross-sections, curved beams of I-beam cross-sections -- if you could identify the thing that was flexing or being stressed, you could plug it into these formulae but it was not trivial, I mean it was -- you had to recognize what you were doing, yeah. Anyway, that was the good old days. And then, finite element analysis does not always give you the right answer. When I quit that's what was coming on really fast. When I quit full time. I worked another 10 years part time. I had a niche. I was one of the last guys that I knew that worked on a drawing board, you know, with lead holders. We don't call them pencils. Lead holders on a drawing board, you know with the drawing engine

-- the big right angle thing on the six foot long drawing board? You'd have special tools or tooling it's called -- making fixtures to spin things for testing and stuff. One of a kind objects.

JORDAN: Wow.

BILL: I did that for 10 years. A young guy coming out of school now does MATLAB, this program that solves many equations at one time -- multivariable equations at one time. Stuff that barely existed when I was in school. I started with a slide rule, man. That's how long ago it was.

JORDAN: When we were in middle school in shop class, they gave us one of those things and you had to buy your --

BILL: They gave you a slide rule?

JORDAN: Yeah and you had a T-square and a big desk that was this big.

BILL: You had a slide rule?

JORDAN: Yeah, I can't remember what it was for but I remember having one. My dad was a mechanical engineer. So maybe he showed me how to use it finally.

BILL: Yeah, yeah, yeah.

JORDAN: Something like that.

BILL: Well, it's not for everybody.

JORDAN: No, definitely not. You used to speak to kids. Now would you say you're speaking more to adults?

BILL: Yeah.

JORDAN: Yeah?

BILL: But kids still watch the old show.

JORDAN: Oh, yeah.

BILL: You know, I was at a book signing last night here at Onion (sic) square, in New York, New York -- the town so nice, they named it twice -- and there's a lot of very young people who were watching the old shows either online or in school. Many teachers still use the shows, which are over 20 years old, and I'm very proud of that. When it comes to science, you want to make videos that are about fundamental ideas in science, that will stand the test of time. Pluto was a planet in 1993.

JORDAN: Yeah, so that's -- yeah, whoops.

BILL: Well that's all right, there's a great lesson there. By the way, young people have no problem with that. And by young people I mean people in fifth grade can grasp that Pluto is smaller than the earth's moon. Unknown in 1930. And the reason it was believed to be bigger is because it's so shiny, because it's covered with ice, which is an amazing thing -- with nitrogen volcanoes and all this -- seven geologic regions. It's the coolest thing. We say eight traditional planets. If you want to call everything else a planet, knock yourself out. Is the moon --Earth's moon -- a planet? Okay. Is Europa -- a moon of Jupiter -- a planet? Okay. Did it have the misfortune of playing in a tough league --

JORDAN: Yeah.

BILL: -- by having to orbit this enormous planet? I don't know man but I still have no problem with the word 'Plutoid.' So Pluto, instead of being the last of the traditional planets, would now be the first of a new class of celestial objects. How cool would that be?

JORDAN: It sounds like a promotion.

BILL: But if there's a couple guys that want it to be a planet, I'll let the International Astronomical Union figure that out. I don't really have a dog in this fight.

(COMMERCIAL BREAK)

JORDAN: I've got to say, I admire you because you stay in front of this colossal mountain of ignorance and you're pushing hard and that mountain does not like to be pushed. It pushed back.

BILL: You're talking about the climate change deniers.

JORDAN: The deniers of a lot of things, specifically climate change nowadays, yeah.

BILL: Well climate change is the biggest problem facing humankind, everybody. I mean, there's nothing bigger. What about healthcare? It's important but climate change is the biggest deal. If we were talking about climate change, the way we talk about healthcare or the racial issues that we have here in the U.S., we would be gettin' her done.

JORDAN: Yeah.

BILL: So, we're hoping to raise awareness.

JORDAN: Yeah. The new show you're not just sharing facts, you're sort of trying to rescue humanity from this anti-science --

BILL: Yes. Trying to rescue all of humanity.

JORDAN: Yeah, big mission.

BILL: A show on NetFlix.

JORDAN: Big mission, definitely.

BILL: How hard can it be? No but I mean, that is the goal, is to change the world to get people to take a scientific view of many issues

facing society. We're going to do a couple of fun ones as well as -- we have a couple ones about drugs this year, we have a couple about the environment, and we have a couple that are just kind of cool.

JORDAN: Yeah, so far season one is highly entertaining. But what do you think the anti-science sentiment really comes from? I could just be missing this but when I was a kid, you had science, you believed it, and a lot of people around you believed it and if you found somebody who thought that a certain scientific principle was not true -- like, oh, the world is flat -- those people were insane. Now it seems like, well there's this little shred of validity they think even people will agree that they have and it's just crazy to me.

BILL: Well I think social media has made that possible, where anybody has a voice. Everybody can be an authority. So, I think that will blow over, really. If -- hey, if you're a flat earther or if you're out there, go to the edge and take a picture and send it to us.

JORDAN: Yeah.

BILL: Go out there to the edge. "Well, they won't let you see the edge." Who's they?

JORDAN: Yeah.

BILL: No you think you'll find that you're living on a big ball and you can travel any direction and never leave. Whoa. Dude, that's impossible. How could there be something that you could go anywhere and never get off? Because it's a ball.

JORDAN: It's a sphere, yeah.

BILL: It's a sphere. This goes way back. Ancient Greeks realized that the earth was a sphere because they saw the earth's shadow cast on the moon during lunar eclipses and they thought deeply about this, they didn't freak out, they just thought about it and

realized that the earth had to be a sphere. That's the only shape that will always cast a round shadow. And in medieval times they did not think the world was flat. Columbus may have sold the queen on the earth being so much smaller than it is. The big thing is she bought it --

JORDAN: Yeah.

BILL: -- and here we all are in North America. Check us out.

JORDAN: That's right.

BILL: If you're a First Nations person, here we all are, man. We've got to roll with it. We've got to move forward.

JORDAN: Yeah, no kidding. The new show is part Bill Nye the Science Guy of our childhood but for grownups, I would say. Part MythBusters, maybe?

BILL: Oh, yeah.

JORDAN: Part Bill Maher.

BILL: Part Bill Maher, sure. He is doing good work --

JORDAN: Bill Maher?

BILL: -- I have to say. Because he's just getting people talking. People hate him, people love him, but he's getting people talking and that's his business and it's good. It's just a very important thing in our society that we're able to do that.

JORDAN: I like the panels. I like Steve Aoki testing antacids.

BILL: He's a good guy.

JORDAN: Yeah.

BILL: He had fun. We're going to do an album. We're going to do a song.

JORDAN: Are you really?

BILL: Yeah sure. He's really into it. But God, he's so successful right now.

JORDAN: Yeah.

BILL: You think I'm busy, man oh, man.

JORDAN: He's done a great job with branding. Like, he's the DJ guy now.

BILL: He's the DJ.

JORDAN: When do you think of a DJ --

BILL: Well it's good.

JORDAN: -- there you go.

BILL: Yeah, yeah. And he's, by all accounts, very good.

JORDAN: Speaking of branding, you've got the bowtie still rocking. Those are like the Larry King suspenders of science.

BILL: Yeah, getting the Larry King suspenders is a big step. I'm not going there. But the bowtie I recommend to all. It does not slip into the soup, does not flop into the flask, and dressed up. When you wear a tuxedo, once in a while, there will be some H-wood guy, some Hollywood actor wearing a straight tie or just buttons or black with black with black buttons on black with a black carnation -- okay. But when you're dressed up, you wear a tuxedo with a white shirt and a bowtie. That's what it is.

JORDAN: It's part of your brand but it also seems like it's part of your mindset -- the bowtie.

BILL: Well, I guess. Yeah, now I'm stuck with it.

JORDAN: You devoted significant real estate to that in the book.

BILL: See here's the thing. When you tie your shoe, you want it to be a symmetrical bow because then it doesn't come untied.

JORDAN: Did not know that.

BILL: Think of the loss of productivity. In our societies people have to bend down and retie their shoes 10 seconds a day, 30 seconds a day, times 300 million. Oh, my. The number of seconds a day we lose to mistied shoes.

JORDAN: Yeah.

BILL: Oh, the humanity.

JORDAN: Billions of dollars.

BILL: Yes.

JORDAN: Every decade or so.

BILL: Yes. You want the U.S. to be competitive, we've got to tie square bows on our shoelaces. Being a little ironic, everybody, if I'm going too fast for you.

JORDAN: No you -- of course. When I was in kindergarten we had to learn how to tie our shoes using the two bows method.

BILL: Two bows is good. Rabbit ears.

JORDAN: Yeah, but there was the easy way which required one bow -- or one loop, sorry.

BILL: Oh, well you wrap one loop with the other and poke through or do you make two loops and tie the loops together?

JORDAN: Uh the first way is what I --

BILL: Do you get the same answer?

JORDAN: Yeah. This is something I'd love to solve right now. I got in trouble and I was the last kid to get the sticker that says, "I can tie my shoes," because I wanted to do it the easy way and there was the original way with two loops. But my question was always, "If there's an easy way and a hard way and they both yield the same result, why would you do it the hard way?"

BILL: Well plus, many people would reverse what you consider easy and hard. You had some intuition that your teacher suppressed. The humanity man, you're a mess.

JORDAN: It all led to this too.

BILL: Yes. Look at you now.

JORDAN: I could have something of myself.

BILL: Yeah. Well, hey we're in downtown New York, everybody. We're in Manhattan. We're in Times Square. We've got it going on.

JORDAN: That's right. Well the book *Everything All at Once* -- you mentioned there were certain strategies that always get results. One of those was looking at the world with radical curiosity. What is that?

BILL: Well, here's the thing. It's very easy to not go to the trouble to investigate things. It wouldn't what the thing is. How to tie your shoe, how to best write a letter, how to best send an email -- whatever it is. A lot of things we can tune out because it's just -- we feel it's too much to take in. However, my claim is, if you're always curious, the world is always exciting and every day you will learn something. And big idea behind that is everybody knows something you don't. And this is quite an insight.

JORDAN: It is. I loved that idea as well. I want to stick with the radical curiosity and --

BILL: Radical curiosity.

JORDAN: How do we develop that? How do you nurture that? What if we find we're the type of person who just accepts things at face value or doesn't bother to investigate? How do we develop it in ourselves? Nurture it if we don't necessarily have it --

BILL: Well the main thing is to get a copy of my book.

JORDAN: Of course.

BILL: There's 20 in a carton. They make great gifts. The eclipse is coming up. I encourage everybody to get out and under the eclipse because you'll see something that you just probably will never see again.

JORDAN: Neil deGrasse Tyson talked about keeping your natural childlike curiosity. Is radical curiosity something else?

BILL: Oh, no.

JORDAN: It's really the same thing?

BILL: Yeah. There's an expression everybody throws around these days, "Thinking outside the box."

JORDAN: Yes.

BILL: It's radical. So outside the box -- do you know the puzzle where you have nine dots?

JORDAN: Nine dots.

BILL: And then you have to draw four lines to connect all nine?

JORDAN: I do it and I can't think of the solution at the --

BILL: Well the solution is you go beyond the box of dots.

JORDAN: Oh, right --

BILL: I think that's where the expression came from.

JORDAN: One of -- it's like a giant open triangle on one side.

BILL: So it's a -- it looks like a delta kite.

JORDAN: Right.

BILL: Yeah, I think that's where the expression came from.

JORDAN: Oh, really? Okay.

BILL: But as I tell people, you don't always have to be outside the box about everything. I get these emails from NASA and so many of them have "Disruptive out of the box game-changing seminar." No it isn't. We've got a better rivet, which is important. I mentioned fasteners earlier.

JORDAN: Right.

BILL: You want better rivets. But they are probably not radically game-changing outside the box things. They're just a little better.

JORDAN: It's a small gain.

BILL: Incremental improvements.

JORDAN: It's a small game that's being changed by that game-changing invention, I think. The other strategy that gets results you mentioned, was being driven by a desire for a better future. But isn't everyone driven by this in some way?

BILL: I'm not sure. I meet a lot of people -- well for example, in the example of Pluto. You meet a lot of people that want Pluto to be a planet because it was.

JORDAN: Right, that's true. It like effects their childhood somehow.

BILL: So you grew up it was one thing, now it's something else? So okay, isn't that cool? Isn't that exciting? My grandfather rode a horse into World War I. You don't want to ride a horse into a modern battle.

JORDAN: No.

BILL: No.

JORDAN: Generally --

BILL: I'd prefer an up-armored vehicle, yeah. Things change. That's not a bad thing. It's a thing as the human population increases. You could argue that your quality of life is going to go down because there will be less for everybody, but oh, no! Look at the modern mobile phone. This thing tells me which side of the street I'm on. I can watch the front porch of my house from your studio on the camera. We all talk about Wi-Fi like it's nothing, like it's a day at the office -- it's extraordinary. This all, by the way, comes from engineers.

JORDAN: Yes.

BILL: Comes from electrical engineers sitting there thinking deep thoughts, having meetings, agreeing on international standards that we all take for granted. This idea that regulations are bad, I just think is just absolutely wrong. It's like a machine. You want a machine to have all the parts it needs but no extra parts. You want all the regulations you need but no extra ones.

JORDAN: True, yeah. I can see that. I think the trick is in the balance, of course.

BILL: We're going to eliminate one out of every two regulations.
Where'd you get that number?

JORDAN: Yeah that figure is --

BILL: Where did you get one half? What? You drive either side of the street, you pay taxes on the whole road -- you drive either side. It's fine man.

JORDAN: Yeah, what could go wrong?

BILL: I think you have rights. Yeah, you go out there and drive on the left in the U.S. Party on.

JORDAN: Yeah, yeah. What could go wrong?

BILL: Well, you'll see.

JORDAN: How do we encourage people to be more willing to take the actions needed to make changes?

BILL: You listen to your podcast, Art. That's the key.

JORDAN: There you go.

BILL: I think that's really the key to the future is this podcast. I just want to get people excited about this process. I mean, we're living at a time -- it is very reasonable that we will discover life on another world. Well you know, we have spacecraft roving on the planet Mars right now. The Curiosity rover and Opportunity -- this rover called Opportunity -- is still roving on Mars. It is reasonable that if not the next spacecraft, the one after that and the one after that, will lead us to where there is liquid water. Everywhere on Earth that we have even dampness, we have something alive -- bacteria of some sort. Is there something alive on Mars? Does it have DNA? Is it like us or is it a whole 'nother thing. That discovery would change the course of human history. I'm not saying we would all start driving on the left in the U.S.

- JORDAN: No, let's not get crazy.
- BILL: Yeah, but it would be profound. Like Copernicus proving that if you want the right answer, you show that the earth goes around the sun, not the other way around. It changed everything. We have international commerce because we discovered that we live on a ball orbiting another ball. It's fantastic. Just think what it could mean for medicine if we found a new type of life.
- (COMMERCIAL BREAK)
- JORDAN: What about Elon colonizing Mars, what do you think about that?
- BILL: All right, so a couple things. First of all, we don't like the word colony. Let's go with settlement.
- JORDAN: Oh, yeah. Well as Americans, we're kind of averse.
- BILL: Well and also if you're an African, you know, there was a lot of trouble with colonialism in South America. These people who had extraordinary germs and weapons showed up from Europe -- showed up in these places and took over because when you have technology that far in advance, when you have rifles versus spears, rifles versus bow and arrows, things happen. It's the way humans are.
- JORDAN: Yeah.
- BILL: We don't want to colonize, we want to settle. But I don't think you want to settle on Mars. If you think you do, go to Antarctica for a couple years and don't go to the shore -- the edge of the ice sheet where there's penguins jumping around and krill and whales and big birds and stuff. Penguins -- no, you go to the dry valley -- it hasn't snowed in, or rained in over a century. There's no water -- and don't breathe. You have to take your own air. Just see what you think. Mars -- there's no air. You will notice that immediately. What are you thinking? You're not thinking.

JORDAN: Yeah.

BILL: And this romantic notion that we'll go settle on Mars and have a two planet species. Dude, really. A scientific outpost akin to McMurdo Station -- I get it. But I was in Greenland last summer on the ice sheet -- there is nothing. It's not like, "I'm going to take my rifle, live off the land up there in the ice sheet." No there is nothing to shoot. It's just sunlight and ice -- more than a mile thick. And in every direction you look, the horizon is more ice. However, having a science base on Mars would be very cool. That would be a whole 'nother very cool thing.

JORDAN: The Internet is going to be faster on Antarctica as well.

BILL: While you're worrying, our assets, as they're called at Mars -- the orbiting spacecraft we use to relay data from the surface to Earth -- goes up to martian orbit then from there to Earth. Those spacecraft are getting old. They're getting worn out. So, we've got to replace them and the cost of planetary science, you guys, it's nine percent of the NASA budget which is in turn .04 percent of the federal budget. It's .036 percent of the federal budget. It's not very much money and with it we make these extraordinary discoveries. So, it's a worthy use of our intellect and treasure, my fellow citizens of the earth.

JORDAN: A lot of what you've done your whole life has been geared towards kids but you don't have any kids of your own.

BILL: I think for two reasons. My patients stopped getting along. When your parents get separated you think it's your fault as a kid. I didn't make this up. I'm not a professional psychiatrist. Then the other thing is my family has this genetic condition called Ataxia. It contributed to my parents separating. My dad became very stubborn -- because you lose your balance. This was before there were ADA access ramps everywhere. This was back in the old days. So he would fall down and insist everything was fine. It was a way of dealing with this condition. Plus, he had been a prisoner of war. There's some speculation that exasperated the deterioration of his nerves but I just

equated being married with misery, the possibility of passing on this condition that led to misery -- seemed more than I could bare.

JORDAN: You don't have that or you do have that and it's not that bad?

BILL: Well, as far as anybody can tell I don't have it. And you know why I don't have it? Nope, nobody knows.

JORDAN: Nobody knows.

BILL: So we're in a study -- by we I mean my immediate family and my extended family, cousins and everybody -- we're in a study at the Kennedy Krieger Institute which is part of Johns Hopkins in Baltimore. We are trying to sort this out.

JORDAN: Tell us about cognitive dissonance. This was really interesting. You wrote, "When you have a world view and you're confronted with evidence that contradicts it, you've got to do something. You have dissonance, conflict in your mind -- you either change your whole world view, which is quite difficult the older you get, or you dismiss the evidence. Along with that you dismiss the authority." That sounds pretty dangerous.

BILL: Right now it's the best explanation I have for why people are doubling down on climate change denial. So here are the evidence, here's the data, here's our gas samples. 2016 will be the hottest year on record, 2010-2020 will be the hottest decade on record. This is consistent with our computer models. This is clearly a human caused climate change. "No it isn't, no it isn't, no it isn't," and the more evidence you present, the more the deniers double down and along with cognitive dissonance there's an expression, "The backfire effect." That seems to be what it is. Unfortunately now we have climate deniers in positions of power in our government. I don't know how long that's going to last. For those of you listening, every day there's some new revelation about the current administration that's very troubling.

JORDAN: I looked at, of course, reviews of the book, which came out this morning? Is that right?

BILL: Yes. Yes.

JORDAN: Yeah. Out this morning.

BILL: Can you feel the excitement?

JORDAN: Of course, who can't? A lot of folks in the websites where people review books -- Amazon and such -- wrote, now I feel even more insignificant about all the things going wrong. I think that's probably the opposite effect you were looking for with the book.

BILL: Well keep in mind one review --

JORDAN: Of course.

BILL: -- is not really the whole story.

JORDAN: I'm bringing this up to put needles into the conversation.

BILL: Well thank you for your needling.

JORDAN: You're welcome. You're welcome.

BILL: So one of the things about astronomy, especially, is it's humbling. The more you learn about the cosmos, the less significant you are. However, isn't it amazing that we can know that? How cool is that that we can know that we are insignificant? I hope it gives everybody pause. Now, as far as being insignificant, as far as being helpless goes, keep in mind that humans now move more earth and rock than nature does. We're talking about the movement of tectonic plates and volcanoes and erosion is not as much of an effect as you and me --

JORDAN: Wow.

BILL: -- you and I are. That's a hell of a thing.

JORDAN: Yeah.

BILL: With this comes responsibility. We are in charge of the planet and if you have science fiction buffs out there, we now are running the show here. You know, in science fiction stories, they go, "That's the cold planet, that's the warm planet, that's the planet where they play the bagpipes," or whatever they do. Well it's like that now. We are running the whole planet, for better or for worse and so this is a responsibility that we have to take.

JORDAN: Imposter syndrome is what we call this, where people feel like, "Ah I can't do this. They're going to figure out I'm a fraud."

BILL: Which, do you ever feel that?

JORDAN: Of course.

BILL: Yes, you're your broadcasting on your podding of cast -- you're an interviewer and --

JORDAN: Yeah.

BILL: -- you go to the Influencer dinner and you go --

JORDAN: Do the dishes with Bill Nye --

BILL: -- "Who am I?"

JORDAN: -- and I'm just --

BILL: "Who am I?"

JORDAN: -- so insignificant. But I think it makes a lot of us afraid to even try to solve big problems. We just think, "Well what the hell am I going --"

BILL: No! You've got to get out there. You've got to believe you can do something. You have to be optimistic or you won't do anything. If you don't think you can accomplish something, you will not accomplish it. That's my claim.

JORDAN: That, for sure, is true. Does it help to learn about the fear, the authenticity, and that kind of thing?

BILL: No, no, no no.

JORDAN: No?

BILL: Stick your hand in the sand and ignore it. No, of course. The more self-awareness you have, the better. I encourage you all to just go out there and try it.

JORDAN: You wrote about internalizing fears with respect to this, and the example you gave was James Cameron building a submarine so he can go and do some exploring on his own.

BILL: He's the real deal.

JORDAN: Yeah?

BILL: He's a very successful movie maker because he, as far as I can tell, is an extraordinary storyteller. But along with that, he is deeply curious about the world -- our world. I went with him to Barbara Mikulski's office. Barbara Mikulski was a senator from Maryland. She just retired. And she was a big supporter of New Horizons, the missions to Pluto. I went with James Cameron, Lou Friedman who was the head of the Planetary Society at that time -- long time colleague of Carl Sagan. The three of us went to Barbara Mikulski's office, we had 10,000 postcards from members of the planetary society, who supported a mission to Pluto. That was in the year 2000.

He really wanted a mission to Pluto and he wanted to put a binocular camera -- zoom camera-- on the martian rover Curiosity and the claim is it would add \$600,000 --.6 million --

to the budget, and they decided not to do it. I'm not sure that was the best decision. But he wanted to go to the bottom of the ocean again. You know, he got really into the Titanic and he made -- I don't know -- dozens of trips to the Titanic in a Russian submarine, that's made for that purpose.

JORDAN: Oh, wow.

BILL: Really deep, deep -- well I mean, that's how he made that movie. He went down there and looked at the whole thing and studied it inside out. But on the same token, he wanted to go to the deepest part of the ocean, which had only been visited once in 1960 by these navy officers -- U.S. Naval officers -- who were assigned to go there and see what was down there and they had so much turbulence created by their little motors -- their little propellers -- they really didn't discover much. But Cameron, spent his own money -- in my recollection it's \$23 million, which doesn't go as far as it used to, I don't have to tell you -- to go to the bottom of the ocean, the very very deepest part and he made a whole bunch of remarkable discoveries.

One of them that really fascinated me is just a kilometer away -- a mile away -- from the very, very, very deepest part, there's a whole bunch of living things. These crazy tunicates and these weird rattail fish swimming around but then you go to the very deepest part and there's nothing. It's a dead zone by human standards. I'm sure there's all sorts of bacteria and viruses that he brought samples back. But, it indicates something about ocean currents that is really fundamental. You know, it's easier to explore the surface of the moon than the bottom of the ocean. If you've got a pair of binoculars, you can look at the moon.

JORDAN: That's true.

BILL: Bottom of the ocean -- no. The three Cs -- it's cold, crushing, and corrosive. It's hard to get down there. Everything rusts when you're on a ship and you go down even a little ways, it's freaking cold. And you go down a little bit more and it just -- it'll crush you like an empty soda can.

JORDAN: That's terrifying. But not for James Cameron, apparently.

BILL: Well he was -- I'm sure he was very respectful of the dangers and he pulled it off. I mean, he did it. It's very cool.

JORDAN: Everybody knows something you don't. You mentioned that earlier. We're all in silos. Why is this important? How do we break the habit?

BILL: I just try to be aware of it all the time. I mean there are people that know things that I don't. Everybody listening knows something I don't and I've got to appreciate that. I was in a car this morning with a guy driving. He knows Manhattan traffic better than I do, guarantee you. He knows the tricks to getting around -- I'll never know that stuff. It's okay. That's his business. It's good, it's cool. We're wearing textiles.

JORDAN: That's right.

BILL: What do we know about textile weaving? Hardly anything.

JORDAN: Not much.

BILL: But there are experts, thank goodness.

JORDAN: What do you think is the top bias that keeps people from thinking critically? What can we teach people to help them become better thinkers?

BILL: You've got to be open minded. I fight it, we all fight it. There's a term right now, "mansplaining"--

JORDAN: Yes.

BILL: -- where you just presume that you know stuff that you really don't, and it's annoying. With that said, we're constantly making judgements, constantly deciding what's good or bad or what the best course of action is, continually, all day, we're doing that.

But, we want to be open minded, we want to look for new ways of doing things, not just because the danger of being set in your ways but because of the experience of new things. You're going to make discoveries. Every time you explore, two things are going to happen -- no matter what it is, your backyard or Mars -- you're going to make discoveries about the traffic in New York but you're also going to have an adventure. You're going to have an adventure and that's what drives us is that love of adventure, of novel experiences.

JORDAN: Interesting stuff from Bill Nye, of course -- would expect nothing less. The show is called Bill Nye Saves the World. It is on Netflix. There's actually a documentary about Bill Nye that's come out recently as well, called Bill Nye, Science Guy. I really enjoyed this one -- I got sent an advance screener and I dug it. It's a nice look behind the scenes there. And of course, check out Bill's new book [*Everything All at Once: How to Unleash Your Inner Nerd, Tap into Curiosity and Solve Any Problem*](#). We'll have that linked up in the show notes. Great big thank you to Bill Nye and if you enjoyed this one, don't forget to thank Bill on Twitter. We'll have that linked in the show notes as well. Tweet at me your number one takeaway from Bill Nye. I'm @theartofcharm on Twitter. Of course we'll be replying to your questions and feedback for Bill Nye on Fanmail Friday and if you're looking for the show notes, tap your phone screen.

And don't forget about our AoC challenge. Go to theartofcharm.com/challenge or text 'AOC' to 38470. The challenge is about improving your networking and connection skills and inspiring those around you to develop a personal and professional relationship with you. It's free, it's unisex, it's a great way to get the ball rolling, get some forward momentum -- and we'll also send you our fundamentals Toolbox that I mentioned earlier on the show, which includes great practical stuff, ready to apply right away. Reading body language, reading other people, charismatic nonverbal communication, the science of attraction, negotiation techniques, networking and influence strategies, persuasion tactics, and everything else that we teach here at The Art of Charm. This will make you a

better connector, a better networker, and a better thinker. That's at theartofcharm.com/challenge or text AOC to 38470.

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