Your Questions Answered - Bret and Heather 47th DarkHorse Po...

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**SPEAKERS**

Bret, Heather

**Bret** 00:08

Hey folks, welcome back to the Dark Horse podcast live stream number 47 Q and A section. All right, here we go. Cats over our shoulders, we are ready to answer some questions.

**Heather** 00:20

That's right. So we'll start with a couple of questions for Episode 46 that we didn't get to. Before moving on to a question that comes out of the discord server this week and then moving on to last hours questions before moving on to this hours questions. First up, well, atheists and secularists at large be able to effectively apply the mimetic level of group cohesion experienced in religious groups. What the tools needed to bring this about necessarily need to be religious in nature.

**Bret** 00:49

Yeah, that's a good one. A problem is some of the tools have been housed over in religious space, can the atheists the modern atheists, pull off the the feats necessary, probably not. On the other hand, you can't very well have a system that is predicated on people believing in rewards and punishments in the afterlife, that those who discount them will be freer to engage in various behaviors that are anti social. So we're stuck, we have to figure out how to do this in a secular and atheist context. And I would say, in some sense, the tool for doing this is pretty obvious, what we have to do is actually structure the incentives of the system so that pro social behavior is actually rewarded in the long term, and then we will see it elaborated by selection. If we do anything short of that, then the disbelievers will have an advantage over the believers and things will come apart.

**Heather** 01:54

Okay, this next one, did you do you have anything to say on this? Or should we skip it?

**Bret** 01:59

Yeah, a little bit.

**Heather** 02:00

Okay. Excuse me? What are your thoughts on the World Economic Forum's the great reset discussions? This is something that we both only know a very small amount about?

**Bret** 02:09

Yeah, I have not delved deeply, I've looked a little bit. And so the basic idea is that COVID reveals fragility in the system, and we all ought to talk about what it is that needs to exist in order to make the system more robust and anti fragile. And I agree with this. I'm not sure how much I trust the World Economic Forum to have this discussion. encouraged that they're interested in it, but I would say the question is, in some sense, the right one, but when the so called stakeholders are the ones that the World Economic Forum holds, dear. There's a question about how useful the solution they're going to come up with is because there is a real problem. And so is this, in essence, the status quo, realizing far too late that it has left us in a vulnerable position and negotiating with us in order to retain its position? Some level? Yeah, I think so. But at another level, it doesn't mean it isn't the right question.

**Heather** 03:08

Yeah. And just this question began with I didn't read it because I seem to butcher the pronunciation every time is that Shana Tova? Yeah, we are now this question came in last week or now between the highest holidays in Judaism I think that Yom Kippur war starts, either tonight or tomorrow. I don't remember. And, and Rosh Hashanah, the new year was last week. protests have largely been fueled by us versus them thinking. Would your podcast ever consider adding nuance to this by interviewing a police officer?

**Bret** 03:41

Yeah, absolutely. I would interview a police officer. I would interview a protester and in fact, I have had preliminary contacts with both. So anyway, maybe I should restart those discussions and see if I can't make it happen.

**Heather** 03:54

Yeah, especially given that here in Portland. The fires and the smoke appear to have put a mere very temporary and not even a complete halt to what was going on in the streets here. But they resumed with full force. As soon as the rains came a week. A week ago. Yep. There's a cat right behind your chair. So don't go back. Right. And I don't, it doesn't look dangerous. What do you know about Hampshire College in Massachusetts, and how does it compare to evergreen? Yeah, so Hampshire was one of five I think colleges and a consortium along with evergreen along with new college and Florida. Pitzer College in So Cal Tran was maybe Colorado College, maybe it was the other one. I feel like I'm not sure that it was Colorado College. That was the that was the additional member there. But they're all experimentally pedagogical experimental, liberal arts colleges. Everyone that I mentioned, except for evergreen is private. Well, actually, new college might be affiliate. With the University of Florida system, I'm actually not sure about that. But Hampshire is private. And so, you know, it's, I think its model is fascinating. It is on the verge of collapse as many liberal arts colleges are. Because while it has a really remarkable model of empowering students in which students are potentially empowered to do terrific, independent, creative work, what that means and this is exactly the problem we saw at evergreen is that it also allows people who are lazy and have no interest in doing interesting work of any sort of can kind of skate by without even having to meet any basic requirements. So

**Bret** 05:43

you're talking about students? Yeah, I'm, it's true faculty too. Sure. Well,

**Heather** 05:48

I don't know any faculty in Hampshire. But I saw

**Bret** 05:49

that at evergreen, we saw that there were faculty were highly dedicated. And there were other faculty who got hired and worship possible to get rid of Yeah, did nothing,

**Heather** 05:58

no. But we saw, we saw, we saw that less directly with regard to the students at evergreen, because our students tended to be motivated, because because there was very high demand for our programs. And if you didn't want to do anything, you could easily find that in other programs and not not in ours. I'm just, I'm assuming that really, at any school, now you can find a way to get by with doing almost nothing. But it's going to be easier at one that have specifically thrown many of the traditional requirements out the window. And I think Hampshire has done some of that, as evergreen certainly did. And there are virtues to the other advantages. But it does mean that it's easier to game the system, if you're interested in gaming system, if you if you want to throw away your tuition money and come away with a degree, but no education, you can do that easily. at a school that has no breadth requirements. You can do it in another school, too. But you can do it anywhere. But you know, Hampshire had supreme promise. I do think it may not be around in five years. Yes.

**Bret** 06:59

My recollection is that has been on the financial rocks for many years. Yeah. I would also say that one of the things that is true and you know, we both graduated from Santa Cruz, which was experimental, one of the things that's true for,

**Heather** 07:13

but also a an r1 like Santa Cruz is also research one university with tremendous amount of federal funding for big research. So it is both an experimental liberal arts thing inside a massive research university.

**Bret** 07:30

Right? Yeah. So the analogy that it has with evergreen is that it was public. Yes. So let's just say all of these things are failing in one way or another. Maybe Colorado College isn't it might be the one example that isn't. But

**Heather** 07:47

I suspect Pitzer isn't either, just because it's part of the consortium down there in the Claremont Colleges, and I don't know that they look out for each other financially. But, you know, being in a consortium with Claremont McKenna and Harvey Mudd and such, it's, you know, it's it's the sort of, you know, wacky liberal arts one, but it's, it's all it's a cluster, in the same way that there are like clusters of strangeness at Santa Cruz. But there's also a lot of amazingness as a cluster,

**Bret** 08:14

but it may not be as clusterfuck because at one level, you can go to Pitzer, if it sounds good to you and take classes elsewhere, that doesn't turn out, right. So

**Heather** 08:23

and that's the same is true of Hampshire. Actually, Hampshire is part of that Consortium, a different consortium of five colleges and includes UMass Amherst and Amherst and Smith and Mount Holyoke, I think it's going to be the five there.

**Bret** 08:36

So that's, that's a kind of protection, you know, an experimental model that allows students to participate very much. So different degrees is useful. The thing that was missing from all of the others that evergreen had that I thought was absolute magic, was the full time programs. Right? Right. The when you as faculty are full time in one class, and your students are full time in one class, and that class can go on for a full year. It means that the relationship between professor and student and between students and each other is totally different than a regular college. And what it means is you can do a kind of teaching that can't be done in a regular college. And, you know, to be sure, there were more faculty at the point that we were at evergreen, there were more faculty doing nothing with that opportunity than doing something. But if you wanted to do something, it allowed you, in my opinion, to teach in a way that was effectively custom tuned to each student. What do you and I both did? Well, we knew our students, well, we cared about them. And it meant that you could think about what each person in the room was hearing, you know, who has trouble with this kind of kind of concept and what needs to be said so that they get it. You could, you know, not be so regimented to what you plan to talk about that day. At concept that turns out to take longer than you think it's going to can can expand to take up more more space. All of those things were, like magic for professors that wanted to push the envelope of what was possible. And for students that were not a good fit for normal school, because they could get a kind of education that just wasn't available to the extent that they were an anonymous person in the room. So

**Heather** 10:23

yeah. Now, just one little nuance here is Colorado College, like a number of smaller, less well known colleges, mostly scattered throughout the Midwest, I believe, do have something called the block system, right where they do full time, full time, I don't think they call them programs, but for three, three weeks at a time. So at evergreen, you had 10 2030 week programs. And Colorado College, for instance, I think has eight of these three week blocks a year. And at any given moment, you're only in one thing with that class on that faculty for three weeks, but they 100% always guaranteed and at the end of the three weeks, and you don't continue with that Professor in that learning community into the next to the next block. So it I imagine it hints at some of this power, but it can't get all the way.

**Bret** 11:14

No, I will say at the point that evergreen was looking rickety to us, we just happened to give a talk out of Colorado College. And it was the one model that was different enough from normal that I felt like maybe maybe that's actually something I could do that it was very hard to imagine walking away from the beautiful freedom that we had at evergreen in the amazing community that it allowed us to build. But it would be interesting to figure out what you would do with a block intensively. So how, you know, get up to speed in time and do something interesting, and then move on to something totally different. That'd be fun. Yeah,

**Heather** 11:48

I mean, you wouldn't end up forming the deep relationships with students, probably, but you could potentially do a kind of educational experimentation, where, you know, I think faculty teach, you know, four or five of the eight blocks a year, I'm making that number up, but it's certainly not all eight. Because they have governance, and they have research expectations and all of this. But you know, if, for instance, you were like, Okay, I'm gonna do, I'm gonna do three iterations of this thing this year. And, you know, especially interesting maybe, although this just makes it less well controlled. But you know, if it's got a field component, I'm going to do one in the fall one in the winter, one in the spring. And, you know, the thing that makes it entirely uncontrolled, always is if the students are different, the program is different. It just is I don't care how much you think you're just delivering the same information into empty vessels who are students know, the students are going to respond differently to different material. And it could be very interesting to notice how things change with a different complement of students when you're actually sort of trying to do the same thing. repeatedly.

**Bret** 12:50

Yep, yep. That might have some dread over the idea. From the idea that you're supposed to run the same lab several times, which is always a nightmare. You know, I almost never ended up doing it because it was so nightmarish, but

**Heather** 13:04

I, we had one one year, I taught a three three Person program. And it was it was I was doing vertebrate evolution, including comparative anatomy and systematics was teaching systematics and so I was doing computer labs for just a few weeks, teaching them aspects of I remember what McLean maybe, whatever the actual powerful, systematic software was at the time. And the way we had at each of the three faculty had each of the three groups of students that day, so like for three Thursdays running, I had to teach the same lab three times. And, you know, it's systematics, which is just, you know, its actual Origin of Species stuff, like how do you actually discern differences? You know, relationships in history, you know, that we're not when we make the claim that mammals and birds separately evolved endothermic? On what basis do we make that claim? So it's, it's, it's that sort of, it's that sort of thinking. And it would seem perfectly tuned, we're really dull and dry analysis, but who wants to do that, and it's not interesting. And this is life. This is the evolution of life. It's so exciting and wonderful. But truth be told the third time in a day you're going over? why it is that you're walking students through, you know, building a data set of characters and taxa for a lab. It can begin to seem pretty, pretty tedious. Yeah,

**Bret** 14:20

I mean, you know, amazing as he was even God only did it once. As a pretty good Yep. All right, where are

**Heather** 14:32

we? We are at the discord. The question that came out of the discord server this week, voted on there. What are some of the major blind spots of modern medicine? How can an evolutionary approach the human body ameliorate the shortcomings and what are you currently seeing up? Where are you currently seeing optimism in this regard? little question, guys. Thanks for that.

**Bret** 14:50

Well, so also answered your question in your question, which is marvelous. The fact that evolutionary biology shows So lightly in medicine and almost not at all in clinical psychology, and almost not at all in dentistry, or ophthalmology is the problem, right? This has such huge implications for the way the body works, and therefore the way the body fails, it has huge implications for what we ought to be doing differently to prevent pathologies, rather than always playing catch up and trying to treat them. So the big flaw, if I remember your question correctly, is the fact that these fields have not been updated for Darwinian thinking period. And the opportunity is immense. Why? Why does no medical school teach from a Darwinian perspective, it would, it would be the dominant medical school almost instantly if it figured out how to do it.

**Heather** 15:47

So this is the subject of two depending on how you count of the chapters of the book that we are working on the third draft of right now. Specifically, what is it that medicine has done right? And how is its evolutionary blind spot manifesting? And how therefore as users of the medical system as most as all of us are? can we better understand our own health and make better decisions of help our doctors make better decisions for us? Zack, if you will put on screen for a moment, just this paper just came out weird bodies, mismatch medicine, and missing diversity by a guy named Michael Gervin who I don't recognize, but also Daniel Lieberman, who's who was the chair I don't know if he's still is the chair of Department of Human evolutionary biology at Harvard. He also wrote an extraordinary book that I used to teach with called the story of the human body. And and he's also I believe, a long distance runner and so specifically, as has a research focus on skeletal and specifically foot formation in early human evolution and whether or not long distance running and walking helped form our modern skeletons with all of its pros and cons. So it's also

**Bret** 16:54

the famously barefoot long distance runner my correct,

**Heather** 16:59

I think so. But I'm not positive about that. Let me just say one more thing about this. So this is this is a good paper that I recommend that has some of the answers to the question, weird bodies, mismatch medicine, and missing diversity. We've talked about weird before here. But that weird is an acronym, standing for Western, educated, industrialized, rich and democratic. So it's a stand in for, you know, rather than just saying, you know, the West, which isn't totally accurate description of what set of demographic and cultural parameters are that are descriptive of having the kinds of remarkable blind spots, especially evolutionary blind spots that many of us have.

**Bret** 17:40

All right. All right.

**Heather** 17:45

Next question, Trump's move to halt critical race theory training is both bold, and the timing seems almost enlightened. Have we been under estimating his intelligence? Or does he have an intuition that helped him make a smart move in an opportune moment in history? Yeah, I mean, we've done in fact, I think you mentioned last time at the time before that we've, I've called him a political savant, and and was calling him that not at the point of the last election, but fairly shortly after that, at which point I could, you know, at that point, I hadn't seen anything to recommend him at all, you know, this move this move and others since I do see, I do see that he has made some, some moves that are not just politically savvy, but also what I would say are the right moves. So this, this strikes me as perfectly in keeping with that, and it was more than that, is he more than a savant, this is this is something that you addressed, I think, last time,

**Bret** 18:37

well, so I've been calling him a political genius. And I've been telling the left that they need to wise up, because to the extent that they treat him as a fool, they keep under estimating him and handing him lots of tools. And also, in this case, as in some others, handing him the moral high ground, which is not something that the Democrats should want to do, and yet they do it again and again. So in this case, we have the right move, we have the politically savvy move being the same move. So we don't know what motivated this. And the question that I have is what happens when a guy like Trump makes the right move and gets lauded for it? Will he develop a taste? You know, and so, are we training our Trump supporting viewers will bristle at this discussion? Because I think you and I both feel that Trump is, I would say, an entirely cynical actor, which doesn't mean he's always wrong. That's right. But it means that the motivation is advancing the political ball. This is where his genius is. But to the extent that the right thing to do is to I mean, the only thing to do is to take the most essential machinery of civilization and immunize it from this insanity. However, you do. That. So this must be done. The fact that lots of us are looking, you know, lots of us from across the political spectrum who are paying attention know that the ship is being jeopardized by whether you see it as a psychotic break us that emergent psychotic break on behalf of the population and immune disorder, sabotage, whatever, you see it as the answers, you have to immunize the essential features of society, from the, you know, from gazing into their navel and wondering what two plus two actually equals right? You have to stop that stuff. And so he's done it. And it's a brilliant political move. It's the right move, will he get addicted to doing the right thing and having people who are in other parts of the political spectrum that don't usually recognize him saying, actually pretty good stuff, right? Yes. Oh, that's Oh, yeah. Right, I certainly leave that possibility open. And I hope for and to the extent that the democrats are going to play their same damn card, and their point is going to be if Trump wants it, then it's bad. If they're going to play that, which is what Trump is counting on in this case, then they are setting up a situation in which lots of people who know how dangerous this belief system is and what it is threatening to do. are now in a pickle, which is you can't vote blue because blue is inviting this stuff through the door.

**Heather** 21:26

Yeah, so they're creating there are plenty of existential threats to go around. How dare they create a new one because it serves them politically.

**Bret** 21:34

Well said

**Heather** 21:39

hello from another couple living in Panama City. No relation to the guy from last week. As far as you know that you know, where you really shave I'll just end to do

**Bret** 21:50

you go far enough down the phylogenetic tree. My guess is there is a relation.

**Heather** 21:54

That's right. We are US citizens that have been here seven years. You're an oasis of rationality, We value your contribution to the culture more than we can express. Well, thank you, Jordan. Thank you.

**Bret** 22:05

Go have some severe che at the yacht club in Panama City for us. Yeah, the outside is kind of a dive. It's not what you imagine when you hear Yacht Club.

**Heather** 22:14

Well, so you came to know the yacht club in Panama. So you Brett lived in Panama for 19 months, mostly living on barro Colorado island which is a Island formed with the Panama Canal was formed it was it had been a dry hilltop and now was in Lake attune in the middle of Panama Canal administered by the Smithsonian tropical Research Institute and at one point during your 19 months there and I was there with you for for those months or so. You discovered in my right that you could if you just hung out at the kind of divey Yacht Club as smaller boats were trying to get to the canal and they needed crew you could be pulled to be to crew a boat through the canal I didn't discover that there was a by no you I mean, you weren't the guy who discovered it but you personally came to understand I discovered

**Bret** 23:01

America and that if you sit at the yacht club, crewing boats in the Panama Canal well so here's the thing the yacht club is on the Panama City side of the canal it's right at the head of the canal so actually the nice thing about the yacht club is you can sit there and you can watch the boats lining up and the Panama Canal is not what any of us expect until we've seen it. But the Panama Canal all the boats are piloted by these this elite crew of pilots who take over the boats pilots captains. I think they're called pilot Really? Yeah. So anyway, the big boats are piloted by these elite. This elite crew, the smaller Bohemians. Yeah, yeah, they're Panamanians. They're

**Heather** 23:41

not like American servicemembers. Since it's in the Canal Zone. Oh, this was

**Bret** 23:45

after the Canal Zone had been turned over. Right? Yes, it has to be right. But in any case, the smaller boats would pick up crew and you can post your your details on the bulletin board there. And so I never did it. I did have a license so

**Heather** 24:04

you did hang out the diver Yacht Club and have some ha It was

**Bret** 24:07

good to vj It was kind of a you know, decent drinks and anyway, nice view could watch the boats lining up and it was cool to watch their lights as it as night fell and all that. But anyway, yeah, I did have a license to navigate little boats on the Panama Canal, which was really cool. Yeah,

**Heather** 24:24

we still have that somewhere.

**Bret** 24:25

I would hope somewhere. picture on my license is crazy. Yo a lot of hair. So much hair, right? It's really it's, yeah, it's a picture that if ever got out would probably change things.

**Heather** 24:39

So I will say this about your hair and Panama. That while you were there for many, many months, and I had been there or I was there with you. Performance is so near the end of your time. But I was in Madagascar for many of those months and then I was back in Michigan and at one point you were coming home and As it turns out, you had been growing out your hair for all of the months because because I don't know there wasn't a barber, what the hell? Why the

**Bret** 25:07

hell? Not gonna grow your hair out while you're living on an island isolated in the Panama Canal where nobody's gonna see you. It seems like a perfect moment.

**Heather** 25:15

And so you would not told me this, though. And you came off the off the plane with so much more. left with it. I was. I mean, I recognized you. But it took a moment.

**Bret** 25:28

Yeah. It was like it was uncanny valley level difference, right? A lot of hair, it was.

**Heather** 25:36

Okay. When gender critical folks say gender doesn't exist, might this not be shorthand for individual versus population level differences, rather than blank slate ism?

**Bret** 25:49

Wow, I think you're giving people a lot of credit.

**Heather** 25:53

I think there's a sext doesn't exist. They love the well, who cares about the language? I think they can play. They confused the language intentionally. But is it possible that some of the people trying to wield these tools are trying to do so carefully? And might if you presented them with that analysis, that it's individuals versus population level? mean that maybe but I don't? The vast majority of them don't mean that?

**Bret** 26:19

Yeah. And I would say, you know, if you're if you're making a subtle, but correct argument that that emerges as people challenge you, and you say, No, I think you're hearing me incorrectly. This is actually what I'm saying. And I would say, I think the chances that you and I are running into a true, nuanced argument that we have failed to spot in conversation after conversation is pretty low, right? We're pretty good at spotting what a student means, for example, rather than what they've said, Yeah, I'm pulling the value out of a question and reframing it and so we would hear it there.

**Heather** 26:54

No, I mean, the level of confusion like okay, you can say it's just a tweet, but that one I showed in the last hour about this. The idea that trans women, which is to say Natal men, experience period symptoms, and any naysayer should sit down and shut up because not enough science has been done. Like, it's so missing reality at so many levels, like it just is incoherent. There's no like population versus individual level differences there. That person wouldn't know what a population was, if it hit him in the head.

**Bret** 27:25

I mean, you know, I've gone through periods and episodes and, you know, I've had the occasional

**Heather** 27:30

occasional era. But here's hysterical.

**Bret** 27:35

I have been hysterical. Yeah. etymologically that's it's an awkward one for me.

**Heather** 27:41

But in any case, going through periods isn't

**Bret** 27:45

now that you mention it. Yes. It is awkward. But But yeah, the let's put it this way. We can play language games all day. Yes, but physiology games. Those are a whole different level as well. And

**Heather** 27:58

that's and that's what's being done on on on to unwitting children in part with the, with the hormone blockers and the idea that puberty is optional. This is a sign that we've seen in some of the protests now. puberty is optional. No, it's not. Yeah. Any child young person, even yo of age adult who thinks that has been woefully mistreated by the system? They just they got no education at all. And if you're a parent, do not believe this. Yeah, it is not optional.

**Bret** 28:31

It is unwitting children who are being damaged by half wedding adults. Yeah, I'm going Oh,

**Heather** 28:39

yeah. No, I like that. That's good. That's good. If an immense giant Wait, what? And my trackpad is stopped working. Okay, so I can't even really see it. Okay, let's actually do that. I'm gonna just like look over your mic here. If an immense giant 1000s of miles tall was in space, and capable of physically grabbing the earth like a ball? What would it feel like to him? Would it be heavy, delicate, wet? Hot. How would he describe it? Hmm. So still not working? I know I'm working on it. Now try. Unfortunately, when it's off it works and when it's on it doesn't. Yeah, that's good. Okay, so

**Bret** 29:24

we're getting lost in trackpad? I'm trying to understand the question. We've got a giant Yeah,

**Heather** 29:29

we got a giant we've got a giant 1000s of miles tall in space. Capable of physically grabbing the earth like a ball. What do you feel like to him?

**Bret** 29:36

So 1000s of miles tall does not inherently get you it's still dwarfed by the earth. Unless it's,

**Heather** 29:44

it depends on how many 1000s of miles Exactly. So what's, what's the diameter of the earth? The diameter? No,

**Bret** 29:51

well, let's see this, or

**Heather** 29:52

did you just say 3000?

**Bret** 29:56

Yeah, so the conference is like 27,000. Yes, that The diameter will be something like a third of that. Yeah, yeah. So we would need 10s of 1000s to hundreds of 1000s

**Heather** 30:07

just we're talking about like baseball sized earthen it's hundreds of 1000s but you also mean there's no I mean the giant himself is creating the gravitational pole right so that was just like so there's no there's there's a question include the Giants gravity, it doesn't and so like he's just in space, which means like what it doesn't feel heavy or light like it's not

**Bret** 30:28

so the Earth would stick to the giant because the hand would be similar in mass to the Giants hand, they would stick to each other gravitationally.

**Heather** 30:41

Presumably the giant is now in orbit around the sun right

**Bret** 30:45

as the giant lifts the earth there is a proportional movement presumably the giant is many times the mass of the Earth and therefore moves much less than the Earth but there would be some balance between their motion as the giant moved the earth the dragon is not standing on anything,

**Heather** 31:02

right? Well, I don't know what you mean moves less like if the child is holding the earth they both move as they move.

**Bret** 31:09

If the giant takes the earth and elevates his hand the giant will move down and the earth will move.

**Heather** 31:15

Oh, relative Yes, yes. Okay. But to use the hand and the earth roving the same, right? Because all

**Bret** 31:20

the giant By the way, we're all dead now. The giant

**Heather** 31:24

Yeah, no, I mean, the lack of a gravitational frame like there's not there's nothing else that the giant is standing on means that this this is where you have to say

**Bret** 31:32

this is a monstrously sociopathic thought experiment in the sense that you have just killed nearly 8 billion people in an instant,

**Heather** 31:40

and all the hippopotamuses

**Bret** 31:44

hippopotamuses. Okay, I'm not convinced it's not hippopotami but either way the good point is it's Saturday it doesn't matter now. But the giant will feel the earth as the giant brings the earth to himself but that's

**Heather** 32:00

no it's a him we've we've been given the Giants sex,

**Bret** 32:03

but gender isn't real. It's a sex. Also not real real. Okay. But as the giant brings the earth to himself, he will feel as if a magnetic attraction why no yes, gravitationally?

**Heather** 32:18

Oh, just because of himself, not because of the earth. Because the earth is too tight is I mean, it's really hard to imagine what it feels like at so if we go it's a baseball size thing. What does it feel like for us to wield a baseball? No, because we're standing on our gravitational field reference.

**Bret** 32:33

Here's the thing. We don't Intuit this because gravity is so freakin weak. Now, I didn't decide to make it so weak, but it is weak, right? It's coming after you now able has gravity, but you cannot feel it. Right. But the point is, if the table were Earth scale, then its gravity would be appreciable. And the bigger it is, the more appreciable it is. So a giant wielding an Earth would feel that gravity as a kind of magnetism, not

**Heather** 32:57

much more than if he decided to do exercises to high knees, you know, his knee towards his chest

**Bret** 33:04

together to have that same sticky nature, right, which would decay with the cube of the distance? Square, maybe the cube of the distance anyway. So it would be a an experience, which is what the question is about, that was dominated by the fact of gravity being relevant at that scale, where it is essentially irrelevant at human scale. Yeah,

**Heather** 33:29

so what would it feel hot? Well, you haven't told us if the giant is endothermic. Have you?

**Bret** 33:34

Well, now, interestingly, so this is tough because the it runs

**Heather** 33:38

on what homeostatic setpoint the giant is that as to whether or not the Earth would feel?

**Bret** 33:44

Well, what temperature would not necessarily Why not? Because what you feel assuming the giant is the process of an evolutionary force big enough to make giants? The Giants? Would it be? Right? That's the only two that's why I assume the giant would be tuned to detect the relative warmth and couth of objects, right where they net sources or net sinks, except this

**Heather** 34:08

is all taking place in a vacuum.

**Bret** 34:12

Yeah, but you they're still conductive.

**Heather** 34:14

So you can you can you can have like tactile sensory stuff in a vacuum. Sure. Really.

**Bret** 34:24

I'm virtually certain I don't see why you wouldn't I think you'd be preoccupied with other things. Like breathing but yes, right. Yeah, I see no reason that you wouldn't be able to detect heat. Were you protected from the vacuum but your hand out there in the vacuum? I think that works. Yeah, you could detect something like heat but so here's

**Heather** 34:42

exactly you could detect something like wet. So yeah, I think it would feel wet. The Earth?

**Bret** 34:46

Yeah. Yeah, some parts more than others. But here's the question. The center of the earth is molten. True due to gravity, the gravity, of all of the weight of all of the various pieces of the earth pressing in the pressure on the center causes the molecules iron on the center to be rubbing up against each other in a way to

**Heather** 35:11

start moving out when it's this close to another giant gravitational force. Now that's a problem that is going to be a problem the molten core is going to start bubbling to the surface as it tries to as it tries in its unconscious gravitational way to be attracted to the to the Giants mass,

**Bret** 35:27

you have a crispy outside in the two centers and problem now but so the question is, suppose the giant was the careful tyent? Well, we can hope. Actually, it doesn't much matter, well, then. That's true. But if the giant were to treat the earth carefully, so it's not to squish it. Would the giant feel heat from the core? What I'm trying to

**Heather** 35:49

figure out for it started to bubbling below the surface?

**Bret** 35:52

Yes, if the center oozed out, I don't feel heat. But is the earth net warm as a result of the heat released in the center? Or is that a concentration? That is not a net? Is it not a net release of heat?

**Heather** 36:08

Oh, yeah, I think I mean, compared to the bleak coldness of space, I suppose it wouldn't be net warm, even before the core started to bubble to the surface? I

**Bret** 36:19

think so. But I'm not gonna be surprised if one of them physics types contacts us and says, You've got it wrong.

**Heather** 36:24

Yep. Yeah, I have a PhD in giants holding the earth. And I can tell you that

**Bret** 36:30

totally, not only, by the way,

**Heather** 36:32

we hope to hear from you.

**Bret** 36:34

One of my favorite assignments that I used to give back when I had a regular job, when you gave assignments back when I gave assignments, was that I would tweak the parameters of the earth. And I would get my students to predict what the evolutionary consequences of those tweaks would be. So imagine that you had an earth that was a cube, so that as it rotated, you had a hard edge that would cause data to show up and disappear, you know, like this.

**Heather** 37:04

I don't think a hard edge would be sufficient for that. You still have an atmosphere? Oh, you didn't get some ice cream?

**Bret** 37:10

Right? Well, this is exactly the sort of conversation that we would have. So you could do things like you could change the tilt. You could make two suns, you could do this.

**Heather** 37:19

I mean, this is kind of world building is what I was doing when I was creating my science fiction universe. And yeah,

**Bret** 37:23

totally. And then there was the granddaddy puzzle, which I should unveil at some point in which I had a series of islands around the equator of a planet and set an evolutionary puzzle in motion at one side of the planet. Anyway, that was one of my favorites. Yeah, this is sort of like that.

**Heather** 37:41

It is this is sort of like that. Yeah, maybe at some point we can. Speaking of past assignments, talk about the fraternity, my fictional family of beetles, which are haploid, diploid, but in which the sexes that are haploid and diploid are reversed, having cascading effects on social behavior. That was a tough assignment. Right? It's

**Bret** 37:59

fun, though. Yeah. When possible, when people used to claim that evergreen was a place with no academic rigor, I used to think back to your assignments of that nature. They weren't talking about you.

**Heather** 38:11

Are you? Yeah, sure. Okay. Where are we? Yeah, we did giant, we did giant and now we're on to could any high powered equipment being used by those fighting the fires be the cause of the interference? Think so

**Bret** 38:28

strongly, doubt it. And

**Heather** 38:30

I mean, so much of the firefighting here was like it, we're pretty close. They're remarkably close, given that we are in a major, you know, a giant city, but we're in a major metropolitan area, and they were remarkably close. But so much of the firefighting was very low tech, it was about creating, you know, barriers to, to the fire transmitting further, not remembering all the name of the language that the firefighters are using, but a lot of it was digging fire racers.

**Bret** 38:55

Yeah. So the only way in which I could see something like this contributing is if you had an I don't know that this ever happens with firefighting. I assume it does not. But there are these flying, I'm forgetting what the name of the aircraft is, these flying command centers with a giant dish on top. For high, very advanced military missions. There used to be one parked up near the flight Museum at Boeing field all the time. But anyway, such a plane conducting communications with a large group of ships, other planes, etc. potentially could do something along that lines. You could even have a military option operation where there was an intent to disrupt Communications of the enemy. But none of us I think, do firefighting. So I think even the planes that would be used, you know, these very dramatic things that have fire retarding the drop it on fires. I don't think we'd be doing anything electromagnetic that would be having this influence, but it is you're right. The one thing that does line up is it would explain the temporal phenomenon, except that the fires continued after the rains. Yeah, so I think we've just lost,

**Heather** 40:16

although, I mean, they, they got less intense like the fires, they they, the great they are saying that the fires aren't going to be fully put out until the end of October. Because there is basically such such thick detritus in which there are pits of heat, some of which are reaching 1200 degrees Fahrenheit that are still smoldering. Even just I mean still, I think in Clackamas County, which is just one county away from us. And you know, some of some of the fire suppression efforts now and there's the two biggest ones closest to Portland are still only as of yesterday, it was like 30 and 35% contain something like that. I'm making up those numbers, but it was something like that. And a lot of the firefighting efforts in advance of the rains that came again yesterday, the day before, were basically digging up these pits to expose some of these new heat pits to the rain so that they could begin to cool it off but they weren't using it doesn't look like I think anyone's imaginings you know stereotyped imaginings of what firefighting looks like. Yeah, right now anyway, yeah. Have you seen michael moore's new film Planet of the humans? It's getting a lot of heat from both left and right about corruption in the green energy business. I haven't seen I don't even know of it. Neither. I watched some michael moore stuff back in the day. And then at some point, it became a little hard to watch. You know, good. Probably 1015 years ago, it seemed a little bit too one sided. Interesting. If this is getting heat from both sides. I don't don't no more than that. Next question. The police kill about 1000 people a year in contrast, there are about 250,000 medical malpractice deaths per year. And people of color have high medical mortality. Should we start a movement to defund doctors? Yeah. Yeah, I wonder that 250,000 medical malpractice deaths seems high to me, but I'm sure it's more than 1000 times Sure. It's it's more than the number of people killed by police every year.

**Bret** 42:19

Yeah, you know, I have seen some of these iatrogenic harm numbers and they don't remember they're staggeringly they are staggering, wouldn't you know I think we have to be careful because you don't want the number to be zero. Right? Right. It's basically you have no medicine at that point.

**Heather** 42:37

Well, I'm just just it's a it's a harder thing to say. But I've actually heard I think I've heard Sam Harris say that so right like you don't want the number of people killed by police to be zero either. Right? Right. Because that's airing too far in the other direction. Well, you've either that's basically impossible to say right now. But but for any of these things, where there's you know, there's tragedy there's individual human tragedy, reducing that to zero means that you will create a whole other kind of tragedy which doesn't yet exist in its in its wake.

**Bret** 43:09

Yeah, I think the easy way to see this is we can reduce highway deaths to zero easily with current technology, right? And there are really two ways to do it. Either you prevent all driving, or you set speed limits, solo and set the requirements for vehicles so high that nobody could possibly injure anybody, you know, we're all driving a tank at two miles an hour. Right? Then you can get highway

**Heather** 43:35

pretty low pretty quick. Yeah, sounds like a party.

**Bret** 43:39

It does not so the point is, we've all made this decision, right? Yeah. Particularly probably you don't go out and say what is the safest possible car I could buy? Right? You say, Oh, that's a very safe car.

**Heather** 43:51

And new parents are more likely to veer in that direction and this is why we have these like stereotypes about what the kinds of cars that new parents buy but even then

**Bret** 43:59

even then, you're much more likely to go to Consumer Reports and see Oh, this one gets a five star Crash Rating

**Heather** 44:06

rather than a gas economy like the mileage is terrible and

**Bret** 44:10

right right but you know, so lots of people will go with I want a five star Crash Rating but they won't go you know, if some car that has dismal this or that happens to be safer they often will not buy it because we all calculate that okay, this risk is sufficiently low that now some other parameter is more important. And you know, of course, there is an interaction if you buy a car with cruddy mileage, because it just so happens that it is the top you know, the safest car, well then that's going to cost your family in terms of how much resource it has, based on how much you're spending. And so that will have an interaction you know, potentially the quality of food you buy or something else. So you know, even if you're dealing with health as your top consideration It's a complex equation. Yeah. But

**Heather** 45:03

so but I mean, the point which is, could be read as glib, is, is a good one. All right? For any of this, just read it again, the police call about 1000 people a year in contrast, they're about 250,000 medical malpractice deaths per year. And people of color have higher medical mortality, should we start a movement to defund doctors, it's it's a perfectly analogized point, pick anything where there are deaths that that you don't want to happen, find that there is disproportionate death in some demographic that has been historically underserved by a system and argue that that entire system should be defunded as a result, because the only possible reason it was just you know, implicit here, the only possible reason that there could be disproportionate effects on a historically disadvantaged group is modern racism. Yeah, systemic racism. That is, whatever, misogyny, transphobia, flatfoot, whatever it is,

**Bret** 46:00

it's a beautiful point, I would like it even just one step better if it was abolished rather than defund. Because Yeah, the real point is nobody, nobody, including those of us who are very focused on Yatra genic harm. Nobody believes that medicine is inherently more harmful than it is beneficial. Right? It does lots of harm, lots of it unnecessary. And therefore preventable. But you know, the idea that abolish is the next step is a non sequitur just as it is with the cops. Yeah.

**Heather** 46:38

So I don't think you've heard this, I'll read this question. But, Vincent, I don't remember how to pronounce him. Russoniello. Right. Funny. Hello. On this week in virology Episode 664 argues that SARS cov. Two could not have originated in a lab. Have you heard his argument? Would you consider interviewing him? Do you know him? That name? I

**Bret** 46:57

don't. I have heard many such arguments. I believe they all come apart. I'd be curious if there's anything to recommend this argument. There's certainly a lot of pressure for anybody who can generate an argument that casts suspicion away from the Oregon Institute. But anyway, let's put it this way. I would consider interviewing him but I want to know that he is something other than a shell before I would decide to do it.

**Heather** 47:30

Next question. My daughter asked me a fire is alive. I said not but she argued that it covers all of the Mrs. Grand criteria, so why isn't it? I must admit I'm stumped. Please help my four year old out starting outsmarting me. Thanks. So this question invokes Mrs. Grant all in caps. I'd never heard this before. I figured this is some have you have you heard this? Is this grant. So this is going to be some as it turns out, looks like usually elementary school, although maybe where is my Safari? Why can't I find anything on this computer at the moment? Yeah, I find it in basic biology. It is an acronym that's you don't have to show the SEC. This is just some random site. It's it's some, I guess, elementary school level acronym that is being taught to people. And so this is this is interesting. The idea being that students are being taught that living things display certain characteristics, seven things beginning with the letters and Mrs. Grant movement, respiration, sensitivity, control, homeostasis, growth, reproduction, excretion, removal of waste products, and nutrition, taking in nutrients and food. So this strikes me as both being rather more complicated than it used to be, and also missing some, some key things. And I don't know if we want to just speak to whether or not fire is alive and go at it that way. But your update to Dawkins for things that are clearly products of hamirpur its evolution or selection,

**Bret** 49:14

for characteristics necessary for adaptive evolution. So Dawkins characteristics were four characteristics that cause a pattern. So he wouldn't put it in these terms. Yeah, this is the slightly updated version, the things that cause a pattern, any pattern to be at its level of commonality. So whether that's the number of gold atoms in, you know, on Earth, or the number of spiral galaxies in the universe, there are four characteristics off the top of my head, they would be tendency to come into existence, the self similarity, the persistence Once created, and then validate is the tendency to look accumulate stuff limiting stuff. Yeah. And so this gets transmuted in the context of selection and adaptation by, by heredity, which causes adaptation to take place. So those processes are basically selection. And then you add heredity, and it causes cumulative selection to make adaptations.

**Heather** 50:25

So add heredity and you get you get life or is that not sufficient at that point?

**Bret** 50:32

Well, I'd have to say, I'm not sure. I'm not sure why we want to be the exercise of define life, and then find the edge cases that throw you you know, what are we going to do with crowns? Okay, well,

**Heather** 50:48

this isn't an edge case, fire isn't alive. So so. So this person's four year old said, Why isn't fire alive at covered it satisfies these seven criteria that I was taught, are the criteria for living things, right? I look at this list and say, Well, that's a list of things. But it actually isn't as elegant as it could be. And fire isn't an edge case. It's actually just not you know, prions and viruses we can talk about, but fire is not alive. So on what basis? Are we so certain that it's not even an edge case?

**Bret** 51:18

I'm not so i a Why is movement on that list? Does something have to move in order to be alive? I don't know that that's a rule. I can't see why it should be unless you're going to include growth in movement, in which case you would almost by definition have to grow to go from essentially no dimensionality to more dimensionality.

**Heather** 51:41

So like I said, I don't I think this this acronym is not as useful as it might be. But can we can we either describe why it is clear that fire is not alive? And or generate a better simple rubric. Than then this one where I agree the very first letter is for something that doesn't seem to be right. And but, you know, respiration. Also, you know, this, the second one, fire is consuming oxygen, but it's not engaging in gas exchange. So exactly something we talked about in the last hour, right? Like fire is not engaging in gas exchange. It is consuming, consuming, something consuming oxygen.

**Bret** 52:27

But here's why I'm resistant to the exercise

**Heather** 52:31

to even describing why fire isn't alive. Yeah. Okay.

**Bret** 52:35

Though I agree fires absolutely not alive.

**Heather** 52:38

Imagine it's your four year old asking, believe me, I

**Bret** 52:41

this, as you know, I talked to both of my four year olds this way.

**Heather** 52:45

And they're now 14 and 16, and are still speaking to you so so excruciating. At times. It did work. Yes,

**Bret** 52:50

it seems to have done, it seems to work. Here's the problem. At some point, there was no life and some process and we can talk about what that process might have been, then there's something that is clearly alive, right? And then between those two places, there is edge case. So just as I don't, it is certainly true. That, you know, a chicken and egg question is not a real question. Because we know that the first chicken, whatever it might have been came from an egg, right? I'm perfectly happy to say that that is logically required. We couldn't have done anything, but come from an egg because all of the ancestors that are definitely pre chicken also came out of eggs, and all of the descendants that came from it came out of eggs. So coming out of an egg is what it did, the egg preceded the chicken. Do I want to get involved in defining which step in you know, the route between the pre chicken bird ancestor and a chicken? It's become a chicken. That seems like a fool's paradise to me. So the fact that we can logically say that there are certain things that are true, and that given any definition of chicken, there must have been a first one. And it did come from an egg all those things are true. But then which one was the first chicken is a question I don't want to be responsible for, because I know it's not answerable. And so

**Heather** 54:12

so I get all that that makes sense. But fires, fire and life aren't on a continuum with one another. And chickens are on a continuum with one another, they exist in the same history. And on the same life timeline. I agree or in life, art,

**Bret** 54:24

I agree. But the point is at the point that we as biologists say, here are the characteristics that are required for life, we are then up against all of the places in the universe where life will obviously have evolved, and it will challenge these characteristics. And so recognizing that that's coming. My point is there isn't really a a set of criteria

**Heather** 54:47

that are so put aside the criteria. Isn't rock alive. No. is a quasar alive? No, it's fire alive. Now. How do you know?

**Bret** 54:55

Well, for one thing, they didn't come about through the process that would get And he'd be at their origin, which is an evolutionary adaptive process.

**Heather** 55:07

So that sounded almost like a definition.

**Bret** 55:11

Well, no, because as we just described, the number of quasars in the universe is the result of the four characteristics that will dictate how common a pattern a quasar is. And it is a prerequisite to life to which you would have to add something hereditary, right? quasars Do not be get quasars. quasars do not beget quasars. And therefore, the point at which you've added enough hereditary component, that Quasar start taking on the characteristics of life is going to be arbitrary, right? You're going to have to draw a threshold. And it's going to be arbitrary. So the other thing I would say, maybe this is maybe this what you're looking for. The characteristics that tend to accompany life is not the same thing as the same quantity of life. The same quantum of life is the attempt to persist. Yes, and fire doesn't give it doesn't care whether it persists or not.

**Heather** 56:24

And just so caring, is evolutionary shorthand for has that drive to is selected to write there's the need be no consciousness, we are not impugn random or not ascribing consciousness to slime molds, or to suicide mushrooms or just salmon, right, but they they drive to persist, which involves both survival and reproduction. And fire is, is doing no such thing.

**Bret** 56:53

Let's put it this this way. If we look at some slime molds, a good example. Okay, slime molds are critters that forage independently. It's an Uzi forest critter that breaks apart and forges independently, which gives us certain advantages. And at the point that it detects that it's about to run out of food. There's a chemical signal that causes it to reconvene and fruit so that spores which are capable of escaping the patch that is now about to run out of food, try to find another patch,

**Heather** 57:26

that may be the most beautiful description of slime molds ever.

**Bret** 57:28

Thank you. But the point is, if you saw fire doing this as fire, let's say you see fire, a brush fire, okay, brush fire is climbing a hill, right? As it gets to the top of the hill, it knows it's about to run out of fuel, right? Because it will have burned the stuff on the side,

**Heather** 57:44

if it were alive,

**Bret** 57:46

it would know somehow, right? We can know we can be the fire does not know. You don't know now. So I've just said okay, if the fire behaved as if it knew Yes, if the fire went into a very Ember generating form, at the point, it climbed to the top of the hill, because it was about to expire for lack of fuel. And those, you know, jumping embers were more likely to make it onto some other Hill. And you could actually it's behaving as as as if it were alive.

**Heather** 58:18

And then yes, although it means evidence of selection acting on it is obviously not the same thing as being alive. This is the point you have made repeatedly regard to say that, you know, the the organization of rocks on the shoe on a seashore, that they that they organized by size, not because they're alive, not because they have any intention of liking to be with rocks of their own size, but because the physical forces of the waves provide a selective force. Yeah.

**Bret** 58:42

So it is not the evidence that selection has acted on them that would suggest life in the case of a fire that act in a self preserving way. Got to the top of the hill is the evidence of adaptation. Yes. Right. So somewhere in there, it is the clear evidence that adaptation accounts for the pattern, and how would you detect adaptation is behavior in a manner so as to arrange persistence?

**Heather** 59:11

So I don't think that there was hardly anything in there. That, you know, we may well have taught to our children when they were four like that, but even they because they were accustomed to being taught to like that from a very young age, I don't think could have really tracked that. So I would say to Tim, who says his four year old is outsmarting me. Presumably you could you could track all of that or you'll be able to if you listen to it again, but I don't hear anything in there. That's actually easy to explain to a four year old.

**Bret** 59:42

So let me let me say it this way. You you've got complex systems, and complex adaptive systems. Okay. complex systems include things like fire Whether, right, these are phenomena that have complexity to them, but they do not have adaptive capacity. Those things that have adaptive capacity are things in which purpose is evident, right? The purpose of a cat is to produce more cats. Now ultimately the purpose is for the cat lineage to persist into the future. But nonetheless the cat behaves in a way that is purposeful and my point about fire is that the fire if it behaved in a way that was purposeful if fire was living and we just didn't haven't figured that out yet, then it might behave in a way so that as it faced extinction at the top of the hill, it arranged preservation through some sort of reproductive feat right and the point is the fire climbing the hill will behave exactly the same way even if that hill leads to another whoops to another Hill Yeah, as it would face against extinction so it does nothing to arrange its persistence

**Heather** 1:01:02

Yeah. The slime mold has an interest in persistence not that it could tell you that right a fire has no interest in its own persistence and it also couldn't tell you that right

**Bret** 1:01:10

but the behavior can tell you that so

**Heather** 1:01:15

we're over an hour already oh

**Bret** 1:01:16

my goodness,

**Heather** 1:01:17

we haven't even got Oh boy. You should that you should have told us something man. Okay, do let's do two more here and then try to get to several on the next live stream the next on Super Chat from right now. Should the military get involved in the event of post election unrest? And then separate question Did you check household electric current quality radiation would affect the neighbors with precision electronics too, so I don't think we ended up talking to our neighbors during the smoke bound

**Bret** 1:01:49

I certainly attempted to check it I'm limited with respect to tools but I don't think there was anything to our electric power Oh in fact we know it wasn't electric power because we tried everything on battery and even when we were completely disconnected from from electric currents coming from the wall we still have the same problem.

**Heather** 1:02:09

That's right You didn't need to try that. Yeah, okay. Should the military get involved in the event of post election unrest?

**Bret** 1:02:14

Depends on the unrest

**Heather** 1:02:15

Oh boy. Yeah, and I mean there's there's going to be unrest no matter the outcome. But you know, yeah, I feel like both sides have have now seated the idea that we shouldn't trust the outcome. Yep, they have coming from both sides.

**Bret** 1:02:28

Is that enough that it's a disaster? It's almost as if they suck beyond all recognition.

**Heather** 1:02:34

Almost. No, actually we're there we're there Yeah,

**Bret** 1:02:38

they suck beyond all recognition. Yeah. Yeah.

**Heather** 1:02:43

A while ago some of us came up with a drinking game for the streams if someone says something can get them canceled you drink What do we call it? No suggestions that we came up with had overwhelming support a drinking game for the streams? Because if you say something you get if you say something that could get you canceled you drank

**Bret** 1:03:00

if you say something that could get you cancelled you drink oh

**Heather** 1:03:04

I'm gonna we may think on this and come back to yeah

**Bret** 1:03:07

yeah, I want I want a little room on us. Yeah, okay.

**Heather** 1:03:11

So let me find this hours Super Chat I can do so to do did you draw a line Thanks. Thanks love.

**Heather** 1:03:26

Okay, this one is a little hard to read. Try using unity 2020 with all lowercase because lowercase letters mean the date is uncalibrated he he married a koi fish watch the cats around him though answer on a monitor Chloe then you have them on. Dan Carlin and Tulsi wink x. Okay, alcohol jouster It seems like it's possible that your your YouTube name suggests something about what you've been doing before you ask the question. I don't know I've been I think it's I think it's in good humor, but I don't know. I don't know what it means. I don't know it almost to me. It means Yeah. Do you guys have thoughts on Prop 16 in California? You guys are awesome. Love the show? Gosh, I don't know what prop 16 originally?

**Bret** 1:04:14

I don't I think it's better when we know about but I'm hesitant.

**Heather** 1:04:18

Oh, is this gonna be we're not gonna guess I'll try to come back to this one. When we do have when we do no actually what it's what it is. Well, Brett's gonna look it up while I slowly read it. The next question from our friend Holly. Math nerd asks, seeing non idiots argue that Trump is a wannabe dictator, even after his COVID response. Was that not a damn near perfect falsification? If so. What the fuck? So did you hear that question? I did. Are you too immersed? I'm having trouble

**Bret** 1:04:49

getting my device to behave.

**Heather** 1:04:52

Yeah. give his COVID response was was terrible. And I'm not sure They want to be like, I have never thought he was want to be dictator. So I'm not in that camp. But I'm not sure that his really terrible COVID response is totally incompatible with him being a dictator. And I say that as someone who doesn't think he wants to be a dictator, I mean, it just it would, it would suggest that he was incompetent at it.

**Bret** 1:05:19

Right. But it was also a missed opportunity for a would be dictator. That's why

**Heather** 1:05:23

I'm saying he'd be incompetent. Like he missed the opportunity to,

**Bret** 1:05:26

but I mean, dictate. I think the point is a dictator would be looking for a crisis with which to justify an authoritarian remake of this that in the other, you'd be looking for emergency powers. And you'd be

**Heather** 1:05:41

Yeah, yeah. Although maybe he could also see presumably, like, you know, what, one of the things actually in his skill set, presumably is, you know, he, it appeared that he was much more focused on the effects on the economy than it was on the effects of people who would be affected by the by the pathogen. And a dictator doesn't dictate for long in a totally failed economy. So I don't know, I don't know what emergency powers he would have used, while also keeping the economy going strong. I don't know. It's such a mess.

**Bret** 1:06:15

It's a mess. But I do think that there's something to be said for the fact that dictator of one stripe or another, you would have expected a different response to COVID than we saw, which was way too political and inept, but didn't look like somebody looking to grab power.

**Heather** 1:06:31

Yep. Did you look up prop 16? Or did were you not able to find it? If you like maybe I asked the Evergreen question a few episodes ago. Just wanted to thank you both for the detailed response. You both seemed a bit somber answering it. My apologies if it brought up any negative emotions of you both. Now we're, we're good. Thank you.

**Bret** 1:06:56

We're good. Yeah. 2020 is really bringing up so many negative emotions that really anything you did on top

**Heather** 1:07:02

of that is why well, no, no, it's this this this person asked me a question about evergreen. I mean, I think for me more than bread, I think thinking about what it was makes me wistful, you know, I I still do miss parts of what we could do there and, and the life that we created for ourselves and our children and and to have it taken with no apparent choice now he he gets under control is being responsible. Was it's it's still a little bit heartbreaking. But well, there's nothing there now that would recognize

**Bret** 1:07:42

I'm yeah, wistful for what it was. But I am aware of what it has become. I think it was so nasty to us as it came apart, and so duplicitous, and disloyal. That no part of me wants to go back. The part that mattered was the students and we're still in contact with a tremendous number of them. And anyway, yeah.

**Heather** 1:08:12

Maybe it's maybe we should Yeah, why don't we just move on? We'll come back to it next time. What do you think about humans? What do you think about humans diet evolution? I imagine a balanced diet wasn't attainable for people through most of human evolution. are humans got biome specialized to their region? For instance, are Russians better adapted to eating potatoes? So this is another chapter in our upcoming book, one, which I just added a couple days ago, the food chapter? The very short answer is, there is no single diet that is best adapted to humans, it is going to be impossible because we have evolved in many different places and in different ways. You take a Mediterranean diet, to which Mediterranean peoples are presumably well suited and you try feeding it to someone who has no what, and they are not going to be as healthy as they would if you gave them a diet, primarily of seal. Not that many modern anyone's would necessarily want a diet entirely of seal, but there are going to be differences. There are. There are adaptations to an agricultural lifestyle that are present in almost every extent, human at this point we have I think the number is the copy of an A Leal that converts amylose, which is the starch molecule, to its constituent parts to sugars through the enzyme amylase. I believe that chips have three copies of this ileal and that most human populations have five suggesting that we are actually well adapted to this that you know, the idea of, for instance, a paleo diet in which we only eat animals and leaves is the only best way to be human. Nope, wrong. Is it healthy for some people? Sure. Absolutely. Are there some diets that people are eating now that aren't absolutely But there's not going to be a best diet for all humans, nor is there going to be a best diet for you, even across your lifespan, because you will change in your needs as you as you age.

**Bret** 1:10:11

So with respect to the exact question, we cannot say whether or not Russians are better adapted to eat potatoes, but probably they are well adapted to drinking potato they

**Heather** 1:10:19

do seem to be Yes, yes, better at least adapted than most of the rest of us. Yes, to

**Bret** 1:10:24

the point of ending up under the table later.

**Heather** 1:10:32

I'm interested to hear you to talk shit, literally. I've heard the stomach is evolving faster than any other organ. Also, number two is a daily process, but it is rarely discussed. Is there any gut biome information we should all know. So I've never heard that the stomach is evolving faster than the other organ. And both of us tend to distrust such analyses that sort of like, you know, wrapping your immune system with various techniques. But yeah, the the easy, the easiest, simplest approach to this question, I guess, would be 20 years ago, we really thought most medical professionals and scientists who were thinking about the human body thought that humans were just individuals. And it turns out that we contain multitudes. Right? That's a biblical reference. But it's just true that we contain, I don't have any idea what the order of magnitude is. But more than hundreds of 1000s I think, of microbes in our our guts on other places that help us process and digest and types of microbes. No, I was I was talking about numbers. I don't I don't think that we have hundreds of 1000s of species of microbes, but

**Bret** 1:11:45

I don't. But the order magnitude of the number of individuals is absolutely astronomical. It's close, I believe, to the number of cells that we have in the body by virtue of the fact that the microbes in question are bacteria and therefore very tiny relative to ourselves. So we're talking about trillions.

**Heather** 1:12:02

So certainly more than hundreds of 1000s Yeah, I, I am not sure about that number. But like I said, I don't even know how to get close on the order of magnitude. I don't think it's hundreds of 1000s of species of types. It is either, but, you know, we now know that this is true about our, for instance, our gut microbiota, or our microfauna. But we still don't know most of what that means about how we should be keeping that gut fauna healthy and, and how else we should be, you know, eating and drinking and, and shitting so that we are the healthiest.

**Bret** 1:12:41

So one thing that is certainly true is that it is worth thinking about where those gut flora come from, right, we are colonized very quickly on birth. And what we are colonized by has big implication on how well we function. And so it is possible that by virtue of the fact that we live in novel circumstances, in which we will get colonized in novel ways, by haphazard sets of bacteria, results in you know, a lifetime of misery for people that we don't even notice again, and be a perfect place for medicine to get Darwinian, and to discover, you know, I mean, we are increasingly seeing stuff like fecal transplants and things for people who have Yep, mismatched gut flora and I would say the farther you go down this road, the more you're going to discover that there is an important we are doing something that is the opposite of fine tuned and there is an important fine tuning to be happening and probably once you have the right flora, treating it properly cultivating it by feeding yourself stuff that it's naturally well tuned to

**Heather** 1:13:50

Yeah, eating fermented such

**Bret** 1:13:54

as scatman Crothers says in the movie version of the shining. Honestly, say he says something like, you're going to have to be regular if you're going to be happy.

**Heather** 1:14:12

Touring them, like a light hearted line from the shining. Well,

**Bret** 1:14:15

it's early in the shining for, you know, all work and no play makes jack a dull boy. Yeah. But yeah, scatman Crothers, his character is touring them through the Overlook Hotel. and showing them the kitchens and I don't know, showing them prunes or something.

**Heather** 1:14:36

I just want one more comment on this, you had mentioned that the process of being born effectively provides a number of of the microbes that you then have in your early life, and it actually presumably colonizes your life for good and so this suggests that two things of modernity are going to be affecting our gut fauna and presumably our health as well. And those two things are c sections by which you do not get you do not get bathed in all of that gut font. Or it's not that far out, but you do not get bathed in the, in the font of your mother that you would be and also, cleansing the baby immediately after being born. And before being handed back to the mother, which is done in most medicalized birthing settings, is presumably also a way to dampen the the gut fauna, and potentially disappeared forever. A trans girl period falsifiable test lactates with hormone replacement therapy, there's definitely a question in there. There's two question marks, but I'm not totally sure what the question yeah, is. Just like you're done, guys, do you want it too long? So I'm not sure what the question is, I'm gonna go on to the next one. Oh, true. Yes. The social nihilism described was forebode by Ian McGilchrist long ago, queued up for you. So there's a YouTube couple of YouTube links here. I believe it. I'm not gonna I'm not gonna click on these now. But the idea that Ian McGilchrist helped saw this and help predict it doesn't surprise me, not at all. Couple more here, University of Michigan is hiring faculty quote, working at the intersection of engineering, social justice, or common good, including work that addresses anti racism, inclusion, equity, or other topics for the Department of Mechanical Engineering.

**Bret** 1:16:40

thought, wow, I can almost hear the bridge creaking. Floor hits collapse.

**Heather** 1:16:46

That's exactly what I was gonna say. Oh, God.

**Bret** 1:16:53

Yeah, I mean, look, we've said this before, you can't do this, right. To the extent that we are going to sideline or hobble every mechanical engineering school, we are going to make ourselves vulnerable to our competitors. To the extent any school figures out how not to do this, while the others are doing it, it will come out ahead. So if you are in charge of one of these schools, figure out how to immunize it. You'll come out ahead, your your competitors will self hobble and at least we will still have some school that knows how to build a bridge or a building or a dam. Right. The last thing we want is for everybody to forget how to do that because they are overwhelmed with guilt about slaves they never owned.

**Heather** 1:17:37

Yep. One more question. Well, actually, I guess it's a comment. Not a question. I may look fit, but I identify as fat. These know trans fats, labels on food trigger me and make me fear of coming genocide of trans fats like me. Like, I feel you, I'm sorry. I'll do better. Will you do

**Bret** 1:17:58

better quality joke?

**Heather** 1:17:59

Can you can you promise me that you'll do better than then you have been?

**Bret** 1:18:04

Oh, than me? Yeah. So I cannot promise you that. I will do better, either than other people or than I did before. Okay.

**Heather** 1:18:16

I guess that's it then.

**Bret** 1:18:17

I guess.

**Heather** 1:18:19

Like the cat is collapsed. The dog is rolling around. I think we're I think we're at the end.

**Bret** 1:18:22

We are at that point in the afternoon. Yeah, yeah.

**Heather** 1:18:26

Probably. We will see your next a week from today. Right after Brett's first Patreon conversation of the month on next Saturday.

**Bret** 1:18:36

Well, I mean, let's just put it this way you should like you should subscribe. If you subscribe, then you'll get an alert when we're going on whenever that would be You can also follow us on Twitter. That's another place you will find out and growing on so that would be a wise

**Heather** 1:18:51

Yeah, you could. If you want more of this. We will do our to our private q&a tomorrow at 11am. Pacific. It's a it's a much smaller group. So we were actually able to look at the chat a little bit as it goes. And it's it's been fun. And if you want to talk already got the questions. So it's not if you sign up now, you won't have a question answered. Although you might end up seeing anything you say in chat.

**Bret** 1:19:19

If you want to talk unity, or game B or a coalition of the reasonable or any of those related concepts. Then over to my Patreon we are going to have the first discussion

**Bret** 1:19:34

on the first Saturday, which is today. That's it. All right. It's been fun. We'll see you next time.