Your Questions Answered - Bret and Heather 36th DarkHorse Po...

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**SPEAKERS**

Bret, Heather

**Bret** 00:07

Hey folks, welcome back to the Dark Horse podcast live stream q&a number 36. Before we get going I think we need to since we did not covered in the main podcast, we need to show you a brief clip from Beirut. This is a spectacular event that is taking place here this morning, Zack would you put it up.

**Bret** 00:48

So there's a lot of footage of it as a result of the fact that there was an initial explosion, which had a lot of cameras pointed in the direction of the billowing smoke, and then the gigantic explosion, I see indications on Twitter that the culprit may have been 2700 tons of ammonium nitrate that had come in on a ship into the port and had been moved into warehouses there. So this is very similar stuff that was used to blow up the Murrah Federal Building by Timothy McVeigh many years ago, that was apparently two times

**Heather** 01:23

I don't understand what you just said. You You say what you're seeing suggests that this was an accident or intentional?

**Bret** 01:29

Well, let's put it this way. I believe what we, you know, early reports are always wrong. And these are still early reports. But it looks like there was a large shipment of ammonium nitrate that was brought into the port for normal purposes on purpose. And, you know, Could somebody have set it off? Could somebody have shipped it, knowing that it would make the board vulnerable, who's to say, but let's just say there. The indications so far don't seem to suggest that they seem to suggest a massive amount of explosive material. And

**Heather** 02:04

I'm sorry, I'm just not tracking the reports. So far don't seem to suggest that it was intentional that it was intentional. Okay.

**Bret** 02:11

So anyway, can always change. But anyway, a terrible tragedy that has happened there. And it is clear from the video that a huge number of buildings were just simply obliterated. So how many people were in its path is very hard to say at this point. But it's certainly a very dramatic event, it makes you wonder why anybody would allow massive shipments of materials that are this explosive. Because the danger is is obvious.

**Bret** 02:43

Yeah. That's terrifying.

**Bret** 02:45

All right. On to the q&a.

**Heather** 02:48

All right, we're gonna start with three questions from Episode 35. That we did not get to and that were interesting. First one is, first one is there's a dog in the room. Hi, I'm a big fan. What was the point of the evolutionary process to have an appendix? Why is it not an essential organ anymore? And I wanted to pose this question, because it is, it is something that we have addressed directly in our, in the first of our health and medicine chapters in the book that we are writing that will be out next year. So I don't know if we want to say anything more than that right now.

**Bret** 03:20

Well, I do want to say at least one thing, okay. Which is, it was obvious that the story that the appendix was a vestigial organ of no value was wrong. Right. What the appendix does is a more interesting question than that. But anyway, years ago, I generated a test to counteract the argument, that in order to establish that something was a product of adaptation, you needed to demonstrate that there was genetic variability in that the genes that encode the thing, outcompete genes that don't, this is nonsense, logically speaking, if a trade is complex, if it is expensive, and if it persists over evolutionary time, it is telling you that it is doing something positive for the creature in the appendix always passed this test. So I always wondered about this. In more recent times, it has become clear what exactly the appendix does. But the the important part of the story,

**Heather** 04:17

there is a leading hypothesis that it's it's not wholly demonstrated. So I don't know, I don't know that I would say to this,

**Bret** 04:26

I'm not so sure about that. I believe it has been demonstrated maybe not sufficiently that it rules out the possibility of another interpretation. But it has withstood a substantial test, I would say. And what what I think is most important to realize, though, is that a story that never made any sense and didn't match the, the ancestral data floated for years on the basis that people could remember it and it seemed, you know, logical enough to people who weren't very good at thinking evolutionary Really, and that that is a cautionary tale because, you know, you can make the same argument, for example, for religion that this is a massively expensive phenomenon that persists over evolutionary time and has a lot of complexity to it. And people are still telling us that it's a mind virus and other sorts of things. So the belief that something is expensive and persistent and not noticed by evolution, even though there's an obvious way to save, for it attract our attention. And in the case of the appendix, it's not even just the expense of the Oregon, which is presumably small, not negligible, but small, but the cost of having one, right, I know, numerous people in my direct sphere, who have had an appendicitis and presumably, most or all of them would have died from appendicitis, if not for medical intervention. And what that says is that the fitness cost of having such a, an organ is potentially very large.

**Heather** 06:01

But here's here's the teaser. So we're not going to we're not going to go into the whole story right now, the teaser is, you know, consider what about so the appendix is part of our GI tract, our gastrointestinal tract. So consider in our GI tract is what takes in our food and converts it into nutrients that we can use, and allows us to get rid of the parts that we can't use. So what looking at our diet would be an interesting a good place to start to figure out how have our diets changed, obviously, dramatically, from those of our even just pre industrial ancestors? That question is relevant, especially in light of the finding, which probably many people don't know, which is that the rate of appendicitis is incredibly high among post industrial people want that much we do know, Brett just mentioned that he's known several people with extreme bouts of appendicitis, including

**Bret** 06:53

your dad. Yes, yes.

**Heather** 07:00

But I suppose that's true. But what is what is true? What is more interesting is that pre industrial people have almost no rates of appendicitis. So it is this is something that has changed in the industrialization of our food, almost certainly. And in fact, what the the leading hypothesis for what it has, has changed and therefore what the function the appendix is, is consistent with this understanding that this is about hyper novelty of the very modern human condition that is turned an organ that actually was quite important into one that is apparently more a hazard than a benefit.

**Bret** 07:41

So it has increased the hazard and other features of the modern environment have reduced the value to near zero for modern people. to refer, we don't want to

**Heather** 07:52

know we can do it, okay, I thought you didn't want

**Bret** 07:53

to. So let's just say the leading hypothesis is that the appendix preserves a, an isolate of the community of microorganisms in your gut, that aid in the extraction of nutrients from food. And that this process means that when you are infected by some competing micro organ microorganism and your you have chemical warfare going on biological warfare going on in your gut, and you potentially lose your gut flora to diarrhea, then this isolette that is basically in a little pouch that sticks off of your intestine. This isolate can then repopulate your gut very quickly with gut flora for which you are well adapted, so that you can immediately go back to extracting the nutrients from food in a very efficient way. It's your body's probiotic source. Yeah, it's your body's probiotic source maintained right where it needs to be in a condition where it can be preserved through a gastrointestinal infection. And I would just last thing is, the reason that you can eliminate it and apparently suffer no harm is that you have so much extra food, you don't need to be efficient at extracting resources. Now, it may be bad for you, what you are repopulated with may not be very good for you in terms of the community of microorganisms, and you may suffer all sorts of

**Heather** 09:23

gastrointestinal problems that can put you on things like proton pump inhibitors that increase your risk of COVID. For instance, just to go back to that, for example,

**Bret** 09:30

for example, there's also in the modern environment, no guarantee that your current while you're healthy gut flora are the right ones for you either hence these fecal transplants that people have

**Heather** 09:41

so so just two more things on this when there's this goes in a lot of different interesting directions. But one of the other predictions of what you just said is that whereas pre industrial people who are still alive today don't tend to have appendicitis at all, another prediction of the model that bridges laid out is that they will have much higher rates of diarrhea of incidents of diarrhea that, you know, are common enough that they don't really think about it that much. Whereas, you know, it's rare enough for sort of weird, you know, Western, educated, industrialized, rich democratic country inhabitants to have that they can go like, Oh, yeah, that was like six months ago, it was kind of ugly, right? Whereas pre industrial people tend to have it more often. And the idea there is that the repopulation of the effectively probiotic, gut bacteria would be a more of a regular and necessary part of a functional GI tract for such people who are regularly losing all of their good bacteria through these to these diary incidents. The other thing is that the appendix is not just in humans, across mammals, there's a very, sort of it looks almost chaotic, if you just map the distribution of appendix and also the cecum, which is another outpouching of the digestive tract onto the mammalian trade show. It's It's It's popping on and popping off, like evolving, and then disappearing lots and lots of times. But it tracks interestingly, with diet. And so this is, again, sort of supporting evidence that this is about changes in diet that have rendered this thing not not only not useful, but actually I hazard

**Bret** 11:20

Yes. And the explanation that it was vestigial, the wrong explanation, which we should have spotted from the very beginning. And some of us did. I mean, I always knew the appendix was going to turn out to be useful. But the, the wrong explanation was that it was a SEACOM that was being eliminated by selection over time. Now see, GM is a mechanism for digesting cellulose. It's basically a pouch that allows Oh, no mammal can digest cellulose. But you can have micro organisms that do the digesting for you. In fact, I think no complex animal can digest cellulose. Even termites have micro organisms. I think that's right, that allow them to do it. Yeah. And so the point is, you need a playlisting

**Heather** 12:03

wood,

**Bret** 12:03

right? So you need a place for the microorganisms that can digest cellulose out this is so interesting. Cellulose is actually the mirror image of a molecule that we actually very easily digest. But we don't have an enzyme that deals with the flip side, it's apparently very what's what's the mirror image. It's, it's, no, it's a stark. And so the

**Heather** 12:27

there those are, those are sis trans versions of what I believe so really,

**Bret** 12:31

so the, in order that in order to do just to digest the cellulose, you need microorganisms that have an evolutionary history that allows them to digest cellulose, you need a place for those creatures to live. So even termites have a place for those creatures to live in their gut and that thing in mammals as a sea come, but the explanation that our appendix is a SEACOM that is vestigial, and therefore receding and disappearing over time. doesn't make any sense because we don't have the evidence for an ancestor that digested cellulose and needed to seek them. And so the point is, you know, superficially, it makes sense to

**Heather** 13:09

map that hypothesis onto a phylogenetic tree of our closest relatives and falsified like, that's all you have to do. It just it's just not a match for our evolutionary history.

**Bret** 13:18

Yep. All right.

**Heather** 13:22

school yard sing song element to the protest chants bothers me. Have you seen this nanner nanner tone before in protest of the past seems new to me. It's awful and not just I mean, nanner nanner is right like singing song isn't even quite right, because it's so nasal and off key.

**Bret** 13:41

It's unmusical, it's

**Heather** 13:43

anti it's really bad.

**Bret** 13:45

Now I agree it's suggested something has gone so seriously awry. That it's just not even able to put together you know, even the briefest of repeating melodies and sounds sick.

**Heather** 14:00

It makes you long for the complexity of Hey, hey, whoa, whoa.

**Bret** 14:03

I find it hard to long for that complexity having had my name chanted, hey, whoa, whoa, Brett Weinstein's got to go Yeah. And you know, I'm in fact, when I now hear that chant repurposed for other things.

**Heather** 14:18

I use wonder about the now and they've put it I wonder about the

**Bret** 14:21

whatever it was. Yeah. But yeah, I do think

**Heather** 14:26

this this seems particularly off key nasal. Yeah. neener neener nanner nanner. Yeah, as you say,

**Bret** 14:35

and does it just sounds? It sounds unwell. It sounds sick. Yeah, it doesn't it affected you know, they would, they're obviously trying to win hearts and minds. So it would be a priority to put together so musical and compelling and all of that, and the inability to do it suggests just another place in which the people who are telling us they know how to rebuild civilization into it. Beautiful utopia really don't know, you know, don't even

**Heather** 15:03

recognize me together. Yeah,

**Bret** 15:04

exactly.

**Heather** 15:06

Okay, the final one from Episode 35 is more of a comment than a question, but it might be worth us commenting on this comment. The truth is not enough. He says, it is not as powerful as a lie when it comes to reaching out because the Naked Truth can be ugly, dirty, and few dare to look at it.

**Bret** 15:25

Yeah. I think the ugly truth in some contexts tends to be that or I won't even say it tends to be that, but it tends to include that. But I don't think the truth is inherently this way at all. In fact, one of the things that I think, certainly drives me and I know drives you, in the scientific worldview, the evolutionary lens, is that, you know, the truth is continually surprising, and that there is a way that it is a series of fascinating puzzles, and I must say, the truth of race, and sex and gender, and what is possible. I think all of these truths are actually a good bit better than people imagine. And that, in fact, we are, we are losing the courage of our convictions, because many people have come to fear that the truth is so ugly, that we need to fictionalize over it. And that, in fact, if we were to confront the truth, it's not all, you know, sunshine, and rainbows or whatever it is, but the ultimate answer is quite tolerable. And the tragedy of us missing on what it would be because we are too afraid to go looking is, it'd be hard to overstate.

**Heather** 16:49

First question for last hour? How does egg donation for assisted reproduction affect evolutionary biology? How does it relate to concepts like certainty of maternity, or the comment on the last stream that all of your ancestors were successful as a parenthetical here and the recipient? point being that egg donation effectively creates two mothers, one of whom is not successful in the usual genetic standard sense?

**Bret** 17:21

Yeah, well, I think very frequently, we, we lose track of the essential element that we are, that we should be tracking for a given purpose. So for example, when people say, Oh, that's not, you know, his biological child or something like that, when somebody has been adopted? My sense is, no, if a father, for example, who raises a child has tremendous influence in a most biological fashion, you have to understand that culture is biology every bit as much as genes. So it is fair to say that somebody is not someone's genetic child. But it is wrong to say that it is not somebody whose biological child and to say, that's, you know, it happens, we don't have any adopted children. But if, you know, if, if we did, and that child said, well, that's not my, that's not my real father, right? No, your real father is actually much more the person who raised you, then it is the person who donated the genes. For one thing, the genes aren't all that variable in interesting ways. What you learn from your father is tremendously variable. And so the point is, we should be tracking the important part in the case of donated eggs, you know, you've got from evolutions perspective, it's the genetic lineage that matters. From the perspective of the human stuff that's actually important. Right, it is certainly going to be the person who raises the offspring. And so the question is for what purpose? Right? You're

**Heather** 18:58

also I mean, it, it further splits up. Your adoption is something that's been around for at least 1000s of years, and probably millions, actually, because we see, we see children being adopted effectively by other mothers who are at the appropriate developmental stage with their own children in in chimps and bonobos, I believe, yep. But probably by relatives, typically by relatives, yes. If you know if their mother dies, right on the only under duress. But this idea of egg donation does does partition this even more, you know, so you do have even more impact on a child's development, even if it's not your genes that even if you didn't contribute either of the gametes to the child, but if you carried that child in your womb for nine months, that's that's a lot of input. And that's a lot of environmental input, that that you would not have otherwise. So it's So it's it's, you're impacting that child's life from an even earlier stage than you do when you adopt a child at birth.

**Bret** 20:09

Yep. It also is the case that in, in an implanted egg, I mean, for one thing a woman can preserve eggs, and then have them fertilized and, and reintroduced later in her life. But this also introduces a kind of uncertainty of maternity that isn't the question has now been an issue for a female? So the basic answer is, look, this has every impact on the genetic thing, which is what evolution in the narrow sense cares about. It is not at all what we should care about. And therefore, there's a question of, can we track the parameters that matter? Most? Like, what sort of human will be created? how capable fulfilled?

**Heather** 20:54

Yeah, maybe. But I mean, we still so much of society is still around, basically issues of certainty, paternity, whether or not people know that you're right, like, people don't like to talk about it and want to pretend it's not true. But the fact that certainly paternity has driven, meaning systems and social systems and all civilizations forever, doesn't change just because we should be. Right, the other stuff. And so the idea of introducing this new uncertainty, the certainty of eternity is is a very interesting question. Although I think, really, except I just, I'm not too familiar with all the sort of reproductive assistive technologies and when the ways that they, they, they get used, but often I would think that really, you just, you just have certainty of non-paternity really like if you know, if you, if you are a woman who can carry a child and desperately wants a child and your eggs can't do it, you simply know that the child that you're carrying doesn't have your genetics, but it has everything else, you know, you know, you've still know you've given birth to that child, and that child is yours from from day one, it just doesn't happen to have your genes. So so there's, you're flipping a switch, but you haven't actually increased uncertainty and a you just have gone from, you know, I'm certain I am the genetic mother to I'm certain I'm not,

**Bret** 22:15

right, unless you're donating eggs to yourself. But yeah, so

**Heather** 22:21

like, so for this, like, I'm, I'm I know, my eggs are good now. And I'm hoping for a moment 10 years in the future. So am I right?

**Bret** 22:27

Yeah. But, you know, what you have is a mismatch between the genetic reality about which I'm arguing you should care very little. And the reality is that matter about what you should care in proportion to the degree to which they matter. And I think Heather's point here, which I agree with is that it doesn't make the stuff that doesn't matter, any less important to the motivational structure that you have inherited, and that motivational structure will interface with the realities that you actually care about arbitrarily. So in some sense, it's the same puzzle as for people who are young and fertile, sex is fun because of its reproductive potential. At the point you interfere with its reproductive potential with birth control, it is no longer the fun does not correlate with the increase in reproductive success that is likely to accompany that behavior. And yet, it doesn't become less fun. So yeah, in some sense, do you care that you know that the fun was supposed to be because you were gamble? You're playing baby roulette? Or

**Heather** 23:36

no one? I think that's actually maybe the most relevant thing here because actually, since there is exactly no history of uncertainty of maternity, in the mammalian lineage, the fact that we've now introduced uncertainty or certainty of non maternity is so new that it's equivalent to messing with the psychology with regard to birth control, which is to say it's not insignificant, but it has an evolutionary history.

**Bret** 23:58

Yeah, yeah. Now I should point out that uncertainty of maternity is very different than just being unsure of your mom because mom say some crazy stuff. And sometimes you just find yourself unsure if your mom and

**Heather** 24:09

dad pay you to say that.

**Bret** 24:13

Let's talking about humor.

**Heather** 24:16

All right, now we're gonna Okay, yep. I am an adjunct teaching. I'm an adjunct teaching freshmen composition. Wow. And you donated money to us. I'm Thank you. And I know how little adjuncts make. I am an adjunct teaching freshman composition. Can I see one of your student covenants for sample language to possibly incorporate my own syllabus? Would we? Sure. Yeah, I think we would we would share a covenant, a covenant or to maybe put it up on I have an active medium that I haven't put anything up on a while I will do that.

**Bret** 24:51

There's a lot less thou shalt in it.

**Heather** 24:55

Yes, I was caught off guard and an outdoor cleanup event. What our introductions required naming our pronouns. This was a first for me clearly a sign of my privilege has cancer D gendered me since my breasts ovaries and uterus were removed. Boy. Yeah, so sorry that a community cleanup event which should have been all hands on deck, let's do the work turned into an excuse for political one upsmanship. And no cancer, not D gender. You it took away some of your anatomy, and I'm sorry. But that didn't change anything about the long developmental history and no chronological history. And, you know, just everything your development that made you female. Yeah, you're still female just as much as you were with or without those. Those parts?

**Bret** 25:44

Absolutely. So, earlier, you described the difference between activation? I did. Oh, yeah. Small effects, you might just briefly say something here. Oh, yeah.

**Heather** 25:55

So there's a model in endocrinology, that is pretty good. It's probably a little bit too simplistic, but which is speaking to the ways that hormones affect the body and development. And there being broadly speaking, two categories, activation, and organizational effects. And so in early development, when testosterone gets to starts getting produced, for males, you get a whole lot of organizational effects of that testosterone that render the brain masculinized. And during puberty, you get the secondary, you don't you get not just the primary sex characteristics, but the secondary sex characteristics that are organizational effects of those hormones, which require that early effect of the testosterone but do not require that there be ongoing testosterone once the development of that particular thing is over. Compare that to activation effects, which basically turn on when you've got the trigger, be it testosterone, estrogen, serotonin, whatever it is, and turn off when you don't have the trigger. And so you know, for instance, all of this argument about like, you know, should trans women be able to play against women in sports? Well, all we have to do is make sure their testosterone is low. No, this is misunderstanding what hormones do it's amazing. It's an imagining that all hormonal effects are activation, as opposed to organizational on the fact is that the vast majority of hormonal effects in mammals are organizational, that unless you can go back in time, you're going to time travel back to fertilization, and turn off all the downstream effects of testosterone. Oh, and by the way, there's also effects of what your chromosomes you have. So that won't even be sufficient. But absent the ability to time travel back to Day Zero, you cannot simply turn on or off testosterone and render yourself the other sex doesn't work that way.

**Bret** 27:51

Yeah. So any ambiguity at all should be neutralized by this analysis, because you were organized around these things, and altering things later doesn't change it. Yeah.

**Heather** 28:06

Hi, Breton. Heather, greetings from Columbia. learning math helps you to learn how to think how to solve issues, how to think outside the box math is a tool to face and deal with and understand nature. Yes. Now this is from a Philippe and fully pairs, a relatively common name in Colombia. But we, when we were in the Amazon last we met affiliate bear from Colombia. He recently reached out to us and I promptly lost into the abyss of my email his email, so I assume that's not the same Philippe but if it is, hopefully, right,

**Bret** 28:36

Philippe who eats mangoes with the skin on Yeah, yeah. Which is, I mean, that's extreme mango eating is what that is. That's right. No.

**Heather** 28:48

But yes, to your point about math, absolutely. It helps you learn how to think it's not it's not just math or math sake. So you know, when the kid who's being taught by terrible math teachers is what is is good for one will ever use this. It trains your brain to do logic and to do nuance and to see pattern and to understand how it is that you can recognize when the pattern you think you see isn't actually pattern, but it's actually noise. That's some of what math is good for. Okay, so we have three questions written by someone who I think first language is Russian, and I'm not, I think there's between that and the character limit, they're a little bit hard to interpret. So I'm going to read all three of them and see if we can get something Yep, juicy out of this. Okay. On brain and culture, co evolution, Markov proposed that brain size decrease in homosapiens is linked to culture emerging and helping to survive. Will smartphones, outsource of brain activity, press selection in that way, and actually, that one is separate from the next two. So I think we can to this one, say, homo Deus is not experiencing a brain size decrease.

**Bret** 29:54

I thought about this. Okay, there's one place where we do relative to Neanderthals There's like a loss of a lobe and we don't know much about what it is but it certainly

**Heather** 30:06

but of course, you know, we are not using the pilot paleontological species concept, right? Like Neanderthals didn't precede us. We didn't all evolve from Neanderthals, people of European descent have a little bit of Neanderthal genealogy in us. But, but for the most part, Neanderthals is a branch off of the, the homosapiens lineage. And really, we see over, you know, within mammals, an increase in brain size, to body size ratio. Within primates, we see that accelerating with apes, we see that accelerating and within the hominid lineage within the Australopithecines and homo lineage. Specifically, we see brain size, the body size increasing, and specifically the cerebral cortex increasing relative to the size of the rest of the brain. So

**Bret** 30:53

that question was rephrased within rather than in within with be a case of a reduction one and but almost say

**Heather** 31:02

that's the only one that I know of, right? That maniototo is a is a different species, and it's a branch. So I don't know that we I think there's still something interesting here. But I just wanted to make sure that we like that we see other than Neanderthals appearing on it, I'm not sure about the additional lobe and Neanderthals, I don't know this. Yeah. Because that would be a totally new, it would be a different lobe within the cerebral cortex. So without the telencephalon.

**Bret** 31:27

It's not a hemisphere, just a particular Yeah. And we know, obviously, because we don't have any Neanderthal brains to look at all we know is the volume. But it is pretty likely that one of the reasons that homosapiens out competed, Neanderthals was plasticity. And it may have had to do with the degree, I have never believed that Neanderthals did not have language they pretty clearly must have. But they probably had reduced capacity to transmit abstract ideas using language. And so it it is true that basically a sort of x porting of certain functions to other brains or other mechanisms, would potentially decrease the amount of space necessary, and there's intense pressure to make the brain no bigger than needed. Because big brains are vulnerable. They're expensive to run. And they're expensive to build. So. So yes, that is likely.

**Heather** 32:35

And I thought that I would take this opportunity to give a recommendation on a novel, which is William Golding, who is most famous for Lord of the Flies, wrote a book called the inheritors, in which he imagines life in a band of Neanderthals, and he imagines them if I remember correctly, without language, we actually read it. In a program I taught with a linguist and it was her suggestion that we, that we turn this way because we've got noise on our driveway now. We, it's really, it's quite, it's quite excellent. And it really gives some insight in a narrative form to what it might have been like to live as an alternative form of hominid some, some 10s of 1000s of years ago. I don't remember how he doesn't specify when, anyway. Okay, so the next two questions from the same, same person. I just read them as they're written, let's try to make sense of them here. Could you please describe your opinion, how the propaganda could be handled social media filter, bubble, YouTube, etc, assigns opinions to people critical thinking is rare. Also, with regard to brain and talent? Is it nature versus nurture? Or bring in talents to find success in the invisible inequality? That couldn't be changed? And three, it's a great idea about poor communities with a broken culture. How do you see the way out? All kinds of social and canine canine chaos here? Yeah,

**Bret** 34:06

I'm sorry, I would just say a few things. One, I believe we are struggling and to some degree successful at figuring out how to navigate a world of garbage including propaganda, propaganda, being intentional garbage rather than noise. But that in some sense, that's a good definition. Yeah. In some sense, you know, I dw and all of the things that look and function like it, you know, long form podcasting, and the like, are experiments in this and in some sense, you know, I don't want to reduce it too much because, you know, the magic is what it is for whatever reason you're tuning in, but why are you tuning in? Right? You're hearing people talk, you know, off the cuff about things. Those people have some level of expertise, they have some track record at being able to You know, guess what's interesting? What's important? What can be discounted, able to look at a story and say, actually, that claim is suspect. And here's why I think so. But you know, it's really odd that you would want to tune into a conversation between people that you've never met. On the other hand, it turns out that really, the game is about You're terrible at self promotion, terror must be so bad, but it's actually part of why people just suck. And why are you here? Yeah. Well, why are you here? But here's the thing, if you're if the question really was, look, all there was is conversations between people. And your ability to figure out what's true is a question of how good is your discernment at which conversations tend to be at least more informative than they are misleading? Maybe most conversations are more misleading than informative. So there's some small subset of conversations that are more informative than misleading. And then the question is, well, which one's a good return on your investment of time and thought energy? Right? And so you know, there's some pinnacle of that, and then there's things below it. And then there's the question about, it's not an absolute value, because there's a question of what's important to you. Right? It may be, you know, there may be discussions that are really high quality on topics that wouldn't be that much useful to you to know about. So anyway, you're, you're choosing to invest your time tuning into a conversation, and the who you tune into, because of how it plays out, you know, I mean, for me, what I would do is, I tune into a conversation. And then I see how it tracks what later turns out to be judgmental as to whether or not it was accurate and important. And see which conversations proved to be predictive. You know, it's sort of loosely scientific. So what's the solution to propaganda is a system in which those conversations that tend to be insightful about important things. over top, the conversations that prove out are the ones that peep more people tune into? And then what does that develop into? Its collective sense making, right. And this is part of why the Joe Rogan Sam Harris universe of podcasts is the important and, and controversial force that it is, is that in some sense, it has demonstrated that even though it makes mistakes just like everybody else, over time, it turns out that people who tune into those discussions have ended up enlightened relative to those who have tuned into the mainstream stuff, which is really low quality. And anyway, so something like that would be the answer. Then trim.

**Heather** 37:41

That was the next part, but I think,

**Bret** 37:44

yeah, yeah, one more thing on the brain talent, nature versus nurture thing. The thing to know about humans is you've been told, nature versus nurture is a bad dichotomy. And it is because it's always both. However, what you haven't been told is that human beings are the most nurture based creature of any that has ever existed on planet Earth. We are not a blank slate, but we are the blank slate. And so that fact of us being the blank slate and the meaning, why would the creature that dominates every productive habitat on Earth, also be the most nurture based that's the key to understanding what human beings are. And so in any case, it's not nature versus nurture. But these talents are housed in a brain that is largely on or I don't want to say largely unwired, but more unwired at birth than any other and therefore the chance for us to democratize tools. And for us to increase our capacity to think is the greatest of any creature because we have the blank canvas on which to paint.

**Heather** 38:55

Okay, this next one is from someone, I'm going to read it. If I can't get back on the jujitsu mats, I will kill myself. That's my therapy, I need it. I am against the lockdown. I'm getting to the edge here. I can't hold on to my sanity. I need jujitsu to live. That's my medicine. I hear you. And you're not alone in feeling that way. And that is not a resolution to the problem that you're having. There are many people who have found ways to deal with modern condition which is so unlike any condition that humans have dealt with before, that requires some modality such that exactly the thing that you have Cluj together to deal with majority can itself be taken away by modern decision making. And that is awful. And I don't know what the answer to address that particular conundrum that many people find themselves in, is

**Bret** 39:55

well, this is a very jarring question because of course The idea of self harm here is both easy to understand and such a dire. And one way choice. I would say, there has got to be. And this is something we've been on about for months now. Our failure to understand that there are things idiosyncrasies about our situation that work against us. And there are others that work for us. And we are not leveraging the ones that work for us, so that we can afford to borrow more where we are more constrained. And so I would say, look, surely, surely there is a way to reformulate what you're doing in jujitsu. So it can be done outside during the day UV light. Maybe it has to be done with a mask? I don't know, frankly, if that's possible, impossible imaginable, not imaginable. I know, I don't feel very good about riding a bike with a mask, but I see people doing it. Yeah. So I know it's not impossible. But But is there a way? Or, you know, could you have a jujitsu collective of people who are hyper vigilant about protecting themselves, get a test, be hyper, vigilant about isolation, and participate in a community in jujitsu community that has very low risk of carrying any COVID? through the door? Right? And then could you then do it outside, something like that? When you know, presuming you're in the Northern Hemisphere, which most people are, at the point that it is no longer sunny out? You know, I mentioned a long time ago, I haven't heard anybody respond to it. But, you know, couldn't we have light bulbs that put out UV light when nobody's in the room? Right? Couldn't we have like self purifying rooms? in which, you know, these risks were reduced? Can what can you do with air circulation? Right? We the way we circulate air currently may make things worse, but really, there is a way to circulate air that would make them better? And you know, look, you're spelling out just how dire the problem actually is. It's not an aesthetic question. This is built into you, your core, and you need it. And we all have those things.

**Heather** 42:05

And I mean, that's, that's so key. It's not an aesthetic question. And depending on which saw, you know, which camp you've decided which tribe you've decided to belong to, you will have become accustomed to being mocked by the other side for something on the basis that this is just your preference. And it's just an aesthetic thing. And that may not be the word that they use. But it's it's dehumanizing and disrespectful and downright mean and potentially dangerous. that most of us who are functional have one or a few things that we actually really need to do in order to continue to feel like full human beings and for almost everyone, at least one of those things, is being seriously curtailed by this series of events that we're living through right now. And that is it makes it no easier at all for the individual to know that the entire world, to some degree is going through something similar, but it's true.

**Bret** 42:59

Yeah, I think the last thing to say is, you know, Heather, set it up front, you're not alone. Frederick, hang in there. Yeah.

**Heather** 43:10

Assume that a laboratory use the healer, Henrietta Lacks cells to study or engineer the virus, could this explain the disproportionate impact on the black community?

**Bret** 43:20

Not just that it could explain the tendency, which now seems to be eroding for it to infect older people rather than younger people. It could have all kinds of impacts. And you know, this is a two piece of old old, I think, no, but certainly well into adulthood. Yeah, 60s maybe. So initially, yes, was much less prevalent in kids, even though kids are much more likely to snot all over each other. And you know that

**Heather** 43:52

they are, right. So and you can't remember the last the last time that happened between adults? No,

**Bret** 43:58

it's, it's not as common to be short. But you know what my point would be look, on the one hand, if this is a lab escape, which is ever more likely, it has all kinds of implications for what it's programmed to do, and what it is incompetent at doing. And the more frivolously, we treat this, the more tricks that it cannot currently do that it will learn. And I worry that one of these things is that the tendency for it to infect children at a greater rate, which we are now seeing these reports that this is a trick that it has now learned on top of what it knew when it jumped oceans. And we should treat the stuff much more carefully. It probably doesn't transmit very much outdoors during the day at this point, we should preserve that because it's a godsend, right? We should preserve that at all costs. The last thing you want is for it to figure out how to transmit itself outdoors so there's nowhere to go at the moment. We have a vast landscape of places outdoors that you can go in reasonable safety. And that's

**Heather** 45:03

to be cherished. That's right. What What time? Are we at sec? Okay, that's sort of what I was worried about. You're gonna say let's do two more here and then skip to the next live stream, okay? Are you familiar with the research pointing toward memory and grams being carried by RNA? I imagine this must be a mechanism for transfer of fitness needs, it must also impact society and its evolution with each generation potentially reinforcing that Memorial lineage, might may be tendency of cultural insanity skips generations, like schizophrenia.

**Bret** 45:39

I want to proceed with great caution about the idea of n grams being transmitted in or on the genome.

**Heather** 45:48

Yeah, I've seen just a very little bit of this in the past, and it did not strike me as particularly compelling. But I have not run into it lately. So I have very little

**Bret** 45:57

that said, lots of things do travel on the genome that transmit things between generations. And that is unfortunately, because it is the most interesting and surprising result in molecular epigenetics. It is sucked up a lot of the attention, which has robbed epigenetics of, at least in the popular conception, its proper understanding as the key to creating an organism from a genome that is shared between all of its cells. So anyway, I would just put a placeholder there. We can talk more about that some other time.

**Heather** 46:31

All right. Okay, one more question here. And then we'll go to the next live stream. I am one of those conservatives, you mentioned in the beginning question, how much do you think demographic change and diversity plays a part in the issues we are seeing today?

**Bret** 46:48

I'm not sure I understand the question.

**Heather** 46:50

Well, I think what it part of what it can be is, is their legitimate grievance that has been at a level in the population has been low enough that people weren't voicing yet. And as, as America at least becomes even less homogeneous than it was which you know, it never was all white. But But white people certainly had the vast majority of the power for for a long time. As as it becomes less so does that change what's possible in the through policy change and activism realms? That's how I read the question

**Bret** 47:29

is certainly a demographic tipping point. Part of the problem is that not only is there a tipping point, that is to say people who have been or have felt disempowered are suddenly recognizing that their numbers carry potential political power, if they will wield it. But their tendency to do so along something like racial lines, then causes people who have largely forgotten about their interest to pursue, well being along racial lines, it's going to drive them into doing so. So I've called this to speak of the devil problem, where, by accusing civilization of being white supremacist where it isn't, you will cause white supremacy to emerge because whites will be forced to look at their interests as a racial group because they're being challenged as a racial group. So that's a very dangerous property and we got to be incredibly cautious about it.

**Heather** 48:26

All right. Let's get through as many of these in this our Super Chat as we can. Can you stop making such an amazing podcast so often it's too good to skip an episode but you streamed faster than I can watch Anyway, thanks deal we will. Yeah, but we don't want you taking the hit. Now we probably will roll back to once a week at some point. But at the moment, at the moment, this is

**Bret** 48:48

working at the moment we're going to cut back to once every half week. Wow, we do need that. Cricket Cricket. Yeah. Sound Effect Yes.

**Heather** 48:59

Thank you both for what you do. I'm sorry, this is cheating. Oh, gave as much money as I could sent Beretta relevant advice in Korea on his Patreon It was too long for chat. Any advice is appreciated? Zack, if you would just highlight that. We'll try to we'll see if we can shorten it and read it at the top of the hour next time. It's the habit I've got highlighted here. 34. Why have door to door to door to can nudge people? No, that's not what that says at all. Nope. Why have Dutch and Nordic people become so tall in recent times? Apart from sexual selection mechanisms? Are there advantages to height like having more skin surface to make vitamin D and high latitudes? Thanks. Wow. So the final part of that like having more skin service to make vitamin D and high latitudes, of course goes exactly opposite the usual explanation for why historically ancestrally high latitude people tend to be more sphere like because the closer you are to sphere, the lower you basically lower your surface area to volume ratio and so you lose heat, less Less quickly so while I I like that as a hypothesis it definitely does remind me of the kind of sort of adaptive arm waving that people in our field are often accused of doing right i think it's not going to be that because obviously becoming taller and and typically lean they're increasing their surface area to volume ratio making them more likely to lose extremities to frostbite or just die of hypothermia more generally. So they're so you know, is it is it just sexual selection? Is it warrior Enos, what, what else might explain the height and I'm going to go ahead and call them the door deck and notch people. That's why I misread it the first time

**Bret** 50:40

I have. I have not seen this question before, but I have what I would call a deep out of the money, I apotheosis here, which means very unlikely to be true, but big pay up. If it is alright, do it. One of the things you will notice one of the things I always relearn when it becomes biking season again after you know, after winter, yes, is that I have forgotten how to dress for it. And actually the same thing, maybe more importantly, in reverse, as bad weather sets in, there's a tendency to try to dress for the weather as you leave your door. But if you dress for the weather, when you leave your door, then you quickly overheat given whatever you're wearing to keep you dry,

**Heather** 51:24

and you and you mock me for this, okay, at the top of the hill, you can have to take off your scarf, while the tablet next to you can take off your jacket. But here's

**Bret** 51:30

my point anyway, go on in the summer, you're closer to make it right. And the thing is, you have a fantastically complex system for maintaining a very narrow range of body temperatures, that involves capillary beds that can open up to get rid of heat really quickly or close down to preserve heat, right. And it's all happening all over your body with different extremities that function as radiators. And it's a very complex system that you don't need to know anything about. And it works beautifully up to a point, right, there's a point at which you're creating more heat than you can shed, and then you're at risk of heatstroke. But that point is pretty freakin far off, right, you can do a lot of stuff on a very hot day and not get heatstroke. So

**Heather** 52:09

if you've got some basic level of fitness, yeah, with

**Bret** 52:13

with some basic level of fitness, your body can keep you in that range. And what you don't appreciate is how active a process that is of shedding heat and preserving heat in order to maintain ranges that are really tightly constrained because they have to be because every enzyme in your body is actually dependent on that range in order to even work very well. So total collapse comes if you get too far outside of this range. And you've got this automatic system that does it beautifully. You put on a sweater, worse, a jacket worse, a jacket that doesn't breathe. And the point is that internal system is still trying to do what it does. But it runs into something it can't control, right. So in other words, it'll, you know, if you start to heat up in your jacket, as you're biking in, you know, in December, you're body will react as if you're naked, and it will flush your radiators your back and your limbs with with blood in order to shed the heat that you're building up. But if anything, it's shedding inside of the jacket isn't really shed, it builds up, right the way warmth does in a wetsuit. And so the point is, you very quickly get to a point where you're just building up heat and you can't fit it because something you've put between you and the world is interfering with the natural processes that allow this thing to work. And so

**Heather** 53:36

deep out of the money hypothesis, why are they so tall in Scandinavia? Right?

**Bret** 53:40

So here's the question, What if you had an ancestral population that instead of being in the position of facing winter, and having to relearn how to dress for it was actually kind of built for this process, where it did, were these external things, and somehow the internal bodily processes have to be able to shed heat through whatever it is that you tend to wear over your surface, and that the that process has been coordinated. And so we tend to think people who live closer to the Arctic Circle will be rounder in order to preserve heat, because losing heat is the thing that threatens them. But if you are a more technological population, where you are operating very regularly in these circumstances, where you are interfering with freezing by putting layers over you, you might actually want to increase capacity to radiate, basically, you know, the person isn't the system, the person plus the clothing plus the food used to fuel the organism is the system. And that in fact, you would get a body form that looked more like a Kenyan because the sum total of the system would work better again, very unlikely.

**Heather** 54:50

So the hypothesis is Scandinavians are tall because clothing and that's you know, that's a bit of a caricature, but that's that's a nutshell but the prediction then is For nearby but more southernly populations say Germans and French and such who aren't as tall on average that at the same moment when the Scandinavians were becoming tall, that the more southerly populations had less clothing technology,

**Bret** 55:17

I think the way I would say it actually, the comparison population I would do is something like Arctic people, like Inuits, versus

**Heather** 55:26

I'd rather I'd rather I'd rather it'd be shared, you know, most recent common ancestor that's really close.

**Bret** 55:32

Yeah, well, any of these control for it to test it, but the real question, I would say, is the combination of agriculture that releases the limit on food supply. In other words, for people who are hunting marine mammals, for example, there's a limit on the amount of calories that can be acquired. And so the preservation of heat is the higher priority. And I'm wondering if agriculture in so because obviously, you know, Arctic peoples have clothing that preserves heat. But the question is, you've got several parameters in the model, how expensive is the material that you burn to make heat? That is to say, how scarce is food? You've got a question about what kinds of technology you have for preserving heat technologically That is to say, clothing. And then you've got what is your internal structure going to tend to radiate versus preserve and how much flexibility is, and I guess what you're doing is, you get the flexibility from the lanky Body Body form if you have the clothing and the food supply to take to suffer the costs. So

**Heather** 56:42

I'd like to see both comparisons. And we'd have to know when we're comparing two, but both, you know, same latitude, different different continents and most recent common ancestor that's at least, at least 15, probably closer to 25,000 years ago, between Scandinavians. And in what say, Yep. Well, no, it might be closer, actually, because they were a later movement into the new world than the original Americans. And then I put a, I'd be even more interested to see the comparison within European populations, because it does seem that you know, at least we all have in our head that Scandinavians are taller than the sort of Central Western Europeans. And I don't I don't see this quite working out. But it's about it's about clothing. And it's about lack of caloric deficit. So that's the other you're the addition to the hypothesis and not just clothing. It's lack of caloric deficit. And with that, with regard to compare to the Arctic, I think what was implied on what you said is basically that the Jetstream renders the same latitude in Europe, much more fruitful with regard to the possibility of agriculture. At least, you know, it's a very short growing season, but there is a growing season, whereas there's nothing you know, the Inuit are not eating any plant based food really, except what they bought from the sea.

**Bret** 58:02

Right. I'm sure there's a certain amount of very word gathering. Yeah, but

**Heather** 58:05

but they're not. I don't think they're engaging in agriculture.

**Bret** 58:08

Yeah. So I've just say, final thing is the way to test hypotheses like this or to look for transitions in space, or in time, that would tell you, you know, the height that you're looking for, that's surprising. Where does it stop? And is the transition at that place? About how food is produced? What clothing is worn? That sort of thing? Yeah, and you can see the same thing as time progresses.

**Heather** 58:34

Okay, the next question seems to be about what Chuck's specifically, how much wood would a woodchuck chuck if a woodchuck ancestors had not reset? Boy? Let me start again. How much wood would a woodchuck chuck if a woodchuck ancestors had not resided with it in an environment where chucking wood would have conferred an increased propensity to thrive and leave offspring? Zero that's the militant moderate again.

**Bret** 58:56

Ma'am I write that I understood that and the answer I was reading and

**Heather** 58:59

I did not understand the question I'm gonna write zero. And I believe such a woodchuck would Chuck no wood

**Bret** 59:06

and wood Chuck's do Chuck no wood because when trucks are marmots Yeah, yep.

**Heather** 59:16

So but beaver doesn't it doesn't work that's what that's what it means right? So is it possible that beaver that would chucks and beavers are ever the same? I mean, I

**Bret** 59:25

don't mean or not, sire

**Heather** 59:29

it's no no that's not what I mean. I mean, like did the first person who wrote that did they think that a beaver was a one shot

**Bret** 59:36

Oh, is this like the way in Jamaica? pear means avocado. Yeah,

**Heather** 59:41

and and that is ratbat ratbat. Yeah, it

**Bret** 59:46

means moth and ratbat means bat Yeah. Yeah, like that. It's It's It's quite possible because beavers do a certain amount of tracking of woods. Yes, whatever tracking

**Heather** 59:55

they absolutely do. I mean, I think we can all agree that beavers check wood, but apparently wood. Chuck's do Not being tired switches squirrels and squirrels check now when they talk

**Bret** 1:00:03

no one. Yeah, yeah. And they hold no truck with those that do

**Heather** 1:00:08

that they hold no truck with those that Chuck Exactly. Yeah, yeah. All right. Let's be done. So tired of listening to you people? Okay, we're gonna do five more. Okay. In 2009 h one n one infected roughly 1 billion people and then became part of the annual flu season. Why didn't it mutate the way you were in SARS Cove to Well, I'm not sure what you think we've said about what we think about how SARS Cove to will mutate. We have said that it may well mutate in a number of ways, but I'm not sure do you? Can you figure out from this? Which of the things we have said.

**Bret** 1:00:49

So there's not enough here I'm wondering if h1 and one shows up in this comparison, because of the now well established fact of lab escape? believe it's h1 and one that escaped? We don't know from I don't know that 70? I'm now just remembering off the top my head but I think 78 either China or Russia has to be the source.

**Heather** 1:01:16

It's 78 the year or is that just a number insert? I'm

**Bret** 1:01:19

hoping I'm not about any of these facts. But yes, there is a famous now established lab leak. And so the question so if that is the comparison, and that is the reason that you are delivering h1 and one here for us to compare source code to to that I would say the reason that we don't expect the same thing is that what you had in the case of that lab leak was a natural virus, I believe, not one that had gone through serial passaging, serial passaging. In this case, the reason that it looms large for us is they would have trained the virus on particular idiosyncrasies of the laboratory process and the tissue or the creatures that the serial passaging took place in and therefore that would have drawn the virus out to somewhere and then we would expect it to revert back to something else or bog or not back, but at least it would adapt to the human population as it finds it, it would discover new opportunities, etc. But no, we expect all viruses to evolve over time. And in fact, one of the reasons that flu is seasonal is that the rate of evolution is high enough that immunity doesn't persist. And so we basically stuck with these things over long periods of time because the rate of change is sufficient to erase the protectiveness of memory cells over time.

**Heather** 1:02:52

All right. Hi, in the light of orthotropic discussion, does it seem like a good idea to chew chewing gum constantly for part of the day perhaps several hours Sugarland natural, the sap resin, it's probably harder load teeth without wearing them. So this is one of the things that Mike Muse specifically recommends. And we went ahead and bought some some sugar free natural tree gum gum that's flavored interestingly, it's called mannakkara

**Bret** 1:03:21

clay tree.

**Heather** 1:03:25

Simply because x is called simply gum and it is indeed from the mannakkara clay tree from which the brand name Chiclets comes. Not that Chiclets is any more from that tree or

**Bret** 1:03:34

they originally originally was. I would say, I'd certainly go natural over any of this synthetic sweetener stuff. I would say the disappointing thing about the gum is that it is not robust enough to constitute the best exercise in other words, it's not generated with exercise in mind and so

**Heather** 1:03:56

well he wants So Mike mu recommends I don't know how big the sticks of gum are in England, but he recommends putting 10 pieces in your mouth at a time and making what he calls a really large bolus that you move around your mouth really actively.

**Bret** 1:04:06

Why just point out that Britain being an island there's a limit to how big the sticks could be.

**Heather** 1:04:11

This is a really terrible point.

**Bret** 1:04:14

truly terrible point. Yes. But anyway, I would say look, I actually think somebody ought to formulate a GM specifically for the purpose of the exercises that that Mike is pointing to. And the fact is your sense that GM should be sweet. Probably that's unnecessary. My guess is GM. GM could be pleasant, if it was not sweet. In other words, mint might be enough sweet It's not necessary to go with mint even if we sort of associate the two and that a gum that was formulated to resist better would be useful. So anyway, there's a lot that could be done to make it better but I would also point out it is not a simple matter of chewing gum, I don't believe I think

**Heather** 1:04:57

he's got specific Mike Meo specific ways that he wants you to Moving around your mouth and then flattening it against the roof

**Bret** 1:05:03

of your mouth, pulverizing it against the roof of your mouth, to strengthen your tongue and all of these things, so I suspect that this is super useful. But we have I

**Heather** 1:05:12

admit, I mean, you and the kids have actually been doing it more. I think I tried it twice. Like, gave up. Yeah, I just don't like chewing gum. I never did.

**Bret** 1:05:20

Maybe you could get somebody to do it for you. Oh,

**Heather** 1:05:23

that's good. Yeah, let's outsource the work that we need to do for ourselves. This is exactly how we got here. Yes. Okay. Heather, I know you're seeking art free from a woke lens. Yes, I am. My girlfriend's young adult novel introduces enlightenment values through a plot device of learning to cast magic within a contemporary fantasy world. Please note dual nature by Brenna our syngman will do thank you. Cool. Given that trade offs exist six week lockdown Kelsey economy isn't the better way out of the virus a to protect risk groups and be let others work economy is vital for finding cure. So this, I think there's something here, I don't think it's quite quite this simple. But maybe you think we can talk a little bit about our conversation that we had with our former students, when sure they came by. So we've got a couple of former students and a friend of theirs who also went to evergreen all of them, scientists, and sort of active in the rationality community who came by on their way through through Portland, and we sat on our deck, social distancing, and talked for a while. And one of the things that one of them was just not gonna use their names, because we haven't asked them in advance. But said was that, you know, clearly, what we need is track and trace, you know, abundant, rapid turnaround testing, with track and trace in place, such that you can immediately isolate people who are sick. And one of the things you asked him was Don't, don't you also need that in combination with a lockdown? And he said, No, he said, Actually, I don't think it's necessary if you really had sufficient tests that were a reliable and you know, really, the thing that no one is talking about that is obviously super important than this to your anecdote in the first hour today, that has a super fast turnaround best if it's basically instantaneous, best if they were so abundant, and so inexpensive, that we could all be doing it every day when we got up. And with that, then you have track and trace, and it would free up the vast majority of us to go about our business and to to do normal things and get the economy back to normal, including the scientists to automate doing things like working on a vaccine against this virus. So

**Bret** 1:07:49

I would say, plausibly, such a thing could work without a severe brief lockdown, the likelihood of getting the parameters to the place they need to be in order that you don't need that severe brief lockdown is low. So probably you need to combine these things. But the other thing we need, which may ironically be the hardest of these to accomplish, is that we need to get on the same freakin page about this. You can't have half the population imagining that this is a hoax, or it's not really dangerous, or whatever. The thing is, you can actually set

**Heather** 1:08:24

theory next question from the same person addresses this. Let me just interrupt with that and let you riff then because real lockdown isn't doable. People aren't robots to obey 100% orders. Plus you need to manage multiple risks, including the US from other causes. And boosting immunity could help check TB Gallo I'm not sure what that references but

**Bret** 1:08:43

God So anyway, the point is simply this is it's not even that we all need to get on the same page. For us, we are actually putting the world in jeopardy to the extent that we or half of us are going to opt out of whatever measures it is because we believe we're being taken advantage of by globalists, or whatever that thing is going to prevent us from managing this virus that's going to leave the virus in the wild, give it a lot more landscape in which to experiment with new tricks. So it's going to turn into something new on our watch. And what initially may have been a you know, failure of a laboratory involved in an international effort to study these things is going to be you know, and then is spread by bad behavior on the part of the Chinese Communist Party is then going to be our responsibility for having allowed it to equilibrate and experiment and learn new tricks on our watch. And we are going to be quarantined by the rest of the world, which is certainly not good for us. So all of these things suggest, no matter what you think the reality of this virus is, you should participate with the rest of us in driving it as close to zero as we can get through being very careful with each other. And it is somehow this loss of empathy and this belief that people who disagree with you are inherently wrong and stupid and suckers and all the things that people tend to think those who disagree with them are, this is not the case. We know we have a virus, it is real, I assure you, we know people who have it, right. It's serious, we know that it does harm and that this, these harms are unpredictable, long lasting, life altering harms. That's enough, we should be very serious about taking care of it as quickly as possible. And you know, take it from the evolutionary biologists who have been on about this for months. You don't want to give it room to experiment. That's where we undo well being is we give it room to experiment. And then by the time we get savvy about this thing, it's too late because it has now become endemic to humans, right. That's not where we want to be. And we still have the potential to prevent that from happening, but not if we're in different places about

**Heather** 1:11:05

I think that's a good place to stop.

**Bret** 1:11:06

All right. Well, yeah.

**Heather** 1:11:10

Good. Well, again, we have we have Patreon where you can find access to our Discord server, and Dark Horse membership, where you have access to a private q&a every month. And there's links to there's a clips channel where you will find clips from today's episode and past ones. And unity 2020s first campfires tomorrow night sounds like at 6pm Pacific 9pm. Eastern. Thank you all.

**Bret** 1:11:44

Thank you so much for your support. And like, subscribe, comment, challenge, shake your fist at the screen if need be, but we

1:11:53

won't see it. It's not the way this works. All right. Until next time, folks. Be well